pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026182**
Facility Type	**Municipal**	APS ID	**1029496**
Major / Minor	**Major**	Authorization ID	**1337976**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Lansdale Borough**	Facility Name	**Lansdale Borough STP**
Applicant Address	One Vine Street	Facility Address	652 West 9th Street
	Lansdale, PA 19446-3601		Lansdale, PA 19446
Applicant Contact	Daniel Shinskie	Facility Contact	Daniel Shinskie
Applicant Phone	(215) 361-8362	Facility Phone	(215) 361-8362
Client ID	52157	Site ID	256733
Ch 94 Load Status	Not Overloaded	Municipality	Lansdale Borough
Connection Status	No Limitations	County	Montgomery
Date Application Received	December 28, 2020	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit Renewal.

Summary of Review

The applicant requests renewal of an NPDES permit to discharge an annual average flow of 3.2 mgd and a maximum monthly flow of 4.5 mgd of treated sewage to an unnamed tributary (02889) to the West Branch Neshaminy Creek.

The treatment plant consists of bar screens, aerated grit chamber, in-line equalization basin, off-line storage basins, swirl concentrator, aeration tanks, secondary clarifiers, phostrip system, nitrification towers, nitrification clarifiers, denitrification clarifiers, alum and ferric feed systems, chlorination/de-chlorination facilities.

The Borough is in the design phase to replace the existing sodium hypochlorite and sodium bisulfite disinfection system with a UV disinfection system. Chlorine will remain for use in the utility water system, RAS system and final clarifiers when needed and for emergency effluent disinfection.

The following municipalities are contributing wastewaters to the plant: Lansdale Borough, Hatfield Township, Montgomery Township, Upper Gwynedd Township.

Sludge use and disposal description and location(s): The Borough mixes all waste sludge produced by the STP with lime, utilizes gravity thickening to further concentrate the solids and then hauls the concentrated liquid sludge to local treatment plants where the sludge is processed and incinerated.

The following industrial users are connected to the sewer system:

1. Clemens Cleaners
2. Crystal, Inc.-PMC
3. Handelok Bag Co.
4. J.W. Rex Company

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	May 3, 2021
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	05/03/2021

Summary of Review

5. Merck Sharp & Dohme Corp.

Since the facility is permitted for a design flow of less than 5-mgd, it is not required to develop or implement a federal approved pre-treatment program.

There are two permitted combined sewer overflow outfalls for this facility. Outfall 002 is located at the treatment plant headworks, provides grit and solid removal by a swirl concentrator and provides disinfection by chlorine addition, whenever there is a discharge. Outfall 003 is located at the Ridge Street Pump Station, provides disinfection by hypochlorite addition whenever there is a discharge. The application listed one CSO event (wet weather) in the past year. And no dry weather events are reported. In the past five years the Borough has averaged fewer than one CSO discharge event per year. The permittee submitted a "Long Term Combined Sewer Overflow Control Plan" (LTCP) dated March 1998, which was approved by the Department on July 28, 2000. A minor change to the LTCP was submitted to the Department on December 29, 2000. A "Long Term CSO Plan Update" was submitted to the Department on December 13, 2011. The permittee shall continue to implement the submitted plans and updated plans, as necessary.

High flow operating procedures are followed to maximize the flow thru the plant and maximize storage capacity. The plant is designed to fully treat 6 mgd during high flow conditions and an additional 2 mgd is partially treated. After the treatment and storage capacity of the facility are exceeded, overflow may be discharged via Outfall 002.

The Outfall 004 discharges stormwater from the STP storm sewer system as well as from upstream storm sewers located in the Borough and not part of the STP property.

A TMDL for Neshaminy Creek Watershed was finalized on April 9, 2003 which was revised on December 2003. The Neshaminy Creek is located in state watershed 2-F, in Bucks and Montgomery Counties. It has approximately 418.3 miles of streams. Since 1996, 203.3 miles of these streams have been included on Pennsylvania's 303(d) list of streams having aquatic life use impairments. The watershed as a whole is very much a point source-dominated system. On an annual basis, the municipal wastewater treatment plants in the watershed contribute about 25% of the total phosphorus load. During critical low-flow periods, effluent discharges comprise over 90% of the total stream flow in many reaches. Upland erosion from developing areas and agriculture, and streambank erosion are other major sources of phosphorus, as well as sediment. However, in September 6, 2007, the nutrients portion of the TMDL was withdrawn by PADEP and approved by USEPA on January 31, 2008. No sediment WLA was assigned for this facility other than urban BMPs.

DRBC Docket No. D-1996-045 CP-4 was approved for this facility on March 10, 2021.

Based on the review of the eDMRs, the discharge is in compliance with the permit requirements most of the times. According to the Operations Section the facility is well maintained and operated.

All the existing limits are carried over to the new permit except for Chlorodibromomethane, which is eliminated based on the new monitoring data. New effluent limits for Total Copper, Dissolved Iron and Total Iron will be in the permit.

Influent monitoring for CBOD5, TSS and BOD5 are included in the new permit to check compliance with the 85% removal requirement and Chapter 94 requirement. This requirement is consistent with other similar dischargers in the area.

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.

