Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0022004**
Facility Type	**Industrial**	APS ID	**801555**
Major / Minor	**Minor**	Authorization ID	**959890**

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

Applicant and Facility Information

Applicant Name	**Flexsys America LP**	Facility Name	**Monongahela Plant**
Applicant Address	829 Route 481	Facility Address	829 Route 481
	Monongahela, PA 15063-3437		Monongahela, PA 15603
Applicant Contact	Jeffrey Miller, HSES Manager	Facility Contact	Edward Dikum, Plant Manager
Applicant Phone	(724) 310-2832	Facility Phone	(412) 888-6261
Applicant Email	JeffreyW.Miller@Flexsys.com	Facility Email	edwarddikum@flexsys.com
Client ID	66305	Site ID	253072
SIC Code	2819	Municipality	Carroll Township
SIC Description	Manufacturing - Industrial Inorganic Chemicals, Not Elsewhere Classified	County	Washington
Date Application Received	October 31, 2011	EPA Waived?	Yes
Date Application Accepted	October 31, 2011	If No, Reason	
Purpose of Application	Renewal of an NPDES permit for discharges of industrial waste and storm water from an inorganic chemical manufacturing facility.		

Summary of Review

On October 28, 2011, Flexsys America LP (Flexsys) submitted an application to renew NPDES Permit PA0022004 for discharges from Flexsys' Monongahela Plant. The application was received by DEP on October 31, 2011. The current NPDES permit for the Monongahela Plant was issued on April 18, 2007 with an effective date of May 1, 2007 and an expiration date of April 30, 2012. The renewal application was received at least 180 days before the expiration date (*i.e.*, was received before November 2, 2011), so the application was timely. In accordance with 25 Pa. Code § 92a.7(b) and (c) and 40 CFR § 122.6(d), since the application was timely and DEP did not reissue a permit for the Monongahela Plant before April 30, 2012, the terms and conditions of the 2007 permit were automatically continued and remain in effect until the Department takes a final action on the renewal application.

Flexsys manufactures insoluble sulfur (trade named Crystex) from molten rhombic sulfur at the Monongahela Plant. Crystex is used as a vulcanizing agent for rubber products and is primarily sold to tire manufacturing companies. Other chemicals used in the manufacturing of Crystex include carbon disulfide, various proprietary additives, and absorption oil components. The Standard Industrial Classification code for this facility is 2819.

The Monongahela Plant discharges from four outfalls: 001, 002 (formerly S01), 003 (formerly S02), and 004 (formerly S03). The sources of wastewater contributing to Outfall 001 include process wastewater, potentially contaminated storm water from process areas of the plant, and 'uncontaminated' storm water. Internal Monitoring Point (IMP) 101 is the compliance point for effluent from the on-site wastewater treatment plant (WWTP), which receives the following sources: water decanted from the top of a tank that holds liquid carbon disulfide; boiler system water including boiler blowdown; cooling tower overflow and non-contact cooling system losses; laboratory wastewaters, water from inert gas generation; and storm water from process areas that may contain contaminants from industrial activities. Downstream of IMP 101 is an additional point in the piping where storm water may enter.

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	September 6, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	September 17, 2024

Summary of Review

Effluent from the WWTP and 'uncontaminated' storm water combine and discharge through Outfall 001. Outfalls 002, 003, and 004 discharge storm water associated with industrial activities and Outfall 004 additionally discharges groundwater that historically was impacted by abandoned mine lands. Outfalls 001 and 002 discharge to Pigeon Creek and Outfalls 003 and 004 discharge to Taylors Run.

On January 30, 2024, DEP contacted Flexsys to determine whether there have been any changes to the Monongahela Plant since the renewal application was submitted in 2011. Also, on February 20, 2024, based on DEP's preliminary development of effluent limits using the 2011 application, DEP informed Flexsys of the potential for Outfall 001 to receive new water quality-based effluent limits (WQBELs) as a result of Flexsys' reporting analytical results using reporting limits that are higher than DEP's Target Quantitation Limits (Target QLs). In response, Flexsys decided to collect additional samples and analyze them to DEP's Target QLs and to submit an updated permit application. Owing to various sampling and laboratory delays, DEP received the updated application on August 26, 2024.

Permitting History

On April 18, 2007, DEP renewed NPDES Permit PA0022004 for discharges from the Monongahela Plant. The 2007 NPDES permit authorized discharges of industrial waste and storm water from Outfall 001 and Internal Monitoring Point 101; storm water from Outfalls S01 and S02; and storm water and abandoned mine drainage from Outfall S03. Among other things, the 2007 NPDES permit imposed quarterly monitoring requirements for aluminum, iron, manganese, and pH at Outfall S03. Those requirements were appealed by Flexsys to the Environmental Hearing Board.

On March 12, 2008, DEP and Flexsys entered into a Consent Order and Agreement (COA) to resolve Flexsys' appeal of the 2007 NPDES permit's monitoring requirements at Outfall S03. The COA required Flexsys to withdraw its appeal; investigate the source of the water collected and conveyed by the Outfall S03 drainage system; conduct additional quarterly sampling; and submit an amendment application to request authorization to discharge groundwater and storm water. The COA was to terminate after 1) Flexsys completed its obligations under the COA; 2) Flexsys paid any and all stipulated penalties; and 3) DEP took an action to either amend the permit to remove the monitoring requirements at Outfall S03 and identify groundwater (as opposed to mine drainage) as an effluent source, OR refused to amend the permit at which time Flexsys could refile its appeal.

Pursuant to Flexsys' investigation required by the 2008 COA, Flexsys posited that the groundwater source was uncovered when a hillside cut was made in the 1960s by the then-owner of the facility to install a firewater tank and that the Outfall S03 drainage system was installed to collect and convey the uncovered groundwater to Taylors Run. The drainage system also received storm water runoff from the site through a series of inlets.

Flexsys completed its obligations and submitted an amendment application in 2008 but DEP did not take an action on the amendment application, in part, because the concentrations of metals in the groundwater discharge were still elevated. Eventually, the 2008 amendment application was rolled into the October 28, 2011 renewal application (as updated on August 26, 2024), which is still pending and is the subject of this Fact Sheet.

Based on Discharge Monitoring Report data submitted under the current permit, metals at Outfall S03 (now Outfall 004) have decreased to low levels. DEP intends to formally terminate the COA.

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0219 (avg.); 0.2016 (max)
Latitude	40° 11' 10.00"	Longitude	-79° 55' 58.00"
Quad Name	Monongahela	Quad Code	1706
Wastewater Description:	Sources regulated at IMP 101 and storm water runoff		

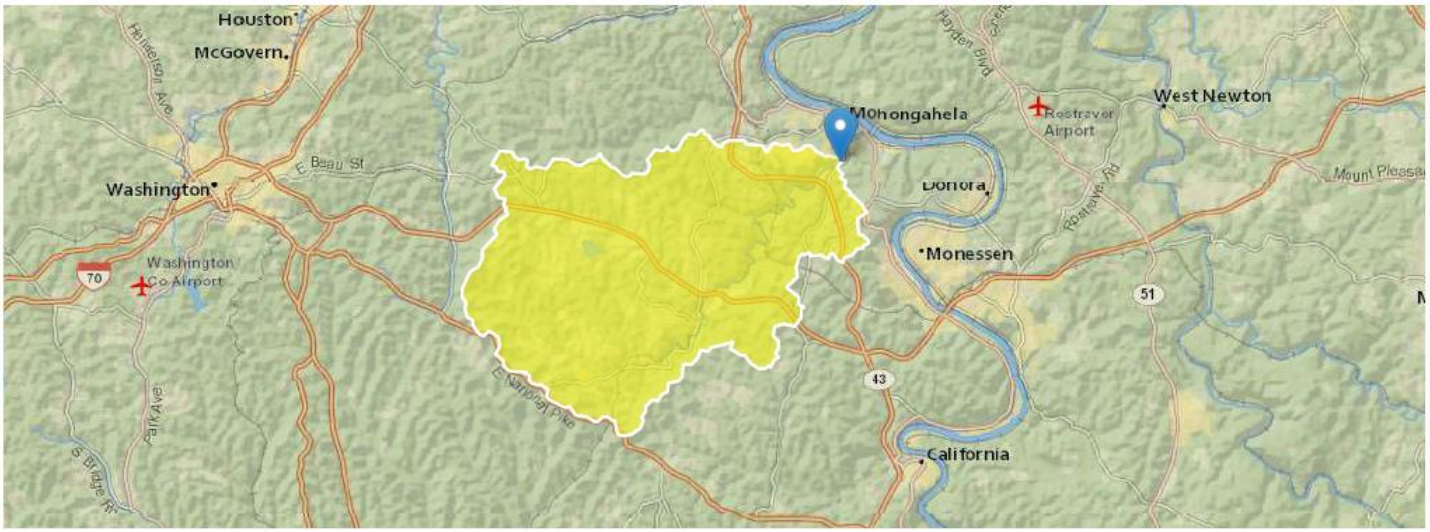
Receiving Waters	Pigeon Creek (WWF)	Stream Code	39637
NHD Com ID	99409354	RMI	1.60
Drainage Area (sq. mi.)	57.6	Yield (cfs/mi^2)	0.0203
Q_{7-10} Flow (cfs)	1.17	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	744.24	Slope (ft/ft)	0.0034
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company – Aldrich		
PWS ID	5630039	PWS Withdrawal (MGD)	70.0
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	25.34	Distance from Outfall (mi)	8.60

IMP No.	101	Design Flow (MGD)	0.0219 (avg.); 0.2016 (max)
Latitude	40° 11' 13.00"	Longitude	-79° 55' 55"
Wastewater Description:	Carbon disulfide tank decant, boiler blowdown, cooling tower blowdown, inert gas generation dewatering, laboratory wastewater		

StreamStats Report

Region ID: PA
Workspace ID: PA20240123192938427000
Clicked Point (Latitude, Longitude): 40.18670, -79.93312
Time: 2024-01-23 14:30:01 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	57.6	square miles
ELEV	Mean Basin Elevation	1117	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	57.6	square miles	2.26	1400
ELEV	Mean Basin Elevation	1117	feet	1050	2580

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.68	ft^3/s	43	43
30 Day 2 Year Low Flow	4.26	ft^3/s	38	38
7 Day 10 Year Low Flow	1.17	ft^3/s	66	66
30 Day 10 Year Low Flow	1.84	ft^3/s	54	54
90 Day 10 Year Low Flow	3.03	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.19.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002 (old Outfall S01)	Design Flow (MGD)	Variable
Latitude	40° 11' 6.00"	Longitude	-79° 55' 54.00"
Quad Name	Monongahela	Quad Code	1706
Wastewater Description:	Storm water from areas north of the wastewater treatment plant, the Warehouse 3 roof and surrounding pavement, and the diked sulfur storage and loading area		
Receiving Waters	Pigeon Creek (WWF)	Stream Code	39637
NHD Com ID	99409354	RMI	1.53
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company – Aldrich		
PWS ID	5630039	PWS Withdrawal (MGD)	70.0
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	25.34	Distance from Outfall (mi)	8.53

