pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0054526**
Facility Type	**Industrial**	APS ID	**1093477**
Major / Minor	**Minor**	Authorization ID	**1448488**

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

Applicant and Facility Information

Applicant Name	**UniTech Services Group, Inc.**	Facility Name	**UniTech Service Group**
Applicant Address	401 North 3rd Avenue	Facility Address	401 N 3rd Avenue
	Royersford, PA 19468-1950		Royersford, PA 19468-1950
Applicant Contact	Glenn Roberts	Facility Contact	Glenn Roberts
Applicant Phone	(410) 382-7350	Facility Phone	(410) 382-7350
Client ID	33398	Site ID	452791
SIC Code	7218	Municipality	Royersford Borough
SIC Description	Services - Industrial Launderers	County	Montgomery
Date Application Received	June 16, 2023	EPA Waived?	Yes
Date Application Accepted	September 14, 2023	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

The Pa DEP received an NPDES permit renewal application from Keystone Engineering Group (consultant) on June 16, 2023 on behalf of UniTech Services Group, Inc. (permittee) for permittee's Royersford Facility (facility). It's a minor industrial waste facility without ELG that discharges into Schuylkill River (WWF, MF) in state watershed 3-D. The current permit will expire on December 31, 2023. The terms and conditions of the current permit is automatically extended since the renewal application is received at least 180 days prior to expiration date. Renewal NPDES permit application under Clean Water Program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes in this permit: Color limits removed, and Total Copper limits will be applied.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	October 23, 2023
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	10/24/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 11' 22.00"	Longitude	-75º 32' 47.00"
Quad Name	Phoenixville	Quad Code	1741
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	133228812	RMI	43.12

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.1
Latitude	40º 11' 22.00"	Longitude	-75º 32' 47.00"
Quad Name	Phoenixville	Quad Code	1741
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Schuylkill River	Stream Code	00833
NHD Com ID	133228812	RMI	43.22
Drainage Area	1,190 mi^2	Yield (cfs/mi^2)	0.23
Q_{7-10} Flow (cfs)	275	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	93.01	Slope (ft/ft)	
Watershed No.	3-D	Chapter 93 Class.	
Existing Use	**WWF, MF**	Existing Use Qualifier	Ch. 93
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

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

Nearest Downstream Public Water Supply Intake		Phoenixville Water Department, Phoenixville Boro, ChestCo	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	40.36 mile	Distance from Outfall (mi)	2.86

Changes Since Last Permit Issuance: Membrane Ultrafiltration (UF) Unit was added with existing treatment system to increase the cBOD5 removal efficiency. A pilot testing is ongoing to determine the efficiency of UF unit.

Streamflow:

USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on October 12, 2023) was utilized to determine the drainage area at discharge point. The StreamStats report shows the drainage area at the discharge point is 1,190 mi^2. Data from the StreamStats shows Q_{7-10} and Q_{30-10} to be 275 cfs and 326 cfs, respectively.

Q_{7-10} runoff rate (low flow yield): 275 cfs/1190 mi^2 or 0.23 cfs/mi^2
Q_{30-10}:Q_{7-10}: 326/275 or 1.19
Default Q_{1-10}:Q_{7-10}: 0.64
Q_{1-10}: 0.64*275 or 176 cfs

PWS Intake:
The nearest downstream public water supply is Phoenixville Water Department's intake on Schuylkill River at RMI 40.36, in Phoenixville Borough, Chester County. Its approximately 2.86 miles downstream of Outfall 001. The permit will be crafted in a way that the discharge from this facility may not impact the PWS intake.

Wastewater Characteristics:
The 90th percentile pH of 7.1 was calculated from daily DMR during dry months July through September for the year 2022-2023. The application data indicated the maximum Total Hardness of 74.3 mg/l out of 3 samples and average temperature of 74^0F (23.63^0C).