Summary of Review

Act 14 Notifications:

Montgomery County - December 28, 2020

Permit Conditions:

A. No Stormwater to Sewers
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Small Stream Discharge
F. Operator Notification
G. Fecal Coliform Reporting
H. Notification of UV System
I. Combined Sewer Overflows
J. Solids Management
K. WET Requirement
L. TRC Reporting
M. Stormwater Outfalls Requirement

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	3.2
Latitude	40º 15' 33.85"	Longitude	-75º 17' 20.55"
Quad Name	Telford	Quad Code	7-22-2
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Unnamed Tributary to West Branch Neshaminy Creek (WWF, MF)	Stream Code	02889
NHD Com ID	25484806	RMI	1.1
Drainage Area	1.15	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.115	Q_{7-10} Basis	*
Elevation (ft)	300		
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	nutrients		
Source(s) of Impairment	municipal point source discharges		
TMDL Status	withdrawn	Name	Neshaminy Creek
Nearest Downstream Public Water Supply Intake	Aqua PA		
PWS Waters	Neshaminy Creek		

*USGS streamstats was used to delineate the drainage area at the point of discharge. Based on a drainage area of 1.15 mi^2, the Q7-10 flow is estimated as 0.115 cfs. This information is from the previous fact sheet.

Treatment Facility Summary

Treatment Facility Name: Lansdale Borough STP

WQM Permit No.	Issuance Date
4696413 A-2	May 9, 2014

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	3.2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
4.5	6530	Not Overloaded	Gravity Thickening	Other WWTP

Compliance History

DMR Data for Outfall 001 (from January 1, 2020 to December 31, 2020)

Parameter	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20
Flow (MGD) Average Monthly	3.98	2.96	2.48	2.00	3.02	2.86	2.38	3.04	3.7	3.29	3.14	2.78
Flow (MGD) Daily Maximum	11.52	8.83	5.94	3.11	11.98	8.74	5.53	5.97	10.97	5.89	6.93	8.09
pH (S.U.) Minimum	6.8	6.9	6.9	7.2	7.2	7.0	7.0	6.7	6.8	6.8	6.8	6.8
pH (S.U.) Maximum	7.4	7.6	7.6	7.9	7.7	7.6	7.5	7.5	7.6	7.0	7.3	7.2
DO (mg/L) Minimum	7.6	7.2	7.0	7.2	7.2	7.2	7.1	6.9	7.2	6.8	7.4	7.1
TRC (mg/L) Average Monthly	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	0.001	< 0.001	< 0.001
TRC (mg/L) Instantaneous Maximum	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.037	< 0.001	< 0.001	< 0.001
CBOD5 (lbs/day) Average Monthly	63	74	43	46	142	59	45	64	118	70	95	69
CBOD5 (lbs/day) Weekly Average	95	106	79	68	329	75	50	83	203	78	208	120
CBOD5 (mg/L) Average Monthly	2.2	3.3	2.0	2.7	3.8	3.1	2.5	2.8	3.4	2.8	3.2	3.3
CBOD5 (mg/L) Weekly Average	2.5	5.7	2.6	3.8	5.2	3.9	2.6	4.4	4.1	3.9	4.3	4.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	3961	4543	E	4127	4671	3547	4164	3229	5877	3439	4168	4028
BOD5 (mg/L) Raw Sewage Influent Average Monthly	148.1	201.9	E	244.8	189.3	185.1	216.4	162.3	181.5	137.6	147.2	190.8
TSS (lbs/day) Average Monthly	147.7	165.3	119.7	81.1	139	103.3	105.2	88.7	176.5	82.2	74.9	56.1
TSS (lbs/day) Raw Sewage Influent Average Monthly	4241.9	4597.4	5257.3	4163.8	5522.6	3626.6	4454.8	4273.9	7337	4338.5	3272.4	3002.2

TSS (lbs/day) Weekly Average	341.3	237.5	158.8	119.4	332.8	131.3	173.6	116	307.3	110.3	166.2	72.4
TSS (mg/L) Average Monthly	4.6	5.9	5.8	5.4	4.6	5.6	5.6	3.8	5.4	3.0	2.5	2.5
TSS (mg/L) Raw Sewage Influent Average Monthly	158.1	174.8	276.9	251.1	232.1	179.6	235.6	212.6	233	175.7	123.0	136.7
TSS (mg/L) Weekly Average	8.9	10.8	7.4	8.2	6.5	7.5	8.3	4.7	6.5	3.6	3.5	3.0
Total Dissolved Solids (lbs/day) Average Monthly	11004			15848			17715.4			11263		
Total Dissolved Solids (mg/L) Average Monthly	792.0			828.0			632.0			534.0		
Fecal Coliform (CFU/100 ml) Geometric Mean	8	12	70	58	59	33	34	31	15	7	2	13
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	38	82	470	220	532	90	200	200	250	68	11	53
Nitrate-Nitrite (lbs/day) Average Monthly	226.7	158.1	144.3	98.9	112.1	132.7	257.6	256.7	217.5	125.6	221.5	151.9
Nitrate-Nitrite (mg/L) Average Monthly	7.5	6.9	7.3	6.1	3.8	6.8	14.0	10.0	7.8	6.5	10.7	7.2
Total Nitrogen (lbs/day) Average Monthly	293.3	215.4	< 143.1	137.4	150.3	204.4	343.1	295.2	280.3	185.5	269.1	202.5
Total Nitrogen (mg/L) Average Monthly	9.7	9.4	< 10.3	7.6	8.4	10.7	14.6	11.5	10.0	9.6	13.0	9.6
Ammonia (lbs/day) Average Monthly	19.8	19.9	7.6	6.4	8.9	7.4	5.1	5.5	8.0	18.6	12.3	14.0
Ammonia (mg/L) Average Monthly	0.66	1.01	0.39	0.39	0.40	0.38	0.29	0.24	0.26	0.76	0.48	0.55
TKN (lbs/day) Average Monthly	66.5	57.3	< 13.9	56.1	48.3	47.9	42.3	38.5	61.7	59.9	47.6	50.6
TKN (mg/L) Average Monthly	2.2	2.5	< 1.0	3.1	2.7	2.5	1.8	1.5	2.2	3.1	2.3	2.4
Total Phosphorus (lbs/day) Average Monthly	20.9	29.8	12.3	10.1	16.6	14.8	13.7	13.1	24.8	27.0	19.8	22.1