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003 (old Outfall S02)	Design Flow (MGD)	Variable
Latitude	40° 11' 3.00"	Longitude	-79° 56' 6.00"
Quad Name	Monongahela	Quad Code	1706
Wastewater Description:	Storm water from paved shipping dock west of processing areas		
Receiving Waters	Taylors Run (WWF)	Stream Code	39642
NHD Com ID	99409504	RMI	0.11
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company – Aldrich		
PWS ID	5630039	PWS Withdrawal (MGD)	70.0
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	25.34	Distance from Outfall (mi)	8.87

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	004 (old Outfall S03)	Design Flow (MGD)	Variable
Latitude	40° 11' 3.00"	Longitude	-79° 56' 3.00"
Quad Name	Monongahela	Quad Code	1706
Wastewater Description:	Groundwater and storm water from the paved parking lot west of the processing area		
Receiving Waters	Taylors Run (WWF)	Stream Code	39642
NHD Com ID	99409504	RMI	0.12
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company – Aldrich		
PWS ID	5630039	PWS Withdrawal (MGD)	70.0
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	25.34	Distance from Outfall (mi)	8.88

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary		
Treatment Facility: Industrial Waste Treatment Facility		
WQM Permit No.	**Issuance Date**	**Purpose**
6373202	August 9, 1973	Permit issued to Stauffer Chemical Company by the Pennsylvania Department of Environmental Resources for the construction and operation of industrial wastewater treatment facilities consisting of an oil/water separator to separate oil and carbon disulfide from wastewaters generated by an oil and carbon disulfide recovery system; a settling tank; and an automated pH neutralization system. This permit also authorized the discharge of treated process wastewaters to Pigeon Creek through Outfall 001 (predating the first issuance of an NPDES permit).
6373202 T-1	December 5, 1989	Permit transferred from Stauffer Chemical Company to Akzo Chemicals, Inc.
	June 1, 1994	Akzo Chemicals, Inc. renamed to Akzo Nobel Chemicals, Inc. DEP was notified of the name change on July 12, 1994, but no action was taken to modify the WQM permit.
	May 1, 1995	Site ownership changed from Akzo Nobel Chemicals, Inc. to Flexsys America L.P.—a joint venture between Akzo Nobel Chemicals, Inc. and Monsanto Co. DEP was notified of the change in ownership on July 2, 1996, but no action was taken to transfer the WQM permit.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Flow equalization, neutralization, sedimentation	N/A	0.0009

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
	N/A	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance: None

Other Comments: Flexsys' current treatment system consists of a concrete tank with a gravity flow influent and a pumped effluent. The concrete tank acts as a sedimentation and equalization basin to remove settable solids. A pH adjustment system using sulfuric acid adjusts the effluent pH to within permit limitations. Included within the concrete tank are oil retention baffles to remove oil and grease to within permit limitations. It does not appear that the WQM permit in effect for wastewater treatment facilities at the Monongahela Plant reflects the treatment facilities currently in use at the Monongahela Plant or the current owner. DEP may take a separate action to update the WQM permit to reflect current activities/ownership.

Compliance History

DMR Data for Outfall 101 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Flow (MGD) Average Monthly	0.0074	0.0318	0.0125	0.0351	0.0145	0.0277	0.0115	0.0132	0.0070	0.0185	0.0156	0.0194
Flow (MGD) Daily Maximum	0.008	0.057	0.014	0.039	0.016	0.044	0.012	0.013	0.012	0.020	0.018	0.022
pH (S.U.) Minimum	7.4	7.49	7.49	7.59	7.29	6.84	7.48	7.60	7.52	7.54	7.91	8.2
pH (S.U.) Maximum	7.51	7.7	7.66	7.61	7.68	7.69	7.52	7.69	7.91	7.56	8.33	8.3
TSS (lbs/day) Average Monthly	< 0.28	< 1.91	< 0.47	< 1.29	< 0.52	0.91	< 0.38	0.71	0.20	< 0.66	< 0.61	< 0.75
TSS (lbs/day) Daily Maximum	< 0.28	< 1.91	< 0.47	< 1.29	< 0.52	1.82	< 0.38	1.42	0.40	< 0.66	< 0.61	< 0.75
TSS (mg/L) Average Monthly	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	2.5	< 4.0	6.5	2.0	< 4.0	< 4.0	< 4.0
TSS (mg/L) Instantaneous Maximum	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	5.0	< 4.0	13.0	4.0	< 4.0	< 4.0	< 4.0
Oil and Grease (lbs/day) Daily Maximum	< 0.35	< 2.53	< 0.59	< 1.61	< 0.65	< 1.82	< 0.48	0.56	< 0.52	< 0.82	< 0.77	< 0.97
Oil and Grease (mg/L) Instantaneous Maximum	< 5.0	< 5.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.1	< 5.2	< 5.0	< 5.0	< 5.2
Carbon Disulfide (lbs/day) Average Monthly	< 0.0001	0.0002	< 0.0001	< 0.0003	0.0007	< 0.00036	< 0.0001	< 0.00011	0.0029	0.00030	0.00066	< 0.00019
Carbon Disulfide (lbs/day) Daily Maximum	< 0.00007	0.00048	< 0.00012	< 0.0003	0.00145	< 0.00036	< 0.0001	< 0.00011	0.00858	0.00059	0.00132	< 0.00019
Carbon Disulfide (mg/L) Average Monthly	< 0.0010	0.0012	< 0.0010	< 0.0010	0.0065	< 0.0010	< 0.0010	< 0.0010	0.029	0.0018	0.0043	< 0.0010
Carbon Disulfide (mg/L) Instantaneous Maximum	< 0.0010	0.0024	< 0.0010	< 0.0010	0.0129	< 0.0010	< 0.0010	< 0.0010	0.0851	0.0036	0.0086	< 0.0010

DMR Data for Outfall 003 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Flow (MGD) Average Monthly	0.19			0.17			0.25			0.12		
Flow (MGD) Daily Maximum	0.19			0.17			0.25			0.12		
pH (S.U.) Daily Maximum	7.95			7.97			7.93			7.96		
Total Aluminum (mg/L) Daily Maximum	< 0.02			0.046			0.019			< 0.02		
Total Iron (mg/L) Daily Maximum	0.142			0.07			0.071			0.0879		
Total Manganese (mg/L) Daily Maximum	0.048			0.045			0.042			0.0413		

Development of Effluent Limitations

IMP No. 101 **Design Flow (MGD)** 0.0219 (avg.); 0.2016 (max)

Wastewater Description: Carbon disulfide tank decant, boiler blowdown, cooling tower overflow, inert gas generation dewatering, laboratory wastewater

Effluent limits are imposed at IMP 101 rather than another monitoring location because 40 CFR § 125.3(f) prohibits compliance with technology-based treatment requirements using "non-treatment" techniques such as flow augmentation (*i.e.*, dilution). Since the wastewaters monitored at IMP 101 combine with storm water before discharging through Outfall 001 to Pigeon Creek, IMP 101 is the only point at which compliance with applicable effluent limits may be determined without the interference of other wastewaters. This rationale is consistent with 40 CFR § 122.45(h)[1], which allows for the imposition of effluent limitations on internal waste streams in these circumstances.

Discharges monitored at IMP 101 are currently subject to the following effluent limits and monitoring requirements.

Table 1. Current Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Basis
	Avg. Mo.	Max Daily	Minimum	Avg. Mo.	IMAX			
Flow (MGD)	Report	Report	—	—	—	2/month	Measured	25. Pa. Code § 92.61(b)
pH (S.U.)	—	—	6.0	—	9.0	2/month	Grab	25 Pa. Code § 92a.48(a)(2)
TSS	8.3	17	—	30.0	60.0	2/month	Grab	25 Pa. Code § 92a.48(a)(3)
Oil and Grease	—	2.8	—	—	10.0	2/month	Grab	25 Pa. Code § 92a.48(a)(3)
Carbon Disulfide	0.28	0.55	—	1.0	2.0	2/month	Grab	25 Pa. Code § 92a.48(a)(3)

The effluent limits and monitoring requirements in Table 1 will remain in effect at IMP 101 pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act (33 U.S.C. § 1342(o)) and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) [2], unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

101.A. Technology-Based Effluent Limitations (TBELs)

Federal Effluent Limitations Guidelines (ELG)

Operations at the Monongahela Plant are classified under SIC Code 2819 – Industrial Inorganic Chemicals. Wastewaters generated at the facility include water decanted from the top of a tank that holds liquid carbon disulfide (CS_2); boiler system water including boiler blowdown; cooling tower overflow and cooling system losses from non-contact cooling; laboratory wastewaters; wastewater from inert gas generation; and process area storm water. EPA promulgated ELGs for the manufacturing of inorganic chemicals in 40 CFR Part 415 – Inorganic Chemicals Manufacturing Point Source Category ELGs, but the insoluble, sulfur-based Crystex product Flexsys manufactures is not regulated by any of the subparts of Part 415. Therefore, DEP previously used its best professional judgement (BPJ) to develop case-by-case TBELs in accordance with 25 Pa. Code § 92a.48(a)(3) and 40 CFR § 125.3(c)(2) (incorporated by reference in DEP's regulations at 25 Pa. Code § 92a.3(b)(4)). Section 125.3(c)(2) states that technology-based treatment requirements may be imposed on a case-by-case basis under section 402(a)(1) of the Act to the extent that EPA-promulgated effluent limitations are inapplicable.

BPJ TBELs for Carbon Disulfide (CS_2)

[1] 40 CFR § 122.45(h)(1): "When permit effluent limitations or standards imposed at the point of discharge are impractical or infeasible, effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams."

[2] *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)

In the first NPDES permit issued to Stauffer Chemical Company for this facility on July 17, 1975, DEP imposed the following TBELs for CS_2, which have been maintained in all subsequent permit renewals according to anti-backsliding requirements.

