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.	**PA0003239**
Facility Type	**Industrial**		APS ID	**1117054**
Major / Minor	**Major**		Authorization ID	**1490886**

Applicant and Facility Information

Applicant Name	**Swagelok Processing Corporation**	Facility Name	**Swagelok Processing Corporation**
Applicant Address	7544 Route 18 North	Facility Address	7544 Route 18 North
	Koppel, PA 16136		Koppel, PA 16136
Applicant Contact	Domenica McClintock	Facility Contact	Same as Applicant
Applicant Phone	(440) 649-4329	Facility Phone	Same as Applicant
Applicant Email	domenica.mcclintock@swagelok.com	Facility Email	Same as Applicant
Client ID	335297	Site ID	459056
SIC Code	3317	Municipality	Big Beaver Borough
SIC Description	Manufacturing - Steel Pipe And Tubes	County	Beaver
Date Application Received	July 1, 2024	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility
Purpose of Application	Renewal NPDES Permit Coverage		

Summary of Review

The Department received an NPDES permit renewal application from Swagelok Processing Corporation for its site in Big Beaver Borough, Beaver County on July 1, 2024. The current NPDES permit was renewed December 13, 2019 and expired December 31, 2024. During the current NPDES permit term, Water Quality Management permit 0478208 was amended for the installation of a new wastewater treatment plant which replaced the previously existing system.

Swagelok Processing Corporation facility draws, cuts, anneals, cleans and otherwise processes steel bar/tube to manufacture cold drawn metal products. Part of the facility operations consists of alkaline cleaning and acid pickling operations. Wastewater is generated from these processes when the materials are dipped into rinse water tubs. The rinse water from the tubs overflow and is collected for treatment. The wastewater from these operations, along with boiler blowdown, cooling tower blowdown and fume scrubber wastewater, get treated through an onsite wastewater treatment plant. The wastewater treatment plant consists of equalization, neutralization, chemical precipitation, flocculation, sedimentation, and filtration. The treated wastewater is then either recycled or enters the site's storm sewer system via internal monitoring point 113. From the storm sewer system, the treated wastewater is combined with stormwater and discharges via Outfall 013 to the Beaver River, designated in PA 25 Chapter 93 as a Warm Water Fishery.

The facility was inspected multiple times during the last five years:

Approve	Deny	Signatures	Date
X		Jamie Ley Jamie Ley / Environmental Engineering Specialist	March 17, 2025
X		Michael E. Fifth Michael E. Fifth, P.E. / Environmental Engineer Manager	March 19, 2025

Summary of Review

PERMIT	FACILITY NAME	INSP REGION	COUNTY	MUNICIPALITY	INSP ID	INSP CATEGORY	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC
0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	3740969	PF	02/14/2024	Compliance Evaluation	No Violations Noted
0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	3009649	PF	03/11/2020	Compliance Evaluation	Violation(s) Noted
0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	3293187	PF	12/09/2021	Compliance Evaluation	Violation(s) Noted
0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	3467134	PF	12/02/2022	Incident- Response to Accident or Event	Violation(s) Noted
0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	3479073	PF	12/19/2022	Compliance Evaluation	Violation(s) Noted

The following violations were noted:

PERMIT	FACILITY	INSP REGION	COUNTY	MUNICIPALITY	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
PA0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	03/11/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	03/19/2020
PA0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	12/09/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/06/2022
PA0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	12/02/2022	CSL301	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	12/06/2022
PA0003239	KOPPEL FAC	SWRO	Beaver	Big Beaver Boro	12/19/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit	12/19/2022

The facility currently has no open violations.

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

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	013 (IMP 113)	Design Flow (MGD)	0.072
Latitude	40º 50' 33.0"	Longitude	-80º 19' 17.0"
Quad Name	Beaver Falls	Quad Code	1203
Wastewater Description:	IW Process Effluent with ELG		

Receiving Waters	Beaver River	Stream Code	33953
NHD Com ID	123918297	RMI	11.8
Drainage Area	3090	Yield (cfs/mi^2)	0.207
Q_{7-10} Flow (cfs)	640	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	734	Slope (ft/ft)	0.0001
Watershed No.	20-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status		Name	

Nearest Downstream Public Water Supply Intake	Beaver Falls Municipal Authority		
PWS Waters	Beaver River	Flow at Intake (cfs)	640
PWS RMI	5.6	Distance from Outfall (mi)	6.2

Development of Effluent Limitations

Outfall No.	013	**Design Flow (MGD)**	
Latitude	40º 50' 33.0"	**Longitude**	-80º 19' 17.0"
Wastewater Description:	Treated Industrial Wastewater and Stormwater		

Outfall 013 receives the discharge from the wastewater treatment plant and stormwater. The waste stream that Outfall 013 receives is mixed; therefore, an internal monitoring point is used to monitor the isolated wastewater. The Industrial wastewater discharge from the wastewater treatment plant will be monitored at IMP 113.

Development of Effluent Limitations

IMP No.	113	**Design Flow (MGD)**	0.072
Latitude	40º 50' 33.0"	**Longitude**	-80º 19' 17.0"

Wastewater Description: Acid Pickling Wastewater, Alkaline Cleaning Wastewater, Fume Scrubber Wastewater, Cooling Tower Blowdown and Boiler Blowdown

Technology-Based Limitations

Federal Effluent Limitation Guidelines (ELGs)

IMP 113 is subject to Federal Effluent Limitation Guidelines (ELGs) under 40 CFR 420.92 (c) (5) & 93 (c) (5) (Iron and Steel Manufacturing Subpart I- Acid Pickling Subcategory), 40 CFR 420.92 (c) (6) & 93 (c) (6) (Iron and Steel Manufacturing Subpart I- Fume Scrubbers, and 40 CFR 420.112 (a) (Iron and Steel Manufacturing Subpart K- Alkaline Cleaning Subcategory). IMP 113 also receives boiler blowdown and cooling tower blowdown. Boiler blowdown is considered a low volume waste source and is subject to 40 CFR 423.12 and cooling tower blowdown is subject to 40 CFR 423.12. Each subcategory is broken down below. The discharge from IMP 113 is from multiple sources, therefore the comingling of the wastewater must be considered when developing the effluent limitations. To do this, the final limitations from the ELGs were derived using the building block approach, taking each subpart that applies to the facility into consideration. The production used in determining the loading limitations is the final, out the door, production rate. The average production rate at the site from the past five years was 16,217 lbs/day. The current projected production rate at the site for 2024 is 23,810 lbs/day. The site indicated that the anticipated annual production for the next five years to be 35,714 lbs/day. At this time the Department will not use the anticipated annual production value because it is greater than double what the production rate was from the past five years. The Department will use the current projected production rate of 23,810 lbs/day to determine the loading limits from the ELG. If Swagelok's production does increase to the anticipated annual production rate, Swagelok can summit an NPDES Amendment application to change the loading limits to reflect this change in production.

The limits in the ELG for 40 CFR 420.92 (c) (5) & 93 (c) (5) (Iron and Steel Manufacturing Subpart I- Acid Pickling Subcategory) are determined through production data. Based upon the anticipated average daily production that was included in the permit application, the effluent limits from the ELG for Combination Acid Picking (pipe, tube, and other products) are shown below in Table 1. Swagelok does not generate cold rolling wastewater; therefore, credit for oil and grease cannot be given for this waste stream.