Background data:
There's no nearby (within 10 miles) WQN station to collect site-specific stream data. In absence of site-specific data, default temperature of 25°C, stream hardness of 105 mg/l, and stream pH of 7.0 will be used for modeling, if needed.

Impairment Status of receiving stream (CWA Section 303(d)):
The receiving stream, Schuylkill River, is Fish Consumption impaired from PCBs. It is also Aquatic Life impaired from Urban Runoff/Storm sewers (cause unknown), Municipal Point Source Discharges (cause unknown), and Agriculture (cause unknown). A TMDL is finalized for Schuylkill River which is discussed in below section. The limits and permit terms and conditions will be developed in a way that the facility doesn't contribute to the existing impairment.

Schuylkill River Polychlorinated Biphenyls (PCBs) Total Maximum Daily Load (TMDL):
The receiving stream, Schuylkill River, is impaired for PCBs and has an EPA approved TMDL. This facility is listed in Segment E Subsegment 21 of the TMDL. Table B-1 assigned a Wasteload Allocation (WLA) of $1.33e^{-5}$ gram/day of PCB for this facility. The surface water quality criteria for PCBs in Schuylkill River is 0.044 ng/l or 44 pg/l, which is also EPA's TMDL target. The facility collected two PCB samples in the past and submitted the results to PADEP and Delaware River Basin Commission (DRBC). The sample results were higher than the surface water quality criteria which triggered annual dry weather PCBs monitoring requirement for Outfall 001 and annual wet weather PCBs monitoring for Outfall 002. The facility was collecting annual samples from both outfalls. These sample results will be analyzed and either continued monitoring will be carried over or numeric limits will be placed in the permit. It'll be addressed in more details on Development of Effluent Limits section of this report.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving stream is designated as Warm-Water Fishes (WWF) and Migratory Fishes (MF.) No High-Quality watershed is impacted by this discharge. No Exceptional-value watershed is impacted by this discharge.

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

Treatment Facility Summary

Treatment Facility Name: Unitech Services Group

WQM Permit No.	Issuance Date
4615201 A-3	2/16/23
4615201 A-2	8/27/21
4615201 A-1	12/6/18
4615201	8/3/15

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)

Industrial	Biological (Industrial Waste),Physical (Industrial Waste)	Filtration	Ultraviolet	0.08

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.12		Not Overloaded	Drying	Landfill

Treatment Plant Description

UniTech Services Group, Inc. (UniTech/permittee) owns and operates a licensed nuclear laundry facility in Royersford, PA. The facility launders and decontaminates clothing and personal protective equipment received from customers. Equipment employed by UniTech includes washer extractors, dryers, sorting tables, lint collectors, and a liquid wastewater treatment system.

Process wastewater gravity flows to an influent wet well and has a continuous recirculation system to provide adequate mixing within the wet well. Level actuated sump pumps transfer the process wastewater from the wet well to a 50-micron mesh vibrating shaker screen where coarse particles, primarily composed of lint, are separated. The shaker screen filtrate is then pumped to equalization tanks where further mixing and pH adjustment are provided. Next, the process wastewater is transferred to a fixed filmed bioreactor system which consists of three reactors operating in series. Draft tubes provide air to the biomass within the reactors. Aerobic bacteria attach to the fixed film and provide a high rate of biological treatment of organics. Chemical feed pumps deliver urea and carbon source solutions to maintain required nutrients level to sustain a healthy biomass. Scour aeration is used to prevent the biomass from clogging the fixed film media. Chemical feed equipment provides coagulant and flocculant, as needed, to aid settling of the discharge from the fixed film bioreactors. The process wastewater then gravity flows into two final clarifiers, which are operated in parallel. The final clarifiers remove biological solids. A RAS pump returns biomass to the first bioreactor on an as needed basis.

Clarified water then passes through a buffer tank where it is processed through a variable-flow pressurized filter system. This flow from the aerated bioreactors is diverted to the new UF system for solids removal purposes. After filtration the wastewater is then disinfected via an UV system and pumped to two final holdup tanks. Mixers within the holdup tanks keep the contents well mixed. Prior to final discharge to the stream outfall, a representative sample from both holdup tanks is collected.