Table 2. Existing Case-by-Case TBELs for Carbon Disulfide

Parameter	Average Monthly (mg/L)	Instantaneous Maximum (mg/L)
Carbon Disulfide	1.0	2.0

The basis for those carbon disulfide limits traces back to the application for Water Quality Management Permit No. 6373203 (issued on August 9, 1973) which authorized then-owner Stauffer Chemical Company to construct and operate wastewater treatment facilities for process and non-process wastewaters. That permit also authorized the discharge of those wastewaters to Pigeon Creek pursuant to the Pennsylvania's Clean Streams Law because DEP had not been delegated authority by the Environmental Protection Agency to implement the NPDES program in Pennsylvania. Stauffer's application stated the following:

> After treatment in the settling tank, [process] wastewaters are combined with diverted stormwater and other stormwaters all of which are then discharged to Pigeon Creek.
>
> With respect to the various CS_2 concentrations reported [on the application], these results represent actual measured values by Stauffer personnel. The CS_2 concentration in the oil and CS_2 recovery system discharge was measured as 1000 mg/l. Since this wastewater is at a temperature of 40°C, this result shows the wastewater to contain nearly the expected saturation value of 1110 mg/l as reported in the "International Critical Tables".
>
> The sensitivity of the method employed by Stauffer in measurement is 1.0 mg/l of CS_2. Samples were gathered from May through November 1972, to obtain these reported results. When all of the wastewaters are combined, Duncan, Lagnese and Associates, Inc. calculates that the resultant CS_2 concentration will be 67 mg/l in the settling tank influent. Samples of the present infiltration lagoon contents reveal less than 1.0 mg/l of CS_2 (the limit of sensitivity of the analytical method). Consequently, Duncan, Lagnese and Associates, Inc. has reported the estimated settling tank effluent to contain less than 1.0 mg/l. This removal of CS_2 from 67 to less than 1.0 mg/l is believed by Duncan, Lagnese and Associates, Inc. to be due to air stripping of the CS_2 in sewers and the open lagoons. Duncan, Lagnese and Associates, Inc. further believes this removal should occur in the proposed sewer system and settling tank.

Stauffer Chemical Company's consulting engineer's characterization of the removal mechanism for CS_2 as "air stripping" is better characterized as "rapid volatilization" because "air stripping" generally denotes a constructed treatment process using forced air, which is not a past or present treatment process employed at the Monongahela Plant. Gaseous CS_2 is highly volatile, but liquid CS_2 is denser than water and generally will remain at the bottom of an unmixed storage tank containing water. Liquid CS_2 also may be stored in pressurized tanks or containers with an inert gas.

EPA described the properties of CS_2 in a December 2011 document titled "Preliminary Study of Carbon Disulfide Discharges from Cellulose Products Manufacturers" as follows:

> **2.1 <u>Chemical Properties of Carbon Disulfide</u>**
>
> Table 5 presents chemical properties for CS_2 compared to acetone and ethanol. The Henry's Law Constant for CS_2 is 1,748 Pa m^3 /mol at 25º C (Love, 2011). Henry's Law Constant is the measure of the solubility of a gas in a liquid at a particular temperature, proportional to the pressure of that gas above the liquid (Kotz and Treichel, 1999). Chemicals with a higher Henry's Law Constant are more volatile. For example, CS_2 is highly volatile: the gas constant for CS_2 is approximately 403 times higher than that for acetone (4.02 Pa m^3/mol).

"Table 5. Chemical Properties of Carbon Disulfide, Acetone, and Ethanol"

Chemical Properties	CS_2	Acetone	Ethanol
Henry's Law Constant at 25°C	1,748 Pa m^3/mol	4.02 Pa m^3/mol	0.585 Pa m^3/mol
Water Solubility	0.2% at 20°C	Soluble	Miscible
Evaporation Rate [a]	22.6	5.7	NA
National Fire Protection Association (NFPA) Flammability Rating [b]	4	3	3

Sources: EPA On-line Tools for Site Assessment Calculation; Fischer Scientific MSDS for Acetone and Ethanol; Love, 2011; Ohio EPA, 2010; and OSHA Guidelines for Carbon Disulfide.
a – The rate at which a material will vaporize when compared to the known standard rate of butyl acetate (evaporation rate = 1.0).
b – The NFPA flammability rating ranks the relative danger for a chemical. The higher the rating, the higher danger associated with the chemical flammability.

EPA further explained in that document:

> Because CS_2 is highly volatile and flammable, facilities take additional precautions to reduce emissions to the air and sparks during the transfer of CS_2. These precautions include submerging the pipelines from storage tanks to the process in water trenches, transporting recovered CS_2 underground from the process to storage tanks, and transferring CS_2 by gravity or magnetically sealed pumps.
>
> EPA contacted the Carbon Disulfide Coalition to determine its toxicity levels and fate and transport in water. The Akzo Nobel contact, a Carbon Disulfide Coalition member and a manufacturer of CS_2, provided the following freshwater toxicity levels:
>
> - Freshwater, acute: 3 mg/L; and
> - Freshwater, chronic: 1 mg/L.
>
> The Akzo Nobel contact also stated that CS_2 volatilizes quickly from water. Historically, Carbon Disulfide Coalition scientists had difficulty measuring the solubility of CS_2, due to the rapid volatilization of free CS_2 into the vapor space. They found that the dissolved levels quickly dropped during the experiment. The Coalition concluded that the fate and transport of CS_2 in water would be volatilization, i.e., none would stay in solution (Love, 2011).

As explained by Stauffer Chemical Company's contract engineers in 1973 and by EPA in 2011, CS_2 is expected to volatilize and is unlikely to stay in solution. Analytical data reported on DMRs support that conclusion. The maximum concentration of CS_2 reported at IMP 101 in the last three years was 0.0851 mg/L from October 2023. Flexsys routinely reports CS_2 concentrations as "<0.0010 mg/L". Those data also demonstrate improvements in analytical quantitation. A reporting limit of 0.001 mg/L is three orders of magnitude more sensitive than the 1 mg/L reporting limit reported by Stauffer in 1973.

In theory, the Carbon Disulfide Coalition's conclusion on the fate and transport of CS_2 and Flexsys' reported CS_2 results would lead DEP to recommend average monthly and maximum daily CS_2 limits of 0.001 mg/L—effectively concluding that non-recoverable CS_2 in the effluent is completely removable through either passive volatilization/evaporation or forced volatilization using an air stripper or aeration units. Factors associated with the use of forced air systems including energy requirements and operation and maintenance costs would not lead DEP to conclude that forced air treatment systems are appropriate, particularly when more than 70% of Flexsys' reported effluent concentrations are already not detectable at a level of 0.001 mg/L. Also, in the absence of treatment systems, DEP is unable to develop TBELs using Flexsys' reported effluent data because the data do not represent the performance of a treatment system designed to remove CS_2.

Notwithstanding the preceding, the instantaneous maximum limit for CS_2 will be changed to 1.0 mg/L. While Flexsys' effluent contains lower CS_2 concentrations, those concentrations are achieved circumstantially and not by design. The revised instantaneous maximum TBEL for CS_2 is achievable by Flexsys by many orders of magnitude.

Even though water quality impacts are not considered when developing TBELs, DEP notes that average monthly and instantaneous maximum CS_2 limits of 1.0 mg/L are equivalent to the most stringent toxicity level reported by the Carbon Disulfide Coalition to EPA and consequently aquatic life uses in Flexsys' receiving waters should be protected by the TBELs for CS_2.

Other Process-Related Wastewaters

Boiler blowdown, cooling tower overflows, laboratory wastewaters, and wastewater from inert gas generation also are not regulated by Part 415, but those sources are regulated as "low volume waste sources" by the Steam Electric Power Generating Point Source Category ELGs under 40 CFR Part 423. Flexsys is not a steam electric power-generating facility, but the definition of "low volume waste sources" in 40 CFR § 423.11(b), reproduced below, is not specific to power-generating facilities.

> The term *low volume waste sources* means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations or standards are otherwise established in this part. Low volume waste sources include, but are not limited to, the following: Wastewaters from ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, recirculating house service water systems, and wet scrubber air pollution control systems whose primary purpose is particulate removal. Sanitary wastes, air conditioning wastes, and wastewater from carbon capture or sequestration systems are not included in this definition.

40 CFR § 423.12(b)(1) and (b)(3) impose the following TBELs on low volume waste sources.

Table 3. TBELs for Low Volume Waste Sources from 40 CFR Part 423

Pollutant	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)	Basis
TSS	30.0	100.0	40 CFR § 423.12(b)(3)
Oil and Grease	15.0	20.0	40 CFR § 423.12(b)(3)
pH (standard units)	within the range of 6.0 to 9.0		40 CFR § 423.12(b)(1)

The parameters regulated in Flexsys' low volume waste sources are the same as those regulated by Federal ELGs for analogous effluent sources in another industry. However, as shown in Table 1, Flexsys' low volume waste sources are already subject to equivalent or more stringent case-by-case TBELs, which will be maintained at IMP 101 based on anti-backsliding.

Table 4. Concentration TBELs for Flexsys' Low Volume Waste Sources

Pollutant	Average Monthly (mg/L)	Instantaneous Maximum (mg/L)	Basis
TSS	30.0	60.0	25 Pa. Code § 92a.48(a)(3)
Oil and Grease	—	10.0	25 Pa. Code § 92a.48(a)(3)
pH (standard units)	within the range of 6.0 to 9.0		25 Pa. Code § 92a.48(a)(2) & 95.2(1)

Monitoring and reporting for flow is required per 25 Pa. Code § 92a.61(b) regarding reasonable monitoring requirements.

Mass Limits

In addition to concentration limits, comments from the U.S. Environmental Protection Agency on a previous permit issued to Flexsys resulted in the imposition of mass limits. Mass limits are calculated using IMP 101's long-term average (LTA) discharge flow rate, 0.0219 MGD—calculated using maximum daily flow data reported on Discharge Monitoring Reports from the last five years—in combination with the concentration limits in Tables 2 and 4 with the following formula:

LTA Flow Rate (MGD) × concentration limit (mg/L) × conversion factor (8.3435) = mass limit (lb/day)

Mass limits for carbon disulfide are calculated differently because decant discharges that contain carbon disulfide occur in batches. According to the 2011 application, there is one decant cycle per day that discharges at a rate of 25 gpm for ten minutes. Therefore, the total discharge volume from the carbon disulfide tank is 250 gallons/day. That discharge volume and the maximum concentration limit for CS_2 (1.0 mg/L) are used to calculate the maximum daily mass discharge loading for carbon disulfide.

Table 5. Mass TBELs for IMP 101

Pollutant	Average Monthly (pounds/day)	Maximum Daily (pounds/day)
TSS	5.48	11.0
Oil and Grease	—	1.83
Carbon Disulfide	—	0.0021

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS. 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.[3] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as significant pollutants of concern.

[3] ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

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.

Flexsys reported results for PFOA, PFOS, HFPO-DA, and PFBS in its updated application submitted on August 26, 2024. The results are summarized in Table 6. Flexsys' detections for the four PFAS parameters are less than DEP's Quantitation Limits identified in the SOP, but DEP cannot ignore detected values.

Table 6. Analytical Results for PFAS at IMP 101

Parameter	Concentration (ng/L)	Reporting Limit (ng/L)	Detection Limit (ng/L)
Perfluorooctanoic acid (PFOA)	2.2	0.97	0.25
Prefluorooctanesulfonic acid (PFOS)	1.8	0.97	0.21
Perfluorobutanesulfoni acid (PFBS)	0.94 J	0.97	0.37
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.3 J	3.9	1.0

Consistent with Section II.I.a of SOP No. BCW-PMT-032, the detections for PFOA, PFOS, PFBS, and HFPO-DA mean that quarterly monitoring will be required for those parameters. 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 Flexsys' case), then the monitoring may be discontinued.