Table 1: Mass Limitation Calculation – Iron and Steel - Combination Acid Pickling (Pipe, Tube, and Other Products)

Parameter	Limitations in ELGs [3]		Production Rate (thousand lbs/day)	Mass-Based Effluent Limits (lbs/day)	
	Monthly Average	Maximum Daily		Monthly Average	Maximum Daily
Total Suspended Solids	0.0964[1]	0.225[1]	23.81	2.295	5.357
Oil & Grease [2]	0.0322[1]	0.0964[1]		~~0.767~~	~~2.295~~
Chromium	0.00129[1]	0.00322[1]		0.031	0.077
Nickel	0.000964[1]	0.00289[1]		0.023	0.069
pH	Within the range of 6.0 to 9.0			Within the range of 6.0 to 9.0	

[1]Pounds per 1000 lbs (or g/kg) of product.
[2] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.
[3]40 CFR 420.92(c)(5) & 420.93(c)(5)

The limits in the 40 CFR 420.112 (a) (Iron and Steel Manufacturing Subpart K- Alkaline Cleaning Subcategory) are determined through production data. Based upon the average annual production that was included in the permit application, the effluent limits from 40 CFR 420.112 (a) (Iron and Steel Manufacturing Subpart K- Alkaline Cleaning Subcategory) are shown below in Table 2.

Table 2: Mass Limitation Calculation – Iron and Steel - Alkaline Cleaning (Batch)

Parameter	Limitations in ELGs [2]		Production Rate (Thousand lbs/day)	Mass-Based Effluent Limits (lbs/day)	
	Monthly Average	Maximum Daily		Monthly Average	Maximum Daily
Total Suspended Solids	0.0313[1]	0.0730[1]	23.81	0.745	1.738
Oil & Grease [2]	0.0104[1]	0.0313[1]		0.248	0.745
pH	Within the range of 6.0 to 9.0			Within the range of 6.0 to 9.0	

[1]Pounds per 1000 lbs (or g/kg) of product.
[2]40 CFR 420.112 (a)

The limits in 40 CFR 420.92 (c) (6) & 93 (c) (6) (Iron and Steel Manufacturing Subpart I- Fume Scrubbers) are in Kg/day and will need to be converted to lbs/day by multiplying the limit in the ELG by the unit conversion of 2.2046 lbs/kg. Additionally, the site has two fume scrubbers, and the limitations in the ELG are per fume scrubber; so, these values will need to be multiplied by the number of scrubbers. The limits from 40 CFR 420.92 (c) (6) & 93 (c) (6) (Iron and Steel Manufacturing Subpart I- Fume Scrubbers) converted to lbs/day and multiplied by the total number of scrubbers (2) are displayed below in Table 3. Swagelok does not generate cold rolling wastewater; therefore, credit for oil and grease cannot be given for this waste stream.

Table 3: Mass Limitation Calculations – Iron and Steel - Acid Pickling (Fume Scrubbers)

Parameter	Limitation in ELGs [2] (Kg/d)		Number of Fume Scrubbers	Mass-Based Effluent Limits (lbs/day)	
	Monthly Average	Maximum Daily		Monthly Average	Maximum Daily
Total Suspended Solids	2.45	5.72	2	10.8	25.2
Oil & Grease [1]	0.819	2.45		~~2.59~~	~~10.8~~
Chromium	0.0327	0.0819		0.144	0.361
Nickel	0.0245	0.0735		0.108	0.324
pH	Within the range of 6.0 to 9.0				

[1] The limitations for oil and grease shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters
[2]40 CFR 420.92(c)(6) & 420.93(c)(6)

The limits in 40 CFR 423.12 for boiler blowdown is shown in Table 4 below. As discussed above, the boiler blowdown comingles with the other process wastewater, therefore, load allocations must be given to this waste stream for the pollutants that received allocations for the other waste streams and that have concentration limitations on the boiler blowdown. The load allocations were determined by converting the concentrations limits to mass-based limits using the average discharge flow of the boiler blowdown (0.0036 MGD) and a conversion factor (8.34).

Table 4. Boiler Blowdown Limitations

Parameter	Concentration Limitations (mg/l)		Mass-based Limitations (lbs/day)	
	Monthly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Suspended Solids	30.0	100.0	0.90	3.0
Oil and Grease	15.0	20.0	0.45	0.6

The limits in 40 CFR 423.12 for cooling tower blowdown is shown in Table 5 below.

Table 5. Cooling Tower Blowdown Limitations

Parameter	BPT effluent Limitations (mg/l)	
	Monthly Average	Maximum Daily
Free available chlorine	0.2	0.5

The waste waters are all combined together for treatment; therefore, the building block approach must be used to determine the total ELG effluent limits. Using the building block approach, by adding all subparts together, the total loading limitations were determined and are displayed below in Table 6. A summary of the loads used in determining the total load limitations are included in Attachment A of this Fact Sheet.

The Department has determined that it is beneficial to include concentration-based limitations to supplement the mass-based limitations at IMP 113. Expression of limitations in terms of both concentration and mass encourages proper operation of a treatment facility at all times. Where limitations are expressed in more than one unit, the permittee must comply with both the mass-based limitations in the ELG were developed using Production Normalizing Flow and concentrations. The Production Normalizing Flow is an estimate of water use based on the quantity of "off-pounds" of product removed from a production line at the end of a specific process cycle. The EPA has studied the typical volume of wastewater generated at similar manufacturing facilities across the country to define the Production Normalizing Flow.

The concentrations that were used to develop the mass-based limitations are included in Attachment B and were taken from Table I-1 on page 16 of the 1982 Iron and Steel ELG Development Document. The final concentration limits need to be evaluated using a mass balance equation to take all of the cominged wastewater into consideration. When no load allocations for specific parameters are given to a contributing wastewater, it is assumed that the parameter is not present in the discharge. Therefore, these wastewaters are considered to be diluting the discharge and must be considered when determining the concentration limits. Using the flow from the water flow diagram that was included in the application, and included in Attachment C of this Fact Sheet, and the pollutant concentrations discussed above, the final concentrations limits were determined and are shown in Table 6 below. An example of the calculations and the figures used in the calculations are included in Attachment D.

Table 6: Proposed ELG Limitations

Parameter	Mass Based (lbs/day)		Concentration Based (mg/L)	
	Monthly Average	Maximum Daily	Monthly Average	Maximum Daily
Total Suspended Solids	14.7	35.3	25.3	61.7
Oil & Grease	0.698	1.35	8.13	22.1
Chromium	0.175	0.438	0.299	0.749
Nickel	0.131	0.393	0.225	0.674
Free Available Chlorine	-	-	0.2	0.5
pH (S.U.)	Within the range of 6.0 to 9.0			

Using the average monthly loading limit for Oil & Grease, the average discharge flow from IMP 113, and a conversion factor of 8.3435; the concentration Swagelok must achieve to be in compliance with the loading limit is 4.18 mg/L. Currently, the method detection limit for Oil & Grease using the most sensitive method, (EPA Method 1664), is 5.0 m/L. Furthermore, if Swagelok sampled the discharge and reported the result as non-detect at the method detection limit, they will not be in compliance with the loading limit. Therefore, a monthly average and a daily maximum limit of 5.0 mg/L will be imposed as the concentration limitations at IMP 113 for Oil & Grease. Load monitoring for Oil & Grease will be imposed as well. Even though there are no loading limitations, this is more stringent than the ELG requirements because the Oil & Grease limits are imposed as non-detect in the discharge. The following Part C condition will be included in the Draft Permit:

OIL & GREASE MASS BASED LIMITATIONS

- Oil & Grease mass-based effluent limitations of 0.698 lbs/day as an average monthly limit and 1.35 lbs/day as a daily maximum limit were determined from the Federal Effluent Limitation Guidelines; and are applicable to discharges from IMP 113. For compliance purposes, if the permittee reports a non-detect concentration value using the current most sensitive EPA approved method, the mass-based limitation will be considered to be in compliance. If the analytical results indicate that oil and grease is present in the discharge, any exceedance of the 5 mg/L concentration limit will result in a permit violation.