Solids treatment consists of a sludge holding tank and an aerobic digester with settling capability. A decant pump inside the aerobic digester removes supernatant fluid prior to solids processing. Solids are processed using a plate-and-frame press for dewatering. After pressing, the filter cake is dropped into an electric drying oven for further reduction of moisture. The dry waste is then packaged, labeled, and then transported by a qualified low-level radiation waste (LLRW) processor who properly disposes of the waste solids.

The following chemicals are used for treatment of wastewater:

4. Identify all chemicals that have been used for wastewater treatment over the past two years.

Chemical Name	Purpose	Max Usage Rate	Units	Acrylamide?
Muriatic Acid	pH Neutralizer	10	lbs/day	☐
Aluminum Sulfate	Coagulant/Flocculant	25	lbs/day	☐
Polyaluminum Chloride	Coagulant/Flocculant	8	lbs/day	☐

Stormwater Outfall:
There are two stormwater-only outfalls, Outfall 002 and 003, associated with this facility. Outfall 002 is representative of Outfall 003. Outfall 002 has monitoring requirements in current permit which will be carried over in this renewal.

Compliance History

DMR Data for Outfall 001 (from August 1, 2022 to July 31, 2023)

Parameter	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22
Flow (MGD) Average Monthly	0.01	0.03	0.04	0.04	0.05	0.04	0.03	0.03	0.04	0.05	0.04	0.03
Flow (MGD) Daily Maximum	0.04	0.06	0.08	0.08	0.08	0.08	0.08	0.07	0.09	0.08	0.07	0.06
pH (S.U.) Instantaneous Minimum	6.15	6.17	6.44	6.45	6.55	6.3	6.15	6.1	6.34	6.52	6.58	6.7
pH (S.U.) IMAX	7.81	7.08	7.01	7.03	7.99	6.96	6.87	7.37	7.01	8.4	8.5	7.7
Color (Pt-Co Units) Average Monthly	15	15	15	15	25.0	17.5	13.75	10	12.5	10	10	12.5
Color (Pt-Co Units) Daily Maximum	15	15	15	15	35.0	25.0	15.0	10	15.0	10	10	15.0
CBOD5 (lbs/day) Average Monthly	0.87	< 1	0.41	1.49	0.82	2.85	1.92	1.69	1.03	2.87	3.14	1.83
CBOD5 (lbs/day) Industrial Influent Average Monthly	6.23	7.07	13.1	14.7	19.3	12.7	12.9	13.8	17.1	21.5	12.2	9.4
CBOD5 (lbs/day) Daily Maximum	1.74	< 1	0.82	1.79	0.87	6.93	3.02	2.57	1.64	8.5	7.71	3.18
CBOD5 (lbs/day) Industrial Influent Daily Maximum	6.92	7.1	15.7	17.0	24.2	15.4	21.1	25.7	25.2	29.4	15.5	18.5
CBOD5 (mg/L) Average Monthly	3.06	< 1.0	0.82	2.81	1.72	5.85	4.25	4.06	1.97	5.31	7.98	5.77
CBOD5 (mg/L) Industrial Influent Average Monthly	21.95	18.35	22.85	27.8	38.45	26.2	31.4	32.9	33.7	39.6	29.6	29.6
CBOD5 (mg/L) Daily Maximum	6.12	< 1.0	1.64	3.2	2.07	14.0	6.28	6.04	3.38	14.9	17.9	7.7
CBOD5 (mg/L) Industrial Influent Daily Maximum	24.4	20.1	24.6	30.4	42.9	28.3	37.2	49.8	44.2	58.8	37.2	43.9
CBOD5 % Removal (%) Minimum Monthly Average	85	85	85	85	85	85	85	85	85	85	85	85
TSS (lbs/day) Average Monthly	1.85	2.05	0.89	1.02	0.78	11.3	4.09	2.84	0.82	1.14	0.76	0.18