Total Phosphorus (mg/L) Average Monthly	0.71	1.12	0.65	0.63	0.73	0.69	0.71	0.56	0.82	1.03	0.89	0.88
Total Aluminum (mg/L) Average Monthly	< 0.050	< 0.05	< 0.05	< 0.05	< 0.05	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Total Copper (mg/L) Average Monthly	0.012			0.017			0.0120			0.0090		
Dissolved Iron (mg/L) Average Monthly	0.084	0.078	0.14	0.16	0.18	0.160	0.075	0.14	0.082	0.210	0.17	0.21
Total Iron (mg/L) Average Monthly	1.100	0.510	0.700	0.77	0.17	1.100	1.2	0.360	0.97	0.550	0.27	0.15
Chlorodibromo-methane (mg/L) Average Monthly	< 0.00050	< 0.0005	< 0.00050	< 0.00050	< 0.0005	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0005	< 0.0005	< 0.00050
Chlorodibromo-methane (mg/L) Daily Maximum	< 0.00050	< 0.0005	< 0.00050	< 0.00050	< 0.0005	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0005	< 0.0005	< 0.00050
Dichlorobromo-methane (mg/L) Average Monthly	< 0.00068	< 0.00081	< 0.00061	0.0007	< 0.0007	< 0.00068	< 0.00050	< 0.00050	< 0.00050	< 0.0005	< 0.0005	< 0.00050
Dichlorobromo-methane (mg/L) Daily Maximum	0.00099	0.00110	0.00092	0.00110	0.00096	0.00110	< 0.00050	< 0.00050	< 0.00050	< 0.0005	< 0.0005	< 0.00050
Chloroform (mg/L) Average Monthly	0.0025	0.0033	0.0025	0.0035	0.0039	0.0026	0.0011	0.0017	0.0014	0.0009	0.0010	0.0008
Chloroform (mg/L) Daily Maximum	0.0037	0.0040	0.0037	0.0049	0.0046	0.0044	0.0016	0.0031	0.0018	0.0011	0.0017	0.0011
Total Hardness (mg/L) Average Monthly	238			215			155			189		

DMR Data for Outfall 002 (from January 1, 2020 to December 31, 2020)

Parameter	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20
Flow (MGD) Average Monthly					4.132							
Flow (MGD) Daily Maximum					4.132							
pH (S.U.) Minimum					7.2							

pH (S.U.) Instantaneous Maximum					7.2							
TRC (mg/L) Average Monthly					0.1							
TRC (mg/L) Instantaneous Maximum					0.1							
CBOD5 (mg/L) Average Monthly					E							
CBOD5 (mg/L) Daily Maximum					E							
TSS (mg/L) Average Monthly					54.0							
TSS (mg/L) Daily Maximum					54.0							
Fecal Coliform (CFU/100 ml) Average Monthly					> 40							
Fecal Coliform (CFU/100 ml) Daily Maximum					> 40							
Ammonia (mg/L) Average Monthly					0.5							
Ammonia (mg/L) Daily Maximum					0.5							

Compliance History

Effluent Violations for Outfall 001, from: February 1, 2020 To: December 31, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Dichlorobromo-methane	11/30/20	Avg Mo	< 0.00081	mg/L	0.0007	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 3.2
Latitude 40º 15' 33.78" **Longitude** -75º 17' 20.45"
Wastewater Description: Treated 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)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameters	Monthly Ave. Conc (mg/l)	Weekly Ave Conc. (mg/l)	Inst. Max. (mg/l)	Basis
$CBOD_5$ (5/1 to 10/31)	11	17	22	Existing*
$CBOD_5$ (11/1 to 4/30)	22	33	44	Existing*
Dissolved Oxygen			6.0 (Inst.Min.)	Existing*
Total Suspended Solids	30	45	60	Existing/DRBC
TDS	1000		1500	Existing/DRBC
NH_3 –N (05/01 to 10/31)	1.5		3	Existing*
NH_3 –N (11/1 to 4/30)	4.5		9	Existing*
Nitrate-Nitrite as N (07/01 to 10/31)	9.5		19	Existing**
Nitrate-Nitrite as N (11/01 to 6/30)	Report			Existing**
TKN	Report			Existing**
Total N	Report			Existing**
Total P (4/1 to 10/31)	0.93		1.86	Existing***
Total P (11/1 to 3/31)	1.86		3.72	Existing***

Total Residual Chlorine	0.013		0.043	Existing****
UV Transmittance (%)			Report (Daily Minimum)	SOP****
Fecal Coliform	200 (Geo.Mean)		1000	Ch. 92a /DRBC
E. Coli			Report	Ch. 92a*****
PH	6.0 to 9.0 std. units at all times			Ch. 93

*These limits were previously developed using DEP's WQM 6.3 model.

**The existing permit includes a nitrate-nitrite limit of 9.5 mg/l effective July through October. The nitrate-nitrite limit is required for the protection of the public water supply (PWS) use of Neshaminy Creek during the critical period of July thru October. The limit was originally based on basin-wide nitrogen (ammonia and nitrite-nitrate) limit of 11 mg/l during the critical period. Since the ammonia limit is 1.5 mg/l, the nitrate-nitrite limit is 9.5 mg/l. The permit includes additional monitoring for nitrate-nitrite for the period from November thru June, and a year-round monitoring limit for TKN. The sum of the TKN and nitrite-nitrate is used to calculate the total nitrogen concentration.

