Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Amendment, Major**	**NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE**		Application No.	**PA0026425 A-1**
Facility Type	**Municipal**			APS ID	**1124477**
Major / Minor	**Minor**			Authorization ID	**1504212**

Applicant and Facility Information

Applicant Name	**Penn Hills Municipal Allegheny County**	Facility Name	**Lincoln Rd STP**
Applicant Address	102 Duff Road	Facility Address	1955 Lincoln Road
	Pittsburgh, PA 15235-3219		Pittsburgh, PA 15235
Applicant Contact	Jennifer Cohn	Facility Contact	
Applicant Phone	(412) 798-2171	Facility Phone	
Client ID	77993	Site ID	253359
Ch 94 Load Status	Not Overloaded	Municipality	Penn Hills Township
Connection Status		County	Allegheny
Date Application Received	October 8, 2024	EPA Waived?	Yes
Date Application Accepted	October 25, 2024	If No, Reason	

Purpose of Application: Amendment of NPDES Permit.

Summary of Review

Penn Hills Water Pollution Control Department requests changes to upcoming effluent limitations at Outfall 001 discharging to Shades Run (WWF). The request to change upcoming limits is based on site-specific information gathered as part of the compliance schedule established in the 2023 NPDES Permit Renewal. The permit amendment proposes the following changes to effluent limitations:

From Existing Final Limits

Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
Total Copper	9.36	14.0	14.0
Total Lead	3.19	4.98	7.98
Total Zinc	120	120	120

To Proposed Final Limits

Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
Total Copper	26.2	35.2	65.5
Total Lead	-	-	-
Total Zinc	-	-	-

The site-specific information submitted with the amendment application was reviewed to determine conformance to Part II.B. of the Permit conditions. Submitted site-specific information replaces the DEP default values for analysis of WQBELs, default values were used for any parameters that were not submitted with the application. The effluent testing submitted by the applicant indicates that the facility will be able to comply with the proposed final limits for Total Copper.

Approve	Deny	Signatures	Date
x		John Price Jack Price / Environmental Engineering Specialist	February 5, 2025
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	February 6, 2025

Summary of Review

Where DEP Guidance exists for collection of site-specific data, the document title and number are referenced in the following list. The following site-specific parameters were submitted:

- Background in-stream concentrations of Total Copper, Total Lead, and total Zinc.
  Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances (391-2000-022)
- Background in-stream Total Hardness and effluent Total Hardness.
  Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness (391-2000-021)
- Daily and Hourly Coefficients of Variability of the subject metal pollutants.
  Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics (391-2000-024)
- Stream geometry, including width, depth, slope, velocity.

Based on DEP Review of the application and submitted information, issuance of the draft permit amendment is recommended.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.218
Latitude	40º 28' 29.00"	Longitude	-79º 52' 53.00"
Quad Name	40079D8	Quad Code	Pittsburgh East
Wastewater Description:	Sewage Effluent		
Receiving Waters	Shades Run (WWF)	Stream Code	42221
NHD Com ID	123972883	RMI	0.68
Drainage Area	0.23	Yield (cfs/mi^2)	0.00569
Q_{7-10} Flow (cfs)	0.00131	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	961	Slope (ft/ft)	0.0301
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS		
Source(s) of Impairment	URBAN RUNOFF/STORM SEWERS		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Pittsburgh Water and Sewer Authority (120 MGD) PWSID: 5020038		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,390
PWS RMI	8.19	Distance from Outfall (mi)	0.8 Linear Miles 0.99 River Miles

Changes Since Last Permit Issuance: Final Limits and Monitoring requirements are removed from Total Lead and Total Zinc parameters. Final limits for Total Copper have been increased. These limits are being changed based on new information submitted to DEP. Please see the Development of Effluent Limitations section for more details.

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.218
Latitude 40º 28' 29.00" **Longitude** -79º 52' 54.00"
Wastewater Description: Sewage Effluent

Background In-Stream Concentrations

The application contains sampling data from upstream of the discharge. These data were reviewed using DEP Guidance for Background Water Quality (Section 1.6, DEP Document No. 391-2000-022). A site upstream of the discharge was selected for sampling of background water quality. This is the only permitted discharge on Shades Run, allowing a sample location immediately upstream of the discharge outside the influence of the discharge itself. Sampling was performed in June and July typically within the hours of 9:00 through 11:00 AM. The background water quality sampling information submitted is acceptable for the purposes of establishing WQBELs. Lab analysis for these parameters were performed using an approved method at a reporting limit equal to or more sensitive than DEP Quantitation Limits.

