pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0038181**
Facility Type	**Municipal**	APS ID	**1110734**
Major / Minor	**Major**	Authorization ID	**1479138**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Municipal Authority of Westmoreland County**	Facility Name	**New Stanton STP**
Applicant Address	124 Park and Pool Road New Stanton, PA 15672	Facility Address	157 Penn Valley Road Hunker, PA 15639-1227
Applicant Contact	Norman Stout	Facility Contact	Tim Keunzig
Applicant Phone	(724) 755-5800	Facility Phone	(724) 925-7280
Client ID	64197	Site ID	250808
Ch 94 Load Status	Not Overloaded	Municipality	Hempfield Township
Connection Status	Dept. Imposed Connection Prohibitions	County	Westmoreland
Date Application Received	April 2, 2024	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment
Purpose of Application	NPDES permit renewal application.		

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Gibson-Thomas Engineering Co, Inc (consultant) on April 2, 2024 on behalf of Municipal Authority of Westmoreland County (MAWC/permittee) for Permittee's New Stanton STP (facility). This is a major sewage facility with a design flow of 7.2 MGD that discharges into Sewickley Creek (WWF) in state watershed 19-D. The current permit will expire on September 30, 2024. The terms and conditions of the current permit is automatically extended since the renewal application was received at least 180 days prior to expiration date. Renewal NPDES permit application under Clean Water Program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes to existing permit: Added: monitoring for Total Antimony, Total Arsenic, Total Boron, Dissolved Iron, Total Mercury, Total Zinc, PFOA, PFOS, HFPO-DA, PFBS, and E-Coli. More stringent limits for NH3-N and CBOD5. Removed monitoring for TDS and its constituents.

Sludge use and disposal description and location(s): Sludge is digested in the anaerobic digesters and aerobic digester, thickened in the day tank, dewatered by belt filtration, and taken to the landfill for final disposal.

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.

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	July 30, 2024
√		Mahbuba Iasmin Mahbuba Iasmin, Ph. D, P.E. / Environmental Engineer Manager	July 31, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	7.2
Latitude	40º 12' 8"	Longitude	-79º 37' 43"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Sewage Effluent		

Receiving Waters	Sewickley Creek (WWF)	Stream Code	37556
NHD Com ID	69913471	RMI	15.44
Drainage Area	102 mi^2	Yield (cfs/mi^2)	0.04
Q_{7-10} Flow (cfs)	4.08	Q_{7-10} Basis	Calculation
Elevation (ft)	911.46	Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	25	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Municipal Authority of Westmoreland County-McKeesport	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.39	Distance from Outfall (mi)	31.19

Changes Since Last Permit Issuance: None

Other Comments:

Streamflow:

The nearest USGS Streamgage is 03083500 on Youghiogheny River at Suttersville, at RMI 14.87, which is approximately 17.65 miles downstream and therefore isn't representative. The USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on June 24, 2024) was utilized to determine the drainage area at discharge point and at confluence with UNT 37648 (node 2). The drainage area at Outfall 001 was found to be 102 mi^2 and 110 mi^2 at node 2. The previous permit utilized a yield of 0.04 cfs/mi^2 that results in a stream Q_{7-10} of 102*0.04 or 4.08 cfs. Default Q_{1-10}:Q_{7-10} of 0.64 and Q_{30-10}:Q_{7-10} of 1.36 will be used for modeling. The previous permit also utilized a Q_{7-10} of 12.496 cfs for WETT Evaluation with the consideration of two upstream sewage dischargers (Greater Greensburg STP, average flow of 5.1 MGD for Ch 94 years 2014-2028, and Youngwood Borough STP). However, Youngwood Borough STP ceased discharge in 2020 and annual average flow from Greater Greensburg STP is changed to 4.86 MGD for Ch. 94 years 2019-2023, which leaves revised flow to 11.6 cfs.

Stormwater Outfalls:

The permit application lists following five stormwater-only outfalls:

Outfall	Coordinates	Receiving Waters	Chapter 93 Class	Drainage Area
010	40°12'12.6"N, 79°37'42.3"W	Sewickley Creek	WWF	36,409 ft^2
011	40°12'11.5"N, 79°37'42.8"W	Sewickley Creek	WWF	12,313 ft^2
012	40°12'09.1"N, 79°37'43.7"W	Sewickley Creek	WWF	1,486 ft^2
013	40°12'08.1"N, 79°37'38.8"W	Sewickley Creek	WWF	22,835 ft^2
014	40°12'08.9"N, 79°37'33.9"W	Sewickley Creek	WWF	16,942 ft^2

Part C of the permit will contain special condition pertaining to stormwater discharge requirements from industrial activities, as required in 40 CFR 122.26(b)(14)(ix).

PWS Intake:
The nearest downstream public water supply is Municipal Authority of Westmoreland County-McKeesport on Youghiogheny River at RMI 1.39. Its approximately 31.19 miles downstream of Outfall 001. Discharge from this facility is expected not to impact the PWS intake.

Wastewater Characteristics:
The 90th percentile pH of 7.13 was calculated from daily DMR during dry months July through September for the years 2022-2023. The application data indicated an average Total Hardness of 218 mg/l. The application indicated an average discharge temperature of 64.3^{0}F or 17.9^{0}C.

Background data:
The nearest WQN station is 0706 on Youghiogheny River at RMI 14.87 which is approximately 17.65 miles downstream of Outfall 001 and not representative. In absence of site-specific data, a default pH of 7.0 S.U., stream hardness of 100 mg/l, and temperature of 25^{0}C will be used for modeling.

Sewickley Creek Watershed TMDL:
The discharge is to Sewickley Creek which has a Final TMDL, Sewickley Creek Watershed TMDL, and is impaired by metals and pH. This sewage discharge is not expected to contribute to the stream impairment for which abandoned mine drainage is source of such impairment. No WLAs have been developed for this sewage discharge and they are not expected to contribute to the stream impairment for these pollutants. A 1/quarter monitoring requirement is imposed in the existing permit for the parameters of Total Iron, Total Manganese and Total Aluminum. These monitoring requirements will be carried over unless a numeric limit is warranted from WQM modeling efforts.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Warm Water Fishes (WWF). No High-Quality stream or Exceptional Value water is impacted by this discharge; therefore, no Antidegradation Analysis is performed for the discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

Treatment Facility Summary

Treatment Facility Name: New Stanton WPCP

WQM Permit No.	Issuance Date

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge With Solids Removal	UV Disinfection	7.2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
7.2	11,330	Not Overloaded	Belt filter press	Landfill

Changes Since Last Permit Issuance: None

Facility Information

New Stanton STP is a major sewage treatment plant owned and operated by Municipal Authority of Westmoreland County. The Average Annual design flow is 7.2 MGD, Hydraulic Design Capacity is 7.2 MGD, and Organic Design Capacity is 11,330 lbs. BOD5/day. The facility serves the following municipalities:

TRIBUTARY INFORMATION

Municipalities Served	Flow Contribution (%)	Type of Sewer System		Population
		Separate (%)	Combined (%)	
Hempfield Township	82.73	100	0	22955
Youngwood Borough	6.88	100	0	1909
New Stanton Borough	5.24	100	0	1455
Unity Township	3.06	100	0	849
Hunker Borough	1.10	100	0	306
East Huntingdon Township	0.92	100	0	255
City of Greensburg	0.03	100	0	9
Mt. Pleasant Township	0.03	100	0	9

Per the application, the treatment system consists of the following treatment units: 1 mechanical bar screen, 1 equalization tank, 2 primary clarifiers, 6 aeration tanks, 6 secondary clarifiers, 1 UV disinfection system, 1 aerobic digester, 2 anaerobic digesters, 1 sludge holding tank, and 1 belt filter press.

