pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Application Type	**Renewal**	Application No.	**PA0029441**
Facility Type	**Municipal**	APS ID	**994495**
Major / Minor	**Major**	Authorization ID	**1275445**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Bucks County Water & Sewer Authority**	Facility Name	**Upper Dublin WWTP**
Applicant Address	1275 Almshouse Road	Facility Address	455 Delaware Drive
	Warrington, PA 18976-1209		Fort Washington, PA 19034
Applicant Contact	John Butler	Facility Contact	Len Hughes
Applicant Phone	(215) 343-2538	Facility Phone	(215) 348-7645
Client ID	93895	Site ID	583959
Ch 94 Load Status	Not Overloaded	Municipality	Upper Dublin Township
Connection Status	No Limitations	County	Montgomery
Date Application Received	May 31, 2019	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit Renewal.

Summary of Review

The permittee has submitted a renewal application for NPDES permit to discharge treated sewage to unnamed tributary to Sandy Run (locally known as Pine Run).

The sewage treatment plant service Upper Dublin TWP (95%) and Whitemarsh TWP (5%).

There is one Significant Industrial User (SIU) listed in the application:
Robert Wooler Co – 40 CFR Part: 433 (Metal finishing Category) 2,250 GPD

The treatment consists of grinding and equalization, followed by split treatment trains consisting of 1) 0.5 mg to primary clarifies, trickling filter, secondary clarifiers, and chlorine disinfection and 2) 0.6 MGD to primary clarifies, trickling filter, secondary clarifiers and chlorine disinfection. Combined flow is dechlorinated using sodium bisulfite prior to discharge. Ferric chloride is used for phosphorous control. Trickling filter sludge is anaerobically digested and A/O sludge is aerobically digested, followed by polymer addition and gravity settling. Liquid sludge is hauled offsite to either Hatfield Township Municipal Authority Treatment Plant or the East Norriton Plymouth Whitpain Joint Sewer Authority Treatment Plant, both licensed incineration facilities.

Based on DEP's issuance of the amendment of the WQM permit on 02/08/19, facility has increased the organic design capacity from 2,600 lbs. BOD5/day to 2,910 lbs. BOD5/day by installing trickling filter plastic media (random dump style) that will replace existing rock media.

DEP has conducted a site visit on 4/29/21. (copy of the inspection report is available):

The facility is in good operational condition.

Approve	Deny	Signatures	Date
X		Begay Omuralieva Begay Omuralieva / Environmental Engineering Specialist	11/12/2021
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	11/12/2021

Summary of Review

All effluent limits determinations for Outfall 001 are listed in **Development of Effluent Limitations** starting page 10 of this factsheet.

The facility has been implementing a POTW pretreatment program in accordance with the federal Clean Water Act, the Pennsylvania Clean Streams Law, and the federal General Pretreatment Regulations at 40 CFR Part 40. The special Requirements are added in Part C of the permit.

Outfall 002 and 003 are stormwater outfalls. Monitoring requirements for Outfall 002 as representative for Outfall 003 is included in Part A. A special requirement for stormwater outfalls will be included in Part C of the permit.

Act 14 Notifications: Montgomery County Office of Commissioners and Upper Dublin Township have received the notifications of the renewal application on 04/05/19.

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)	1.1
Latitude	40º 8' 4.41"	Longitude	-75º 11' 34.72"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Effluent from Upper Dublin WWTP		
Receiving Waters	Unnamed tributary to Sandy Run	Stream Code	00860
NHD Com ID	25960180	RMI	0.62
Drainage Area	5.81 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.58	Q_{7-10} Basis	Previous WQPR
Elevation (ft)	165	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, NUTRIENTS, PATHOGENS, SILTATION		
Source(s) of Impairment	INDUSTRIAL POINT SOURCE DISCHARGE, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN,		
TMDL Status	Final	Name	Sandy Run, Wissahickon TMDL

Changes Since Last Permit Issuance:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002		
Latitude	40º 8' 3.62"	Longitude	-75º 11' 35.55"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed tributary to Sandy Run	Stream Code	00860
NHD Com ID	25960180	RMI	0.62
Drainage Area	5.81 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.58	Q_{7-10} Basis	Previous WQPR
Elevation (ft)	165	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, NUTRIENTS, PATHOGENS, SILTATION		
Source(s) of Impairment	INDUSTRIAL POINT SOURCE DISCHARGE, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN		
TMDL Status	Final	Name	Sandy Run, Wissahickon TMDL

Changes Since Last Permit Issuance:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003		
Latitude	40Âº 8' 6.61"	Longitude	-75Âº 11' 30.00"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed tributary to Sandy Run	Stream Code	00860
NHD Com ID	25960180	RMI	0.62
Drainage Area	5.81 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.58	Q_{7-10} Basis	Previous WQPR
Elevation (ft)	165	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, NUTRIENTS, PATHOGENS, SILTATION		
Source(s) of Impairment	INDUSTRIAL POINT SOURCE DISCHARGE, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN		
TMDL Status	Final	Name	Sandy Run, Wissahickon TMDL

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Upper Dublin WWTP

WQM Permit No.	Issuance Date
4693430A3	02/14/2019
4693430A2	08/13/2009
4693430A1	10/31/2007

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	AOP	Gas Chlorine	0.85

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.35	2910	Not Overloaded	Aerobic and anaerobic	DELCORA