In addition, pursuant to Flexsys' detection of PFAS parameters and Section IV.N.1 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications" [SOP No. BCW-PMT-001], a condition will be included in the permit requiring Flexsys to investigate sources of PFAS at the site and to develop and implement a PFAS reduction plan upon DEP's approval.

101.B. Water Quality-Based Effluent Limitations (WQBELs)

Generally, WQBELs are not evaluated at IMPs because WQBELs are designed to protect water quality by ensuring that water quality criteria are met in waters of the Commonwealth. IMP 101 is not a final stream discharge location to waters of the Commonwealth. However, the only wastewater source downstream of IMP 101 that contributes to final discharges at Outfall 001 is storm water, which historically was characterized as "uncontaminated" (see Section 001.A below).

Pursuant to 25 Pa. Code § 96.4(g), mathematical modeling used to develop WQBELs must be performed at $Q_{7\text{-}10}$ low-flow conditions. Storm water discharges generally do not occur at $Q_{7\text{-}10}$ conditions because the precipitation that causes a storm water discharge also will increase the receiving stream's flow and that increased stream flow will provide additional assimilative capacity during a storm event. Consequently, there should be no reasonable potential for storm water that combines with IMP 101's wastewaters to cause or contribute to an exceedance of water quality criteria at design conditions.

Since the storm water that contributes to discharges from Outfall 001 downstream of IMP 101 is not expected to exhibit a reasonable potential to cause or contribute to violations of water quality criteria and there is no design flow rate for that storm water that can be added to the process wastewater flow rate to perform a water quality evaluation, WQBELs are developed for process wastewaters regulated at IMP 101 as if they were discharges at Outfall 001.

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

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

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling. If warranted, ammonia-nitrogen, CBOD-5, and dissolved oxygen are analyzed separately using DEP's WQM 7.0 model.

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

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring requirements.

Reasonable Potential Analysis and WQBEL Development for IMP 101 at Outfall 001

Table 7. TMS Inputs for IMP 101

Parameter	**Value**
River Mile Index	1.60
Discharge Flow (MGD)	0.0219
Basin/Stream Characteristics	
Parameter	**Value**
Area (mi^2)	57.6
Q_{7-10} (cfs)	1.17
Low-flow yield (cfs/mi^2)	0.0203
Elevation (ft)	744.24
Slope	0.0034

Effluent sampled at IMP 101 that discharges through Outfall 001 is evaluated based on the maximum concentrations reported on the updated permit renewal application submitted on August 26, 2024. The TMS model is run for IMP 101 at Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 7. Except for CS_2, pollutants for which water quality criteria have not been promulgated (e.g., TSS, Oil and Grease, etc.) are excluded from the modeling. WQBELs for CS_2 are evaluated using the acute and chronic effect levels the Carbon Disulfide Coalition's reported to EPA (3 mg/L acute; 1 mg/L chronic) as discussed in Section 101.A of this Fact Sheet.

The discharge flow rate is the average of the maximum daily flow rates reported on Discharge Monitoring Reports for IMP 101 from February 2017 through July 2024. The drainage area at Outfall 001 and the Q_{7-10} of Pigeon Creek were calculated using USGS's StreamStats web application. The slope of Pigeon Creek and the elevation at Outfall 001 were estimated using a USGS topographic map.

Output from the TMS model run is included in **Attachment A**. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. Based on the results of the TMS modeling, the permit requirements listed in Table 8 apply at IMP 101.

Table 8. Water Quality-Based Requirements for IMP 101 at Outfall 001 to Pigeon Creek

Parameter	Permit Limits					Maximum Reported Result (µg/L)	Governing WQBEL	Target QL (µg/L)
	Avg. Mo. (lbs/day)	Max Daily (lbs/day)	Avg Mo. (µg/L)	Max Daily (µg/L)	IMAX (µg/L)			
Zinc, Total	Report	Report	Report	Report	Report	248	2,200	5.0
~~Acrylamide~~	~~Report~~	~~Report~~	~~Report~~	~~Report~~	~~Report~~	~~<100~~	~~17.7~~	~~2.0~~
Butyl Benzyl Phthalate	0.0006	0.001	3.55	5.54	8.88	1.8	3.55	5.0
Hexachlorobutadiene	Report	Report	Report	Report	Report	<1.2	2.52	0.5
1,2,4-Trichlorobenzene	Report	Report	Report	Report	Report	<1.2	2.49	0.5

Flexsys reported results for Acrylamide using an analytical reporting limit of 10,000 µg/L. For modeling purposes, the TMS uses a Target QL of 0.1 µg/L for Acrylamide. The permit application instructions do not identify a Target QL for Acrylamide, so applicants are not held to the TMS's Target QL for Acrylamide. Also, according to the application, chemical additives containing Acrylamide are not used at the Monongahela Plant. Therefore, the TMS's WQBELs for Acrylamide are not imposed.

The reporting requirements for Total Zinc and the WQBELs for Butyl Benzyl Phthalate are based on detected results that are within the respective thresholds for either reporting or the imposition of WQBELs. The reporting requirements for Hexachlorobutadiene and 1,2,4-Trichlorobenzene are based on results that do not meet DEP's Target QLs. As explained in the introduction to this Fact Sheet, Flexsys was given an opportunity to collect new analytical results to update the results from the 2011 application in which most of DEP's Target QLs were not met. The reported results shown in Table 8 are from the updated application where Target QLs for Hexachlorobutadiene and 1,2,4-Trichlorobenzene were not met. Flexsys can collect additional samples for those parameters during the draft permit comment period for DEP to consider if Flexsys chooses.

Concentrations of Butyl Benzyl Phthalate reported on the updated application are less than the new WQBELs. Therefore, no schedule of compliance is included for the new WQBELs. However, the average monthly WQBEL is less than DEP's Target QL. Therefore, for the purpose of determining compliance, the permit will include a condition requiring a non-detect result at the level of DEP's Target QL.

101.C. Effluent Limitations and Monitoring Requirements for IMP 101

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at IMP 101 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table below.

Table 9. Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(b)
pH (standard units)	—	—	6.0 (IMIN)	—	9.0	25 Pa. Code § 92a.48(a)(2) & 95.2(1); 33 U.S.C. § 1342(o)
Total Suspended Solids	5.48	11.0	30.0	—	60.0	25 Pa. Code § 92a.48(a)(3); 33 U.S.C. § 1342(o)
Oil and Grease	—	1.83	—	—	10.0	25 Pa. Code § 92a.48(a)(3); 33 U.S.C. § 1342(o)
Zinc, Total	Report	Report	Report	Report	Report	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
1,2,4-Trichlorobenzene	Report	Report	Report	Report	Report	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)

Table 9 (cont'd). Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Butyl Benzyl Phthalate (µg/L)	0.0006	0.001	3.55	5.54	8.88	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Carbon Disulfide	—	0.0021	1.0	—	1.0	25 Pa. Code § 92a.48(a)(3)
Hexachlorobutadiene	Report	Report	Report	Report	Report	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
PFOA	—	—	—	—	Report	25 Pa. Code § 92a.61(b)
PFOS	—	—	—	—	Report	25 Pa. Code § 92a.61(b)
PFBS	—	—	—	—	Report	25 Pa. Code § 92a.61(b)
HFPO-DA	—	—	—	—	Report	25 Pa. Code § 92a.61(b)

Monitoring frequencies and sample types are imposed in accordance with Chapter 6, Table 6-4 of DEP's Permit Writer's Manual, DEP's IW NPDES SOP, and the previous permit. Flow must be measured 2/month. Total zinc, butyl benzyl phthalate, hexachlorobutadiene, and 1,2,4-trichlorobenzene must be analyzed 1/week using 24-hour composite sampling. PFOA, PFOS, PFBS, and HFPO-DA will require 1/quarter grab sampling. All other parameters must be sampled 2/month using grab sampling.

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.0219 (avg.); 0.2016 (max)
Latitude	40° 11' 10.00"	**Longitude**	-79° 55' 58.00"

Wastewater Description: Sources regulated at IMP 101 and storm water runoff

001.A. Technology-Based Effluent Limitations (TBELs)

TBELs and WQBELs that apply to the process wastewater sources contributing to discharges at Outfall 001 are imposed at IMP 101 pursuant to 40 CFR § 122.45(h).

Storm water discharges from Outfall 001 were historically permitted as discharges consisting solely of uncontaminated storm water runoff. "Uncontaminated" is not a term of art in DEP's regulations, but a storm water discharge's status as "uncontaminated" generally corresponds to EPA's conditional exclusion for "no exposure" of industrial activities and materials to storm water under 40 CFR § 122.26(g) (incorporated by reference at 25 Pa. Code § 92a.32(a)) and DEP's requirements under 25 Pa. Code § 92a.32(b). Pursuant to 40 CFR § 122.26(g)(3)(ii), the conditional exclusion from the requirement for an NPDES permit is only available on a facility-wide basis but § 122.26(g)(3)(ii) acknowledges that if a facility has some discharges of storm water that would otherwise be "no exposure" discharges, then the requirements of an individual permit can be adjusted accordingly.

To qualify for the "no exposure" exemption, the regulations require facility operators to submit a signed certification stating that there are no discharges of storm water contaminated by exposure to industrial materials and activities. The "No Exposure?" checkbox on Module 1 of DEP's current permit application functions as that certification. In 2011, the "No Exposure" certification would have been provided on Module 14 of the application forms available at that time. DEP also requires applicants to submit corroborating analytical results for each "no exposure" outfall.

Flexsys did not submit Module 14 with the 2011 application and did not identify Outfall 001 as a "no exposure" outfall on Module 1 of the 2024 application update. Flexsys did submit a narrative description of the control measures intended to prevent storm water contamination. Flexsys' description is reproduced below.

> Control Measures
>
> Covered storage of chemicals and wastes prevent exposure to stormwater. Hazardous waste is stored on a concrete pad under a roof in the north-northeast area of the plant. Satellite hazardous waste accumulation site[s] in the plant are contained in ventilated drum cabinets. All processing chemicals and water treatment chemicals are stored in curbed containment sheds. Weekly inspections are conducted to ensure proper containment. Any leakage within the containment areas is immediately addressed by absorption with sorbent materials which are then properly disposed. Weed control and fertilizer chemicals are applied periodically during the summer months to grassy areas of the plant property and flower beds around the Administration Building. The main material and access are drains to Taylor's Run. A small material loading and access area drains to the on-site wastewater treatment plant (WWTP) which discharges to Outfall 001.
>
> All processing areas drain to the on-site WWTP. These process areas are equipped with secondary containment (i.e., diked to contain spillage) and the storm water that collects in the dikes is inspected prior to discharging to the WWTP. Oil storage areas, including the chemical containment sheds, are equipped with sumps to contain spillage. Employees handling hazardous wastes are trained annually with the property spill prevent control procedures and plans.

No monitoring requirements were imposed at Outfall 001 in the current permit from 2007, so there are no DMR data for the outfall. Also, there are no application data to characterize the quality of storm water discharges through Outfall 001 independently of process wastewaters.