The collected in-stream data were used in ToxConc to determine the long-term average concentration and coefficient of variation for each parameter for use in the TMS model. Table 1 summarizes the background water quality determined for Shades Run.

Table 1- Background In-Stream Concentrations

Parameter	Method Used	Reporting Limit Used (µg/L)	Average Monthly In-Stream Concentration (µg/L)	Coefficient of Variation
Total Copper	EPA 200.7	2	10.25	1.0
Total Lead	EPA 200.8	1	54.33	3.19
Total Zinc	EPA 200.8	5	63.48	1.57

In-Stream Hardness and Effluent Hardness

The application contains effluent and in-stream hardness data. Data collection occurred concurrently with the background water quality data collection. These data were reviewed using DEP Guidance for In-Stream and Effluent Hardness (Sections 1.1 and 1.2 of DEP Document No. 391-2000-021). The background water quality sampling procedure is acceptable for the collection of hardness data. Effluent was directly sampled for hardness at the outfall location.

The collected data were used in ToxConc to determine the long-term average concentration and coefficient of variation for each parameter for use in the TMS model. Table 2 summarizes the values for hardness used to model the discharge.

Table 2-Stream and Effluent Hardness

Parameter	Method Used	Reporting Limit Used (mg/L)	Average Monthly Hardness Concentration (mg/L)
In-Stream Hardness	SM2340B/ EPA 200.7	6.62	443
Effluent Hardness	SM2340B/ EPA 200.7	6.62	334

Daily and Hourly Coefficients of Variability

The application contains sampling data from the discharge for determining the Daily and Hourly Coefficients of Variability of Total Copper, Total Lead, and Total Zinc. A set of 12 samples were used to establish the Daily CV, and a set of 4 Samples on consecutive days were used to establish the Hourly CV.

The collected data were used in ToxConc to determine the long-term average concentration and coefficients of variation for each parameter for use in the TMS model. Table 3 summarizes these Coefficients of Variation and the Long-Term Monthly Averages.

Table 3-Effluent Long-Term Averages with Coefficients of Variation

Parameter	Method Used	Reporting Limit Used (µg/L)	Average Monthly Effluent Concentration (µg/L)	Coefficient of Variation (Daily)	Coefficient of Variation (Hourly)
Total Copper	EPA 200.7	2	13.13	0.29	0.12
Total Lead	EPA 200.8	1	1.14	-	-
Total Zinc	EPA 200.8	5	16.08	0.42	0.26

Stream Characteristics

A survey of the stream was performed close to the point of discharge. Table 4 summarizes the results of the survey as submitted to DEP for use in modelling the discharge in TMS. Parameters with an asterisk(*) were determined using USGS StreamStats and were not determined as part of a survey but are included below for convenient reference.

Table 4-Stream Characteristics

Parameter	Value	Units
Stream Width	4.9	ft
Stream Depth	0.14	ft
Stream Slope	0.0301	ft/ft
Stream Velocity	0.31	ft/s
Stream Flow*	0.00131	ft^3/s
Basin Area at Discharge*	0.23	mi^2

Modelling of Toxic Parameters to Establish New Final WQBELs

TMS was used to model the Toxic Pollutants as instructed by the SOP for Establishing WQBELs for Toxic Pollutants (Document No. BCW-PMT-037, Revised May 20, 2021). The application for the permit amendment included a TMS model with recommended effluent limitations. A DEP review of the requested limits based on the TMS model and its supporting documentation has discovered that the Site-Specific Information was not input into the models according to DEP Guidance. The submitted TMS Model and ToxConc spreadsheet appears to use the arithmetic mean for the in-stream background concentration and hardness calculations. Additionally, the submitted ToxConc sheets used the Target Quantity Limit as the detection limit when the submitted lab sheets listed a more sensitive reporting limit was used.