TSS (lbs/day) Daily Maximum	3.41	3.39	1.27	1.48	1.13	39.5	8.89	4.27	1.15	1.72	1.08	0.22
TSS (mg/L) Average Monthly	6.5	5.0	1.5	2.0	1.5	24.1	8.75	8.0	1.5	2.0	2.0	1.0
TSS (mg/L) Daily Maximum	12.0	8.0	2.0	3.0	2.0	80.0	14.0	12.0	2.0	3.0	3.0	1.0
Total Dissolved Solids (lbs/day) Average Monthly	217.1	150	206	177.6	171	165.8	149.1	76.2	195.4	175	117.4	90.9
Total Dissolved Solids (lbs/day) Daily Maximum	283.3	156	236	183.5	175	179.0	228.6	85.5	224.5	207	181.5	122.6
Total Dissolved Solids (mg/L) Average Monthly	764.5	389.0	362.0	337.5	355.0	313.8	414.0	215.0	362.5	307.0	285.0	490.5
Total Dissolved Solids (mg/L) Daily Maximum	997.0	410.0	370.0	347.0	416.0	354.0	556.0	242.0	392.0	362.0	422.0	568.0
Oil and Grease (lbs/day) Average Monthly	< 5.0	< 5.0	< 5.0	2.64	< 5.0	2.65	2.02	1.77	2.7	< 5.0	1.97	0.89
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ammonia (lbs/day) Average Monthly	1.86	0.77	0.78	0.47	0.29	0.09	0.17	0.04	0.04	0.1	0.19	0.39
Ammonia (mg/L) Average Monthly	6.56	1.91	1.28	0.9	0.56	0.16	0.56	0.115	0.08	0.18	0.47	1.89
Total Phosphorus (lbs/day) Average Monthly	0.24	0.5	0.65	0.39	0.33	0.35	0.29	0.156	0.11	0.29	0.44	0.16
Total Phosphorus (mg/L) Average Monthly	0.83	1.38	1.08	0.75	0.7	0.67	0.69	0.44	0.19	0.3	1.14	0.825
Total Copper (lbs/day) Average Quarterly		0.278			0.29			0.3			0.099	
Total Copper (lbs/day) Daily Maximum		0.278			0.29			0.3			0.099	
Total Copper (mg/L) Average Quarterly		0.559			0.59			0.596			0.691	
Total Copper (mg/L) Daily Maximum		0.559			0.59			0.596			0.691	
PCBs (Dry Weather) (pg/L) Daily Maximum								890				

Acute WET - Ceriodaphnia Survival (TUa) Daily Maximum		GG			GG			50.0			GG	
Acute WET - Pimephales Survival (TUa) Daily Maximum		GG			GG			50.0			GG	

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2022 To: July 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	02/28/23	Daily Max	39.5	lbs/day	24.8	Lbs./day
TSS	02/28/23	Daily Max	80.0	mg/L	45	mg/L

Summary of Inspections:
12/3/2021: CEI conducted. No violation noted. The facility showed continued compliance with the permit.

Other Comments: None.

Existing Limits

For Outfall 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Color (Pt-Co Units)	XXX	XXX	XXX	100	200	250	2/month	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Industrial Influent	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
CBOD5 Minimum % Removal (%)	85 Min Mo Avg	XXX	XXX	XXX	XXX	XXX	2/month	Calculation
Total Suspended Solids	13.8	24.8	XXX	25	45	50	2/month	24-Hr Composite
Total Dissolved Solids	834	1668	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Oil and Grease	12.5	XXX	XXX	15.0	XXX	30	2/month	Grab
Ammonia-Nitrogen	8.3	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
Total Phosphorus	1.7	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
Copper, Total	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
PCBs Dry Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Toxicity, Acute - Ceriodaphnia Survival (TUa)	XXX	XXX	XXX	XXX	Report	XXX	*	24-Hr Composite
Toxicity, Acute - Pimephales Survival (TUa)	XXX	XXX	XXX	XXX	Report	XXX	*	24-Hr Composite