Storm water data at Outfalls 002 and 003 suggest that storm water runoff from the site may be impacted by industrial activities. However, for Outfall 001's storm water, separate monitoring requirements like those imposed at Flexsys' other storm water outfalls (discussed later in this Fact Sheet) will not be imposed due to the combination of Outfall 001's storm water with a continuous flow of treated process wastewaters. Nevertheless, storm water BMPs must be implemented within the drainage area for Outfall 001's storm water runoff including measures for pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

001.B. Water Quality-Based Effluent Limitations (WQBELs)

No modeling is performed. WQBELs for the process wastewater component of Outfall 001's discharges are imposed at IMP 101 (see Section 101.B of this Fact Sheet). For contributions of storm water to Outfall 001, conditions in Part C of the permit will ensure compliance with water quality standards through a combination of BMPs including, as mentioned previously, pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

001.C. Effluent Limits and Monitoring Requirements for Outfall 001

No effluent limits or monitoring requirements are imposed at Outfall 001. However, Outfall 001 will be listed in the permit as a discharge point for wastewaters monitored at IMP 101 and storm water runoff.

Development of Effluent Limitations

Outfall No.	002 (old Outfall S01)	**Design Flow (MGD)**	Variable
Latitude	40° 11' 6.00"	**Longitude**	-79° 55' 54.00"

Wastewater Description: Storm water from areas north of the wastewater treatment plant, the Warehouse 3 roof and surrounding pavement, and the diked sulfur storage and loading area

002.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfall 002 were historically permitted as uncontaminated storm water discharges, which generally corresponds to EPA's conditional exclusion for "no exposure" of industrial activities and materials to storm water under 40 CFR § 122.26(g) (incorporated by reference at 25 Pa. Code § 92a.32(a)) and DEP's requirements under 25 Pa. Code § 92a.32(b).

To qualify for the "no exposure" exemption, the regulations require facility operators to submit a signed certification stating that there are no discharges of storm water contaminated by exposure to industrial materials and activities. DEP also requires applicants to submit corroborating analytical results for each "no exposure" outfall. Flexsys submitted a narrative description of the control measures intended to prevent storm water contamination (see Section 001.A of this Fact Sheet), but Flexsys did not submit a No Exposure Certification for Outfall 002.

No monitoring requirements were imposed at Outfall 002 (Outfall S01) in the current permit from 2007, so there are no DMR data for the outfall. However, Flexsys did report analytical results for Oil and Grease, BOD_5, Chemical Oxygen Demand, Total Suspended Solids, Total Kjeldahl Nitrogen, Nitrate+Nitrite Nitrogen, Total Phosphorus, and pH based on one sample collected on May 11, 2006. Results for those parameters are required for all discharges of storm water associated with industrial activity according to 40 CFR § 122.26(c)(1)(i)(E)*(3)* and 25 Pa. Code § 92a.32(a). The results are summarized in Table 10.

Table 10. Effluent Concentrations Reported for Outfall 002

Parameter	Application Result (mg/L)	No Exposure Threshold (mg/L)[4]
Oil and Grease	"ND"	≤5.0
BOD_5	25	≤10
COD	46	≤30
TSS	238	≤30
Total Kjeldahl Nitrogen	6.42	≤2 †
Phosphorus, Tot.	0.78	≤1
Nitrate+Nitrite Nitrogen	0.56	—
pH (S.U.)	6.70	6.0 to 9.0

† Total Nitrogen

BOD5, COD, Total Kjeldahl Nitrogen, and TSS concentrations exceed no exposure thresholds. The TSS concentration also exceeds the 100 mg/L benchmark concentration that applies to storm water discharges that are exposed to industrial activities. Additionally, despite Flexsys narrative description of control measures (see Section 001.A of this Fact Sheet), the regulations (40 CFR § 122.26(g)(4)(iii)) are specific about the certification requirements, which state:

> (iii) The certification must indicate that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:
>
> (A) Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;
>
> (B) Materials or residuals on the ground or in storm water inlets from spills/leaks;
>
> (C) Materials or products from past industrial activity;
>
> (D) Material handling equipment (except adequately maintained vehicles);
>
> (E) Materials or products during loading/unloading or transporting activities;
>
> (F) Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

[4] No exposure thresholds are listed in the instructions for Module 1 of the permit application forms.

(G) Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

(H) Materials or products handled/stored on roads or railways owned or maintained by the discharger;

(I) Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

(J) Application or disposal of process wastewater (unless otherwise permitted); and

(K) Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

Based on the reported effluent data, notwithstanding Flexsys' narrative description of control measures, storm water discharges from Outfall 002 may be exposed to industrial activities or pollutants. Therefore, consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in the PAG-03 will be applied to Flexsys' storm water discharges. Based on Flexsys' SIC Code, 2819, the facility would be classified under Appendix F – Chemicals and Allied Products of the PAG-03 General Permit.[5] To ensure that there is baseline consistency across the state for all facilities producing chemicals and allied products that discharge storm water associated with their industrial activities, the monitoring requirements of Appendix F of the PAG-03 will be imposed at Outfall 002. The Appendix F monitoring requirements are shown in Table 11.

Table 11. PAG-03 Appendix F – Minimum Monitoring Requirements

Discharge Parameter	Units	Sample Type	Appendix F Measurement Frequency	Benchmark Values (mg/L)
Chemical Oxygen Demand	mg/L	1 Grab	1/6 months	120
Total Suspended Solids	mg/L	1 Grab	1/6 months	100
Nitrate+Nitrite Nitrogen	mg/L	1 Grab	1/6 months	3.0
Phosphorus, Total	mg/L	1 Grab	1/6 months	—
Aluminum, Total	mg/L	1 Grab	1/6 months	—
Iron, Total	mg/L	1 Grab	1/6 months	—
Lead, Total	mg/L	1 Grab	1/6 months	—
Zinc, Total	mg/L	1 Grab	1/6 months	—
pH	s.u.	1 Grab	1/6 months	9.0

The benchmark values and related corrective action plan requirements from Appendix F of the PAG-03 also will apply to Outfall 002.

002.B. Water Quality-Based Effluent Limitations (WQBELs)

No modeling is performed. Conditions in Part C of the permit in combination with benchmark monitoring requirements will ensure compliance with water quality standards through a combination of BMPs including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

002.C. Effluent Limits and Monitoring Requirements for Outfall 002

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 002 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits are summarized in the table below.

Table 12. Effluent Limits and Monitoring Requirements for Outfall 002

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(h)
Chemical Oxygen Demand	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Total Suspended Solids	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Nitrate+Nitrite Nitrogen	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)

[5] The determination of which of the PAG-03 General Permit's appendices applies to a facility is based on a facility's SIC Code.

Table 12 (cont'd). Effluent Limits and Monitoring Requirements for Outfall 002

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Phosphorus, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Aluminum, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Iron, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Lead, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Zinc, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
pH (S.U.)	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)

In accordance with Appendix F of the PAG-03 on which the monitoring requirements are based, the measurement frequency for all parameters will be 1/6 months.

Development of Effluent Limitations

Outfall No. 003 (old Outfall S02) **Design Flow (MGD)** Variable
Latitude 40° 11' 3.00" **Longitude** -79° 56' 6.00"
Wastewater Description: Storm water from paved shipping dock west of processing areas

003.A. Technology-Based Effluent Limitations (TBELs)

Storm water discharges from Outfall 003 were historically permitted as discharges consisting solely of uncontaminated storm water runoff, which generally corresponds to EPA's conditional exclusion for "no exposure" of industrial activities and materials to storm water under 40 CFR § 122.26(g).

To qualify for the "no exposure" exemption, the regulations require facility operators to submit a signed certification stating that there are no discharges of storm water contaminated by exposure to industrial materials and activities. DEP also requires applicants to submit corroborating analytical results for each "no exposure" outfall. Flexsys submitted a narrative description of the control measures intended to prevent storm water contamination (see Section 001.A of this Fact Sheet), but Flexsys did not submit a No Exposure Certification for Outfall 003.

No monitoring requirements were imposed at Outfall 003 (Outfall S02) in the current permit from 2007, so there are no DMR data for the outfall. However, Flexsys did report analytical results for Oil and Grease, BOD_5, Chemical Oxygen Demand, Total Suspended Solids, Total Kjeldahl Nitrogen, Nitrate+Nitrite Nitrogen, Total Phosphorus, and pH based on one sample collected on May 11, 2006. The results are summarized in Table 13.

Table 13. Effluent Concentrations Reported for Outfall 003

Parameter	Application Result (mg/L)	No Exposure Threshold (mg/L)
Oil and Grease	"ND"	≤5.0
BOD_5	9	≤10
COD	49	≤30
TSS	63	≤30
Total Kjeldahl Nitrogen	1.98	≤2 †
Phosphorus, Tot.	0.23	≤1
Nitrate+Nitrite Nitrogen	0.69	—
pH (S.U.)	7.2	6.0 to 9.0

† Total Nitrogen

The concentrations of COD and TSS exceed the corresponding "no exposure" thresholds. Based on the reported effluent data, storm water discharges from Outfall 003 may be exposed to industrial activities or pollutants. Therefore, consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in Appendix F of the PAG-03 will be applied to Flexsys' storm water discharges (see Table 10 in Section 002.A of this Fact Sheet.

The benchmark values and related Corrective Action Plan requirements from Appendix F of the PAG-03 also will apply to Outfall 003.

003.B. Water Quality-Based Effluent Limitations (WQBELs)

No modeling is performed. Conditions in Part C of the permit in combination with benchmark monitoring requirements will ensure compliance with water quality standards through a combination of BMPs including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

003.C. Effluent Limits and Monitoring Requirements for Outfall 003

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61, effluent limits at Outfall 003 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. Applicable effluent limits are summarized in the table below.

Table 14. Effluent Limits and Monitoring Requirements for Outfall 003

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(h)
Chemical Oxygen Demand	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Total Suspended Solids	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Nitrate+Nitrite Nitrogen	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Phosphorus, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Aluminum, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Iron, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Lead, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Zinc, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
pH (S.U.)	—	—	—	Report	—	25 Pa. Code § 92a.61(h)

In accordance with Appendix F of the PAG-03 on which the monitoring requirements are based, the measurement frequency for all parameters will be 1/6 months.

Development of Effluent Limitations

Outfall No. 004 (old Outfall S03) **Design Flow (MGD)** Variable
Latitude 40° 11' 3.00" **Longitude** -79° 56' 3.00"
Wastewater Description: Groundwater and storm water from the paved parking lot west of the processing area

Discharges monitored at Outfall 004 (formerly Outfall S03) are currently subject to the following effluent limits and monitoring requirements.