Changes Since Last Permit Issuance: none

Compliance History

DMR Data for Outfall 001 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
Flow (MGD) Average Monthly	0.653	0.973	0.649	0.468	0.501	0.409	0.380	0.369	0.420	0.404	0.406	0.655
Flow (MGD) Daily Maximum	0.872	2.16	1.55	0.741	1.186	0.734	0.678	0.478	0.734	0.729	0.971	1.508
pH (S.U.) Instantaneous Minimum	6.4	6.8	6.8	6.6	6.7	6.5	6.8	6.7	6.6	6.7	6.6	6.6
pH (S.U.) Instantaneous Maximum	7.1	7.4	7.5	7.5	7.5	7.4	7.4	7.2	7.7	7.5	7.3	7.2
DO (mg/L) Instantaneous Minimum	7.2	7.0	7.4	7.6	7.0	7.4	7.0	7.0	7.2	7.0	7.1	7.6
TRC (mg/L) Average Monthly	0.03	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03
TRC (mg/L) Instantaneous Maximum	0.08	0.08	0.09	0.09	0.08	0.07	0.08	0.06	0.07	0.07	0.09	0.06
CBOD5 (lbs/day) Average Monthly	26	58	30	16	16	9	8	12	17	12	9	26
CBOD5 (lbs/day) Weekly Average	29	130	48	19	20	13	9	13	21	15	13	34
CBOD5 (mg/L) Average Monthly	4.9	6.6	5.8	4.1	4	2.9	2.7	3.6	4.3	3.8	3.1	4.5
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	107.5	103.6	147.6	84.6	94.2	83.5	100.5	110.4	107.1	97.2	59.7	162
CBOD5 (mg/L) Weekly Average	5.5	10.4	7.8	4.6	4.9	3.8	3	3.9	4.8	4.7	3.7	5.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	691	1349	966	543	507	357	293	479	492	468	426	1272
BOD5 (mg/L) Raw Sewage Influent Average Monthly	123	167	190	138	126	115	101.2	148	130	148.7	148	216
TSS (lbs/day) Average Monthly	49	60	34	17	23	29	14	15	22	22	23	46

TSS (lbs/day) Weekly Average	70	127	61	23	41	44	17	21	32	40	37	90
TSS (mg/L) Average Monthly	9	7	7	4	6	9	5	5	6	7	7	7
TSS (mg/L) Raw Sewage Influent Average Monthly	177	107	176	63	47	94	127	109	81	83	59	127
TSS (mg/L) Weekly Average	13	10	9	5	11	14	6	7	9	12	11	9
Fecal Coliform (No./100 ml) Geometric Mean	6	5	10	5	7	3	10	4	13	4	21	3
Fecal Coliform (No./100 ml) Instantaneous Maximum	21	18	36	33	998	8	430	21	250	88	270	5
Nitrate-Nitrite (lbs/day) Average Monthly	86	114	53	78	54	69	54	69	105	49	4	102
Nitrate-Nitrite (mg/L) Average Monthly	16.27	10.05	16.22	17.08	14.67	21.7	20.4	21.36	17.18	14.87	1.2	17.7
Ammonia (lbs/day) Average Monthly	5	9	9	4	6	3	0.8	3	2	4	4	1
Ammonia (mg/L) Average Monthly	0.88	1.01	1.99	1.23	1.48	0.97	0.28	0.76	0.63	1.18	1.2	0.23
Total Phosphorus (lbs/day) Average Monthly	5	5	4	2	3	3	3	4	5	4	4	7
Total Phosphorus (mg/L) Average Monthly	0.97	0.63	0.75	0.63	0.8	0.84	0.91	1.33	1.37	1.17	1.18	1.09
Orthophosphate (lbs/day) Average Monthly	3									2	3	4
Orthophosphate (mg/L) Average Monthly	0.51									0.73	0.85	0.69
Total Copper (mg/L) Average Monthly	0.034	0.030	0.036	0.029	0.034	0.039	0.033	0.033	0.030	0.028	0.033	0.033
Total Copper (mg/L) Daily Maximum	0.037	0.032	0.037	0.032	0.038	0.047	0.036	0.035	0.033	0.044	0.037	0.035
Total Mercury (mg/L) Daily Maximum		18			0.000015			18			13	
Dichlorobromo-methane (mg/L) Daily Maximum		7.0			0.005			< 5.0			< 5.0	

Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		1.3			1.3			1.3			1.3	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		1.3			1.3			1.3			1.3	
Chronic WET - Pimephales Survival (TUc) Daily Maximum		1.3			1.3			1.3			1.3	
Chronic WET - Pimephales Growth (TUc) Daily Maximum		1.3			1.3			1.3			1.3	

DMR Data for Outfall 002 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
pH (S.U.) Annual Average					7.03							
pH (S.U.) Daily Maximum					7.05							
CBOD5 (mg/L) Annual Average					2.4							
CBOD5 (mg/L) Daily Maximum					2.5							
COD (mg/L) Annual Average					60							
COD (mg/L) Daily Maximum					70							
TSS (mg/L) Annual Average					36							
TSS (mg/L) Daily Maximum					39							
Oil and Grease (mg/L) Annual Average					5							
Oil and Grease (mg/L) Daily Maximum					5							
Fecal Coliform (No./100 ml) Annual Average					164							

Fecal Coliform (No./100 ml) Daily Maximum					213							
TKN (mg/L) Annual Average					1.25							
TKN (mg/L) Daily Maximum					1.26							
Total Phosphorus (mg/L) Annual Average					0.12							
Total Phosphorus (mg/L) Daily Maximum					0.14							
Dissolved Iron (mg/L) Annual Average					0.37							
Dissolved Iron (mg/L) Daily Maximum					0.38							