***The Neshaminy Creek watershed is listed in the stream assessment as impaired for nutrients. Therefore, no increase in phosphorus load was allowed until a TMDL is developed to address the impairment. These limits were historically established considering the following factors (from the previous fact sheet):

- The existing phosphorus load from the facility was calculated using at least three years of data for a period when the facility was operating normally (e.g. no plant upsets)

- The permit limit was based on the average phosphorus load for the evaluated period, converted to average monthly limit using an appropriate multiplier. The monthly load limit was converted to a concentration-based limit using a permitted flow of 4.5 mgd.

A summary of the three years of DMR data for 2003-2005 was used for the calculation:

- A monthly average effluent TP mass load of 13.7 lbs/day, with a range of 5.1 to 36.5 lbs/day

Using the statistical methods outlined in EPA's *Technical Support Document for Water Quality-based Toxics Control* and a CV (coefficient of variability) of 0.9, it was determined that the facility's monthly limit is 35 lbs/day. This limit converts to a concentration of 0.93 mg/l. In summary:

Mass Based Limit: AML = LTA * 2.48 (99^{th} %, CV = 0.9, n = 4) = 14 lbs/day * 2.48 = 35 lbs/day

Concentration Based Limit: AML = 35 lbs/day ÷ (8.34 * 4.5 mgd) = 0.93 mg/l

**** Since the chlorine system is used as a backup, TRC monitoring will stay in the permit and only need to be monitored during the use of chlorine. UV monitoring is included so that it can be monitored once the system is in place.

***** E. Coli monitoring is a new requirement for the Sewage dischargers based on the latest revised SOP for Establishing Effluent Limitations for Individual Sewage Permits.

Since this is a combined sewer system (CSS) and because the facility is maximizing the flows through its plant as part of the recommended control measures, mass based effluent limits are calculated based on the maximum monthly design flow of 4.5 MGD similar to the existing permit.

A “Reasonable Potential Analysis” determined the following parameters were candidates for limitations & monitoring:

Parameter	Monthly Ave. Conc (mg/l)	Maximum Daily Conc. (mg/l)	Inst. Max. (mg/l)	Recommendation/Basis
Total Boron	Report	Report	Report	TMS v.1.2
Total Copper*	0.018	0.028	0.044	Limit (existing monitoring)/TMS v.1.2
Free Cyanide	Report	Report	Report	TMS v.1.2
Dissolved Iron**	0.31	0.48	0.77	Limit (existing monitoring)/TMS v.1.2
Total Iron**	1.54	2.40	3.84	Limit (existing monitoring)/TMS v.1.2
Total Lead***	0.008	0.013	0.021	monitoring/TMS v.1.2
Total Zinc	Report	Report	Report	TMS v.1.2
Chloroform****	0.007	0.011	0.018	existing limits/TMS v.1.2
Dichlorobromomethane****	0.0007	0.0011	0.0017	existing limits/TMS v.1.2

* This is a new limit in the permit. Based on the review of the data from the last permit term the facility is able to meet this Copper limit most of the times. Found only one exceedance since 2016.

**These are new limits and the facility is able to meet these limits easily.

*** Out of six samples only one result is above criterion and two results are much below criteria and three are non-detectable. Monitoring is recommended to collect more data and will be reevaluated at the next renewal.

**** It was confirmed from the past TRE that the source of this parameters was the existing chlorination system. These parameters are eliminated from the permit after UV disinfection system becomes operational.

See the below attached Toxic Management Spreadsheet (TMS) report:

Discharge Information

Instructions | Discharge | Stream

Facility: **Lansdale Borough STP** NPDES Permit No.: **PA0026182** 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
3.2	209	7.3						

					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		842									
	Chloride (PWS)	mg/L		351									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		76.7									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		18									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	1.55									
	Total Barium	µg/L		29									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		180									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.02									
	Total Cobalt	µg/L	<	0.83									
	Total Copper	µg/L		17									
	Free Cyanide	µg/L		2.5									
	Total Cyanide	µg/L		4.5									
	Dissolved Iron	µg/L		220									
	Total Iron	µg/L		1300									
	Total Lead	µg/L		8									
	Total Manganese	µg/L		88									
	Total Mercury	µg/L		0.0046									
	Total Nickel	µg/L		6.2									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		50									
	Total Molybdenum	µg/L		12									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.23									

	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	1									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									

Group 3	Chloroform	µg/L	<	3.9									
	Dichlorobromomethane	µg/L	<	0.74									
	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	<	0.47									
	1,4-Dioxane	µg/L	<	2.8									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	1									
	Methyl Chloride	µg/L	<	1									
	Methylene Chloride	µg/L	<	1									
	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	<	2.8									
	2,4-Dichlorophenol	µg/L	<	2.8									
	2,4-Dimethylphenol	µg/L	<	2.8									
	4,6-Dinitro-o-Cresol	µg/L	<	5.7									
	2,4-Dinitrophenol	µg/L	<	5.7									
	2-Nitrophenol	µg/L	<	2.8									
	4-Nitrophenol	µg/L	<	2.8									
	p-Chloro-m-Cresol	µg/L	<	2.8									