Per the pre-treatment report, there are two SIUs contributing to the treatment system: Cintas and Greenridge Reclamation. The facility is implementing an approved pretreatment program administered by EPA and most recent approval of local limits by EPA is June 2, 2022.

Magnesium Hydroxide is used to increase alkalinity for nitrification at a rate of 5.6 gal./hour.

Sludge is digested in the anaerobic digesters and aerobic digester, thickened in the day tank, dewatered by belt filtration, and taken to the landfill for final disposal.

The facility receives leachate from Greenridge landfill. The leachate is pumped in Greenridge's private line to a certain point from where it gravity flows into MAWC's line and mixes with facility's sewage about half a mile from the STP. The landfill can turn off the leachate pump to stop pumping to facility's collection system. MAWC has a service agreement with the landfill which allows the MAWC to shut-off leachate acceptance. The maximum daily flow to the STP is 90,000 GPD and average is 55,000 GPD. MAWC has a pretreatment permit with the landfill which is reviewed in every three years.

The facility is planning to upgrade sludge processing equipment and add a grit removal system within next five years.

Compliance History

DMR Data for Outfall 001 (from May 1, 2023 to April 30, 2024)

Parameter	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23
Flow (MGD) Average Monthly	7.497	5.862	4.264	6.379	3.977	3.829	3.716	3.362	4.283	3.97	3.914	3.51
Flow (MGD) Daily Maximum	24.003	13.795	7.765	14.647	6.937	7.495	8.814	4.26	10.92	7.36	7.01	5.40
pH (S.U.) Daily Minimum	6.27	6.53	6.51	6.59	6.7	6.57	6.22	6.49	6.15	6.21	6.29	6.27
pH (S.U.) Daily Maximum	7.16	7.07	6.99	7.15	7.22	7.42	7.03	7.72	7.03	6.99	6.94	6.81
DO (mg/L) Daily Minimum	6.84	8.69	9.33	9.16	8.52	8.12	7.33	7.02	6.82	7.06	6.77	7.96
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) IMAX	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	< 214.1	< 158.8	161.0	< 285.1	147.5	< 121.7	130.8	< 137.2	175.7	207.9	173.7	< 119.2
CBOD5 (lbs/day) Weekly Average	< 410.1	< 215.1	189.5	< 367.0	196.3	163.7	145.3	163.2	274.4	336.8	213.5	172.2
CBOD5 (mg/L) Average Monthly	< 3.1	< 3.3	4.7	< 5.5	4.4	< 3.8	4.2	< 4.9	4.8	6.3	5.4	< 4.0
CBOD5 (mg/L) Weekly Average	< 3.9	< 3.7	6.1	7.2	5.1	4.3	4.9	5.6	5.8	9.9	6.7	4.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	6527	6131	5831	6112.0	6222	5708	5666	5459	6147	5825	5544	5491
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	24623	13783	10745	13497.0	12514	12708	17672	9099	20063	12952	10025	9458
BOD5 (mg/L) Raw Sewage Influent Average Monthly	115	133	167	124.0	187	180	182	195	171	174	172	189
TSS (lbs/day) Average Monthly	< 341.2	< 184.5	193.6	1543.5	279.7	176.7	< 222.9	247.5	< 294.0	192.2	360.9	184.2
TSS (lbs/day) Raw Sewage Influent Average Monthly	7097	5913	5243	6623.0	5629	5325	6063	4719	5862	6061	5298	5081
TSS (lbs/day) Raw Sewage Influent Daily Maximum	31229	11655	10962	18354.0	16191	11660	17773	7816	17934	18798	8668	10809

TSS (lbs/day) Weekly Average	727.7	214.3	275.9	5372.8	387.7	258.4	284.6	367.2	615.6	246.3	569.3	340.0
TSS (mg/L) Average Monthly	< 5.2	< 4.2	5.7	24.1	8.1	5.5	< 7.0	8.7	< 7.5	5.8	11.2	6.0
TSS (mg/L) Raw Sewage Influent Average Monthly	117	133	150	130.0	166	169	188	169	162	184	164	174
TSS (mg/L) Weekly Average	8.1	6.0	7.7	77.6	10.0	8.6	9.4	12.4	12.7	7.0	18.0	9.4
Total Dissolved Solids (mg/L) Daily Maximum	552.0	619.0	581.0	762.5	468.0	587.0	596.0	613	464.0	681	594	690
Fecal Coliform (No./100 ml) Geometric Mean	< 6.0	< 5.0	< 6	< 7.0	5.0	6.0	15.0	34	24.0	20	< 17	< 5.0
Fecal Coliform (No./100 ml) IMAX	136.0	18.0	69	48	23.0	13.0	96.0	108	140	94	231	34
UV Transmittance (%) Daily Minimum	54.0	53.0	49.0	54.0	55.0	55.0	50.0	49	45.0	51.0	46.0	48.0
Total Nitrogen (mg/L) Daily Maximum		45.9			25.3			27.1			25.5	
Ammonia (lbs/day) Average Monthly	< 13.0	< 5.8	< 4.6	< 7.9	< 8.6	< 7.1	< 3.7	< 7.1	< 42.3	< 5.6	< 33.1	< 5.70
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.1	< 0.3	< 1.0	< 0.20	< 0.9	< 0.2
Ammonia (mg/L) Instantaneous Maximum	0.94	0.22	0.33	0.44	3.97	1.83	0.32	0.42	3.46	0.81	4.14	0.39
Total Phosphorus (mg/L) Daily Maximum		1.6			2.0			3.0			2.0	
Total Aluminum (mg/L) Daily Maximum		0.049			0.011			0.039			0.05	
Total Copper (mg/L) Average Monthly	0.005	0.005	0.008	0.010	0.006	0.006	0.006	0.007	0.005	0.009	0.007	0.007
Total Copper (mg/L) Daily Maximum	0.006	0.006	0.01	0.050	0.008	0.007	0.009	0.009	0.005	0.013	0.01	0.008
Free Cyanide (mg/L) Average Monthly	0.0005	< 0.002	< 0.001	< 0.0045	< 0.0011	< 0.0015	< 0.0017	< 0.0005	< 0.0015	< 0.0009	< 0.0013	< 0.0024
Free Cyanide (mg/L) Daily Maximum	0.0005	0.004	0.002	0.017	0.003	0.004	0.006	0.0005	0.004	0.002	0.003	0.007
Total Iron (mg/L) Daily Maximum		0.297			0.053			0.277			0.238	

Total Manganese (mg/L) Daily Maximum		0.035			0.01			0.05			0.035	
Sulfate (mg/L) Daily Maximum	49.1	49.4	46.4	43.5	38.1	44.0	45.6	43.3	43.4	48.7	52.8	50.3
Chloride (mg/L) Daily Maximum	155.0	170.0	196.0	280.0	131.0	157.0	171.0	162	148.0	182	169.0	162
Bromide (mg/L) Daily Maximum	0.38	0.38	0.35	0.38	0.318	0.403	0.474	0.41	0.277	0.46	0.42	0.31

Compliance History

Effluent Violations for Outfall 001, from: June 1, 2023 To: April 30, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	01/31/24	Wkly Avg	5372.8	lbs/day	2700.0	lbs/day
TSS	01/31/24	Wkly Avg	5372.8	lbs/day	2700.0	lbs/day
TSS	01/31/24	Wkly Avg	77.6	mg/L	45.0	mg/L
TSS	01/31/24	Wkly Avg	77.6	mg/L	45.0	mg/L
Total Copper	01/31/24	Daily Max	0.050	mg/L	.04	mg/L
Total Copper	01/31/24	Daily Max	0.050	mg/L	.04	mg/L

Other Comments: The permittee sent a non-compliance reporting form for January 2024 violations. The probable causes for the violations are high flows due to rainfall, SCADA issues, two aeration tanks and two clarifiers offline for maintenance. Corrective actions taken including resolving SCADA issues, all aeration tanks and clarifiers were back online.