Compliance History

2019 exceedance:

NON-COMPLIANCE REPORT

Facility Name: **UPPER DUBLIN WWTP** Begin Date: **05/01/2019** End Date: **05/31/2019**

County: **Upper Dublin Township, Montgomery** Municipality: **Upper Dublin Township** Permit Number: **PA0029441**

Violation of Permit Effluent Limitations

Event Start Date	Event End Date	Parameter	Limit Type	Reported Value	Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of Non-Compliance	Corrective Action	Comments
5/1/2019	5/31/2019	Ammonia-Nitrogen	Average Monthly	2.3	2.2	mg/L	Final Effluent (001)	2/week	24-Hr Composite	Interference from industrial user	Hired consultant for assistance	we had a biological upset this month that led us to be slightly over our NH3 limits. we believe this was caused by the Lifetime fitness center dumping their swimming pools with high Cl2 residuals. we are working with our engineers to resolve this problem.

In 2018 there were expediencies:

NON-COMPLIANCE REPORT

Facility Name: **UPPER DUBLIN WWTP** Begin Date: **05/01/2018** End Date: **05/31/2018**

County: **Upper Dublin Township, Montgomery** Municipality: **Upper Dublin Township** Permit Number: **PA0029441**

Violation of Permit Effluent Limitations

Event Start Date	Event End Date	Parameter	Limit Type	Reported Value	Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of Non-Compliance	Corrective Action	Comments
5/1/2018	5/31/2018	Ammonia-Nitrogen	Average Monthly	21	20	lbs/day	Final Effluent (001)	2/week	24-Hr Composite	Equipment malfunction/failure	Equipment repaired	We had issues with EQ tank pumps clogging causing an in balance of flow resulting in a high NH3 results. we replaced the EQ pumps with newer non clog pumps which should resolve this issue
5/1/2018	5/31/2018	Ammonia-Nitrogen	Average Monthly	2.45	2.2	mg/L	Final Effluent (001)	2/week	24-Hr Composite			

In 2017 there were exceedances:

NON-COMPLIANCE REPORT

Facility Name: **UPPER DUBLIN WWTP** Begin Date: **08/01/2017** End Date: **08/31/2017**

County: **Upper Dublin Township, Montgomery** Municipality: **Upper Dublin Township** Permit Number: **PA0029441**

Violation of Permit Effluent Limitations

Event Start Date	Event End Date	Parameter	Limit Type	Reported Value	Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of Non-Compliance	Corrective Action	Comments
8/1/2017	8/31/2017	Ammonia-Nitrogen	Average Monthly	23	20	lbs/day	Final Effluent (001)	2/week	24-Hr Composite	Equipment malfunction/failure	Equipment repaired	Blower Failed over night causing an upset in biology
8/1/2017	8/31/2017	Ammonia-Nitrogen	Average Monthly	4	2.2	mg/L	Final Effluent (001)	2/week	24-Hr Composite	Equipment malfunction/failure	Equipment repaired	blower failed over night causing an upset in biology
8/1/2017	8/31/2017	Copper, Total	Daily Maximum	.112	.087	mg/L	Final Effluent (001)	1/week	24-Hr Composite	Unknown	See attached comments	Copper was high for this sample period. the cause in unknown as we have never had an issue with copper before or after this sample. we suspect it was caused by something coming into the plant that day.

In 2015 there was one exceedance:

NON-COMPLIANCE REPORT

Facility Name: **UPPER DUBLIN WWTP** Begin Date: **06/01/2015** End Date: **06/30/2015**

County: **Upper Dublin Township, Montgomery** Municipality: **Upper Dublin Township** Permit Number: **PA0029441**

Violation of Permit Effluent Limitations

Event Start Date	Event End Date	Parameter	Limit Type	Reported Value	Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of Non-Compliance	Corrective Action	Comments
6/1/2015	6/30/2015	Ammonia-Nitrogen	Average Monthly	2.6	2.2	mg/L	Final Effluent (001)	2/week	24-Hr Composite			

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.1
Latitude 40º 8' 3.77" **Longitude** -75º 11' 34.11"
Wastewater Description: Effluent from Upper Dublin WWTP

Conventional Parameters:
Limits for CBOD5, NH3-N, Dissolved Oxygen, Orthophosphate as P, and Total Phosphorus as P are based on the Wissahickon TMDL Report dated October 2003.
For:
(NO2+NO3)-N, monitoring is required based on the Wissahickon Creek TMDL. Multiple exceedances were reported for May 2019, May 2018, August 2017 and June 2015:
As per previous permit determination:
The permit includes a monitoring requirement for Nitrite + Nitrate (as N). As part of the Wissahickon Creek TMDL development, EPA determined the allowable levels that, in addition to protecting the dissolved oxygen standard, are also protective of the nearest downstream potable water supply. The allowable concentration for Upper Dublin is approximately 35 mg/l. A review of discharge monitoring data from 2002 ranged from 17 – 22 mg/l; as a result, only monitoring was required during previous permit renewal to collect additional data. From this renewal application, based on 11 samples, the average concentration is 14 mg/l and the maximum is 21.9 mg/l. Based on the reported levels, limits are not needed, and continued monitoring is required for this renewal.

DO and CBOD5: limits are constantly achieved.

TSS limits are based on federal definition of secondary treatment and no exceedances of limits are noted.