- In the event that a more sensitive analytical method for oil and grease detection is developed and accepted, the permittee shall use the new most sensitive method.

Regulatory Effluent Standards and Monitoring Requirements

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

As oil-bearing wastewaters, discharges from IMP 113 are subject to effluent standards for oil and grease from 25 Pa. Code § 95.2(2).

Industrial waste discharges cannot contain more than 7 milligrams per liter of dissolved iron per 25 Pa. Code § 95.2(4).

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

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 7.

Table 7: Regulatory Effluent Standards and Monitoring Requirements for IMP 113

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Oil & Grease	15	30	XXX	mg/L
Dissolved Iron	-	7.0	XXX	mg/L
Temperature	-	XXX	110	°F
Total Residual Chlorine	0.5	1.0	XXX	mg/L
pH	Not less than 6.0 nor greater than 9.0			S.U.

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 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 IMP 113

Discharges from IMP 113 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 8. For IW discharges, the discharge flow used in modeling is the average flow during production or operation when the discharge is continuous, or the batch discharge flow rate for batch discharges 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 Toxics Management Spread Sheet did not recommend any water quality-based effluent limitations or monitoring requirements for the discharges from IMP 113.

Table 8: TMS Inputs

Parameter	**Value**
River Mile Index	11.8
Discharge Flow (MGD)	0.02
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	3090
Q_{7-10} (cfs)	640
Low-flow yield (cfs/mi^2)	0.207
Elevation (ft)	734
Slope	0.0001

Thermal WQBELs for Heated Discharges

Thermal WQBELs are evaluated using a DEP program called "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel for Windows. The program calculates temperature WLAs through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is determined by the input data which include the receiving stream flow rate (Q_{7-10} or the minimum regulated flow for large rivers), the stream intake flow rate, external source intake flow rates, consumptive flow rates and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

Since the temperature criteria from 25 Pa. Code Chapter 93.7(a) are expressed on monthly and semi-monthly bases for three different aquatic life-uses—cold water fishes, warm water fishes and trout stocking—the program generates monthly and semi-monthly limits for each use. DEP selects the output that corresponds to the aquatic life-use of the receiving stream and consequently which limits apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F for the safety of sampling personnel and anyone who may come into contact with the heated discharge where it enters the receiving water. If no WLAs below 110°F are calculated, an instantaneous maximum limit of 110°F is recommended by the program.

Discharges from IMP 113 are classified under Case 2 because water is obtained from municipal water supply. The flow rate used for modeling is 0.020 MGD, which is the average discharge flow from IMP 113. The results of the thermal analysis, included in Attachment G, indicate that no WQBELs for temperature are required at IMP 113. Therefore, the 110°F daily maximum temperature limit will be imposed at IMP 113.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in Attachment H, indicate that WQBELs are not required for TRC at IMP 113.

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.

Swagelok Processing Corporation's application sampling for PFOA, PFOS, PFBS, and HFPO-DA indicated a detection of PFBS (max concentration reported 14.0 ng/L). Therefore, quarterly reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.a of SOP BCW-PMT-032.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive quarterly results in Swagelok Processing Corporation's case), then the monitoring may be discontinued.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 9.

Table 9: Current Effluent Limitations for IMP 113

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Metered
Total Suspended Solids	19.2	45.5	15.0	40.0	XXX	1/week	24-hr composite
Oil and Grease*	Report	Report	5.0	5.0	XXX	1/week	Grab
Total Chromium	0.239	0.598	0.1	0.3	XXX	1/week	24-hr composite
Total Nickel	0.179	0.537	0.1	0.3	XXX	1/week	24-hr composite
Total Residual Chlorine	XXX	XXX	0.5	XXX	1.0	1/week	Grab
Fluoride	XXX	XXX	26.4	59.5	XXX	1/week	24-hr composite
Dissolved Iron	XXX	XXX	XXX	7.0	XXX	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Free Available Chlorine	XXX	XXX	0.20	0.50	XXX	1/week	Grab
pH (S.U.)	Not less than 6.0 nor greater than 9.0					1/week	Grab

*To be in compliance, Oil and Grease shall be reported as less than 5.0 mg/L, indicating a non-detect result.

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent limitations for IMP 113 are displayed in Table 10 below, they are the most stringent values from the above effluent limitation development. The loading limits have been updated to reflect the change in production. Note that the value for TRC was incorrectly labeled as IMAX in the previous permit when it should have been labeled as Daily Max. This change has been included in the draft permit.

Table 10: Proposed Effluent Limitations for IMP 113

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Metered
Total Suspended Solids	14.7	35.3	15.0	40.0	XXX	1/week	24-hr composite
Oil and Grease*	Report	Report	5.0	5.0	XXX	1/week	Grab
Total Chromium	0.175	0.438	0.1	0.3	XXX	1/week	24-hr composite
Total Nickel	0.131	0.393	0.1	0.3	XXX	1/week	24-hr composite
Total Residual Chlorine	XXX	XXX	0.5	1.0	XXX	1/week	Grab
Fluoride	XXX	XXX	26.4	59.5	XXX	1/week	24-hr composite
Dissolved Iron	XXX	XXX	XXX	7.0	XXX	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Free Available Chlorine	XXX	XXX	0.20	0.50	XXX	1/week	Grab
PFOA (ng/L)	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
pH (S.U.)	Not less than 6.0 nor greater than 9.0					1/week	Grab

*To be in compliance, Oil and Grease shall be reported as less than 5.0 mg/L, indicating a non-detect result

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **F**)
☒	TRC Model Spreadsheet (see Attachment **H**)
☒	Temperature Model Spreadsheet (see Attachment **G**)
☐	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: BCW-PMT-001, BCW-PMT-032, BCW-PMT-033, BCW-PMT-037
☐	Other:

Attachments:

Attachment A: IMP 113 ELG loading Limitation Calculations

Attachment B: Iron and Steel Effluent Guidelines Development Document Concentration Tables

Attachment C: Water Flow Schematic

Attachment D: IMP 113 ELG Concentration Limitation Calculations

Attachment E: IMP 113 Stream Stats Report

Attachment F: Toxic Management Spreadsheet for IMP 113

Attachment G: Thermal Discharge Evaluation for IMP 113

Attachment H: TRC Evaluation for IMP 113

Attachment I: Site Map

Attachment A:

IMP 113 ELG loading Limitation Calculations

MASS BASED LIMITATIONS

Waste Stream	TSS (lbs/day)		OG (lbs/day)		Cr (lbs/day)		Ni (lbs/day)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Cooling Tower Blowdown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fume Scrubber	10.8	25.2	0.00	0.00	0.144	0.361	0.108	0.361
Acid Pickling	2.295	5.357	0.00	0.00	0.031	0.077	0.023	0.069
Alkaline Cleaning	0.745	1.738	0.248	0.745	0.00	0.00	0.00	0.00
Boiler Blowdown	0.901	3.002	0.450	0.600	0.00	0.00	0.00	0.00
Total Load Allocations	14.7	35.5	0.698	1.34	0.175	0.438	0.131	0.393

Attachment B:

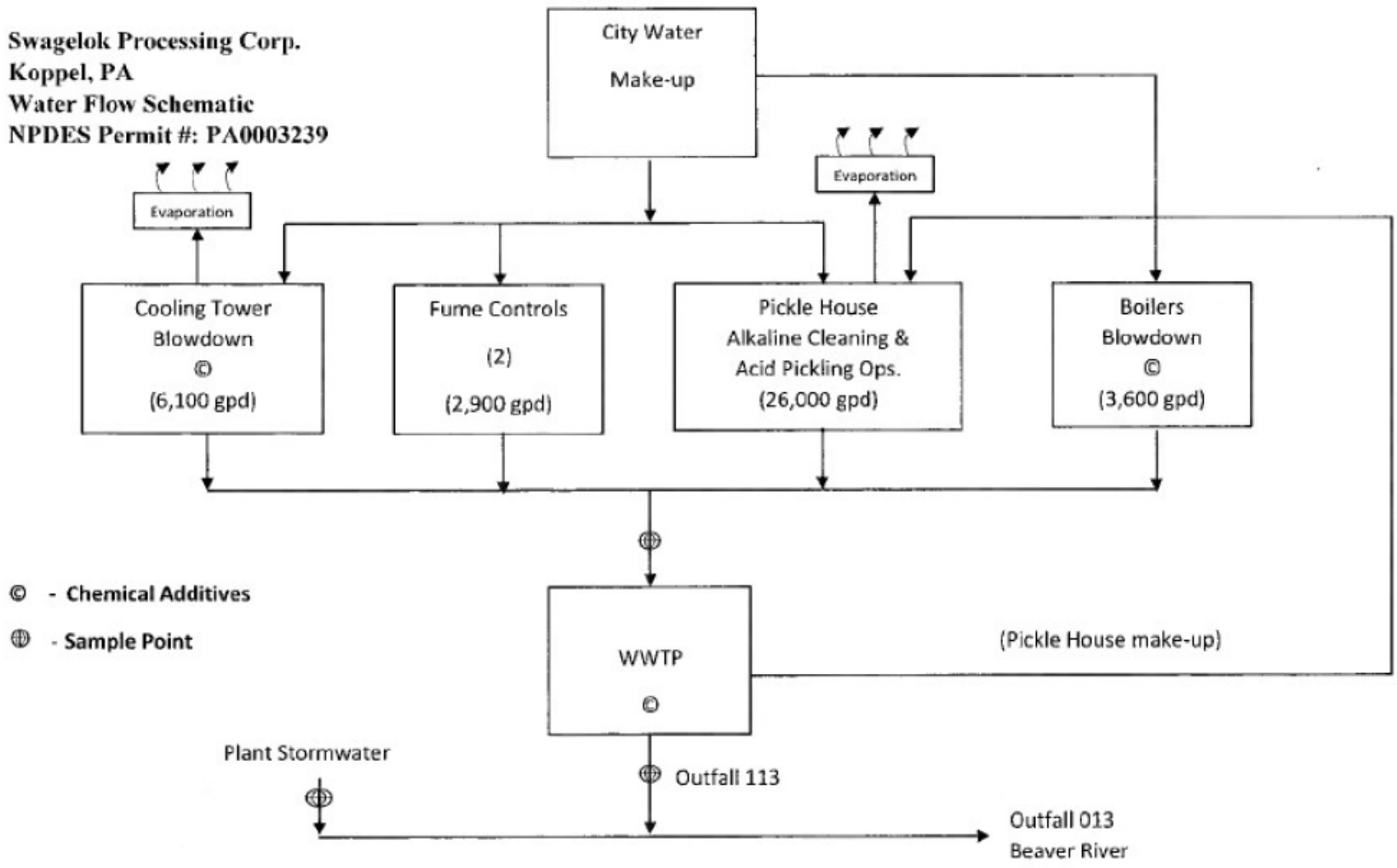
Iron and Steel Effluent Guidelines Development Document Concentration Tables

TABLE I-1
BPT CONCENTRATION AND FLOW SUMMARY
IRON AND STEEL INDUSTRY
PAGE 4

Subcategory		Discharge Flow (GPT)	BPT Effluent Concentrations (mg/l) TSS	O&G	Ammonia	Phenol (4AAP)	CN-T	Cr^{+6}	Cr	Ni	Pb	Zn	Toxic Organics 55	Toxic Organics 85
Comb. Acid Pickling (Cont.)														
Cont.-Strip, Sheet & Plate	Avg	1500	30	10(1)					0.4	0.3				
	Max		70	30(1)					1.0	0.9				
Batch-Strip, Sheet & Plate	Avg	460	30	10(1)					0.4	0.3				
	Max		70	30(1)					1.0	0.9				
Pipe, Tube & Other	Avg	770	30	10(1)					0.4	0.3				
	Max		70	30(1)					1.0	0.9				
Fume Scrubber(2)	Avg	15 GPM	30	10(1)					0.4	0.3				
	Max		70	30(1)					1.0	0.9				
Cold Forming														
Cold Rolling: Recir Single Stand	Avg	5	30	10					0.4(3)	0.3(3)	0.15	0.1	-	-
	Max		60	25					1.0(3)	0.9(3)	0.45	0.3	0.1	0.15
Cold Rolling: Recir Multi Stand	Avg	25	30	10					0.4(3)	0.3(3)	0.15	0.1	-	-
	Max		60	25					1.0(3)	0.9(3)	0.45	0.3	0.1	0.15
Cold Rolling: Combination	Avg	300	30	10					0.4(3)	0.3(3)	0.15	0.1	-	-
	Max		60	25					1.0(3)	0.9(3)	0.45	0.3	0.1	0.15
Cold Rolling: Direct Appl. Single Stand	Avg	90	30	10					0.4(3)	0.3(3)	0.15	0.1	-	-
	Max		60	25					1.0(3)	0.9(3)	0.45	0.3	0.1	0.15
Cold Rolling: Direct Appl. Multi Stand	Avg	400	30	10					0.4(3)	0.3(3)	0.15	0.1	-	-
	Max		60	25					1.0(3)	0.9(3)	0.45	0.3	0.1	0.15
Pipe & Tube	Avg	0												
	Max													
Alkaline Cleaning														
Batch	Avg	250	30	10										
	Max		70	30										
Continuous	Avg	350	30	10										
	Max		70	30										

Attachment C:

Water Flow Schematic


Swagelok Processing Corp.
Koppel, PA
Water Flow Schematic
NPDES Permit #: PA0003239
City Water
Make-up
Evaporation
Evaporation
Cooling Tower
Blowdown
©
(6,100 gpd)
Fume Controls
(2)
(2,900 gpd)
Pickle House
Alkaline Cleaning &
Acid Pickling Ops.
(26,000 gpd)
Boilers
Blowdown
©
(3,600 gpd)
© - Chemical Additives
- Sample Point
WWTP
©
(Pickle House make-up)
Plant Stormwater
Outfall 113
Outfall 013
Beaver River

Attachment D:

IMP 113 ELG Concentration Limitation Calculations

CONCENTRATION LIMITATIONS

Waste Stream	Contributing flow (MGD)	TSS (mg/L)		OG (mg/L)		Cr (mg/L)		Ni (mg/L)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Cooling Tower Blowdown	0.0061	0	0	0	0	0	0	0	0
Fume Scrubber	0.0029	30	70	0	0	0.4	1	0.3	0.9
Acid Pickling & Alkaline Cleaning	0.026	30	70	10	30	0.4	1	0.3	0.9
Boiler Blowdown	0.0036	30	100	15	20	0	0	0	0
	Total Flow (MGD)	**Final Concentration Limits (mg/L)**							
IMP 113 Concentration Limits	0.0386	25.3	61.7	8.13	22.1	0.299	0.749	0.225	0.674

Final Concentration Limit = [(Cooling Tower Blowdown Discharge Flow * Cooling Tower Blowdown Concentration Limit) + (Fume Scrubber Discharge Flow * Fume Scrubber Concentration Limit) + (Acid Pickling and Alkaline Cleaning Discharge Flow * Acid Pickling and Alkaline Cleaning Concentration Limit) + (Boiler Blowdown Discharge Flow * Boiler Blowdown Concentration Limit)] / (Total Combined Discharge Flow)

TSS Final Concentration Limit = [(0.0061 * 0) + (0.0029 * 30.0) + (0.026 * 30.0) + (0.0036 * 30.0)] / (0.0386)

TSS Final Concentration Limit = 25.3

Attachment E:

IMP 113 Streamstats Report

IMP 113 StreamStats Report

Region ID: PA
Workspace ID: PA20240717152716317000
Clicked Point (Latitude, Longitude): 40.84362, -80.31907
Time: 2024-07-17 11:27:43 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3090	square miles
ELEV	Mean Basin Elevation	1128	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	3090	square miles	2.26	1400
ELEV	Mean Basin Elevation	1128	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	252	ft^3/s
30 Day 2 Year Low Flow	333	ft^3/s
7 Day 10 Year Low Flow	160	ft^3/s
30 Day 10 Year Low Flow	186	ft^3/s
90 Day 10 Year Low Flow	254	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: 4.21.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment F:

Toxics Management Spreadsheet Results for IMP 113

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Swagelok Processing Corporation** NPDES Permit No.: **PA0003239** Outfall No.: **113**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Acid Pickling/Alkaline Cleaning/Fume Scru**

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
0.02	391	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		692									
	Chloride (PWS)	mg/L		94.7									
	Bromide	mg/L	<	0.021									
	Sulfate (PWS)	mg/L		270									
	Fluoride (PWS)	mg/L		23.7									
Group 2	Total Aluminum	µg/L		907									
	Total Antimony	µg/L		0.904									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		25									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	mg/L		0.104									
	Total Cadmium	µg/L		2.17									
	Total Chromium (III)	mg/L		0.09									
	Hexavalent Chromium	µg/L		7.42									
	Total Cobalt	µg/L		0.775									
	Total Copper	µg/L		2.38									
	Free Cyanide	µg/L											
	Total Cyanide	mg/L		0.021									
	Dissolved Iron	mg/L		1.06									
	Total Iron	µg/L		41.1									
	Total Lead	µg/L		0.214									
	Total Manganese	µg/L		14.3									
	Total Mercury	µg/L	<	0.093									
	Total Nickel	mg/L		0.11									
	Total Phenols (Phenolics) (PWS)	mg/L	<	0.002									
	Total Selenium	µg/L	<	12.5									
	Total Silver	µg/L	<	1.37									
	Total Thallium	µg/L	<	0.068									
	Total Zinc	µg/L		15.4									
	Total Molybdenum	µg/L		762									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<	51									
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									
	Carbon Tetrachloride	µg/L	<	0.51									

Group 3	Chlorobenzene	µg/L	<	0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.26									
	1,4-Dioxane	µg/L	<	0.48									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L	<	0.13									
	2,4-Dichlorophenol	µg/L	<	0.25									
	2,4-Dimethylphenol	µg/L	<	0.26									
	4,6-Dinitro-o-Cresol	µg/L	<	0.9									
	2,4-Dinitrophenol	µg/L	<	0.86									
	2-Nitrophenol	µg/L	<	0.25									
	4-Nitrophenol	µg/L	<	0.19									
	p-Chloro-m-Cresol	µg/L	<	0.4									
	Pentachlorophenol	µg/L	<	0.97									
	Phenol	µg/L		0.97									
	2,4,6-Trichlorophenol	µg/L	<	0.24									
Group 5	Acenaphthene	µg/L	<	0.26									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.13									
	Benzidine	µg/L	<	0.35									
	Benzo(a)Anthracene	µg/L	<	0.21									
	Benzo(a)Pyrene	µg/L	<	0.29									
	3,4-Benzofluoranthene	µg/L	<	0.31									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.15									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.34									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.64									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.19									
	Butyl Benzyl Phthalate	µg/L	<	0.38									
	2-Chloronaphthalene	µg/L	<	0.28									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.29									
	Chrysene	µg/L	<	0.45									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.28									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	0.13									
	Diethyl Phthalate	µg/L		0.3									
	Dimethyl Phthalate	µg/L	<	0.23									
	Di-n-Butyl Phthalate	µg/L		1.69									
	2,4-Dinitrotoluene	µg/L	<	0.77									
	2,6-Dinitrotoluene	µg/L	<	0.32									
	Di-n-Octyl Phthalate	µg/L		0.3									

	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.35									
	Fluorene	µg/L	<	0.25									
	Hexachlorobenzene	µg/L	<	0.25									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	0.22									
	Hexachloroethane	µg/L	<	0.26									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.25									
	Isophorone	µg/L	<	0.23									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L	<	0.26									
	n-Nitrosodimethylamine	µg/L	<	0.4									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.31									
	n-Nitrosodiphenylamine	µg/L	<	0.27									
	Phenanthrene	µg/L	<	0.21									
	Pyrene	µg/L	<	0.16									
	1,2,4-Trichlorobenzene	µg/L	<	0.17									
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											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Swagelok Processing Corporation, NPDES Permit No. PA0003239, Outfall 113

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Beaver River**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	033953	11.8	734	3090	0.001		Yes
End of Reach 1	033953	11.47	733	3091	0.001		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	11.8	0.207	640			300	15					100	7		
End of Reach 1	11.47	0.2071	640												

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	11.8														
End of Reach 1	11.47														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Swagelok Processing Corporation, NPDES Permit No. PA0003239, Outfall 113

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.473 Analysis Hardness (mg/l): 100.03 Analysis pH: 7.00