The TMS Model output was DEP used the Site-Specific information in ToxConc to develop the following inputs for TMS:

- In-stream hardness and effluent hardness.
  Submitted application appeared to use arithmetic mean in the submitted TMS Model.
- Background Long-Term Averages and Stream Coefficients of Variation for Total Copper, Total Lead, and Total Zinc.
  Submitted application appeared to use arithmetic mean or CVs in the submitted TMS Model
- Effluent Daily and Hourly Coefficients of Variation for Total Copper, Total Lead, and Total Zinc.
  Submitted application did not use the actual reporting limit in the submitted ToxConc sheet.

The ToxConc sheets and TMS Model Report are included in Attachment 1 and Attachment 2.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation. Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original

issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(40 CFR 122.44 (l)(2) Establishing limitations, standards, and other permit conditions., 40 CFR Ch. I (7-1-21 Edition))

There are several permit limitations listed under the Proposed Backsliding section below that will be made less stringent under 112.44 (l)(2)(i). No other limitations have been made less stringent

Proposed Backsliding

The following exceptions to anti-backsliding are acceptable under EPA's anti-backsliding regulation 40 CFR 122.44(l)(2)(i):

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;
(B)
(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or
(2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);
I A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
(D) The permittee has received a permit modification under section 301I, 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
I The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
(40 CFR 122.44 (l)(2)(i) Establishing limitations, standards, and other permit conditions., 40 CFR Ch. I (7-1-21 Edition))

The following list contains proposed effluent limitations that will be less stringent. These less stringent limitations are both allowable under the same justification. Site-specific data was submitted to DEP that demonstrates the discharge does not have reasonable potential to exceed in-stream water quality criteria for these pollutants. Backsliding is justified due to the submitted information that was not available at the time the permit was issued. All other permit limitations will be unchanged or will be more stringent than the existing limitations.

- Total Copper will receive a final monthly average limit of 26.2 µg/L instead of 9.36 µg/L.
- Total Zinc and Total Lead will no longer be monitored and will not receive a final limit.

Other Considerations

Section 2.C of the Permit Writers Manual contains the procedure for converting average monthly effluent limitations to average weekly, maximum daily, and instantaneous maximum effluent limitations. The average monthly limit is multiplied according to the following chart:

Discharge Solution	Parameters	Average Weekly	Maximum Daily	Instantaneous Maximum Multiplier
Sewage	All	1.5		2.0
Industrial	All		2.0	2.5*

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: April 1, 2025 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		
Total Copper (ug/L)	XXX	XXX	XXX	26.2	35.2 Daily Max	65.5	1/week	24-Hr Composite

Compliance Sampling Location: 001

Other Comments: none.

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through March 31, 2025.

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		
Total Copper (ug/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Lead (ug/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Zinc (ug/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: none.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	50.0	75.0	XXX	25.0	37.5	50.0	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	60.0	90.0	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/week	24-Hr Composite
Ammonia Nov 1 – Apr 30	5.0	XXX	XXX	2.63	XXX	5.26	1/week	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)	Required
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Ammonia May 1 – Oct 31	3.5	XXX	XXX	1.89	XXX	3.78	1/week	24-Hr Composite
Total Phosphorus	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: none

Attachment 1-ToxConc Sheets

Attachment 2-TMS Report

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Lincoln Rd. STP NPDES Permit No.: PA0026425 Outfall No.: 001

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.24	334	7.32						

					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		986									
	Chloride (PWS)	mg/L		329									
	Bromide	mg/L		0.1									
	Sulfate (PWS)	mg/L		236									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		13.13		10.25	0.29	0.12	1				
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		1.14		54.33			3.19				
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		16.08		63.48	0.42	0.26	1.57				
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										