Total Phosphorous as P and Orthophosphate as P:
As per previous permit determination:
For the period from May 1 – July 31, when low-flow warm weather conditions occur and the TSF designation applies, the WLA in Table 4-3 for Orthophosphate (as P) is 1.4 mg/l. The limit is applied beginning in April instead of May to be consistent with DEP document # 391-2000-018 (Implementation Guidance for Section 95.9 (currently 96.5 (c)) Phosphorus Discharges to Free-Flowing Streams). In that document, the "growing season", when the impacts of excess nutrient discharge are expected to be exhibited, extends from April 1 to October 31. For the period from August 1 – October 31, when low-flow warm weather conditions occur and the WWF designation applies, the Orthophosphate WLA in Table 4-4 is 2.3 mg/l; however, the "technology-based" limit, per Ch. 96.5 (c), is 2 mg/l as Total Phosphorus. Therefore, the limit is "capped" at the technology limit of 2 mg/l as Total Phosphorus and, consistent with DEPs intent to require phosphorus limits year-round, the limit applies year-round.

TMS modeling

Based on submitted sampling results for Pollutant Groups 1 to 5 the Toxics Management Spreadsheet (TMS) Version 1.3 March 2021 was used to determine WQBELs and monitoring requirements for pollutants of concern. Below is a result of the TMS and copy whole results is included at the end of this factsheet:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.46	0.71	49.8	77.6	124	µg/L	49.8	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.049	0.077	5.37	8.37	13.4	µg/L	5.37	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	402	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	18.5	28.8	2,012	3,139	5,030	µg/L	2,012	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	192	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.002	0.004	0.26	0.41	0.65	µg/L	0.26	CRL	Discharge Conc ≥ 50% WQBEL (RP)

All listed pollutants will be proposed to be included in the draft permit except Acrylamide. It will be excluded due to fact no known industrial users in the service area of the facility and lab's lowest reporting method is no lower than TMS's Acrylamide limits.

Copper: Permit includes previously established an average monthly limit = 0.056 ppm and a maximum daily limit = 0.087 ppm. The limits are based on a Total Recoverable Water Effect Ratio = 2.47 (was used as criteria modifier in the above spreadsheet).

Based on eDMRs 60 samples from 5/1/16 through 6/1/21, the long-term average effluent concentration was 0.0338 mg/l, the maximum average monthly concentration was 0.077 mg/l, and the maximum daily concentration was 0.112 mg/l. The second highest daily value was 0.056 mg/l, indicating that only one exceedance of the daily maximum limit occurred during that timeframe. Based on a review of DMR for 2020-2021, the highest average monthly concentration was 0.042 mg/l and the highest daily concentration was 0.056 mg/l. There were exceedances of the limits: For the period of 02/01/20 to 02/29/2020 of 0.077 mg/l of mo. ave values and 08/01/17 to 08/30/17 of 0.112 mg/l of Daily Max value.

Part C of the permit will have a special requirement for Site Specific Study for Total Cooper that states:

SITE-SPECIFIC CRITERIA STUDY (SSCS)

A. *The water quality-based effluent limitations (WQBELs) for Total Copper in Part A of this permit are based on a site-specific criterion (SSC) for Copper using a Water Effects Ratio (WER) study conducted in 2009. This WER-based criterion will not be used to develop WQBELs in subsequent permits. If the permittee wishes to pursue use of an SSC for subsequent permit renewals the permittee must complete a SSCS using the Biotic Ligand Model (BLM). Any SSC must be approved in accordance with 25 Pa. Code § 93.8d. If the permittee chooses not to proceed with a BLM SSCS per the below schedule, WQBELs for Total Copper will be developed based on statewide Copper criteria and discharge and surface water characteristics for the subsequent reissuance of this permit.*

   If the permittee chooses to complete a BLM-based SSCS, the permittee shall comply with the following schedule:

   1. *Submit a proposed Work Plan to DEP within 12 months of the permit effective date.*
   2. *Begin the BLM SSCS within 3 months of Work Plan approval.*
   3. *Submit quarterly progress reports throughout the term of the BLM SSCS.*
   4. *Submit a completed SSCS Report within 3 months of BLM SSCS completion.*

B. *Site-Specific Data Collection Studies*

   The WQBELs were developed by DEP using the default or model-derived estimates for the parameters listed below in DEP's Toxics Management Spreadsheet (TMS). The permittee shall collect site-specific data for all of the parameters listed below and submit the data to DEP with the SSCS Report referenced in paragraph C or, if an SSCS is not completed, as part of the next permit renewal application.

   1. *Discharge pollutant concentration coefficients of variability using DEP's Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics (391-2000-024).*
   2. *Background / ambient pollutant concentrations using DEP's 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 (391-2000-022).*
   3. *Chemical translator(s) using EPA's The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion (EPA 823-B-96-007) or other EPA guidance.*
   4. *The slope and width of the receiving waters for the reach of stream modeled by DEP using the TMS as measured in the field.*
   5. *The velocity of the receiving waters for the reach of stream modeled by DEP using the TMS as measured through a time of travel study that provides an estimate of velocity under design stream flow conditions.*

6. *The acute and chronic partial mix factors for the reach of stream modeled by DEP using the TMS as determined through a mixing study that provides an estimate of mixing under design stream flow conditions.*

Based on the submitted data and TMS determination proposed permit will include 5 years of monitoring and report for Dissolved Iron, and Total Zinc. Additionally, 3 years of compliance given to meet limits for the 2 new parameters of concern: Free Cyanide and Total Iron (named in permit and DMR documents as : Completion of the 3rd year). Acrylamide is not included in monitoring due to no known industrial users in this service area with the potential to emit this pollutant into the wastewater tributary to the facility. Pre-Draft Survey and response documents are attached to this factsheet.