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	7,333,569	
Total Antimony	0	0		0	1,100	1,100	10,755,901	
Total Arsenic	0	0		0	340	340	3,324,551	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	#########	
Total Boron	0	0		0	8,100	8,100	79,202,541	
Total Cadmium	0	0		0	2.014	2.13	20,865	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.902	1,803	17,634,675	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	159,317	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	928,919	
Total Copper	0	0		0	13.443	14.0	136,923	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	64.602	81.7	798,636	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	16,105	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.354	469	4,588,783	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.218	3.79	37,023	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	635,576	
Total Zinc	0	0		0	117.210	120	1,171,871	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	29,334	
Acrylamide	0	0		0	N/A	N/A	N/A	

Acrylonitrile	0	0		0	650	650	6,355,759	
Benzene	0	0		0	640	640	6,257,979	
Bromoform	0	0		0	1,800	1,800	17,600,565	
Carbon Tetrachloride	0	0		0	2,800	2,800	27,378,656	
Chlorobenzene	0	0		0	1,200	1,200	11,733,710	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	#########	
Chloroform	0	0		0	1,900	1,900	18,578,374	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	#########	
1,1-Dichloroethylene	0	0		0	7,500	7,500	73,335,687	
1,2-Dichloropropane	0	0		0	11,000	11,000	#########	
1,3-Dichloropropylene	0	0		0	310	310	3,031,208	
Ethylbenzene	0	0		0	2,900	2,900	28,356,465	
Methyl Bromide	0	0		0	550	550	5,377,950	
Methyl Chloride	0	0		0	28,000	28,000	#########	
Methylene Chloride	0	0		0	12,000	12,000	#########	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	9,778,092	
Tetrachloroethylene	0	0		0	700	700	6,844,664	
Toluene	0	0		0	1,700	1,700	16,622,756	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	66,491,022	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	29,334,275	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	33,245,511	
Trichloroethylene	0	0		0	2,300	2,300	22,489,611	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	5,475,731	
2,4-Dichlorophenol	0	0		0	1,700	1,700	16,622,756	
2,4-Dimethylphenol	0	0		0	660	660	6,453,540	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	782,247	
2,4-Dinitrophenol	0	0		0	660	660	6,453,540	
2-Nitrophenol	0	0		0	8,000	8,000	78,224,732	
4-Nitrophenol	0	0		0	2,300	2,300	22,489,611	
p-Chloro-m-Cresol	0	0		0	160	160	1,564,495	
Pentachlorophenol	0	0		0	8.723	8.72	85,297	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	4,497,922	
Acenaphthene	0	0		0	83	83.0	811,582	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	2,933,427	
Benzo(a)Anthracene	0	0		0	0.5	0.5	4,889	
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	#########	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	44,001,412	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	2,640,085	
Butyl Benzyl Phthalate	0	0		0	140	140	1,368,933	
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	8,018,035	
1,3-Dichlorobenzene	0	0		0	350	350	3,422,332	
1,4-Dichlorobenzene	0	0		0	730	730	7,138,007	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	39,112,366	
Dimethyl Phthalate	0	0		0	2,500	2,500	24,445,229	
Di-n-Butyl Phthalate	0	0		0	110	110	1,075,590	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	15,644,946	
2,6-Dinitrotoluene	0	0		0	990	990	9,680,311	
1,2-Diphenylhydrazine	0	0		0	15	15.0	146,671	
Fluoranthene	0	0		0	200	200	1,955,618	
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	97,781	
Hexachlorocyclopentadiene	0	0		0	5	5.0	48,890	
Hexachloroethane	0	0		0	60	60.0	586,685	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	97,780,915	
Naphthalene	0	0		0	140	140	1,368,933	
Nitrobenzene	0	0		0	4,000	4,000	39,112,366	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	#########	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	2,933,427	
Phenanthrene	0	0		0	5	5.0	48,890	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	1,271,152	

☑ ***CFC*** CCT (min): 67.142 PMF: 1 Analysis Hardness (mg/l): 100.01 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	4,550,963	
Total Arsenic	0	0		0	150	150	3,102,930	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	84,813,408	
Total Boron	0	0		0	1,600	1,600	33,097,915	
Total Cadmium	0	0		0	0.246	0.27	5,599	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.123	86.2	1,782,935	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	215,033	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	393,038	

Total Copper	0	0		0	8.957	9.33	193,003	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	31,029,296	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	65,827	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	18,739	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.013	52.2	1,079,183	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	103,207	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	268,921	
Total Zinc	0	0		0	118.153	120	2,478,841	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	62,059	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	2,689,206	
Benzene	0	0		0	130	130	2,689,206	
Bromoform	0	0		0	370	370	7,653,893	
Carbon Tetrachloride	0	0		0	560	560	11,584,270	
Chlorobenzene	0	0		0	240	240	4,964,687	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	72,401,690	
Chloroform	0	0		0	390	390	8,067,617	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	64,127,211	
1,1-Dichloroethylene	0	0		0	1,500	1,500	31,029,296	
1,2-Dichloropropane	0	0		0	2,200	2,200	45,509,634	
1,3-Dichloropropylene	0	0		0	61	61.0	1,261,858	
Ethylbenzene	0	0		0	580	580	11,997,994	
Methyl Bromide	0	0		0	110	110	2,275,482	
Methyl Chloride	0	0		0	5,500	5,500	#########	
Methylene Chloride	0	0		0	2,400	2,400	49,646,873	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	4,344,101	
Tetrachloroethylene	0	0		0	140	140	2,896,068	
Toluene	0	0		0	330	330	6,826,445	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	28,960,676	
1,1,1-Trichloroethane	0	0		0	610	610	12,618,580	
1,1,2-Trichloroethane	0	0		0	680	680	14,066,614	
Trichloroethylene	0	0		0	450	450	9,308,789	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	2,275,482	
2,4-Dichlorophenol	0	0		0	340	340	7,033,307	
2,4-Dimethylphenol	0	0		0	130	130	2,689,206	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	330,979	
2,4-Dinitrophenol	0	0		0	130	130	2,689,206	
2-Nitrophenol	0	0		0	1,600	1,600	33,097,915	
4-Nitrophenol	0	0		0	470	470	9,722,513	
p-Chloro-m-Cresol	0	0		0	500	500	10,343,099	
Pentachlorophenol	0	0		0	6.693	6.69	138,444	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	1,882,444	
Acenaphthene	0	0		0	17	17.0	351,665	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,220,486	
Benzo(a)Anthracene	0	0		0	0.1	0.1	2,069	
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	#########	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	18,824,439	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,117,055	
Butyl Benzyl Phthalate	0	0		0	35	35.0	724,017	
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	3,309,792	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,427,348	
1,4-Dichlorobenzene	0	0		0	150	150	3,102,930	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	16,548,958	
Dimethyl Phthalate	0	0		0	500	500	10,343,099	
Di-n-Butyl Phthalate	0	0		0	21	21.0	434,410	
2,4-Dinitrotoluene	0	0		0	320	320	6,619,583	
2,6-Dinitrotoluene	0	0		0	200	200	4,137,239	
1,2-Diphenylhydrazine	0	0		0	3	3.0	62,059	
Fluoranthene	0	0		0	40	40.0	827,448	
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	41,372	
Hexachlorocyclopentadiene	0	0		0	1	1.0	20,686	
Hexachloroethane	0	0		0	12	12.0	248,234	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	43,441,014	
Naphthalene	0	0		0	43	43.0	889,506	
Nitrobenzene	0	0		0	810	810	16,755,820	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	70,333,070	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,220,486	
Phenanthrene	0	0		0	1	1.0	20,686	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	537,841	