Summary of Inspections:
June 26, 2024: CEI conducted. Violations noted including 24 SSOs between August 2023 to June 2024.

August 15, 2022: CEI conducted. Violations noted including 18 SSOs between August 2022 to August 2023.

August 9, 2022: CEI conducted. Violations noted including 23 SSOs between May 2021 to September 2022 and failure to monitor pollutants as required by the permit. Influent sampling wasn't prior to all return flows.

October 26, 2021: RPTP conducted. No violation identified during the inspection. The inspection was conducted to go over questions about leachate that NS STP accepts from Greenridge Landfill.

Existing Limits

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.06	XXX	0.19	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	1500.0	2400.0	XXX	25.0	40.0 Wkly Avg	50	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	1800.0	2700.0	XXX	30.0	45.0 Wkly Avg	60	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	510.0	XXX	XXX	8.5	XXX	17.0	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	210.0	XXX	XXX	3.5	XXX	7.0	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Copper, Total	XXX	XXX	XXX	0.026	0.04	XXX	1/week	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Manganese, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Chloride	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Bromide	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 7.2
Latitude 40º 12' 8.00" **Longitude** -79º 37' 43.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

Model input data

The following data will be used for modeling, as needed:

- Discharge pH 7.13 (90th percentile, July-Sep 2022-23, daily eDMR data)
- Discharge Temperature 17.9°C (Application data)
- Discharge Hardness 218 mg/l (Application data)
- Stream pH 7.0 (Default)
- Stream Temperature 25.0°C (Default)
- Stream Hardness 100 mg/l (Default)

The following two nodes were used in modeling:

Node 1: At the outfall 001 on Sewickley Creek (37556)
Elevation: 911.72 ft (National Map-Advanced Viewer, 07/24/2024)
Drainage Area: 102 mi^2 (StreamStat Version 3.0, 06/24/2024)
River Mile Index: 15.44 (PA DEP eMapPA)
Low Flow Yield: 0.04 cfs/mi^2
Q_{7-10}: 4.08 cfs
Discharge Flow: 7.2 MGD

Node 2: At confluence with UNT 37648 to Sewickley Creek
Elevation: 900.42 ft (National Map-Advanced Viewer, 07/24/2024)
Drainage Area: 110 mi^2 (StreamStat Version 3.0, 06/24/2024)
River Mile Index: 12.81 (PA DEP eMapPA)
Low Flow Yield: 0.04 cfs/mi^2

Discharge Flow: 0.0 MGD

WQM 7.0 Model

WQM 7.0 version 1.11 is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using Q_{7-10} and current background water quality levels of the stream.

NH_3-N

WQM 7.0 suggested NH_3-N limit of 1.76 mg/l as monthly average and 3.52 mg/l as IMAX limit during summer to protect water quality standards. The calculated mass-based AML is 105.68 lbs./day and IMAX limit of 211.37 lbs./day. These limits are more stringent than existing limits. A review of 12 months DMR data indicated that the facility is meeting the limits 100% of the time. The winter limits are calculated by multiplying the summer limits with a factor of 2.5. Since the permittee is meeting the proposed limits already, its not necessary to include that in the pre-draft survey. The more stringent limits will be effective from the effective date of the permit.

CBOD5

WQM 7.0 suggests CBOD5 limit of 5.85 mg/l as AML which is more stringent than current permit. A review of the past 12 months DMR (May 2023 to April 2024) indicated the facility was meeting this limit 11 instances out of 12 (91.6%). The mass-based AML is 351.28 lbs./day which the permittee is meeting 10% of the time. Since the facility is meeting the more stringent limits at least 90% of the time, it is not necessary to include this in the pre-draft survey. The more stringent limits will be effective from the effective date of the permit.

DO

WQM 7.0 suggests minimum DO of 5.0 mg/l which is the model input and same as existing limit. Existing limit will be carried over.

General Discussion on Toxics Management Spreadsheet (TMS)

Based on the available data, PADEP utilizes Toxics Management Spreadsheet (TMS) to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). It is noteworthy that some of these pollutants that may be reported as “non-detect”, but still exceeded the criteria, were determined to be candidates for modeling because the method detection levels used to analyze those pollutants were higher than target QLs and/or the most stringent Chapter 93 criteria. The model then recommended the appropriate action for the Pollutants of Concerns based on the following logic as stated in PADEP’s SOP titled *“Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers (DEP SOP No.: BCW-PMT-037, Revised May 20, 2021)”*:

1. In general, establish limits in the draft permit where the effluent concentration determined in B.1 or B.2 equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). 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).

2. For non-conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 25% - 50% of the WQBEL.

3. For conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 10% - 50% of the WQBEL.

NOTE 4 – If the effluent concentration determined in B.1 or B.2 is “non-detect” at or below the target quantitation limit (TQL) for the pollutant as specified in the TMS and permit application, the pollutant may be eliminated as a candidate for WQBELs or monitoring requirements unless 1) a more sensitive analytical method is available for the pollutant under 40 CFR Part 136 where the quantitation limit for the method is less than the applicable water quality criterion and 2) a detection at the more sensitive method may lead to a determination that an effluent limitation is necessary, considering available dilution at design conditions.

NOTE 5 – If the effluent concentration determined in B.1 or B.2 is a detection below the TQL but above or equal to the applicable water quality criterion, WQBELs or monitoring may be established for the pollutant.

4. Application managers may, on a site- and pollutant-specific basis, deviate from these guidelines where there is specific rationale that is documented in the fact sheet.

Major sewage facilities are required to sample for pollutants group 1-5, at a minimum, and 6 and/or 7, if applicable. TMDL parameters, as applicable, are also required to be sampled if they aren't covered in any pollutant groups or by Part A of the permit. Pollutants groups 2-7 are modeled through TMS. The facility is required to provide at least three sample results of the effluent from outfall(s) discharging processed wastewater. The permittee submitted at least three sample results of all pollutants in groups 1-5. Maximum sample results of a given pollutant is the input of the model if the sample size is less than 10. For pollutants with sample size ≥ 10, PADEP utilizes TOXCONC to calculate Average Monthly Effluent Concentration (AMEC) and Coefficient of Variation (CoV) to refine the model input. The statistical methodologies used in this spreadsheet are taken from EPA's *TSD for Water Quality-based Toxics Control, Appendix E* and are consistent with PADEP's technical guidance 391-2000-024.