Total Dissolved Solids (TDS)

Delaware River Basin Commission (DRBC) has issued on December 13, 2017 a Docket NO. D-1993-076 CP-4 for the facility and all proposed requirements are consistent with the documents except TDS. See below tables included in docket:

EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES Permit

OUTFALL 001 (Discharge to Pine Run)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES Permit
Total Suspended Solids	30 mg/l	As required by NPDES Permit
CBOD5 (5-1 to 10-31) (11-1 to 4-30)	13 mg/l (85% minimum removal) 25 mg/l (85% minimum removal)	As required by NPDES Permit
Ammonia Nitrogen (5-1 to 10-31) (11-1 to 4-30)	2.2 mg/l 6.6 mg/l	As required by NPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NPDES Permit

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NPDES Permit

OUTFALL001 (Discharge to Pine Run)		
PARAMETER	**LIMIT**	**MONITORING**
Total Dissolved Solids*	1,000 mg/l *	One Per Quarter *

* See DECISION Condition C.II.r.

Therefore, quarterly TDS limit of 1000 mg/l is included in proposed 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%, 88%, 75%, 38%, and 19%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 75%.

Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)	*Pimephales* Results (% Effluent)	Pass? *

	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
1st Qtr 2018	100	100	100	100	100	100	Pass
2nd Qtr 2018	100	100	100	100	100	100	Pass
3rd Qtr 2018	100	100	100	100	100	100	Pass
4th Qtr 2018	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?

☒ **YES** ☐ **NO**

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

Based on the review of the past WET tests, there is no reasonable potential to exceed Chronic WET limit (TUa = 1.3) since no failure on test were

WET Limits

Has reasonable potential been determined? ☒ YES ☐ NO

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

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Upper Dublin WWTP** NPDES Permit No.: **PA0029441** Outfall No.: **001**

Evaluation Type **Major Sewage / Industrial Waste** Wastewater Description: **effluent from Upper Dublin WWTP**

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
1.1	200	7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	0	70									
	Total Antimony	µg/L	0	0.3									
	Total Arsenic	µg/L	0	1									
	Total Barium	µg/L	0	76									
	Total Beryllium	µg/L	0	0.1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	0	2.5									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	0.6									
	Total Copper	µg/L	0	40								2.47	
	Free Cyanide	µg/L	0	6									
	Total Cyanide	µg/L		4									
	Dissolved Iron	µg/L	0	130									
	Total Iron	µg/L	0	3300									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L	0	105									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	0	4.3									
	Total Phenols (Phenolics) (PWS)	µg/L	0	3									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L	0	40									
	Total Molybdenum	µg/L	0	4									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<	2									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	5									
	2-Chloroethyl Vinyl Ether	µg/L	0	14.2									

Group 3	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	<	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	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	2.5									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	50									
	Benzidine	µg/L	<	2.5									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	0.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	2.5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									
	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	2.5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	2.5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									

Group 3	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	<	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	<	10										
	2,4-Dichlorophenol	µg/L	<	10										
	2,4-Dimethylphenol	µg/L	<	10										
	4,6-Dinitro-o-Cresol	µg/L	<	10										
	2,4-Dinitrophenol	µg/L	<	10										
	2-Nitrophenol	µg/L	<	10										
	4-Nitrophenol	µg/L	<	10										
	p-Chloro-m-Cresol	µg/L	<	10										
	Pentachlorophenol	µg/L	<	10										
	Phenol	µg/L	<	10										
	2,4,6-Trichlorophenol	µg/L	<	2.5										
Group 5	Acenaphthene	µg/L	<	2.5										
	Acenaphthylene	µg/L	<	2.5										
	Anthracene	µg/L	<	50										
	Benzidine	µg/L	<	2.5										
	Benzo(a)Anthracene	µg/L	<	2.5										
	Benzo(a)Pyrene	µg/L	<	2.5										
	3,4-Benzofluoranthene	µg/L	<	2.5										
	Benzo(ghi)Perylene	µg/L	<	2.5										
	Benzo(k)Fluoranthene	µg/L	<	0.5										
	Bis(2-Chloroethoxy)Methane	µg/L	<	5										
	Bis(2-Chloroethyl)Ether	µg/L	<	5										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5										
	4-Bromophenyl Phenyl Ether	µg/L	<	5										
	Butyl Benzyl Phthalate	µg/L	<	5										
	2-Chloronaphthalene	µg/L	<	5										
	4-Chlorophenyl Phenyl Ether	µg/L	<	2.5										
	Chrysene	µg/L	<	2.5										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.5										
	1,2-Dichlorobenzene	µg/L	<	0.5										
	1,3-Dichlorobenzene	µg/L	<	0.5										
	1,4-Dichlorobenzene	µg/L	<	5										
	3,3-Dichlorobenzidine	µg/L	<	5										
	Diethyl Phthalate	µg/L	<	5										
	Dimethyl Phthalate	µg/L	<	5										
	Di-n-Butyl Phthalate	µg/L	<	5										
	2,4-Dinitrotoluene	µg/L	<	5										
	2,6-Dinitrotoluene	µg/L	<	5										
	Di-n-Octyl Phthalate	µg/L	<	5										
	1,2-Diphenylhydrazine	µg/L	<	2.5										
	Fluoranthene	µg/L	<	2.5										
	Fluorene	µg/L	<	5										
	Hexachlorobenzene	µg/L	<	5										
	Hexachlorobutadiene	µg/L	<	0.5										
	Hexachlorocyclopentadiene	µg/L	<	5										
	Hexachloroethane	µg/L	<	2.5										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5										