	Pentachlorophenol	µg/L	<	5.7										
	Phenol	µg/L	<	7.6										
	2,4,6-Trichlorophenol	µg/L	<	2.8										
Group 5	Acenaphthene	µg/L	<	1.4										
	Acenaphthylene	µg/L	<	1.4										
	Anthracene	µg/L	<	1.4										
	Benzidine	µg/L	<	3.8										
	Benzo(a)Anthracene	µg/L	<	1.4										
	Benzo(a)Pyrene	µg/L	<	1.4										
	3,4-Benzofluoranthene	µg/L	<	1.4										
	Benzo(ghi)Perylene	µg/L	<	1.4										
	Benzo(k)Fluoranthene	µg/L	<	1.4										
	Bis(2-Chloroethoxy)Methane	µg/L	<	2.8										
	Bis(2-Chloroethyl)Ether	µg/L	<	2.8										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	2.8										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.8										
	4-Bromophenyl Phenyl Ether	µg/L	<	2.8										
	Butyl Benzyl Phthalate	µg/L	<	2.8										
	2-Chloronaphthalene	µg/L	<	2.8										
	4-Chlorophenyl Phenyl Ether	µg/L	<	2.8										
	Chrysene	µg/L	<	1.4										
	Dibenzo(a,h)Anthrancene	µg/L	<	1.4										
	1,2-Dichlorobenzene	µg/L	<	5										
	1,3-Dichlorobenzene	µg/L	<	5										
	1,4-Dichlorobenzene	µg/L	<	5										
	3,3-Dichlorobenzidine	µg/L	<	2.8										
	Diethyl Phthalate	µg/L	<	2.8										
	Dimethyl Phthalate	µg/L	<	2.8										
	Di-n-Butyl Phthalate	µg/L	<	2.8										
	2,4-Dinitrotoluene	µg/L	<	2.8										
	2,6-Dinitrotoluene	µg/L	<	2.8										
	Di-n-Octyl Phthalate	µg/L	<	2.8										
	1,2-Diphenylhydrazine	µg/L	<	2.8										
	Fluoranthene	µg/L	<	1.4										
	Fluorene	µg/L	<	1.4										
	Hexachlorobenzene	µg/L	<	2.8										
	Hexachlorobutadiene	µg/L	<	0.46										
	Hexachlorocyclopentadiene	µg/L	<	2.8										

	Hexachloroethane	µg/L	<	2.8										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.4										

	Isophorone	µg/L	<	2.8										
	Naphthalene	µg/L	<	1.4										
	Nitrobenzene	µg/L	<	2.8										
	n-Nitrosodimethylamine	µg/L	<	2.8										
	n-Nitrosodi-n-Propylamine	µg/L	<	2.8										
	n-Nitrosodiphenylamine	µg/L	<	2.8										
	Phenanthrene	µg/L	<	1.4										
	Pyrene	µg/L	<	1.4										
	1,2,4-Trichlorobenzene	µg/L	<	2.8										
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

Lansdale Borough STP, NPDES Permit No. PA0026182, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT to West Branch Neshaminy 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	002889	1.1	300	1.15			Yes
End of Reach 1	002889	0	279.5	2.44			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	1.1	0.1	0.115									100	7		
End of Reach 1	0	0.1	0.244												

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	1.1														
End of Reach 1	0														

Model Results

Lansdale Borough STP, NPDES Permit No. PA0026182, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.005 PMF: 1 Analysis Hardness (mg/l): 206.53 Analysis pH: 7.29

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	767	
Total Antimony	0	0		0	1,100	1,100	1,126	
Total Arsenic	0	0		0	340	340	348	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,488	
Total Boron	0	0		0	8,100	8,100	8,288	
Total Cadmium	0	0		0	4.074	4.46	4.56	Chem Translator of 0.914 applied
Hexavalent Chromium	0	0		0	16	16.3	16.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	97.2	
Total Copper	0	0		0	26.616	27.7	28.4	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	22.5	
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	140.860	206	210	Chem Translator of 0.685 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.69	Chem Translator of 0.85 applied
Total Nickel	0	0		0	864.833	867	887	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	11.199	13.2	13.5	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	66.5	

Total Zinc	0	0		0	216.637	222	227	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.07	
Acrylonitrile	0	0		0	650	650	665	
Benzene	0	0		0	640	640	655	
Bromoform	0	0		0	1,800	1,800	1,842	

Carbon Tetrachloride	0	0		0	2,800	2,800	2,865	
Chlorobenzene	0	0		0	1,200	1,200	1,228	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	18,418	
Chloroform	0	0		0	1,900	1,900	1,944	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	15,348	
1,1-Dichloroethylene	0	0		0	7,500	7,500	7,674	
1,2-Dichloropropane	0	0		0	11,000	11,000	11,256	
1,3-Dichloropropylene	0	0		0	310	310	317	
Ethylbenzene	0	0		0	2,900	2,900	2,967	
Methyl Bromide	0	0		0	550	550	563	
Methyl Chloride	0	0		0	28,000	28,000	28,650	
Methylene Chloride	0	0		0	12,000	12,000	12,279	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,023	
Tetrachloroethylene	0	0		0	700	700	716	
Toluene	0	0		0	1,700	1,700	1,739	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	6,958	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,070	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,479	
Trichloroethylene	0	0		0	2,300	2,300	2,353	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	573	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,739	
2,4-Dimethylphenol	0	0		0	660	660	675	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	81.9	
2,4-Dinitrophenol	0	0		0	660	660	675	
2-Nitrophenol	0	0		0	8,000	8,000	8,186	
4-Nitrophenol	0	0		0	2,300	2,300	2,353	
p-Chloro-m-Cresol	0	0		0	160	160	164	
Pentachlorophenol	0	0		0	11.678	11.7	11.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	471	
Acenaphthene	0	0		0	83	83.0	84.9	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	307	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.51	
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	30,697	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,605	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	276	
Butyl Benzyl Phthalate	0	0		0	140	140	143	
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	839	
1,3-Dichlorobenzene	0	0		0	350	350	358	
1,4-Dichlorobenzene	0	0		0	730	730	747	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,093	