The pollutants are modeled through TMS and output from the TMS is provided below:

☑ ***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 Antimony	Report	Report	Report	Report	Report	µg/L	7.65	THH	Discharge Conc > 10% WQBEL (no RP)
Total Arsenic	Report	Report	Report	Report	Report	µg/L	13.7	THH	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	2,186	CFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	410	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	2,049	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.068	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	204	AFC	Discharge Conc > 10% WQBEL (no RP)

Each of the parameters are discussed below:

Total Antimony:
The TMS model suggested monitoring requirements for Total Antimony based on a model input concentration of 2.3 ug/l (maximum of 3 sample results). A quarterly monitoring will be included.

Total Arsenic:
The TMS model suggested monitoring requirements for Total Arsenic based on a model input concentration of 4.0 ug/l (maximum of 8 sample results). A quarterly monitoring will be included.

Total Boron:
The TMS model suggested monitoring requirements for Total Boron based on a model input concentration of 343 ug/l (maximum of 3 sample results). A quarterly monitoring will be included.

Dissolved Iron:
The TMS model suggested monitoring requirements for Dissolved Iron based on a model input concentration of 108 ug/l (maximum of 3 sample results). A quarterly monitoring will be included.

Total Iron:
The TMS model suggested monitoring requirements for Total Iron based on a model input concentration of 277 ug/l (maximum of 8 sample results). A quarterly monitoring will be included.

Total Mercury:
The TMS model suggested monitoring requirements for Total Mercury based on a model input concentration of 0.02 ug/l (maximum of 8 sample results). A quarterly monitoring will be included.

Total Zinc:
The TMS model suggested monitoring requirements for Total Zinc based on a model input concentration of 42 ug/l (maximum of 8 sample results). A quarterly monitoring will be included.

Nutrients monitoring:
PADEP's SOP BCW-PMT-033 recommends monitoring for Total Nitrogen and Total Phosphorus for facilities with design flow more than 2000-GPD, which is also supported by Pa Code 25 Ch. 92a.61. Current monitoring requirement will be continued.

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. These are existing requirements and will be carried over in this renewal.

E. Coli:
Pa Code 25 § 92a. 61 requires monitoring of E. Coli. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends monthly E. Coli monitoring for major sewage dischargers. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 §§ 95.2(1), 92a.47) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly, 45 mg/l average weekly, and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b). The mass based average monthly and weekly average limits are calculated to be 1,800 lbs./day and 2,700 lbs./day respectively, which are the same as were in existing permit and will be carried over.

UV Disinfection:
PADEP's SOP BCW-PMT-033 recommends UV parameter monitoring where UV is used as a method of disinfection, with the same frequency as would be if Chlorine is used for disinfection. The current permit has UV Transmittance in % reporting requirement which will be carried over in this renewal.

PFOA, PFOS, HFPO-DA and PFBS:
Per BCW-PMT-033 (revised February 5, 2024) and under the authority of Pa Code 25 § 92a.61, annual monitoring for PFOA, PFOS, HFPO-DA, and PFBS will be added in this renewal with a footnote that will read:

"The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results 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 must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs."

TDS, Sulfate, Chloride, Bromide, 1,4-Dioxane:
Historically PADEP utilized the following logics to determine limits/monitoring requirements for these special monitoring parameters:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs./day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

PADEP has determined that they have sufficient data over the past 7 years of implementing the special monitoring logic for these parameters and it is no longer needed. The monitoring requirements for Sulfate, Chloride, and Bromide will be removed from the permit. This is consistent with Anti-backsliding Prohibition exception as stated in CWA Section 402(o)(2)(i) and 40 CFR § 122.44.(l)(2)(i)(B)(1).

TMDL Parameters:
No RP were demonstrated for TMDL parameters; therefore, existing monitoring will be carried over.

Total Residual Chlorine (TRC)
The facility stores chlorine to use as backup disinfectant. The current permit has daily monitoring requirements for TRC with limits. Existing limits are still protective and will be continued in the permit.

Monitoring Frequency and Sample Types:
Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

Flow and Influent BOD_5 and TSS Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5 and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94.

Anti-Backsliding
Anti-backsliding prohibition is justified in sections where an exception is justified for the affected pollutant(s). For remaining pollutants, this prohibition isn't applicable since the proposed limits are at least as stringent as were in current permit.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 74%, 47%, 24%, and 12%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 47%.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
05/2020	100%	100%	>100%	100%	100%	>100%	Pass
05/2021	100%	100%	>100%	100%	100%	>100%	Pass
05/2022	100%	100%	>100%	100%	100%	>100%	Pass
05/2023	100%	100%	>100%	100%	100%	>100%	Pass

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments: There were two tests failures in 2020 and 2023, retests of which passed.

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.441** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(7.2 MGD x 1.547) / ((11.6 cfs x 0.441) + (7.2 MGD x 1.547))] x 100 = **68.52%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** **(YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

Type of Test for Permit Renewal: **Chronic**

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = IWCa / 0.3 = **%**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(7.2 MGD x 1.547) / ((11.6 cfs x 1) + (7.2 MGD x 1.547))] x 100 = **49%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 75%, 49%, 25%, and 12%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.06	XXX	0.19	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	1500.0	2400.0	XXX	25.0	40.0 Wkly Avg	50	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	1800.0	2700.0	XXX	30.0	45.0 Wkly Avg	60	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	510.0	XXX	XXX	8.5	XXX	17.0	1/day	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

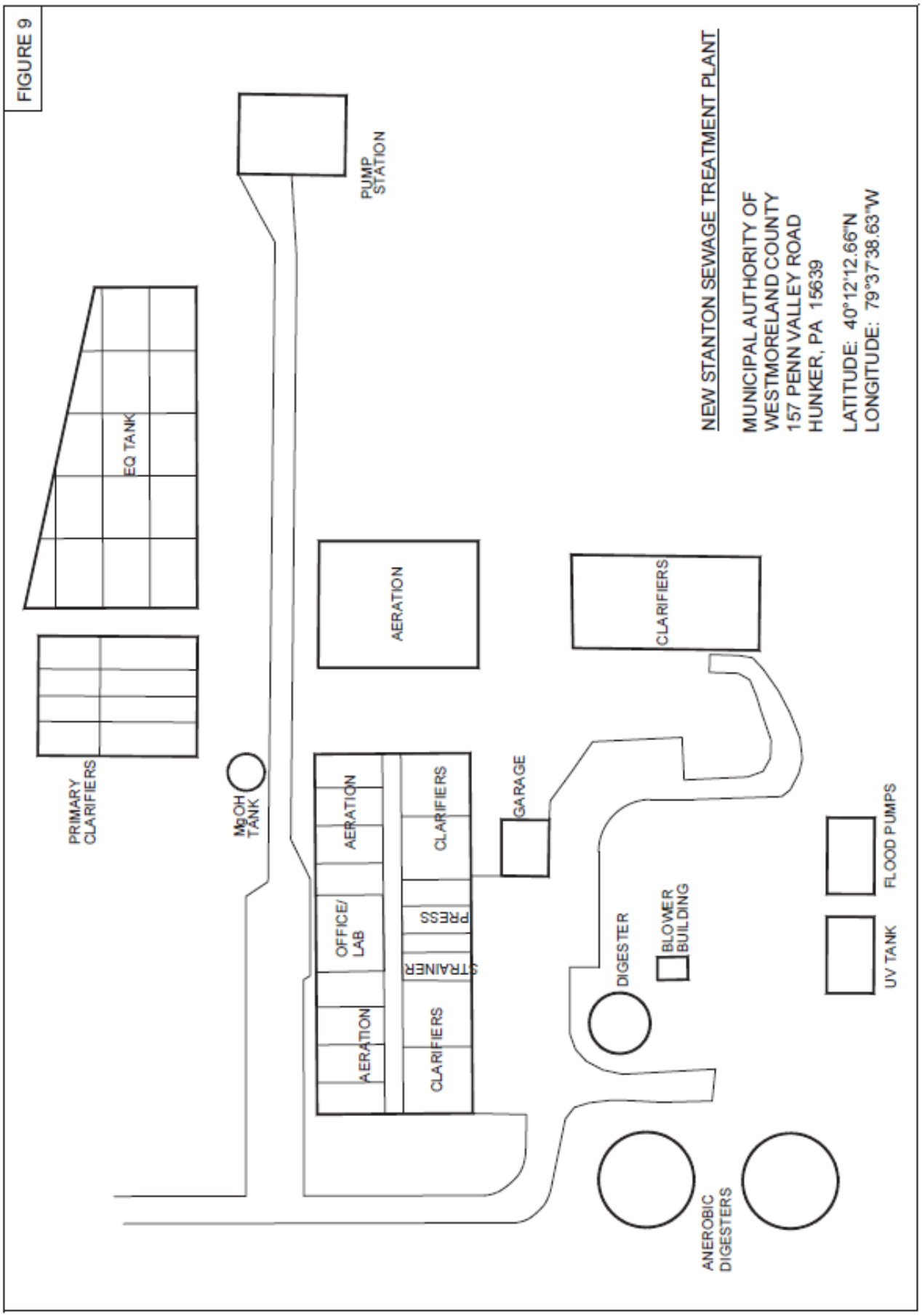
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	210.0	XXX	XXX	3.5	XXX	7.0	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Antimony, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Arsenic, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Boron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Copper, Total	XXX	XXX	XXX	0.026	0.04	XXX	1/week	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Iron, Dissolved	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Manganese, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Mercury, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFOA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFOS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFBS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
HFPO-DA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: At Outfall 001
Other Comments: None