	Isophorone	µg/L	<	0.5									
	Naphthalene	µg/L	<	5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	2.5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	0.5									
	1,2,4-Trichlorobenzene	µg/L	<	0									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Upper Dublin WWTP, NPDES Permit No. PA0029441, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT to SANDY Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000859	0.62	164.5	5.81			Yes
End of Reach 1	000859	0.1	160	6.2			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.62	0.1										100	7		
End of Reach 1	0.1	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.62														
End of Reach 1	0.1														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Upper Dublin WWTP, NPDES Permit No. PA0029441, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: UNT to SANDY Run

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000859	0.62	164.5	5.81			Yes
End of Reach 1	000859	0.1	160	6.2			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.62	0.1										100	7		
End of Reach 1	0.1	0.1													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.62														
End of Reach 1	0.1														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Upper Dublin WWTP, NPDES Permit No. PA0029441, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.756 PMF: 1 Analysis Hardness (mg/l): 174.55 Analysis pH: 7.00

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	1,006	
Total Antimony	0	0		0	1,100	1,100	1,476	
Total Arsenic	0	0		0	340	340	456	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	28,170	
Total Boron	0	0		0	8,100	8,100	10,866	
Total Cadmium	0	0		0	3.460	3.76	5.04	Chem Translator of 0.921 applied
Total Chromium (III)	0	0		0	899.129	2,845	3,817	Chem Translator of 0.316 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	127	
Total Copper	0	0		0	56.105	58.4	78.4	Chem Translator of 0.96 and Criteria Modifier of 2.47 applied
Free Cyanide	0	0		0	22	22.0	29.5	
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	117.773	166	223	Chem Translator of 0.71 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	750.108	752	1,008	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	8.385	9.86	13.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	87.2	
Total Zinc	0	0		0	187.858	192	258	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.02	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	872	
Benzene	0	0		0	640	640	859	
Bromoform	0	0		0	1,800	1,800	2,415	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,756	

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Upper Dublin WWTP, NPDES Permit No. PA0029441, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.756 PMF: 1 Analysis Hardness (mg/l): 174.55 Analysis pH: 7.00

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	1,006	
Total Antimony	0	0		0	1,100	1,100	1,476	
Total Arsenic	0	0		0	340	340	456	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	28,170	
Total Boron	0	0		0	8,100	8,100	10,866	
Total Cadmium	0	0		0	3.460	3.76	5.04	Chem Translator of 0.921 applied
Total Chromium (III)	0	0		0	899.129	2,845	3,817	Chem Translator of 0.316 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	127	
Total Copper	0	0		0	56.105	58.4	78.4	Chem Translator of 0.96 and Criteria Modifier of 2.47 applied
Free Cyanide	0	0		0	22	22.0	29.5	
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	117.773	166	223	Chem Translator of 0.71 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	750.108	752	1,008	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	8.385	9.86	13.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	87.2	
Total Zinc	0	0		0	187.858	192	258	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.02	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	872	
Benzene	0	0		0	640	640	859	
Bromoform	0	0		0	1,800	1,800	2,415	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,756	

Chlorobenzene	0	0		0	1,200	1,200	1,610	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	24,146	
Chloroform	0	0		0	1,900	1,900	2,549	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	20,121	
1,1-Dichloroethylene	0	0		0	7,500	7,500	10,061	
1,2-Dichloropropane	0	0		0	11,000	11,000	14,756	
1,3-Dichloropropylene	0	0		0	310	310	416	
Ethylbenzene	0	0		0	2,900	2,900	3,890	
Methyl Bromide	0	0		0	550	550	738	
Methyl Chloride	0	0		0	28,000	28,000	37,560	
Methylene Chloride	0	0		0	12,000	12,000	16,097	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,341	
Tetrachloroethylene	0	0		0	700	700	939	
Toluene	0	0		0	1,700	1,700	2,280	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	9,122	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	4,024	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	4,561	
Trichloroethylene	0	0		0	2,300	2,300	3,085	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	751	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,280	
2,4-Dimethylphenol	0	0		0	660	660	885	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	107	
2,4-Dinitrophenol	0	0		0	660	660	885	
2-Nitrophenol	0	0		0	8,000	8,000	10,731	
4-Nitrophenol	0	0		0	2,300	2,300	3,085	
p-Chloro-m-Cresol	0	0		0	160	160	215	
Pentachlorophenol	0	0		0	8.723	8.72	11.7	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	617	
Acenaphthene	0	0		0	83	83.0	111	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	402	
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	40,243	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	6,036	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	362	
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	1,100	
1,3-Dichlorobenzene	0	0		0	350	350	469	
1,4-Dichlorobenzene	0	0		0	730	730	979	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	5,366	
Dimethyl Phthalate	0	0		0	2,500	2,500	3,354	
Di-n-Butyl Phthalate	0	0		0	110	110	148	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,146	
2,6-Dinitrotoluene	0	0		0	990	990	1,328	
1,2-Diphenylhydrazine	0	0		0	15	15.0	20.1	
Fluoranthene	0	0		0	200	200	268	
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	6.71	
Hexachloroethane	0	0		0	60	60.0	80.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	13,414	
Naphthalene	0	0		0	140	140	188	
Nitrobenzene	0	0		0	4,000	4,000	5,366	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	22,804	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	402	
Phenanthrene	0	0		0	5	5.0	6.71	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	174	