Dimethyl Phthalate	0	0		0	2,500	2,500	2,558	
Di-n-Butyl Phthalate	0	0		0	110	110	113	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,637	
2,6-Dinitrotoluene	0	0		0	990	990	1,013	
1,2-Diphenylhydrazine	0	0		0	15	15.0	15.3	
Fluoranthene	0	0		0	200	200	205	
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	10.2	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.12	
Hexachloroethane	0	0		0	60	60.0	61.4	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	10,232	
Naphthalene	0	0		0	140	140	143	
Nitrobenzene	0	0		0	4,000	4,000	4,093	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	17,395	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	307	
Phenanthrene	0	0		0	5	5.0	5.12	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	133	

☑ ***CFC*** CCT (min): 0.005 PMF: 1 Analysis Hardness (mg/l): 206.53 Analysis pH: 7.29

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	225	
Total Arsenic	0	0		0	150	150	153	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,195	
Total Boron	0	0		0	1,600	1,600	1,637	
Total Cadmium	0	0		0	0.407	0.46	0.47	Chem Translator of 0.879 applied
Hexavalent Chromium	0	0		0	10	10.4	10.6	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.4	
Total Copper	0	0		0	16.644	17.3	17.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	5.32	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,535	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.489	8.01	8.2	Chem Translator of 0.685 applied

Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.93	Chem Translator of 0.85 applied
Total Nickel	0	0		0	96.056	96.3	98.6	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	5.11	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	13.3	
Total Zinc	0	0		0	218.409	222	227	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.07	
Acrylonitrile	0	0		0	130	130	133	
Benzene	0	0		0	130	130	133	
Bromoform	0	0		0	370	370	379	
Carbon Tetrachloride	0	0		0	560	560	573	
Chlorobenzene	0	0		0	240	240	246	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,581	
Chloroform	0	0		0	390	390	399	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,172	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,535	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,251	
1,3-Dichloropropylene	0	0		0	61	61.0	62.4	
Ethylbenzene	0	0		0	580	580	593	
Methyl Bromide	0	0		0	110	110	113	

Methyl Chloride	0	0		0	5,500	5,500	5,628	
Methylene Chloride	0	0		0	2,400	2,400	2,456	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	215	
Tetrachloroethylene	0	0		0	140	140	143	
Toluene	0	0		0	330	330	338	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,433	
1,1,1-Trichloroethane	0	0		0	610	610	624	
1,1,2-Trichloroethane	0	0		0	680	680	696	
Trichloroethylene	0	0		0	450	450	460	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	113	
2,4-Dichlorophenol	0	0		0	340	340	348	
2,4-Dimethylphenol	0	0		0	130	130	133	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	16.4	
2,4-Dinitrophenol	0	0		0	130	130	133	
2-Nitrophenol	0	0		0	1,600	1,600	1,637	
4-Nitrophenol	0	0		0	470	470	481	
p-Chloro-m-Cresol	0	0		0	30	30.0	30.7	
Pentachlorophenol	0	0		0	8.960	8.96	9.17	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	93.1	
Acenaphthene	0	0		0	17	17.0	17.4	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	60.4	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.1	

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	6,139	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	931	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	55.3	
Butyl Benzyl Phthalate	0	0		0	35	35.0	35.8	
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	164	
1,3-Dichlorobenzene	0	0		0	69	69.0	70.6	
1,4-Dichlorobenzene	0	0		0	150	150	153	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	819	
Dimethyl Phthalate	0	0		0	500	500	512	
Di-n-Butyl Phthalate	0	0		0	21	21.0	21.5	
2,4-Dinitrotoluene	0	0		0	320	320	327	
2,6-Dinitrotoluene	0	0		0	200	200	205	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.07	
Fluoranthene	0	0		0	40	40.0	40.9	
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	2.05	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.02	
Hexachloroethane	0	0		0	12	12.0	12.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,149	
Naphthalene	0	0		0	43	43.0	44.0	
Nitrobenzene	0	0		0	810	810	829	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,479	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	60.4	
Phenanthrene	0	0		0	1	1.0	1.02	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	26.6	

☑ ***THH*** CCT (min): 0.005 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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.73	
Total Arsenic	0	0		0	10	10.0	10.2	
Total Barium	0	0		0	2,400	2,400	2,456	

Total Boron	0	0		0	3,100	3,100	3,172	
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	140	140	143	
Dissolved Iron	0	0		0	300	300	307	
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	1,023	
Total Mercury	0	0		0	0.050	0.05	0.051	
Total Nickel	0	0		0	610	610	624	
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	0.25	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	6	6.0	6.14	
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	130	130	133	
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	33.8	
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	530	530	542	
Methyl Bromide	0	0		0	47	47.0	48.1	
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	1,300	1,300	1,330	
1,2-trans-Dichloroethylene	0	0		0	140	140	143	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
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	81	81.0	82.9	
2,4-Dichlorophenol	0	0		0	77	77.0	78.8	
2,4-Dimethylphenol	0	0		0	380	380	389	
4,6-Dinitro-o-Cresol	0	0		0	13	13.0	13.3	
2,4-Dinitrophenol	0	0		0	69	69.0	70.6	
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	10,400	10,400	10,642	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	670	670	686	
Anthracene	0	0		0	8,300	8,300	8,493	
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	1,400	1,400	1,433	
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	150	150	153	
2-Chloronaphthalene	0	0		0	1,000	1,000	1,023	
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	420	420	430	
1,3-Dichlorobenzene	0	0		0	420	420	430	
1,4-Dichlorobenzene	0	0		0	420	420	430	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	17,000	17,000	17,395	
Dimethyl Phthalate	0	0		0	270,000	270,000	276,272	
Di-n-Butyl Phthalate	0	0		0	2,000	2,000	2,046	
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	130	130	133	
Fluorene	0	0		0	1,100	1,100	1,126	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	40	40.0	40.9	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.0038	0.004	0.004	
Isophorone	0	0		0	35	35.0	35.8	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	17	17.0	17.4	
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	830	830	849	
1,2,4-Trichlorobenzene	0	0		0	35	35.0	35.8	