For Outfall 002:

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		
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Development of Effluent Limitations

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$*	85% reduction (Min.)	Average Monthly	40 CFR 133.102 (a)(4)	
Oil and Grease	15	Average Monthly		Chapter 95.2
pH	6.0 to 9.0 STD	Min-Max	40 CFR 133.102 (c)	Chapter 95.2
TSS	30	Average Monthly	40 CFR 133.102 (b)	

*The 85% CBOD5 reduction is a requirement of the existing permit and carried over to the renewal. This is a DRBC basin wide percentage reduction requirement. The special condition to deviate the percentage reduction requirement when influent CBOD5 is less than 100 mg/l in the existing permit is also carried over to the new permit.

Mass-Based Limits

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

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

Model input data

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

- Discharge pH 7.1 (90^{th} percentile, July-Sep 2022-23, daily eDMR data)
- Discharge Temperature 23.63°C (Application data)
- Discharge Hardness 74.3 mg/l (Application data)
- Stream pH 7.0 (Default)
- Stream Temperature 25°C (Default)
- Stream Hardness 105 mg/l (Application data)

The following three nodes were used in modeling:

Node 1: At the outfall 001 on Schuylkill River (00833)
- Elevation: 93.01 ft (National Map-Advanced Viewer, 10/12/2023)
- Drainage Area: 1,190 mi^2 (StreamStats Version 3.0, 10/12/2023)
- River Mile Index: 43.12 (PA DEP eMapPA)
- Low Flow Yield: 0.23 cfs/mi^2
- Q_{7-10}: 275 cfs
- Discharge Flow: 0.1 MGD

Node 2: At confluence with Mingo Creek (01609)
- Elevation: 87.83 ft (National Map-Advanced Viewer, 10/12/2023)
- Drainage Area: 1,200 mi^2 (StreamStats Version 3.0, 10/12/2023)
- River Mile Index: 41.3 (PA DEP eMapPA)
- Low Flow Yield: 0.23 cfs/mi^2
- Discharge Flow: 0.0 MGD

WQM 7.0 Model

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using Q_{7-10} and current background water quality levels of the stream.

NH_3-N
WQM 7.0 suggested existing limits are still protective. Current limits will be carried over.

CBOD5
WQM 7.0 suggests 25 mg/l (which is model input value) as average monthly limit to protect the water quality. Per SOP, if 25 mg/l limit is suggested by the model, a year-round monitoring will be sufficient. Current permit has monitoring requirements which will be carried over.

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

1. In general, establish limits in the draft permit where the effluent concentration determined in B.1 or B.2 equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). Use the average monthly, maximum daily and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

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

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

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

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

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

The statistical methodologies used in this spreadsheet are taken from EPA's *TSD for Water Quality-based Toxics Control, Appendix E* and are consistent with PADEP's technical guidance 391-2000-024. The pollutants are modeled through TMS and output from the TMS is provided below:

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.77	1.1	0.92	1.32	2.31	mg/L	0.92	AFC	Discharge Conc ≥ 50% WQBEL (RP)

Total Copper:
A Reasonable Potential (RP) was demonstrated for Total Copper. The model input value was 1.04 mg/l as AMEC and 0.365 as daily CoV based on quarterly data collected between January 2019 to June 2023. The model suggested 0.92 mg/l as Average Monthly Limit (AML), 1.32 mg/l Maximum Daily Limit (MDL) and 2.31 mg/l as Instantaneous Maximum (IMAX). The current permit has quarterly monitoring requirements. A review of the eDMR data from 2019 to June 2023

indicated that the facility will be meeting the limit approximately 90% of the time. A schedule may not be needed to meet the final WQBEL. The minimum monitoring frequency will be changed to 1/month to be consistent with other IW facilities with similar flows.