☑ ***CFC*** CCT (min): 1.756 PMF: 1 Analysis Hardness (mg/l): 174.55 Analysis pH: 7.00

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	295	
Total Arsenic	0	0		0	150	150	201	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,500	
Total Boron	0	0		0	1,600	1,600	2,146	
Total Cadmium	0	0		0	0.362	0.41	0.55	Chem Translator of 0.886 applied
Total Chromium (III)	0	0		0	116.958	136	182	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	13.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	25.5	
Total Copper	0	0		0	35.605	37.1	49.8	Chem Translator of 0.96 and Criteria Modifier of 2.47 applied
Free Cyanide	0	0		0	5.2	5.2	6.98	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,012	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.589	6.47	8.67	Chem Translator of 0.71 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.22	Chem Translator of 0.85 applied
Total Nickel	0	0		0	83.314	83.6	112	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	6.69	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	17.4	
Total Zinc	0	0		0	189.394	192	258	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	4.02	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	174	
Benzene	0	0		0	130	130	174	
Bromoform	0	0		0	370	370	496	
Carbon Tetrachloride	0	0		0	560	560	751	
Chlorobenzene	0	0		0	240	240	322	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,695	
Chloroform	0	0		0	390	390	523	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	4,158	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,012	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,951	
1,3-Dichloropropylene	0	0		0	61	61.0	81.8	
Ethylbenzene	0	0		0	580	580	778	
Methyl Bromide	0	0		0	110	110	148	
Methyl Chloride	0	0		0	5,500	5,500	7,378	
Methylene Chloride	0	0		0	2,400	2,400	3,219	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	282	
Tetrachloroethylene	0	0		0	140	140	188	
Toluene	0	0		0	330	330	443	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,878	
1,1,1-Trichloroethane	0	0		0	610	610	818	
1,1,2-Trichloroethane	0	0		0	680	680	912	
Trichloroethylene	0	0		0	450	450	604	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	148	
2,4-Dichlorophenol	0	0		0	340	340	456	
2,4-Dimethylphenol	0	0		0	130	130	174	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	21.5	
2,4-Dinitrophenol	0	0		0	130	130	174	
2-Nitrophenol	0	0		0	1,600	1,600	2,146	
4-Nitrophenol	0	0		0	470	470	630	
p-Chloro-m-Cresol	0	0		0	500	500	671	
Pentachlorophenol	0	0		0	6.693	6.69	8.98	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	122	
Acenaphthene	0	0		0	17	17.0	22.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	79.1	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.13	
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	8,049	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,221	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	72.4	
Butyl Benzyl Phthalate	0	0		0	35	35.0	46.9	
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	215	
1,3-Dichlorobenzene	0	0		0	69	69.0	92.6	
1,4-Dichlorobenzene	0	0		0	150	150	201	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,073	
Dimethyl Phthalate	0	0		0	500	500	671	
Di-n-Butyl Phthalate	0	0		0	21	21.0	28.2	
2,4-Dinitrotoluene	0	0		0	320	320	429	
2,6-Dinitrotoluene	0	0		0	200	200	268	
1,2-Diphenylhydrazine	0	0		0	3	3.0	4.02	
Fluoranthene	0	0		0	40	40.0	53.7	
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	2.68	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.34	
Hexachloroethane	0	0		0	12	12.0	16.1	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,817	
Naphthalene	0	0		0	43	43.0	57.7	
Nitrobenzene	0	0		0	810	810	1,087	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	4,561	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	79.1	
Phenanthrene	0	0		0	1	1.0	1.34	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	34.9	

☑ ***THH*** CCT (min): 1.756 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	7.51	
Total Arsenic	0	0		0	10	10.0	13.4	
Total Barium	0	0		0	2,400	2,400	3,219	
Total Boron	0	0		0	3,100	3,100	4,158	
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	5.37	
Dissolved Iron	0	0		0	300	300	402	
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	1,341	
Total Mercury	0	0		0	0.050	0.05	0.067	
Total Nickel	0	0		0	610	610	818	
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	0.32	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	4.02	
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	134	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	44.3	
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	91.2	
Methyl Bromide	0	0		0	100	100.0	134	
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	76.5	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	134	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	13,414	
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	40.2	
2,4-Dichlorophenol	0	0		0	10	10.0	13.4	
2,4-Dimethylphenol	0	0		0	100	100.0	134	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.68	
2,4-Dinitrophenol	0	0		0	10	10.0	13.4	
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	5,366	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	93.9	
Anthracene	0	0		0	300	300	402	
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	268	
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	0.13	
2-Chloronaphthalene	0	0		0	800	800	1,073	
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	1,341	
1,3-Dichlorobenzene	0	0		0	7	7.0	9.39	
1,4-Dichlorobenzene	0	0		0	300	300	402	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	805	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,683	
Di-n-Butyl Phthalate	0	0		0	20	20.0	26.8	
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	26.8	
Fluorene	0	0		0	50	50.0	67.1	
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	5.37	
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	45.6	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	13.4	
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	26.8	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.094	