☑ ***CRL*** CCT (min): 0.312 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	0.051	0.051	0.063	
Benzene	0	0		0	1.2	1.2	1.47	
Bromoform	0	0		0	4.3	4.3	5.27	
Carbon Tetrachloride	0	0		0	0.23	0.23	0.28	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	0.49	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	6.99	
Dichlorobromomethane	0	0		0	0.55	0.55	0.67	
1,2-Dichloroethane	0	0		0	0.38	0.38	0.47	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	0.34	0.34	0.42	
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	4.6	4.6	5.64	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	0.21	
Tetrachloroethylene	0	0		0	0.69	0.69	0.85	
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	0.59	0.59	0.72	
Trichloroethylene	0	0		0	2.5	2.5	3.07	
Vinyl Chloride	0	0		0	0.025	0.025	0.031	
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	0.270	0.27	0.33	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	1.72	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.000086	0.00009	0.0001	
Benzo(a)Anthracene	0	0		0	0.0038	0.004	0.005	
Benzo(a)Pyrene	0	0		0	0.0038	0.004	0.005	
3,4-Benzofluoranthene	0	0		0	0.0038	0.004	0.005	
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	0.005	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.037	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	1.2	1.2	1.47	
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	0.0038	0.004	0.005	
Dibenzo(a,h)Anthrancene	0	0		0	0.0038	0.004	0.005	
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	0.021	0.021	0.026	
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	0.061	

2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.061	
1,2-Diphenylhydrazine	0	0		0	0.036	0.036	0.044	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00028	0.0003	0.0003	
Hexachlorobutadiene	0	0		0	0.44	0.44	0.54	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	1.4	1.4	1.72	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
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	0.00069	0.0007	0.0008	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.006	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	4.05	
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 Boron	Report	Report	Report	Report	Report	µg/L	1,637	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.47	0.74	17.7	27.7	44.3	µg/L	17.7	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	5.32	CFC	Discharge Conc > 25% WQBEL (no RP)
Dissolved Iron	8.19	12.8	307	479	767	µg/L	307	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	41.0	63.9	1,535	2,395	3,837	µg/L	1,535	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	0.22	0.34	8.2	12.8	20.5	µg/L	8.2	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	222	AFC	Discharge Conc > 10% WQBEL (no RP)
Chloroform	0.19	0.29	6.99	10.9	17.5	µg/L	6.99	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dichlorobromomethane	0.018	0.028	0.67	1.05	1.69	µg/L	0.67	CRL	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,456	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.47	µg/L	Discharge Conc < TQL
Hexavalent Chromium	10.6	µg/L	Discharge Conc < TQL
Total Cobalt	19.4	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS

Total Manganese	1,023	µg/L	Discharge Conc ≤ 10% WQBEL

Total Mercury	0.051	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	98.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	5.11	µg/L	Discharge Conc < TQL
Total Silver	13.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.25	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.063	µg/L	Discharge Conc < TQL
Benzene	1.47	µg/L	Discharge Conc < TQL
Bromoform	5.27	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.28	µg/L	Discharge Conc < TQL
Chlorobenzene	133	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	0.49	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,581	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	0.47	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	33.8	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	2,251	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.42	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	542	µg/L	Discharge Conc < TQL
Methyl Bromide	48.1	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	5,628	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	5.64	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	0.21	µg/L	Discharge Conc < TQL
Tetrachloroethylene	0.85	µg/L	Discharge Conc < TQL
Toluene	338	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	143	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	624	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.72	µg/L	Discharge Conc < TQL
Trichloroethylene	3.07	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.031	µg/L	Discharge Conc < TQL
2-Chlorophenol	82.9	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	78.8	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	133	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	13.3	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	70.6	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,637	µg/L	Discharge Conc < TQL
4-Nitrophenol	481	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	30.7	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.33	µg/L	Discharge Conc < TQL
Phenol	10,642	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	1.72	µg/L	Discharge Conc < TQL
Acenaphthene	17.4	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	8,493	µg/L	Discharge Conc < TQL

Benzidine	0.0001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.005	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.005	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.005	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.005	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.037	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,433	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1.47	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	55.3	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	35.8	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,023	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.005	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.005	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	164	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	70.6	µg/L	Discharge Conc ≤ 25% WQBEL

1,4-Dichlorobenzene	153	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.026	µg/L	Discharge Conc < TQL
Diethyl Phthalate	819	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	512	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	21.5	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.061	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.061	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.044	µg/L	Discharge Conc < TQL
Fluoranthene	40.9	µg/L	Discharge Conc < TQL
Fluorene	1,126	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.54	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.02	µg/L	Discharge Conc < TQL
Hexachloroethane	1.72	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.004	µg/L	Discharge Conc < TQL
Isophorone	35.8	µg/L	Discharge Conc < TQL
Naphthalene	44.0	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	17.4	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.0008	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.006	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	4.05	µg/L	Discharge Conc < TQL
Phenanthrene	1.02	µg/L	Discharge Conc < TQL
Pyrene	849	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	26.6	µg/L	Discharge Conc ≤ 25% WQBEL

Model Results 3/23/2021 Page 16

Parameters and values used in the model run are the following:

Based on the submitted past hardness data, an average of 209 mg/l is used in the model as discharge hardness.