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

USGS Location

Process flow diagram



PA0038181 at Outfall 001

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Time: 2024-06-24 20:29:23 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	102	square miles
ELEV	Mean Basin Elevation	1161	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	102	square miles	2.26	1400
ELEV	Mean Basin Elevation	1161	feet	1050	2580

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.31	ft^3/s	43	43
30 Day 2 Year Low Flow	8.23	ft^3/s	38	38
7 Day 10 Year Low Flow	2.42	ft^3/s	66	66
30 Day 10 Year Low Flow	3.65	ft^3/s	54	54
90 Day 10 Year Low Flow	5.91	ft^3/s	41	41

Low-Flow Statistics Citations

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

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

PA0038181 at node 2

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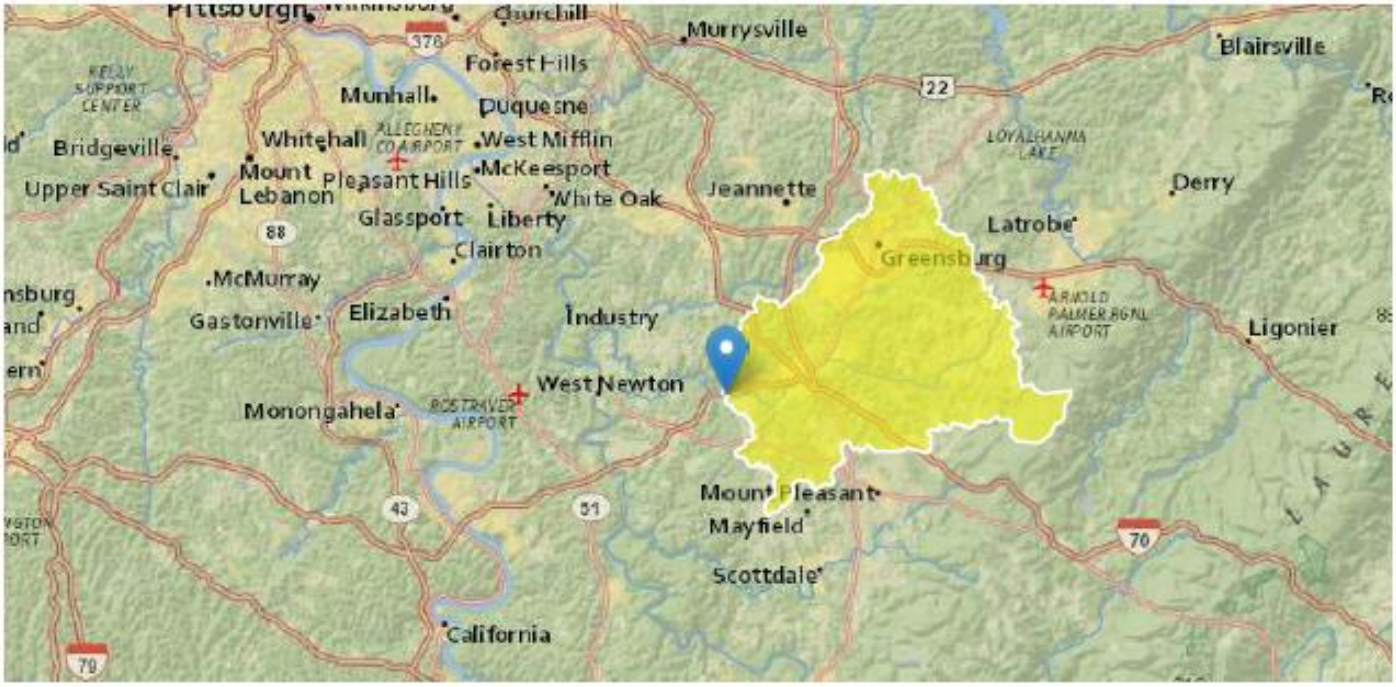

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	110	square miles
ELEV	Mean Basin Elevation	1156	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	110	square miles	2.26	1400
ELEV	Mean Basin Elevation	1156	feet	1050	2580

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.76	ft^3/s	43	43
30 Day 2 Year Low Flow	8.9	ft^3/s	38	38
7 Day 10 Year Low Flow	2.65	ft^3/s	66	66
30 Day 10 Year Low Flow	3.97	ft^3/s	54	54
90 Day 10 Year Low Flow	6.41	ft^3/s	41	41

Low-Flow Statistics Citations

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

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37556	SEWICKLEY CREEK	15.440	911.72	102.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
New Stanton STP	PA0038181	7.2000	7.2000	7.2000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	3.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37556	SEWICKLEY CREEK	12.810	900.42	110.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
15.440	4.08	0.00	4.08	11.1384	0.00081	.831	61.02	73.4	0.30	0.536	25.00	7.00
Q1-10 Flow												
15.440	2.61	0.00	2.61	11.1384	0.00081	NA	NA	NA	0.28	0.567	25.00	7.00
Q30-10 Flow												
15.440	5.55	0.00	5.55	11.1384	0.00081	NA	NA	NA	0.32	0.509	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.440	New Stanton STP	11.07	7	11.07	7	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.440	New Stanton STP	1.37	2.05	1.37	2.05	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
15.44	New Stanton STP	5.85	5.85	1.76	1.76	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
15.440	7.200	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
61.016	0.831	73.404	0.300
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.82	0.308	1.28	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.869	1.876	Tsivoglou	5
Reach Travel Time (days)			
0.536			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.054	4.72	1.22	5.67
0.107	4.62	1.15	5.51
0.161	4.53	1.09	5.38
0.214	4.44	1.03	5.28
0.268	4.34	0.98	5.20
0.321	4.26	0.92	5.15
0.375	4.17	0.87	5.12
0.429	4.08	0.83	5.11
0.482	4.00	0.78	5.11
0.536	3.92	0.74	5.12