☑ ***CRL*** CCT (min): 7.392 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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	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	0.26	
Acrylonitrile	0	0		0	0.06	0.06	0.22	
Benzene	0	0		0	0.58	0.58	2.16	
Bromoform	0	0		0	7	7.0	26.0	
Carbon Tetrachloride	0	0		0	0.4	0.4	1.49	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2.97	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	21.2	
Dichlorobromomethane	0	0		0	0.95	0.95	3.53	
1,2-Dichloroethane	0	0		0	9.9	9.9	36.8	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	3.34	
1,3-Dichloropropylene	0	0		0	0.27	0.27	1.0	
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	74.3	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.74	
Tetrachloroethylene	0	0		0	10	10.0	37.2	
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	2.04	
Trichloroethylene	0	0		0	0.6	0.6	2.23	
Vinyl Chloride	0	0		0	0.02	0.02	0.074	
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	0.11	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	5.57	
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	0.0004	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.004	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0004	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.004	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.037	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.11	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1.19	
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	0.45	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0004	
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	0.19	
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	0.19	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.19	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.11	
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	0.037	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.37	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.004	
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	0.003	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.019	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	12.3	
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 Copper	0.46	0.71	49.8	77.6	124	µg/L	49.8	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.049	0.077	5.37	8.37	13.4	µg/L	5.37	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	402	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	18.5	28.8	2,012	3,139	5,030	µg/L	2,012	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	192	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.002	0.004	0.26	0.41	0.65	µg/L	0.26	CRL	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	7.51	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	13.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,219	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Total Chromium (III)	182	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	13.9	µg/L	Discharge Conc < TQL
Total Cobalt	25.5	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Total Lead	8.67	µg/L	Discharge Conc < TQL
Total Manganese	1,341	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.067	µg/L	Discharge Conc < TQL
Total Nickel	112	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	6.69	µg/L	Discharge Conc < TQL
Total Silver	9.86	µg/l	Discharge Conc < TQL
Total Thallium	0.32	µg/L	Discharge Conc < TQL

Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.22	µg/L	Discharge Conc < TQL
Benzene	2.16	µg/L	Discharge Conc < TQL
Bromoform	26.0	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1.49	µg/L	Discharge Conc < TQL
Chlorobenzene	134	µg/L	Discharge Conc < TQL
Chlorodibromomethane	2.97	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	4,695	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	21.2	µg/L	Discharge Conc < TQL
Dichlorobromomethane	3.53	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	36.8	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	44.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	3.34	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	1.0	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	91.2	µg/L	Discharge Conc < TQL
Methyl Bromide	134	µg/L	Discharge Conc < TQL
Methyl Chloride	7,378	µg/L	Discharge Conc < TQL
Methylene Chloride	74.3	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.74	µg/L	Discharge Conc < TQL
Tetrachloroethylene	37.2	µg/L	Discharge Conc < TQL
Toluene	76.5	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	134	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	818	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	2.04	µg/L	Discharge Conc < TQL
Trichloroethylene	2.23	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.074	µg/L	Discharge Conc < TQL
2-Chlorophenol	40.2	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	13.4	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	134	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.68	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	13.4	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,146	µg/L	Discharge Conc < TQL
4-Nitrophenol	630	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.11	µg/L	Discharge Conc < TQL
Phenol	5,366	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	5.57	µg/L	Discharge Conc < TQL
Acenaphthene	22.8	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	402	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.0004	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.004	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0004	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.004	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS

Benzo(k)Fluoranthene	0.037	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.11	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	268	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1.19	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	72.4	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.13	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,073	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.45	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0004	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	215	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	9.39	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	201	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.19	µg/L	Discharge Conc < TQL
Diethyl Phthalate	805	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	671	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	26.8	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.19	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.19	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.11	µg/L	Discharge Conc < TQL
Fluoranthene	26.8	µg/L	Discharge Conc < TQL
Fluorene	67.1	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.0003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.037	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.34	µg/L	Discharge Conc < TQL
Hexachloroethane	0.37	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.004	µg/L	Discharge Conc < TQL
Isophorone	45.6	µg/L	Discharge Conc < TQL
Naphthalene	57.7	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	13.4	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.003	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.019	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	12.3	µg/L	Discharge Conc < TQL
Phenanthrene	1.34	µg/L	Discharge Conc < TQL
Pyrene	26.8	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.094	µg/L	Discharge Conc < TQL

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" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Completion of the 3rd year

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

Compliance Sampling Location:

Other Comments:

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" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Completion of the 3rd year 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	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Cyanide, Free	XXX	XXX	XXX	0.0054	0.0084	0.013	1/quarter	24-Hr Composite
Iron, Total	XXX	XXX	XXX	2.0	3.1	5.0	1/quarter	24-Hr Composite

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" (362-0400-001), 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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.09	XXX	0.3	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	229	339	XXX	25	37	50	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	117	174	XXX	13	19	XXX	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	275	412	XXX	30	45	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab

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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	60	XXX	XXX	6.6	XXX	13.2	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	20	XXX	XXX	2.2	XXX	4.4	2/week	24-Hr Composite
Total Phosphorus	18	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Orthophosphate Apr 1 - Jul 31	13	XXX	XXX	1.4	XXX	2.8	2/week	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Iron, Dissolved	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Mercury, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Copper, Total	XXX	XXX	XXX	0.056	0.087	0.13	1/month	24-Hr Composite
Dichlorobromomethane	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	Grab-Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	1.3 Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	1.3 Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	1.3 Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	1.3 Daily Max	XXX	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location: Outfall 001

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" (362-0400-001), SOPs and/or BPJ.

Outfall 002, 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	Average Weekly	Minimum	Annual Average	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	Report	XXX	1/year	Grab

Compliance Sampling Location: Outfall 002