For the point of discharge:

RMI = 1.1
Drainage Area = 1.15 mi^2
Q7-10 = 0.115 cfs
Elevation = 300 ft.

End of Reach 1:

RMI = 0
Drainage Area = 2.44 mi^2
Q7-10 = 0.244 cfs
Elevation = 279.5

Anti-Backsliding

Existing parameter Chlorodibromomethane is reported as less than the recommended TQL and there is no longer a reasonable potential to exceed water quality criteria. New monitoring data constitutes new information and anti-backsliding exception applies. Therefore, limit is eliminated from the permit.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 15' 33.78"	**Longitude**	-75º 17' 20.45"
Wastewater Description:	Combined Sewer Overflow		

Monitoring for the existing parameters, flow, pH, TRC, CBOD5, TSS, Fecal Coliform and Ammonia Nitrogen are recommended to continue in the new permit.

Outfall No.	003	**Design Flow (MGD)**	0
Latitude	40º 14' 49.89"	**Longitude**	-75º 16' 20.83"
Wastewater Description:	Combined Sewer Overflow		

Monitoring for the existing parameters flow, pH, TRC and Fecal Coliform are recommended to continue in the new permit.

Outfall No.	004	**Design Flow (MGD)**	0
Latitude	40º 15' 22.00"	**Longitude**	-75º 17' 16.00"
Wastewater Description:	Stormwater		

Monitoring for the existing stormwater parameters pH, CBOD5, COD, TSS, Oil and Grease, Fecal Coliform, TKN, Total Phosphorus, and Iron, dissolved are recommended to continue in the new 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: Annually

The dilution series used for the tests was: 100%, 98%, 73%, 49%, and 25%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 98%.

Summary of Four Most Recent Test Results and Evaluation based on TST Spreadsheet

WET Summary and Evaluation

Facility Name	Lansdale Boro STP chronic
Permit No.	PA0026182
Design Flow (MGD)	3.2
Q_{7-10} Flow (cfs)	0.115
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	12/20/17	11/13/18	6/18/19	7/21/20
Ceriodaphnia	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	12/20/17	11/13/18	6/18/19	7/21/20
Ceriodaphnia	Reproduction	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	1/29/18	11/13/18	6/18/19	7/21/20
Pimephales	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	1/29/18	11/13/18	6/18/19	7/21/20
Pimephales	Growth	Pass	Pass	Pass	Pass

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**98** % Effluent
Dilution Series	**25, 49, 73, 98, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

WET Summary and Evaluation

Facility Name	Lansdale Boro STP acute
Permit No.	PA0026182
Design Flow (MGD)	3.2
Q_{7-10} Flow (cfs)	0.115
PMF_a	1
PMF_o	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	12/20/17	11/13/18	6/18/19	7/21/20
Ceriodaphnia	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint				

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint				

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint				

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**98** % Effluent
Dilution Series	**25, 49, 73, 98, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

Based on the evaluation and DEP guidance, annual monitoring for Chronic WET is included in the permit using the dilution series 25, 49, 73, 98, 100 % and a TIWC of 98%.
The standard WET condition based on the DEP WET SOP is incorporated in Part C of the permit.

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)	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	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.013	XXX	0.043	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	826	1238	XXX	22	33 Wkly Avg	44	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	413	638	XXX	11	17 Wkly Avg	22	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	1126	1689	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Dissolved Solids	Report Avg Qrtly	XXX	XXX	1000.0 Avg Qrtly	XXX	1500	1/quarter	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		
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%) (completion of construction to expiration date)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite as N Nov 1 - Jun 30	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Nitrate-Nitrite as N Jul 1 - Oct 31	356	XXX	XXX	9.5	XXX	19	2/week	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	169	XXX	XXX	4.5	XXX	9	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	56	XXX	XXX	1.5	XXX	3	2/week	24-Hr Composite
Total Kjeldahl Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	70	XXX	XXX	1.86	XXX	3.72	2/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	35	XXX	XXX	0.93	XXX	1.86	2/week	24-Hr Composite
Boron, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Copper, Total	0.68	1.05 Daily Max	XXX	0.018	0.028	0.044	1/month	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Iron, Dissolved	11.63	18.01 Daily Max	XXX	0.31	0.48	0.77	1/month	24-Hr Composite
Iron, Total	57.80	90.10 Daily Max	XXX	1.54	2.4	3.84	1/month	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	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		
Zinc, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Dichlorobromomethane (effective date to completion of construction)	0.026	0.041 Daily Max	XXX	0.0007	0.0011	0.0017	1/week	Grab
Chloroform (effective date to completion of construction)	0.263	0.413 Daily Max	XXX	0.007	0.011	0.018	1/week	Grab
Hardness, Total (as CaCO3)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	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 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)	Required
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	Daily when Discharging	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report	XXX	Daily when Discharging	Grab

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 003, 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	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	Daily when Discharging	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	Report	XXX	Report	Daily when Discharging	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	Report Daily Max	XXX	Daily when Discharging	Grab

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