Total Dissolved Solids (TDS):
Historically PADEP utilized the following logics to determine limits/monitoring requirements for these special monitoring parameters:

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

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

PADEP has determined that they have sufficient data over the past 7 years of implementing the special monitoring logic for these parameters and it is no longer needed. DRBC's basin-wide criteria of 1,000 mg/l is the current limit and will be continued in this NPDES permit for consistency purpose.

Color:
The current permit has 100 pt-co unit average monthly limit in the permit. The color was modeled through the TMS with a model input value of 18.7 unit as AMEC and 0.351 as daily CoV from a dataset collected between February 2019 and September 2023. The model doesn't recommend limits or monitoring requirement since the discharge concentration is less than 10% of WQBEL (governing WQBEL is 58,294). Color is a concern if there is nearby PWS intake and the discharge is believed to affect the intake in terms of color. The nearby PWS intake is approximately 3 miles downstream and discharge is into much larger Schuylkill River with lots of dilution (as reflected in WQBEL). The facility indicated that they don't do any re-dying of clothes at this facility. If any cloth needs re-dying, they ship it to other states. Therefore, it is believed that the color discharge from this facility is not a concern for the aesthetic of the receiving stream or HHC at PWS intake. The current limits will be removed. This is backsliding but is justified by anti-backsliding prohibition exception as stated in CWA § 402(O)(2)(B)(i).

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

Total Suspended Solids (TSS):
Current concentration-based AML, MDL, and IMAX limit of 25 mg/l, 45 mg/l, and 50 mg/l are based on radiological sediment concern in the receiving stream. The mass-based limits were calculated from long-term average discharge of 0.066 MGD. A review of flow data from January 2022 through September 2023 indicated 90th percentile flow of 0.068 MGD which is very close to the flow that was used few permits cycle back and still applicable. Therefore, current limits will be carried over.

Oil & Grease:
Pa Code 25 §§ 95.2(2) and 92a.41(c) has average monthly and daily max limit for Oil & Grease, or otherwise regulates their discharge in the receiving stream, which are the current limits and will be carried over.

Total Phosphorus:
The concern of Total Phosphorus is from the use of detergents in the laundering process. The current limits are based on Pa Code 25 § 96.5(c) which are still applicable and will be carried over.

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

Flow, Influent $cBOD_5$, and 85% cBOD5 reduction Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). DRBC's basin-wide 85% cBOD5 reduction criteria was applied in previous permits. To comply with 85% cBOD5 reduction, influent

cBOD5 was also added in previous permits. Current limits will be carried over. The special condition to deviate from the percentage reduction requirement when influent cBOD5 is less than 100 mg/l in the existing permit is also carried over in this renewal.

Schuylkill River PCB:

A review of the PCB data submitted from 2019 through 2022 indicated an average dry weather (outfall 001) PCB concentration of 10,014 pg/l and wet weather (outfall 002) PCB concentration of 833.3 pg/l. The maximum concentration of 18,100 pg/l was modeled through the TMS and no RP was demonstrated. However, since the discharge concentration is higher than Schuylkill River Water Quality Criteria for PCB of 44 pg/l, current monitoring will be continued.

Anti-Backsliding

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

Whole Effluent Toxicity (WET)

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

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

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 2%.

Summary of Four Most Recent Test Results

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
5/18/19	Pass		Pass	
9/13/20	Pass		Pass	
7/31/21	Pass		Pass	
9/28/22	Pass		Pass	

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

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

☐ **YES** ☒ **NO**

Comments:

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

Acute Partial Mix Factor (PMFa): **0.063** Chronic Partial Mix Factor (PMFc): **0.439**

1. Determine IWC – Acute (IWCa):

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

[(0.1 MGD x 1.547) / ((275 cfs x 0.063) + (0.1 MGD x 1.547))] x 100 = **0.89%**

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

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

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

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

TIWCa = 0.89 / 0.3 = 2.98**%**

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

(Q_d x 1.547) / (Q_{7-10} x PMFc) + (Q_d x 1.547)