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
15.440	New Stanton STP	PA0038181	7.200	CBOD5	5.85		
				NH3-N	1.76	3.52	
				Dissolved Oxygen			5

WET Summary and Evaluation

Facility Name	New Stanton STP
Permit No.	PA0038181
Design Flow (MGD)	7.2
Q_{7-10} Flow (cfs)	11.6
PMF_a	0.441
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/30/20	5/24/21	5/10/22	5/9/23
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/30/20	5/25/21	5/10/22	5/9/23
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/20/20	5/24/21	5/10/22	6/5/23
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/24/20	5/24/21	5/10/22	6/5/23
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**49** % Effluent
Dilution Series	**12, 25, 49, 75, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.47
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.25

Facility Name: New Stanton STP

Permit No.: PA0038181

Replicate No.	Test Completion Date 6/30/2020 Control	TIWC	Test Completion Date 5/24/2021 Control	TIWC
1	1	0.9	1	1
2	1	0.9	1	0.8
3	1	1	1	0.7
4	1	1	1	0.9
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	1.000	0.950	1.000	0.850
Std Dev.	0.000	0.058	0.000	0.129
# Replicates	4	4	4	4
T-Test Result	6.2250		5.6493	
Deg. of Freedom	3		3	
Critical T Value	0.7649		0.7649	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/10/2022 Control	TIWC	Test Completion Date 5/9/2023 Control	TIWC
1	0.9	1	1	1
2	1	0.8	1	1
3	0.9	0.7	1	0.5
4	1	0.9	1	1
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.950	0.850	1.000	0.875
Std Dev.	0.058	0.129	0.000	0.250
# Replicates	4	4	4	4
T-Test Result	3.3647		3.0000	
Deg. of Freedom	5		3	
Critical T Value	0.7267		0.7649	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.47
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.25

Facility Name: New Stanton STP

Permit No.: PA0038181

Replicate No.	Test Completion Date 6/30/2020 Control	TIWC	Test Completion Date 5/25/2021 Control	TIWC
1	0.383	0.351	0.244	0.266
2	0.336	0.357	0.253	0.257
3	0.353	0.375	0.247	0.271
4	0.34	0.383	0.27	0.293
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.353	0.367	0.254	0.272
Std Dev.	0.021	0.015	0.012	0.015
# Replicates	4	4	4	4
T-Test Result	9.2921		9.2692	
Deg. of Freedom	5		5	
Critical T Value	0.7267		0.7267	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/10/2022 Control	TIWC	Test Completion Date 5/9/2023 Control	TIWC
1	0.265	0.292	0.407	0.449
2	0.288	0.142	0.428	0.371
3	0.272	0.366	0.4	0.219
4	0.321	0.368	0.347	0.364
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.287	0.292	0.396	0.356
Std Dev.	0.025	0.106	0.034	0.097
# Replicates	4	4	4	4
T-Test Result	1.4322		1.1741	
Deg. of Freedom	3		4	
Critical T Value	0.7649		0.7407	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.45
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: New Stanton STP

Permit No.: PA0038181

Replicate No.	Test Completion Date 5/20/2020 Control	TIWC	Test Completion Date 5/24/2021 Control	TIWC
1	31	36	0	38
2	25	32	20	34
3	28	28	20	33
4	37	38	30	42
5	46	37	24	36
6	40	25	12	40
7	24	15	21	47
8	32	31	20	37
9	24	35	29	32
10	22	32	26	33
11				
12				
13				
14				
15				
Mean	30.900	30.900	20.200	37.200
Std Dev.	7.937	6.903	8.804	4.733
# Replicates	10	10	10	10
T-Test Result	2.6800		8.5830	
Deg. of Freedom	17		17	
Critical T Value	0.8633		0.8633	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/10/2022 Control	TIWC	Test Completion Date 6/5/2023 Control	TIWC
1	25	37	28	29
2	23	30	30	29
3	27	29	27	32
4	18	26	29	30
5	30	27	30	30
6	17	24	31	28
7	24	27	30	33
8	26	28	32	32
9	24	25	30	30
10	9	30	31	30
11				
12				
13				
14				
15				
Mean	22.300	28.300	29.800	30.300
Std Dev.	6.075	3.653	1.476	1.567
# Replicates	10	10	10	10
T-Test Result	6.2682		13.1042	
Deg. of Freedom	17		16	
Critical T Value	0.8633		0.8647	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.45
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: New Stanton STP

Permit No.: PA0038181

Replicate No.	Test Completion Date 5/24/2020 Control	TIWC	Test Completion Date 5/24/2021 Control	TIWC
1	1	1	0	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	1.000	1.000	0.900	1.000
Std Dev.	0.000	0.000	0.316	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/10/2022 Control	TIWC	Test Completion Date 6/5/2023 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	1.000	1.000	1.000	1.000
Std Dev.	0.000	0.000	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

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

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.136	1.3.2.iii	WLA cfc =	0.125
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.051	5.1d	LTA_cfc =	0.073

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.062	AFC
		INST MAX LIMIT (mg/l) =	0.204	

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

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: New Stanton STP NPDES Permit No.: PA0038181 Outfall No.: 001

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

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
7.2	218	7.13						

					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											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		62									
	Total Antimony	µg/L		2.3									
	Total Arsenic	µg/L		4									
	Total Barium	µg/L		100									
	Total Beryllium	µg/L	<	0.8									
	Total Boron	µg/L		343									
	Total Cadmium	µg/L	<	0.12									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L		0.25									
	Total Cobalt	µg/L		1.75									
	Total Copper	µg/L	<	0.007									
	Free Cyanide	µg/L	<	0.002									
	Total Cyanide	µg/L		3									
	Dissolved Iron	µg/L		108									
	Total Iron	µg/L		277									
	Total Lead	µg/L		0.6									
	Total Manganese	µg/L		50									
	Total Mercury	µg/L		0.02									
	Total Nickel	µg/L		7									
	Total Phenols (Phenolics) (PWS)	µg/L		12									
	Total Selenium	µg/L	<	0.2									
	Total Silver	µg/L	<	0.0619									
	Total Thallium	µg/L	<	0.8									
	Total Zinc	µg/L		42									
	Total Molybdenum	µg/L		2.15									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.5									