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

	1,2-Diphenylhydrazine	µg/L	<											
	Fluoranthene	µg/L	<											
	Fluorene	µg/L	<											
	Hexachlorobenzene	µg/L	<											
	Hexachlorobutadiene	µg/L	<											
	Hexachlorocyclopentadiene	µg/L	<											
	Hexachloroethane	µg/L	<											
	Indeno(1,2,3-cd)Pyrene	µg/L	<											
	Isophorone	µg/L	<											
	Naphthalene	µg/L	<											
	Nitrobenzene	µg/L	<											
	n-Nitrosodimethylamine	µg/L	<											
	n-Nitrosodi-n-Propylamine	µg/L	<											
	n-Nitrosodiphenylamine	µg/L	<											
	Phenanthrene	µg/L	<											
	Pyrene	µg/L	<											
	1,2,4-Trichlorobenzene	µg/L	<											
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 1.4, May 2023

Stream / Surface Water Information

Lincoln Rd. STP, NPDES Permit No. PA0026425, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Shade 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	042221	0.68	961	0.23	0.0301		Yes
End of Reach 1	042221	0.58	945	0.231	0.0301		Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.68	0.00569				4.9	0.14	0.31				443	7		
End of Reach 1	0.58	0.00569			35										

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.68														
End of Reach 1	0.58														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Lincoln Rd. STP, NPDES Permit No. PA0026425, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.68	0.00		0.00	0.371	0.03	0.14	4.9	35.	0.31	0.02	0.00004
0.58	0.00		0.001					35.000			

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.68	0.02		0.02	0.371	0.03	0.143	4.9	34.161	0.32	0.019	0.011
0.58	0.023		0.02								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 334.38 Analysis pH: 7.32

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	41.910	43.7	43.7	Chem Translator of 0.98 applied
Total Lead	54.33	3.19		0	233.478	380	380	Chem Translator of 0.615 applied
Total Zinc	63.48	1.57		0	325.872	333	334	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 334.38 Analysis pH: 7.32

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	25.122	26.2	26.2	Chem Translator of 0.98 applied

Total Lead	54.33	3.19		0	9.098	14.8	14.8	Background > WQC; WLA set to WQC
Total Zinc	63.48	1.57		0	328.538	333	334	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Copper	10.25	1		0	N/A	N/A	N/A	
Total Lead	54.33	3.19		0	N/A	N/A	N/A	
Total Zinc	63.48	1.57		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.011 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	N/A	N/A	N/A	
Total Lead	54.33	3.19		0	N/A	N/A	N/A	
Total Zinc	63.48	1.57		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	0.052	0.07	26.2	35.2	65.5	µg/L	26.2	CFC	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 Lead	14.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	333	µg/L	Discharge Conc ≤ 10% WQBEL

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Lincoln Rd. STP, NPDES Permit No. PA0026425, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Shade 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	042221	0.68	961	0.23	0.0301		Yes
End of Reach 1	042221	0.58	945	0.231	0.0301		Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.68	0.00569				4.9	0.14	0.31				443	7		
End of Reach 1	0.58	0.00569			35										

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.68														
End of Reach 1	0.58														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Lincoln Rd. STP, NPDES Permit No. PA0026425, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.68	0.00		0.00	0.371	0.03	0.14	4.9	35.	0.31	0.02	0.00004
0.58	0.00		0.001					35.000			

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.68	0.02		0.02	0.371	0.03	0.143	4.9	34.161	0.32	0.019	0.011
0.58	0.023		0.02								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 334.38 Analysis pH: 7.32

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	41.910	43.7	43.7	Chem Translator of 0.98 applied
Total Lead	54.33	3.19		0	233.478	380	380	Chem Translator of 0.615 applied
Total Zinc	63.48	1.57		0	325.872	333	334	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 334.38 Analysis pH: 7.32

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	25.122	26.2	26.2	Chem Translator of 0.98 applied

Total Lead	54.33	3.19		0	9.098	14.8	14.8	Background > WQC; WLA set to WQC
Total Zinc	63.48	1.57		0	328.538	333	334	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Copper	10.25	1		0	N/A	N/A	N/A	
Total Lead	54.33	3.19		0	N/A	N/A	N/A	
Total Zinc	63.48	1.57		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.011 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	10.25	1		0	N/A	N/A	N/A	
Total Lead	54.33	3.19		0	N/A	N/A	N/A	
Total Zinc	63.48	1.57		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	0.052	0.07	26.2	35.2	65.5	µg/L	26.2	CFC	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 Lead	14.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	333	µg/L	Discharge Conc ≤ 10% WQBEL