☑ ***THH*** CCT (min): 67.142 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	115,843	
Total Arsenic	0	0		0	10	10.0	206,862	
Total Barium	0	0		0	2,400	2,400	49,646,873	
Total Boron	0	0		0	3,100	3,100	64,127,211	
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	6,205,859	
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	20,686,197	
Total Mercury	0	0		0	0.050	0.05	1,034	
Total Nickel	0	0		0	610	610	12,618,580	
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	4,965	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	62,059	
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	2,068,620	
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	117,911	
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	682,645	
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	1,406,661	
Methyl Bromide	0	0		0	100	100.0	2,068,620	
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	1,179,113	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	2,068,620	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	#########	
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	620,586	
2,4-Dichlorophenol	0	0		0	10	10.0	206,862	
2,4-Dimethylphenol	0	0		0	100	100.0	2,068,620	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	41,372	
2,4-Dinitrophenol	0	0		0	10	10.0	206,862	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	82,744,789	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	1,448,034	
Anthracene	0	0		0	300	300	6,205,859	
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	4,137,239	
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	2,069	
2-Chloronaphthalene	0	0		0	800	800	16,548,958	
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	20,686,197	
1,3-Dichlorobenzene	0	0		0	7	7.0	144,803	
1,4-Dichlorobenzene	0	0		0	300	300	6,205,859	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	12,411,718	
Dimethyl Phthalate	0	0		0	2,000	2,000	41,372,394	
Di-n-Butyl Phthalate	0	0		0	20	20.0	413,724	
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	413,724	
Fluorene	0	0		0	50	50.0	1,034,310	
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	82,745	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	703,331	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	206,862	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	413,724	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	1,448	

☑ ***CRL*** CCT (min): 30.587 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	4,766	
Acrylonitrile	0	0		0	0.06	0.06	4,085	
Benzene	0	0		0	0.58	0.58	39,492	
Bromoform	0	0		0	7	7.0	476,622	
Carbon Tetrachloride	0	0		0	0.4	0.4	27,236	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	54,471	
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	64,684	
1,2-Dichloroethane	0	0		0	9.9	9.9	674,080	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	61,280	
1,3-Dichloropropylene	0	0		0	0.27	0.27	18,384	
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	1,361,778	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	13,618	
Tetrachloroethylene	0	0		0	10	10.0	680,889	
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	37,449	
Trichloroethylene	0	0		0	0.6	0.6	40,853	
Vinyl Chloride	0	0		0	0.02	0.02	1,362	
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	2,043	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	102,133	
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	6.81	
Benzo(a)Anthracene	0	0		0	0.001	0.001	68.1	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	6.81	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	68.1	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	681	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	2,043	

Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	21,788	
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	8,171	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	6.81	
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	3,404	
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	3,404	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	3,404	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	2,043	
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	5.45	
Hexachlorobutadiene	0	0		0	0.01	0.01	681	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	6,809	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	68.1	
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	47.7	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	340	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	224,693	
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

☑ ***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	4,700,521	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	115,843	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	49,646,873	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	33,098	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	5,599	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	1,783	mg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	102,116	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	393,038	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	87,762	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	6,206	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	31,029,296	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	65,827	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	20,686,197	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1,034	µg/L	Discharge Conc < TQL
Total Nickel	1,079	mg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		mg/L	Discharge Conc < TQL
Total Selenium	103,207	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	23,730	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	4,965	µg/L	Discharge Conc < TQL
Total Zinc	751,122	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	18,802	µg/L	Discharge Conc < TQL
Acrylamide	4,766	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	4,085	µg/L	Discharge Conc < TQL
Benzene	39,492	µg/L	Discharge Conc < TQL
Bromoform	476,622	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	27,236	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	2,068,620	µg/L	Discharge Conc < TQL
Chlorodibromomethane	54,471	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	72,401,690	µg/L	Discharge Conc < TQL
Chloroform	117,911	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	64,684	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	674,080	µg/L	Discharge Conc < TQL

1,1-Dichloroethylene	682,645	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	61,280	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	18,384	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	1,406,661	µg/L	Discharge Conc < TQL
Methyl Bromide	2,068,620	µg/L	Discharge Conc < TQL
Methyl Chloride	#########	µg/L	Discharge Conc < TQL
Methylene Chloride	1,361,778	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	13,618	µg/L	Discharge Conc < TQL
Tetrachloroethylene	680,889	µg/L	Discharge Conc < TQL
Toluene	1,179,113	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	2,068,620	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	12,618,580	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	37,449	µg/L	Discharge Conc < TQL
Trichloroethylene	40,853	µg/L	Discharge Conc < TQL
Vinyl Chloride	1,362	µg/L	Discharge Conc < TQL
2-Chlorophenol	620,586	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	206,862	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,068,620	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	41,372	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	206,862	µg/L	Discharge Conc < TQL
2-Nitrophenol	33,097,915	µg/L	Discharge Conc < TQL
4-Nitrophenol	9,722,513	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	1,002,778	µg/L	Discharge Conc < TQL
Pentachlorophenol	2,043	µg/L	Discharge Conc < TQL
Phenol	82,744,789	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	102,133	µg/L	Discharge Conc < TQL
Acenaphthene	351,665	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	6,205,859	µg/L	Discharge Conc < TQL
Benzidine	6.81	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	68.1	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	6.81	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	68.1	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	681	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	2,043	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	4,137,239	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	21,788	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,117,055	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	2,069	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	16,548,958	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	8,171	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	6.81	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	3,309,792	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	144,803	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	3,102,930	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	3,404	µg/L	Discharge Conc < TQL
Diethyl Phthalate	12,411,718	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	10,343,099	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	413,724	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	3,404	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	3,404	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	2,043	µg/L	Discharge Conc < TQL
Fluoranthene	413,724	µg/L	Discharge Conc < TQL
Fluorene	1,034,310	µg/L	Discharge Conc < TQL
Hexachlorobenzene	5.45	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	681	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	20,686	µg/L	Discharge Conc < TQL
Hexachloroethane	6,809	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	68.1	µg/L	Discharge Conc < TQL
Isophorone	703,331	µg/L	Discharge Conc < TQL
Naphthalene	877,431	µg/L	Discharge Conc < TQL
Nitrobenzene	206,862	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	47.7	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	340	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	224,693	µg/L	Discharge Conc < TQL
Phenanthrene	20,686	µg/L	Discharge Conc < TQL
Pyrene	413,724	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	1,448	µg/L	Discharge Conc < TQL

Attachment G:

TRC Evaluation for IMP 113

TRC EVALUATION

640	= Q stream (cfs)	0.5	= CV Daily
0.02	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.473	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 3121.146	**1.3.2.iii**	WLA cfc = 6433.107
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 1163.014	**5.1d**	LTA_cfc = 3739.907

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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

Attachment H:

Thermal Discharge Evaluation for IMP 113

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *Inputs*

Facility: **Swagelok Processing Corp**

Permit No.: **PA0003239**

Stream Name: **Beaver River**

Analyst/Engineer: **Adam Olesnanik**

Stream Q7-10 (cfs)*: **640.0**

Outfall No.: **113**

Analysis Type*: **WWF**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.02		0.02
Feb 1-29		0.02		0.02
Mar 1-31		0.02		0.02
Apr 1-15		0.02		0.02
Apr 16-30		0.02		0.02
May 1-15		0.02		0.02
May 16-31		0.02		0.02
Jun 1-15		0.02		0.02
Jun 16-30		0.02		0.02
Jul 1-31		0.02		0.02
Aug 1-15		0.02		0.02
Aug 16-31		0.02		0.02
Sep 1-15		0.02		0.02
Sep 16-30		0.02		0.02
Oct 1-15		0.02		0.02
Oct 16-31		0.02		0.02
Nov 1-15		0.02		0.02
Nov 16-30		0.02		0.02
Dec 1-31		0.02		0.02

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	2048.00	2048.03
3.5	1.00	2240.00	2240.03
7	1.00	4480.00	4480.03
9.3	1.00	5952.00	5952.03
9.3	1.00	5952.00	5952.03
5.1	1.00	3264.00	3264.03
5.1	1.00	3264.00	3264.03
3	1.00	1920.00	1920.03
3	1.00	1920.00	1920.03
1.7	1.00	1088.00	1088.03
1.4	1.00	896.00	896.03
1.4	1.00	896.00	896.03
1.1	1.00	704.00	704.03
1.1	1.00	704.00	704.03
1.2	1.00	768.00	768.03
1.2	1.00	768.00	768.03
1.6	1.00	1024.00	1024.03
1.6	1.00	1024.00	1024.03
2.4	1.00	1536.00	1536.03

Temperature

Ambient Stream Temperature (°F)*

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

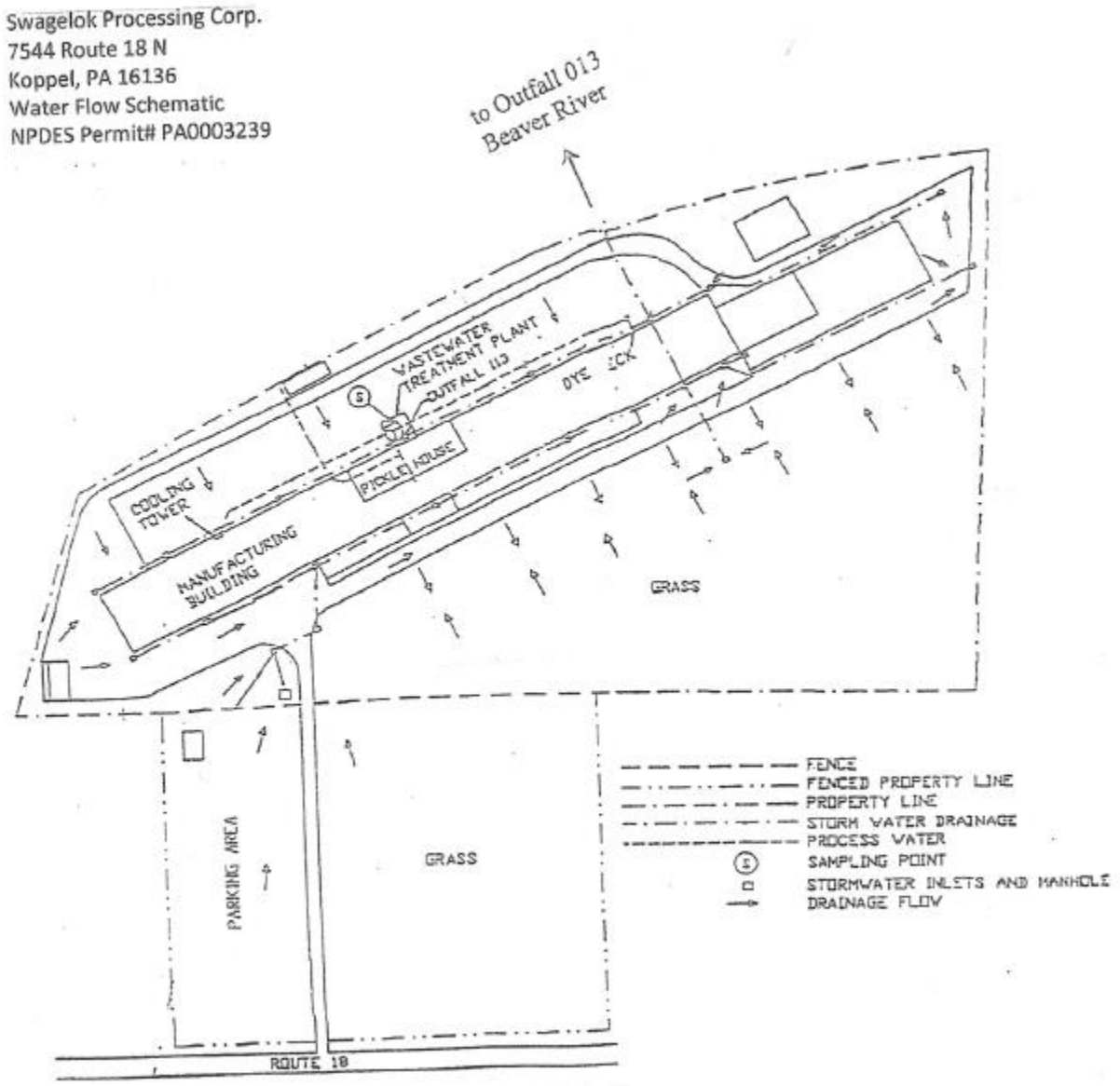
Instructions | *WWF Results*

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	**WWF** Target Maximum Stream Temp. (ºF)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (ºF)
Jan 1-31	40	N/A -- Case 2	110.0
Feb 1-29	40	N/A -- Case 2	110.0
Mar 1-31	46	N/A -- Case 2	110.0
Apr 1-15	52	N/A -- Case 2	110.0
Apr 16-30	58	N/A -- Case 2	110.0
May 1-15	64	N/A -- Case 2	110.0
May 16-31	72	N/A -- Case 2	110.0
Jun 1-15	80	N/A -- Case 2	110.0
Jun 16-30	84	N/A -- Case 2	110.0
Jul 1-31	87	N/A -- Case 2	110.0
Aug 1-15	87	N/A -- Case 2	110.0
Aug 16-31	87	N/A -- Case 2	110.0
Sep 1-15	84	N/A -- Case 2	110.0
Sep 16-30	78	N/A -- Case 2	110.0
Oct 1-15	72	N/A -- Case 2	110.0
Oct 16-31	66	N/A -- Case 2	110.0
Nov 1-15	58	N/A -- Case 2	110.0
Nov 16-30	50	N/A -- Case 2	110.0
Dec 1-31	42	N/A -- Case 2	110.0

Attachment I:

Site Map


Swagelok Processing Corp.
7544 Route 18 N
Koppel, PA 16136
Water Flow Schematic
NPDES Permit# PA0003239
to Outfall 013
Beaver River
WASTEWATER TREATMENT PLANT
OUTFALL 113
DYE VAT
PICKLE HOUSE
COOLING TOWER
MANUFACTURING BUILDING
GRASS
PARKING AREA
GRASS
ROUTE 18
FENCE
FENCED PROPERTY LINE
PROPERTY LINE
STORM WATER DRAINAGE
PROCESS WATER
SAMPLING POINT
STORMWATER INLETS AND MANHOLE
DRAINAGE FLOW