[(Design Flow MGD x 1.547) / ((Q7-10 cfs x PMFc) + (Design Flow MGD x 1.547))] x 100 = **TIWCc%**

3. Determine Dilution Series

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

Dilution Series = 100%, 60%, 30%, 3%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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

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

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
CBOD5 Industrial Influent	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
CBOD5	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
CBOD5 % Removal (%)	85 Min Mo Avg	XXX	XXX	XXX	XXX	XXX	2/month	Calculation
TSS	13.8	24.8	XXX	25	45	50	2/month	24-Hr Composite
Total Dissolved Solids	834	1668	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Oil and Grease	12.5	XXX	XXX	15.0	XXX	30	2/month	Grab
Ammonia	8.3	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
Total Phosphorus	1.7	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
Total Copper	0.77	1.1	XXX	0.92	1.32	2.31	1/month	24-Hr Composite
PCBs (Dry Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Acute WET - Ceriodaphnia Survival (TUa)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite
Acute WET - Pimephales Survival (TUa)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite

Compliance Sampling Location: At 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.

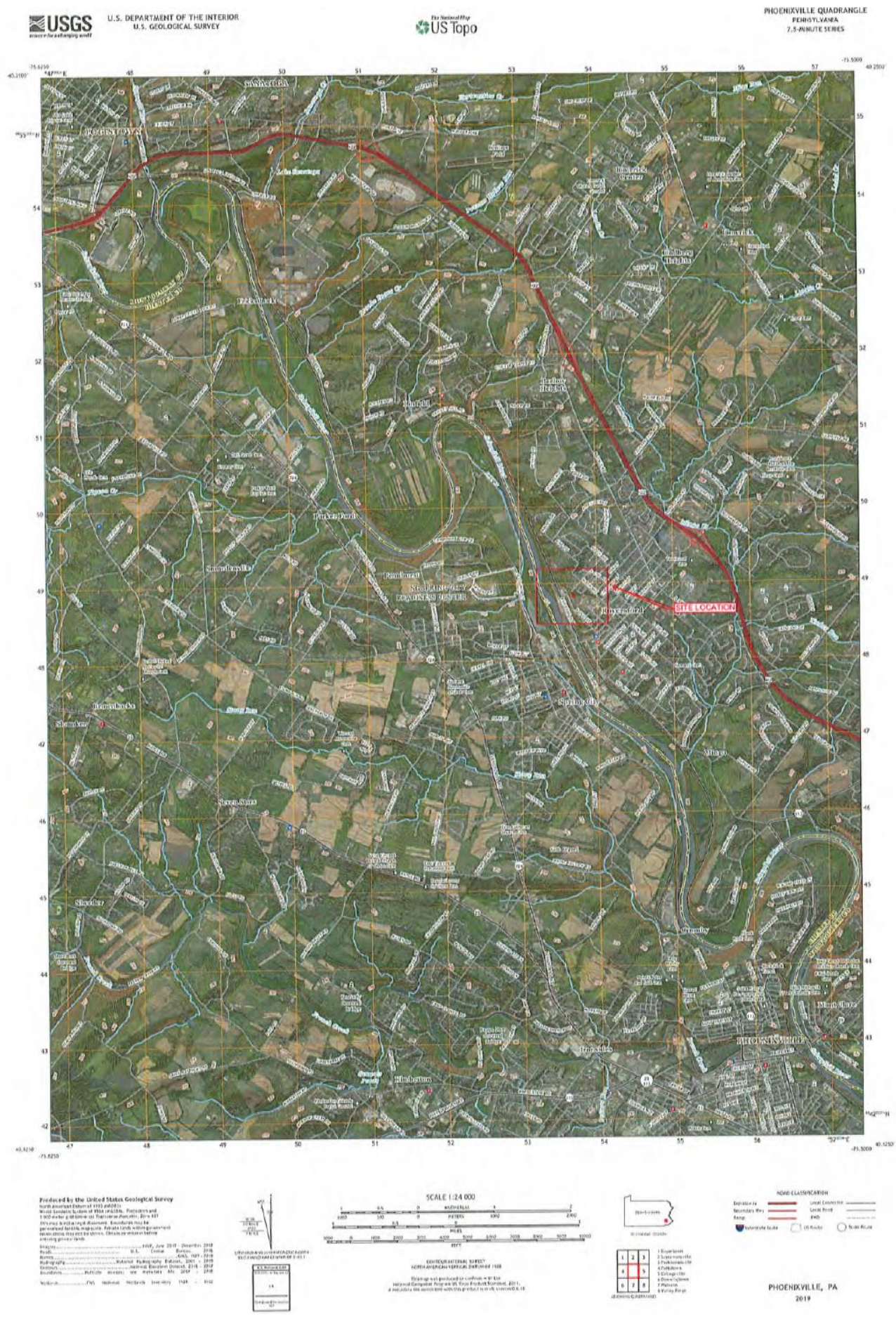
Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: At Outfall 002