Table 15. Current Effluent Limits and Monitoring Requirements for Outfall 004

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Basis
	Avg. Mo.	Max Daily	Minimum	Avg. Mo.	Max Daily			
Flow (MGD)	Report	Report	—	—	—	1/quarter	Estimate	25. Pa. Code § 92.61(b)
pH (S.U.)	—	—	—	—	Report	1/quarter	Grab	25 Pa. Code § 92a.48(a)(2)
Aluminum, Total	—	—	—	—	Report	1/quarter	Grab	25 Pa. Code § 92a.48(a)(3)
Manganese, Total	—	—	—	—	Report	1/quarter	Grab	25 Pa. Code § 92a.48(a)(3)
Iron, Total	—	—	—	—	Report	1/quarter	Grab	25 Pa. Code § 92a.48(a)(3)

The effluent limits and monitoring requirements in Table 15 will remain in effect at IMP 101 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) [6], unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

004.A. Technology-Based Effluent Limitations (TBELs)

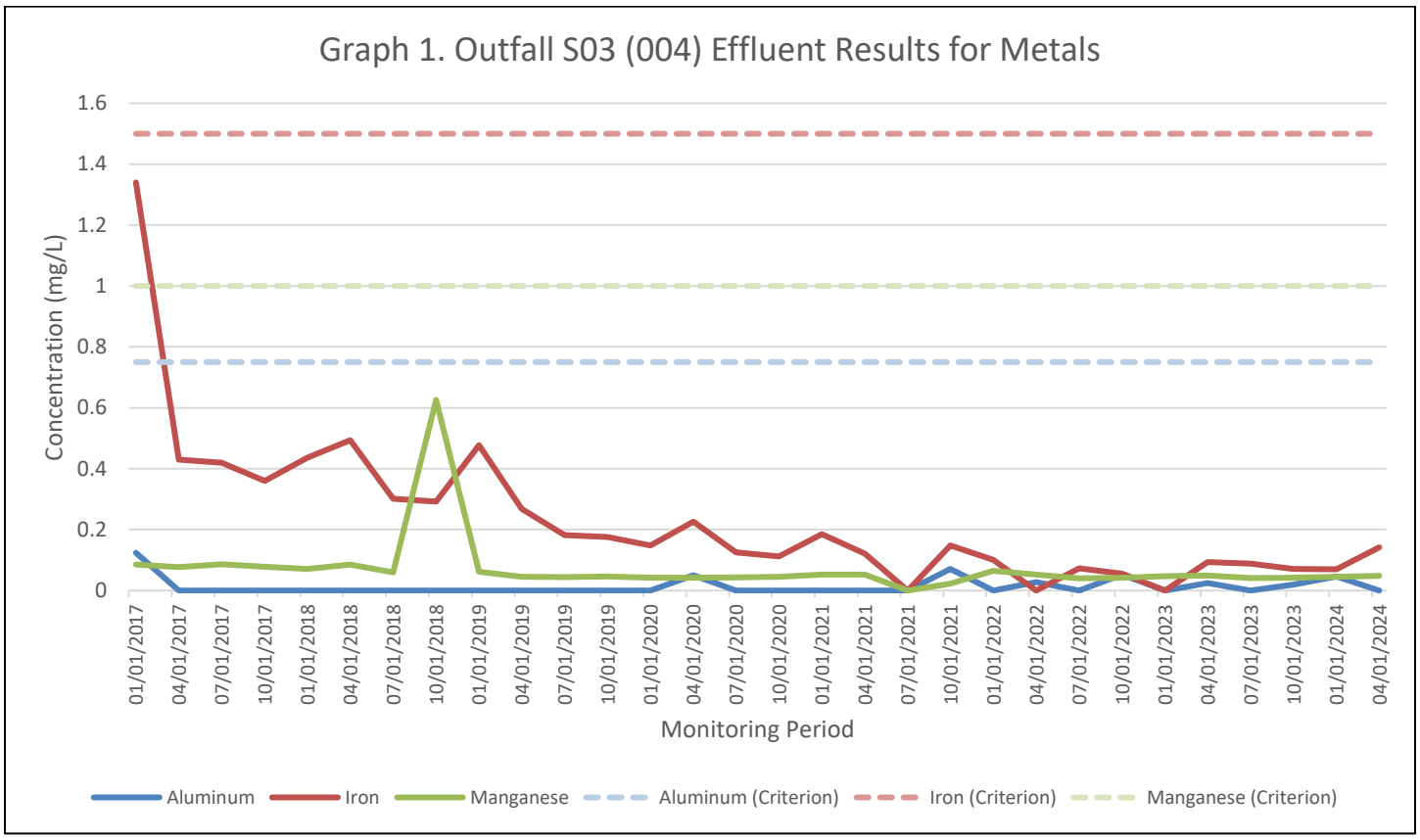
As explained in the introduction to this Fact Sheet, the 2007 NPDES permit imposed quarterly monitoring requirements for aluminum, iron, manganese, and pH at Outfall S03, which were appealed by Flexsys. DEP and Flexsys entered into a Consent Order and Agreement (COA) on March 12, 2008 in which Flexsys agreed to withdraw its appeal; investigate the source of the water collected and conveyed by the Outfall S03 drainage system; conduct additional quarterly sampling; and submit an amendment application to request authorization to discharge groundwater and storm water.

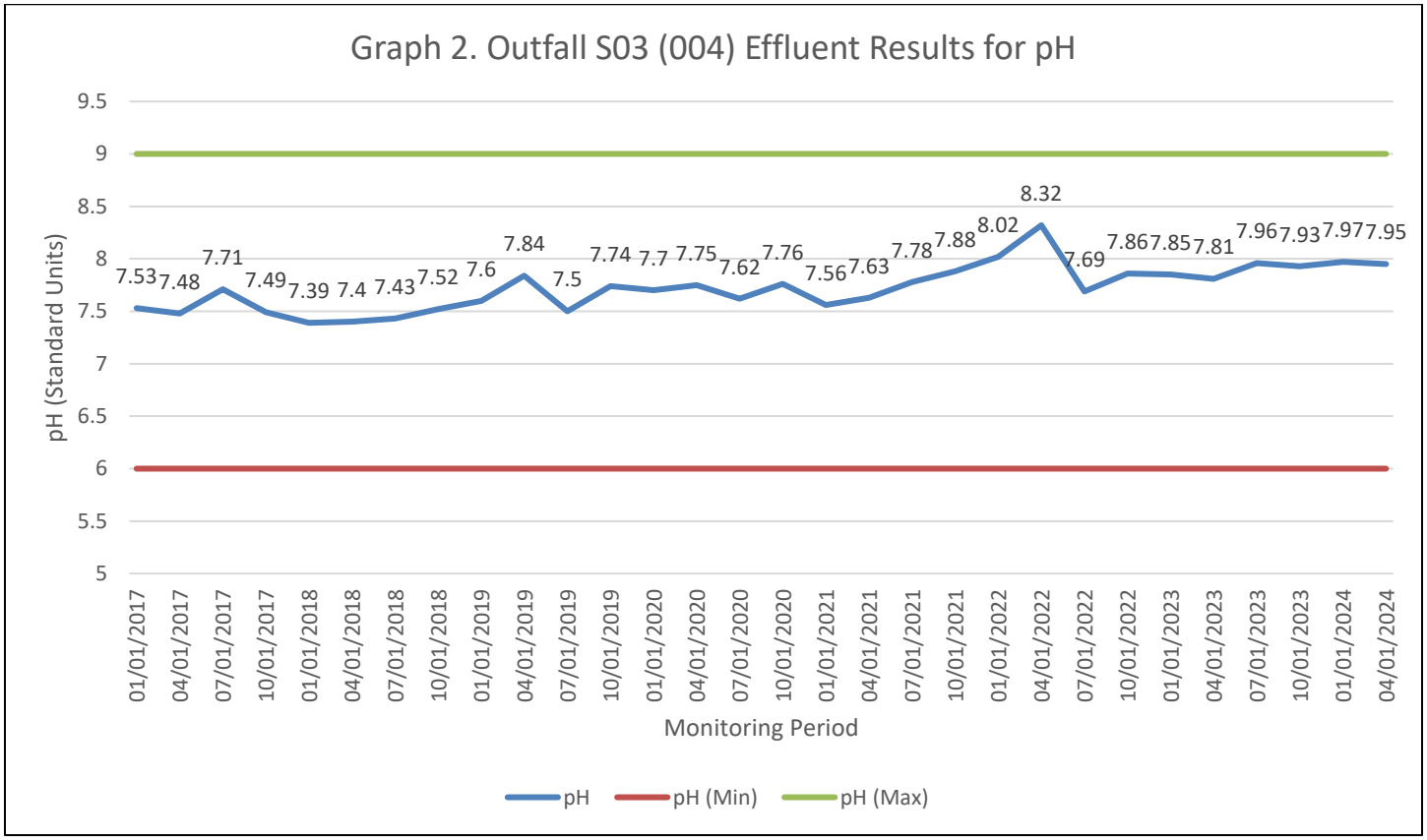
Pursuant to Flexsys' investigation required by the COA, Flexsys posited that the groundwater source was uncovered when a hillside cut was made in the 1960s by the then-owner of the facility to install a firewater tank and that the Outfall S03 drainage system was installed to collect and convey the uncovered groundwater to Taylors Run. The drainage system also received storm water runoff from the site through a series of inlets.

Flexsys completed its obligations under the COA and submitted an amendment application in 2008 but DEP did not take an action on the amendment application, in part, because the concentrations of metals in the groundwater discharge were still elevated.

Based on Discharge Monitoring Report data submitted under the current permit (January 2017 through April 2024), metals at Outfall S03 (now Outfall 004) have decreased to low levels as shown in Graph 1, which compares quarterly effluent data for aluminum, iron, and manganese to the most stringent water quality criteria for those parameters (0.75 mg/L for aluminum; 1.5 mg/L for iron; and 1.0 mg/L for manganese). Graph 2 shows pH values within the range of 6.0 to 9.0 standard units during the same period.

[6] *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)





Flexsys also reported results for Oil and Grease, BOD_5, Chemical Oxygen Demand, Total Suspended Solids, Total Kjeldahl Nitrogen, Nitrate+Nitrite Nitrogen, Total Phosphorus, and pH based on one sample collected on May 11, 2006 as summarized in Table 16.

Table 16. Effluent Concentrations Reported for Outfall 004

Parameter	Application Result (mg/L)	No Exposure Threshold (mg/L)
Oil and Grease	"ND"	≤5.0
BOD_5	3	≤10
COD	8	≤30
TSS	21	≤30
Total Kjeldahl Nitrogen	0.78	≤2 †
Phosphorus, Tot.	0.17	≤1
Nitrate+Nitrite Nitrogen	0.19	—
pH (S.U.)	7.1	6.0 to 9.0

† Total Nitrogen

The effluent concentrations are less than no exposure thresholds. However, No Exposure Certification applies to storm water and not groundwater.

Consistent with the new information (DMR data) and the lack of no exposure certification, the semi-annual monitoring requirements from Appendix F of the PAG-03 will be imposed at Outfall 004. That results in the relaxation of the monitoring frequencies for aluminum, iron, and pH from 1/quarter to 1/6 months (consistent with the exception to anti-backsliding given by 40 CFR § 122.44(l)(2)(i)(B)(*1*) relating to new information that justifies less stringent requirements) and the imposition of new monitoring requirements for BOD5, COD, TSS, Nitrate+Nitrite Nitrogen, Total Phosphorus, Total Lead, and Total Zinc.