Group 3	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L		1.4									
	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	<	0.5									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	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	<	0.98									
	2,4-Dichlorophenol	µg/L	<	0.98									
	2,4-Dimethylphenol	µg/L	<	0.98									
	4,6-Dinitro-o-Cresol	µg/L	<	2.94									
	2,4-Dinitrophenol	µg/L	<	2.94									
	2-Nitrophenol	µg/L	<	0.98									
	4-Nitrophenol	µg/L	<	2.94									
	p-Chloro-m-Cresol	µg/L	<	0.98									
	Pentachlorophenol	µg/L	<	0.98									
	Phenol	µg/L	<	2.94									
	2,4,6-Trichlorophenol	µg/L	<	0.98									
Group 5	Acenaphthene	µg/L	<	0.98									
	Acenaphthylene	µg/L	<	0.98									
	Anthracene	µg/L	<	0.98									
	Benzidine	µg/L	<	4.9									
	Benzo(a)Anthracene	µg/L	<	0.98									
	Benzo(a)Pyrene	µg/L	<	0.98									
	3,4-Benzofluoranthene	µg/L	<	0.98									
	Benzo(ghi)Perylene	µg/L	<	0.98									
	Benzo(k)Fluoranthene	µg/L	<	0.98									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.98									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.98									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.98									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.94									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.98									
	Butyl Benzyl Phthalate	µg/L	<	2.94									
	2-Chloronaphthalene	µg/L	<	0.98									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.98									
	Chrysene	µg/L	<	0.98									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.98									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	0.98									
	Diethyl Phthalate	µg/L	<	0.98									
	Dimethyl Phthalate	µg/L	<	0.98									
	Di-n-Butyl Phthalate	µg/L	<	3.69									
	2,4-Dinitrotoluene	µg/L	<	2.86									
	2,6-Dinitrotoluene	µg/L	<	2.86									
	Di-n-Octyl Phthalate	µg/L	<	0.98									

	1,2-Diphenylhydrazine	µg/L	<	0.98										
	Fluoranthene	µg/L	<	0.98										
	Fluorene	µg/L	<	0.98										
	Hexachlorobenzene	µg/L	<	0.98										
	Hexachlorobutadiene	µg/L	<	0.5										
	Hexachlorocyclopentadiene	µg/L	<	0.98										
	Hexachloroethane	µg/L	<	0.98										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.98										
	Isophorone	µg/L	<	0.98										
	Naphthalene	µg/L	<	0.5										
	Nitrobenzene	µg/L	<	0.98										
	n-Nitrosodimethylamine	µg/L	<	0.98										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.98										
	n-Nitrosodiphenylamine	µg/L	<	0.98										
	Phenanthrene	µg/L	<	0.98										
	Pyrene	µg/L	<	0.98										
	1,2,4-Trichlorobenzene	µg/L	<	0.5										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

Stream / Surface Water Information

Instructions | Discharge | Stream

Receiving Surface Water Name: Sewickley 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	037556	15.44	911.72	102			Yes
End of Reach 1	037556	12.81	900.42	110			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	15.44	0.04										100	7		
End of Reach 1	12.81	0.04													

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	15.44														
End of Reach 1	12.81														

Model Results

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.940 Analysis Hardness (mg/l): 187.77 Analysis pH: 7.09

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	1,008	
Total Antimony	0	0		0	1,100	1,100	1,479	
Total Arsenic	0	0		0	340	340	457	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	28,233	
Total Boron	0	0		0	8,100	8,100	10,890	
Total Cadmium	0	0		0	3.714	4.05	5.44	Chem Translator of 0.918 applied
Hexavalent Chromium	0	0		0	16	16.3	21.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	128	
Total Copper	0	0		0	24.332	25.3	34.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	29.6	
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	127.307	182	245	Chem Translator of 0.699 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.21	Chem Translator of 0.85 applied
Total Nickel	0	0		0	797.905	800	1,075	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	9.507	11.2	15.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	87.4	
Total Zinc	0	0		0	199.847	204	275	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.03	
Acrylonitrile	0	0		0	650	650	874	
Benzene	0	0		0	640	640	860	
Bromoform	0	0		0	1,800	1,800	2,420	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,764	
Chlorobenzene	0	0		0	1,200	1,200	1,613	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	24,200	
Chloroform	0	0		0	1,900	1,900	2,554	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	20,166	
1,1-Dichloroethylene	0	0		0	7,500	7,500	10,083	
1,2-Dichloropropane	0	0		0	11,000	11,000	14,789	
1,3-Dichloropropylene	0	0		0	310	310	417	
Ethylbenzene	0	0		0	2,900	2,900	3,899	
Methyl Bromide	0	0		0	550	550	739	
Methyl Chloride	0	0		0	28,000	28,000	37,644	
Methylene Chloride	0	0		0	12,000	12,000	16,133	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,344	
Tetrachloroethylene	0	0		0	700	700	941	
Toluene	0	0		0	1,700	1,700	2,286	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	9,142	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	4,033	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	4,571	
Trichloroethylene	0	0		0	2,300	2,300	3,092	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	753	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,286	
2,4-Dimethylphenol	0	0		0	660	660	887	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	108	
2,4-Dinitrophenol	0	0		0	660	660	887	
2-Nitrophenol	0	0		0	8,000	8,000	10,755	
4-Nitrophenol	0	0		0	2,300	2,300	3,092	
p-Chloro-m-Cresol	0	0		0	160	160	215	
Pentachlorophenol	0	0		0	9.576	9.58	12.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	618	
Acenaphthene	0	0		0	83	83.0	112	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	403	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.67	
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	40,333	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	6,050	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	363	
Butyl Benzyl Phthalate	0	0		0	140	140	188	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,102	
1,3-Dichlorobenzene	0	0		0	350	350	471	

1,4-Dichlorobenzene	0	0		0	730	730	981	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	5,378	
Dimethyl Phthalate	0	0		0	2,500	2,500	3,361	
Di-n-Butyl Phthalate	0	0		0	110	110	148	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,151	
2,6-Dinitrotoluene	0	0		0	990	990	1,331	
1,2-Diphenylhydrazine	0	0		0	15	15.0	20.2	
Fluoranthene	0	0		0	200	200	269	
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	13.4	
Hexachlorocyclopentadiene	0	0		0	5	5.0	6.72	
Hexachloroethane	0	0		0	60	60.0	80.7	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	13,444	
Naphthalene	0	0		0	140	140	188	
Nitrobenzene	0	0		0	4,000	4,000	5,378	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	22,855	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	403	
Phenanthrene	0	0		0	5	5.0	6.72	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	175	

☑ *CFC* CCT (min): 16.965 PMF: 1 Analysis Hardness (mg/l): 186.36 Analysis pH: 7.09