004.B. Water Quality-Based Effluent Limitations (WQBELs)

No modeling is performed. Conditions in Part C of the permit in combination with benchmark monitoring requirements will ensure compliance with water quality standards through a combination of BMPs including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

004.C. Effluent Limits and Monitoring Requirements for Outfall 004

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61, effluent limits at Outfall 004 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. Applicable effluent limits are summarized in the table below.

Table 17. Effluent Limits and Monitoring Requirements for Outfall 004

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(h)
Chemical Oxygen Demand	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Total Suspended Solids	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Nitrate+Nitrite Nitrogen	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Phosphorus, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Aluminum, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Iron, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Lead, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
Zinc, Total	—	—	—	Report	—	PAG-03, App. F; § 92a.61(h)
pH (S.U.)	—	—	—	Report	—	25 Pa. Code § 92a.61(h)

In accordance with Appendix F of the PAG-03 on which the monitoring requirements are based, the measurement frequency for all parameters will be 1/6 months.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment A)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Standard Operating Procedure for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, SOP No. BCW-PMT-001, February 5, 2024, Version 1.7.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Industrial Permits, SOP No. BCW-PMT-032, February 5, 2024, Version 1.7.
☐	Other:

ATTACHMENT A

Toxics Management Spreadsheet Results for IMP 101 at Outfall 001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Flexsys America Monongahela Plant NPDES Permit No.: PA0022004 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Process wastewater and misc. wastewaters

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
0.0219	224	7.8						

					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		1100									
	Chloride (PWS)	mg/L		194									
	Bromide	mg/L		5.2									
	Sulfate (PWS)	mg/L		610									
	Fluoride (PWS)	mg/L		1									
Group 2	Total Aluminum	µg/L		99.4									
	Total Antimony	µg/L		0.74									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		122									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		185									
	Total Cadmium	µg/L	<	0.5									
	Total Chromium (III)	µg/L		6.2									
	Hexavalent Chromium	µg/L		0.19									
	Total Cobalt	µg/L	<	2.5									
	Total Copper	µg/L		7.4									
	Free Cyanide	µg/L	<	10									
	Total Cyanide	µg/L		0.0072									
	Dissolved Iron	µg/L		477									
	Total Iron	µg/L		622									
	Total Lead	µg/L		7.8									
	Total Manganese	µg/L		78.6									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		9.5									
	Total Phenols (Phenolics) (PWS)	µg/L		0.05									
	Total Selenium	µg/L		1.3									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	µg/L		248									
	Total Molybdenum	µg/L		16.4									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<	10									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5										
	Chlorobenzene	µg/L		0.5										
	Chlorodibromomethane	µg/L	<	0.5										
	Chloroethane	µg/L	<	1										
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5										
	Chloroform	µg/L	<	0.5										
	Dichlorobromomethane	µg/L	<	0.5										
	1,1-Dichloroethane	µg/L	<	0.5										
	1,2-Dichloroethane	µg/L	<	0.5										
	1,1-Dichloroethylene	µg/L	<	0.5										
	1,2-Dichloropropane	µg/L	<	0.5										
	1,3-Dichloropropylene	µg/L	<	0.5										
	1,4-Dioxane	µg/L	<	3										
	Ethylbenzene	µg/L	<	0.5										
	Methyl Bromide	µg/L	<	1										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L		0.6										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.5										
	Toluene	µg/L	<	0.5										
	1,2-trans-Dichloroethylene	µg/L	<	0.5										
	1,1,1-Trichloroethane	µg/L	<	0.5										
	1,1,2-Trichloroethane	µg/L	<	0.5										
	Trichloroethylene	µg/L	<	0.5										
	Vinyl Chloride	µg/L	<	0.5										
Group 4	2-Chlorophenol	µg/L	<	1.2										
	2,4-Dichlorophenol	µg/L	<	1.2										
	2,4-Dimethylphenol	µg/L	<	1.2										
	4,6-Dinitro-o-Cresol	µg/L	<	3										
	2,4-Dinitrophenol	µg/L	<	3										
	2-Nitrophenol	µg/L	<	1.2										
	4-Nitrophenol	µg/L	<	1.2										
	p-Chloro-m-Cresol	µg/L	<	2.4										
	Pentachlorophenol	µg/L	<	3										
	Phenol	µg/L		0.44										
	2,4,6-Trichlorophenol	µg/L	<	1.2										
Group 5	Acenaphthene	µg/L	<	1.2										
	Acenaphthylene	µg/L	<	1.2										
	Anthracene	µg/L	<	1.2										
	Benzidine	µg/L	<	18.1										
	Benzo(a)Anthracene	µg/L	<	1.2										
	Benzo(a)Pyrene	µg/L	<	1.2										
	3,4-Benzofluoranthene	µg/L	<	1.2										
	Benzo(ghi)Perylene	µg/L	<	1.2										
	Benzo(k)Fluoranthene	µg/L	<	1.2										
	Bis(2-Chloroethoxy)Methane	µg/L	<	1.2										
	Bis(2-Chloroethyl)Ether	µg/L	<	1.2										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1.2										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3										
	4-Bromophenyl Phenyl Ether	µg/L	<	1.2										
	Butyl Benzyl Phthalate	µg/L		1.8										
	2-Chloronaphthalene	µg/L	<	1.2										
	4-Chlorophenyl Phenyl Ether	µg/L	<	1.2										
	Chrysene	µg/L	<	1.2										
	Dibenzo(a,h)Anthrancene	µg/L	<	1.2										
	1,2-Dichlorobenzene	µg/L	<	1.2										
	1,3-Dichlorobenzene	µg/L	<	1.2										
	1,4-Dichlorobenzene	µg/L	<	1.2										
	3,3-Dichlorobenzidine	µg/L	<	1.2										
	Diethyl Phthalate	µg/L		17.8										
	Dimethyl Phthalate	µg/L	<	1.2										
	Di-n-Butyl Phthalate	µg/L		50.9										
	2,4-Dinitrotoluene	µg/L	<	1.2										

	2,6-Dinitrotoluene	µg/L	<	1.2										
	Di-n-Octyl Phthalate	µg/L	<	3										
	1,2-Diphenylhydrazine	µg/L	<	1.2										
	Fluoranthene	µg/L	<	1.2										
	Fluorene	µg/L	<	1.2										
	Hexachlorobenzene	µg/L	<	1.2										
	Hexachlorobutadiene	µg/L	<	1.2										
	Hexachlorocyclopentadiene	µg/L	<	1.2										
	Hexachloroethane	µg/L	<	1.2										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.2										
	Isophorone	µg/L	<	1.2										
	Naphthalene	µg/L	<	3										
	Nitrobenzene	µg/L	<	1.2										
	n-Nitrosodimethylamine	µg/L	<	1.2										
	n-Nitrosodi-n-Propylamine	µg/L	<	1.2										
	n-Nitrosodiphenylamine	µg/L	<	1.2										
	Phenanthrene	µg/L	<	1.2										
	Pyrene	µg/L	<	1.2										
	1,2,4-Trichlorobenzene	µg/L	<	1.2										
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												
	Carbon Disulfide	µg/L		0.0137										

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Flexsys America Monongahela Plant, NPDES Permit No. PA0022004, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Pigeon Creek**

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	039637	1.6	744.24	57.6	0.0034		Yes
End of Reach 1	039637	0.5	733.98	59.4	0.0034		Yes

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

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	1.6	0.0203										100	7		
End of Reach 1	0.5	0.0203													

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	1.6														
End of Reach 1	0.5														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Flexsys America Monongahela Plant, NPDES Permit No. PA0022004, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
1.6	1.17		1.17	0.034	0.003	0.583	22.295	38.219	0.093	0.727	24.768
0.5	1.21		1.20582								

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)
1.6	8.52		8.52	0.034	0.003	1.383	22.295	16.125	0.277	0.242	7.13
0.5	8.75		8.75								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.778 Analysis Hardness (mg/l): 104.45 Analysis pH: 7.01

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	20,894	
Total Antimony	0	0		0	1,100	1,100	30,644	
Total Arsenic	0	0		0	340	340	9,472	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	585,030	
Total Boron	0	0		0	8,100	8,100	225,654	
Total Cadmium	0	0		0	2.101	2.23	62.1	Chem Translator of 0.942 applied
Total Chromium (III)	0	0		0	590.451	1,869	52,054	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	454	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,647	
Total Copper	0	0		0	14.002	14.6	406	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	22	22.0	613	
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	67.715	86.3	2,404	Chem Translator of 0.785 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	45.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	485.808	487	13,561	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	3.467	4.08	114	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,811	
Total Zinc	0	0		0	121.585	124	3,463	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	83.6	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	18,108	
Benzene	0	0		0	640	640	17,829	
Bromoform	0	0		0	1,800	1,800	50,145	
Carbon Tetrachloride	0	0		0	2,800	2,800	78,004	
Chlorobenzene	0	0		0	1,200	1,200	33,430	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	501,454	
Chloroform	0	0		0	1,900	1,900	52,931	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	417,878	
1,1-Dichloroethylene	0	0		0	7,500	7,500	208,939	
1,2-Dichloropropane	0	0		0	11,000	11,000	306,444	
1,3-Dichloropropylene	0	0		0	310	310	8,636	
Ethylbenzene	0	0		0	2,900	2,900	80,790	
Methyl Bromide	0	0		0	550	550	15,322	
Methyl Chloride	0	0		0	28,000	28,000	780,040	
Methylene Chloride	0	0		0	12,000	12,000	334,303	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	27,859	
Tetrachloroethylene	0	0		0	700	700	19,501	
Toluene	0	0		0	1,700	1,700	47,360	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	189,438	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	83,576	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	94,719	
Trichloroethylene	0	0		0	2,300	2,300	64,075	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	15,601	
2,4-Dichlorophenol	0	0		0	1,700	1,700	47,360	
2,4-Dimethylphenol	0	0		0	660	660	18,387	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	2,229	
2,4-Dinitrophenol	0	0		0	660	660	18,387	
2-Nitrophenol	0	0		0	8,000	8,000	222,868	
4-Nitrophenol	0	0		0	2,300	2,300	64,075	
p-Chloro-m-Cresol	0	0		0	160	160	4,457	
Pentachlorophenol	0	0		0	8.841	8.84	246	

Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	12,815	
Acenaphthene	0	0		0	83	83.0	2,312	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	8,358	
Benzo(a)Anthracene	0	0		0	0.5	0.5	13.9	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	835,757	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	125,363	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	7,522	
Butyl Benzyl Phthalate	0	0		0	140	140	3,900	
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	22,844	
1,3-Dichlorobenzene	0	0		0	350	350	9,750	
1,4-Dichlorobenzene	0	0		0	730	730	20,337	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	111,434	
Dimethyl Phthalate	0	0		0	2,500	2,500	69,646	
Di-n-Butyl Phthalate	0	0		0	110	110	3,064	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	44,574	
2,6-Dinitrotoluene	0	0		0	990	990	27,580	
1,2-Diphenylhydrazine	0	0		0	15	15.0	418	
Fluoranthene	0	0		0	200	200	5,572	
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	279	
Hexachlorocyclopentadiene	0	0		0	5	5.0	139	
Hexachloroethane	0	0		0	60	60.0	1,672	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	278,586	
Naphthalene	0	0		0	140	140	3,900	
Nitrobenzene	0	0		0	4,000	4,000	111,434	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	473,595	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	8,358	
Phenanthrene	0	0		0	5	5.0	139	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	3,622	
Carbon Disulfide	0	0		0	3,000	3,000	83,576	

☑ ***CFC*** CCT (min): 24.768 PMF: 1 Analysis Hardness (mg/l): 103.49 Analysis pH: 7.01

Pollutants	Stream Conc	Stream	Trib Conc	Fate	WQC	WQ Obj	WLA (ug/L)	Comments

Pollutants	Conc (µg/L)	CV	(µg/L)	Coef	(µg/L)	(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	7,813	
Total Arsenic	0	0		0	150	150	5,327	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	145,604	
Total Boron	0	0		0	1,600	1,600	56,821	
Total Cadmium	0	0		0	0.252	0.28	9.86	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	76.227	88.6	3,148	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	369	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	675	
Total Copper	0	0		0	9.222	9.61	341	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	185	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	53,270	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.612	3.32	118	Chem Translator of 0.786 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	32.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	53.539	53.7	1,907	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	177	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	462	
Total Zinc	0	0		0	121.625	123	4,381	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	107	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	4,617	
Benzene	0	0		0	130	130	4,617	
Bromoform	0	0		0	370	370	13,140	
Carbon Tetrachloride	0	0		0	560	560	19,887	
Chlorobenzene	0	0		0	240	240	8,523	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	124,296	
Chloroform	0	0		0	390	390	13,850	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	110,091	
1,1-Dichloroethylene	0	0		0	1,500	1,500	53,270	
1,2-Dichloropropane	0	0		0	2,200	2,200	78,129	
1,3-Dichloropropylene	0	0		0	61	61.0	2,166	
Ethylbenzene	0	0		0	580	580	20,598	
Methyl Bromide	0	0		0	110	110	3,906	
Methyl Chloride	0	0		0	5,500	5,500	195,322	

Methylene Chloride	0	0		0	2,400	2,400	85,231	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	7,458	
Tetrachloroethylene	0	0		0	140	140	4,972	
Toluene	0	0		0	330	330	11,719	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	49,718	
1,1,1-Trichloroethane	0	0		0	610	610	21,663	
1,1,2-Trichloroethane	0	0		0	680	680	24,149	
Trichloroethylene	0	0		0	450	450	15,981	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	3,906	
2,4-Dichlorophenol	0	0		0	340	340	12,074	
2,4-Dimethylphenol	0	0		0	130	130	4,617	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	568	
2,4-Dinitrophenol	0	0		0	130	130	4,617	
2-Nitrophenol	0	0		0	1,600	1,600	56,821	
4-Nitrophenol	0	0		0	470	470	16,691	
p-Chloro-m-Cresol	0	0		0	500	500	17,757	
Pentachlorophenol	0	0		0	6.783	6.78	241	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	3,232	
Acenaphthene	0	0		0	17	17.0	604	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	2,095	
Benzo(a)Anthracene	0	0		0	0.1	0.1	3.55	
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	213,079	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	32,317	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,918	
Butyl Benzyl Phthalate	0	0		0	35	35.0	1,243	
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	5,682	
1,3-Dichlorobenzene	0	0		0	69	69.0	2,450	
1,4-Dichlorobenzene	0	0		0	150	150	5,327	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	28,410	
Dimethyl Phthalate	0	0		0	500	500	17,757	
Di-n-Butyl Phthalate	0	0		0	21	21.0	746	
2,4-Dinitrotoluene	0	0		0	320	320	11,364	
2,6-Dinitrotoluene	0	0		0	200	200	7,103	
1,2-Diphenylhydrazine	0	0		0	3	3.0	107	

Fluoranthene	0	0		0	40	40.0	1,421	
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	71.0	
Hexachlorocyclopentadiene	0	0		0	1	1.0	35.5	
Hexachloroethane	0	0		0	12	12.0	426	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	74,578	
Naphthalene	0	0		0	43	43.0	1,527	
Nitrobenzene	0	0		0	810	810	28,766	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	120,745	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	2,095	
Phenanthrene	0	0		0	1	1.0	35.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	923	
Carbon Disulfide	0	0		0	1,000	1,000	35,513	

☑ ***THH*** CCT (min): 24.768 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	199	
Total Arsenic	0	0		0	10	10.0	355	
Total Barium	0	0		0	2,400	2,400	85,231	
Total Boron	0	0		0	3,100	3,100	110,091	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	142	
Dissolved Iron	0	0		0	300	300	10,654	
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	35,513	
Total Mercury	0	0		0	0.050	0.05	1.78	
Total Nickel	0	0		0	610	610	21,663	
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	8.52	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	107	
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	3,551	
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	202	
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	1,172	
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	2,415	
Methyl Bromide	0	0		0	100	100.0	3,551	
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	2,024	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	3,551	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	355,131	
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	1,065	
2,4-Dichlorophenol	0	0		0	10	10.0	355	
2,4-Dimethylphenol	0	0		0	100	100.0	3,551	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	71.0	
2,4-Dinitrophenol	0	0		0	10	10.0	355	
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	142,052	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	2,486	
Anthracene	0	0		0	300	300	10,654	
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	7,103	
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	3.55	
2-Chloronaphthalene	0	0		0	800	800	28,410	
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	35,513	
1,3-Dichlorobenzene	0	0		0	7	7.0	249	
1,4-Dichlorobenzene	0	0		0	300	300	10,654	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	21,308	
Dimethyl Phthalate	0	0		0	2,000	2,000	71,026	
Di-n-Butyl Phthalate	0	0		0	20	20.0	710	
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	710	
Fluorene	0	0		0	50	50.0	1,776	
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	142	
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	1,207	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	355	
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	710	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	2.49	
Carbon Disulfide	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 7.130 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	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylamide	0	0		0	0.07	0.07	17.7	
Acrylonitrile	0	0		0	0.06	0.06	15.1	
Benzene	0	0		0	0.58	0.58	146	
Bromoform	0	0		0	7	7.0	1,767	
Carbon Tetrachloride	0	0		0	0.4	0.4	101	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	202	
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	240	
1,2-Dichloroethane	0	0		0	9.9	9.9	2,499	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	227	
1,3-Dichloropropylene	0	0		0	0.27	0.27	68.2	
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	5,049	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	50.5	
Tetrachloroethylene	0	0		0	10	10.0	2,524	

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	139	
Trichloroethylene	0	0		0	0.6	0.6	151	
Vinyl Chloride	0	0		0	0.02	0.02	5.05	
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	7.57	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	379	
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	0.025	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.25	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.025	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.25	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	2.52	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	7.57	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	80.8	
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	30.3	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.025	
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	12.6	
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	12.6	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	12.6	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	7.57	
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	0.02	

Hexachlorobutadiene	0	0		0	0.01	0.01	2.52	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	25.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.25	
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	0.18	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	1.26	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	833	
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	
Carbon Disulfide	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 Zinc	Report	Report	Report	Report	Report	µg/L	2,220	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.003	0.005	17.7	27.6	44.2	µg/L	17.7	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Butyl Benzyl Phthalate	0.0006	0.001	3.55	5.54	8.88	µg/L	3.55	THH	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorobutadiene	Report	Report	Report	Report	Report	µg/L	2.52	CRL	Discharge Conc > 25% WQBEL (no RP)
1,2,4-Trichlorobenzene	Report	Report	Report	Report	Report	µg/L	2.49	THH	Discharge Conc > 25% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	13,392	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	199	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	85,231	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	56,821	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	9.86	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	3,148	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	291	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	675	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	260	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	142	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	10,654	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	53,270	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	118	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	35,513	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.78	µg/L	Discharge Conc < TQL
Total Nickel	1,907	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	177	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	72.8	µg/L	Discharge Conc < TQL
Total Thallium	8.52	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	53.6	µg/L	Discharge Conc < TQL

Acrylonitrile	15.1	µg/L	Discharge Conc < TQL
Benzene	146	µg/L	Discharge Conc < TQL
Bromoform	1,767	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	101	µg/L	Discharge Conc < TQL
Chlorobenzene	3,551	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	202	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	124,296	µg/L	Discharge Conc < TQL
Chloroform	202	µg/L	Discharge Conc < TQL
Dichlorobromomethane	240	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	2,499	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	1,172	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	227	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	68.2	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	2,415	µg/L	Discharge Conc < TQL
Methyl Bromide	3,551	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	195,322	µg/L	Discharge Conc < TQL
Methylene Chloride	5,049	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	50.5	µg/L	Discharge Conc < TQL
Tetrachloroethylene	2,524	µg/L	Discharge Conc < TQL
Toluene	2,024	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	3,551	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	21,663	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	139	µg/L	Discharge Conc < TQL
Trichloroethylene	151	µg/L	Discharge Conc < TQL
Vinyl Chloride	5.05	µg/L	Discharge Conc < TQL
2-Chlorophenol	1,065	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	355	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	3,551	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	71.0	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	355	µg/L	Discharge Conc < TQL
2-Nitrophenol	56,821	µg/L	Discharge Conc < TQL
4-Nitrophenol	16,691	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	2,857	µg/L	Discharge Conc < TQL
Pentachlorophenol	7.57	µg/L	Discharge Conc < TQL
Phenol	142,052	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	379	µg/L	Discharge Conc < TQL
Acenaphthene	604	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	10,654	µg/L	Discharge Conc < TQL
Benzidine	0.025	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.25	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.025	µg/L	Discharge Conc < TQL

3,4-Benzofluoranthene	0.25	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	2.52	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	7.57	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	7,103	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	80.8	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,918	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	28,410	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	30.3	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.025	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	5,682	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	249	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	5,327	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	12.6	µg/L	Discharge Conc < TQL
Diethyl Phthalate	21,308	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	17,757	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	710	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	12.6	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	12.6	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	7.57	µg/L	Discharge Conc < TQL
Fluoranthene	710	µg/L	Discharge Conc < TQL
Fluorene	1,776	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.02	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	35.5	µg/L	Discharge Conc < TQL
Hexachloroethane	25.2	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.25	µg/L	Discharge Conc < TQL
Isophorone	1,207	µg/L	Discharge Conc < TQL
Naphthalene	1,527	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	355	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.18	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	1.26	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	833	µg/L	Discharge Conc < TQL
Phenanthrene	35.5	µg/L	Discharge Conc < TQL
Pyrene	710	µg/L	Discharge Conc < TQL
Carbon Disulfide	35,513	µg/L	Discharge Conc ≤ 25% WQBEL