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	301	
Total Arsenic	0	0		0	150	150	205	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,602	
Total Boron	0	0		0	1,600	1,600	2,186	
Total Cadmium	0	0		0	0.379	0.43	0.59	Chem Translator of 0.883 applied
Hexavalent Chromium	0	0		0	10	10.4	14.2	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	26.0	
Total Copper	0	0		0	15.245	15.9	21.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	7.1	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,049	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.921	7.03	9.6	Chem Translator of 0.7 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.24	Chem Translator of 0.85 applied
Total Nickel	0	0		0	88.061	88.3	121	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	6.82	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	17.8	
Total Zinc	0	0		0	200.204	203	277	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	4.1	
Acrylonitrile	0	0		0	130	130	178	
Benzene	0	0		0	130	130	178	
Bromoform	0	0		0	370	370	506	
Carbon Tetrachloride	0	0		0	560	560	765	
Chlorobenzene	0	0		0	240	240	328	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,782	
Chloroform	0	0		0	390	390	533	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	4,236	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,049	
1,2-Dichloropropane	0	0		0	2,200	2,200	3,006	
1,3-Dichloropropylene	0	0		0	61	61.0	83.3	
Ethylbenzene	0	0		0	580	580	792	
Methyl Bromide	0	0		0	110	110	150	
Methyl Chloride	0	0		0	5,500	5,500	7,515	
Methylene Chloride	0	0		0	2,400	2,400	3,279	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	287	
Tetrachloroethylene	0	0		0	140	140	191	
Toluene	0	0		0	330	330	451	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,913	
1,1,1-Trichloroethane	0	0		0	610	610	833	
1,1,2-Trichloroethane	0	0		0	680	680	929	
Trichloroethylene	0	0		0	450	450	615	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	150	
2,4-Dichlorophenol	0	0		0	340	340	465	
2,4-Dimethylphenol	0	0		0	130	130	178	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	21.9	
2,4-Dinitrophenol	0	0		0	130	130	178	
2-Nitrophenol	0	0		0	1,600	1,600	2,186	
4-Nitrophenol	0	0		0	470	470	642	
p-Chloro-m-Cresol	0	0		0	500	500	683	
Pentachlorophenol	0	0		0	7.347	7.35	10.0	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	124	
Acenaphthene	0	0		0	17	17.0	23.2	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	80.6	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.14	
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	8,198	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,243	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	73.8	
Butyl Benzyl Phthalate	0	0		0	35	35.0	47.8	
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	219	
1,3-Dichlorobenzene	0	0		0	69	69.0	94.3	
1,4-Dichlorobenzene	0	0		0	150	150	205	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,093	
Dimethyl Phthalate	0	0		0	500	500	683	
Di-n-Butyl Phthalate	0	0		0	21	21.0	28.7	
2,4-Dinitrotoluene	0	0		0	320	320	437	
2,6-Dinitrotoluene	0	0		0	200	200	273	
1,2-Diphenylhydrazine	0	0		0	3	3.0	4.1	
Fluoranthene	0	0		0	40	40.0	54.7	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.73	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.37	
Hexachloroethane	0	0		0	12	12.0	16.4	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,869	
Naphthalene	0	0		0	43	43.0	58.8	
Nitrobenzene	0	0		0	810	810	1,107	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	4,645	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	80.6	
Phenanthrene	0	0		0	1	1.0	1.37	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	35.5	

☑ ***THH*** CCT (min): 16.965 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	7.65	
Total Arsenic	0	0		0	10	10.0	13.7	
Total Barium	0	0		0	2,400	2,400	3,279	

Total Boron	0	0		0	3,100	3,100	4,236	
Total Cadmium	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	5.47	
Dissolved Iron	0	0		0	300	300	410	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,366	
Total Mercury	0	0		0	0.050	0.05	0.068	
Total Nickel	0	0		0	610	610	833	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.33	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	4.1	
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	137	
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	7.79	
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	45.1	
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	92.9	
Methyl Bromide	0	0		0	100	100.0	137	
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	77.9	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	137	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	13,663	
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	41.0	
2,4-Dichlorophenol	0	0		0	10	10.0	13.7	
2,4-Dimethylphenol	0	0		0	100	100.0	137	

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.73	
2,4-Dinitrophenol	0	0		0	10	10.0	13.7	
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	5,465	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	95.6	
Anthracene	0	0		0	300	300	410	
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	273	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.14	
2-Chloronaphthalene	0	0		0	800	800	1,093	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,366	
1,3-Dichlorobenzene	0	0		0	7	7.0	9.56	
1,4-Dichlorobenzene	0	0		0	300	300	410	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	820	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,733	
Di-n-Butyl Phthalate	0	0		0	20	20.0	27.3	
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	27.3	
Fluorene	0	0		0	50	50.0	68.3	
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	5.47	
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	46.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	13.7	
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	27.3	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.096	

☑ *CRL* CCT (min): 63.985 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 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	
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	
Acrylonitrile	0	0		0	0.06	0.06	0.2	
Benzene	0	0		0	0.58	0.58	1.9	
Bromoform	0	0		0	7	7.0	23.0	
Carbon Tetrachloride	0	0		0	0.4	0.4	1.31	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2.62	
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	3.12	
1,2-Dichloroethane	0	0		0	9.9	9.9	32.5	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	2.95	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.89	
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	65.6	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.66	
Tetrachloroethylene	0	0		0	10	10.0	32.8	
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	1.8	
Trichloroethylene	0	0		0	0.6	0.6	1.97	
Vinyl Chloride	0	0		0	0.02	0.02	0.066	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.098	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	4.92	
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	0.0003	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.003	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0003	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.003	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.033	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.098	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1.05	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.39	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0003	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.16	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.16	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.16	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.098	

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	0.0003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.033	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.33	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.003	
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	0.002	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.016	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	10.8	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Antimony	Report	Report	Report	Report	Report	µg/L	7.65	THH	Discharge Conc > 10% WQBEL (no RP)
Total Arsenic	Report	Report	Report	Report	Report	µg/L	13.7	THH	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	2,186	CFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	410	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	2,049	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.068	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	204	AFC	Discharge Conc > 10% 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 Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,279	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Hexavalent Chromium	14.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	26.0	µg/L	Discharge Conc ≤ 10% WQBEL

Total Copper	N/A	N/A	Discharge Conc < TQL
Free Cyanide	N/A	N/A	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Total Lead	9.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,366	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	121	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	6.82	µg/L	Discharge Conc < TQL
Total Silver	11.2	µg/L	Discharge Conc < TQL
Total Thallium	0.33	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.2	µg/L	Discharge Conc < TQL
Benzene	1.9	µg/L	Discharge Conc < TQL
Bromoform	23.0	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1.31	µg/L	Discharge Conc < TQL
Chlorobenzene	137	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	2.62	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	4,782	µg/L	Discharge Conc < TQL
Chloroform	7.79	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	3.12	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	32.5	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	45.1	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	2.95	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.89	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	92.9	µg/L	Discharge Conc < TQL
Methyl Bromide	137	µg/L	Discharge Conc < TQL
Methyl Chloride	7,515	µg/L	Discharge Conc < TQL
Methylene Chloride	65.6	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.66	µg/L	Discharge Conc < TQL
Tetrachloroethylene	32.8	µg/L	Discharge Conc < TQL
Toluene	77.9	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	137	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	833	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.8	µg/L	Discharge Conc < TQL
Trichloroethylene	1.97	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.066	µg/L	Discharge Conc < TQL
2-Chlorophenol	41.0	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	13.7	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	137	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.73	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	13.7	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,186	µg/L	Discharge Conc < TQL

4-Nitrophenol	642	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.098	µg/L	Discharge Conc < TQL
Phenol	5,465	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	4.92	µg/L	Discharge Conc < TQL
Acenaphthene	23.2	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	410	µg/L	Discharge Conc < TQL
Benzidine	0.0003	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.003	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0003	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.003	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.033	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.098	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	273	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1.05	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	73.8	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.14	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,093	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.39	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0003	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	219	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	9.56	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	205	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.16	µg/L	Discharge Conc < TQL
Diethyl Phthalate	820	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	683	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	27.3	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.16	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.16	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.098	µg/L	Discharge Conc < TQL
Fluoranthene	27.3	µg/L	Discharge Conc < TQL
Fluorene	68.3	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.033	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.37	µg/L	Discharge Conc < TQL
Hexachloroethane	0.33	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.003	µg/L	Discharge Conc < TQL
Isophorone	46.5	µg/L	Discharge Conc < TQL
Naphthalene	58.8	µg/L	Discharge Conc < TQL
Nitrobenzene	13.7	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.002	µg/L	Discharge Conc < TQL

n-Nitrosodi-n-Propylamine	0.016	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	10.8	µg/L	Discharge Conc < TQL
Phenanthrene	1.37	µg/L	Discharge Conc < TQL
Pyrene	27.3	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.096	µg/L	Discharge Conc < TQL