Other Comments: None

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


USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
PHOENIXVILLE QUADRANGLE
PENNSYLVANIA
7.5-MINUTE SERIES
SITE LOCATION
SCALE 1:24 000
PHOENIXVILLE, PA
2019

PA0054526 at Outfall 001

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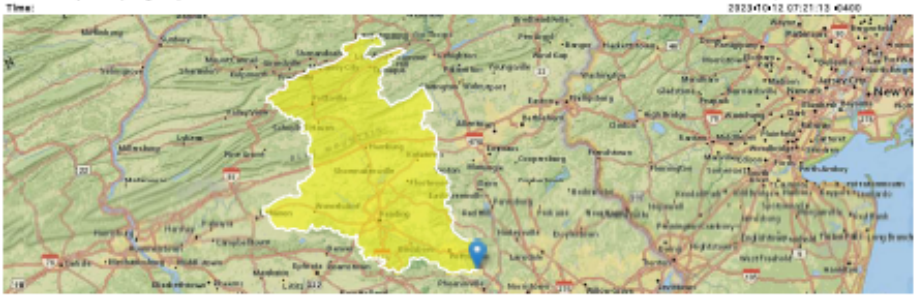

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.3922	degrees
CARBON	Percentage of area of carbonate rock	18.1	percent
DRNAREA	Area that drains to a point on a stream	1190	square miles
PRECIP	Mean Annual Precipitation	46	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.39	miles per square mile
URBAN	Percentage of basin with urban development	6.957	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [24.2 Percent (288 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1190	square miles	4.76	1150
BSLOPD	Mean Basin Slope degrees	6.3922	degrees	1.7	6.6
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	6.957	percent	0	89

Low-Flow Statistics Parameters [75.8 Percent (905 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1190	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	46	inches	35	50.4
STRDEN	Stream Density	1.39	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	18.1	percent	0	99

Low-Flow Statistics Disclaimers [24.2 Percent (288 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [24.2 Percent (288 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	301	ft^3/s
30 Day 2 Year Low Flow	366	ft^3/s
7 Day 10 Year Low Flow	187	ft^3/s
30 Day 10 Year Low Flow	223	ft^3/s
90 Day 10 Year Low Flow	285	ft^3/s

Low-Flow Statistics Flow Report [75.8 Percent (905 square miles) Low Flow Region 2]

PI: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	466	ft^3/s	38	38
30 Day 2 Year Low Flow	549	ft^3/s	33	33
7 Day 10 Year Low Flow	323	ft^3/s	51	51
30 Day 10 Year Low Flow	359	ft^3/s	46	46
90 Day 10 Year Low Flow	440	ft^3/s	36	36

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	426	ft^3/s
30 Day 2 Year Low Flow	505	ft^3/s
7 Day 10 Year Low Flow	275	ft^3/s
30 Day 10 Year Low Flow	326	ft^3/s
90 Day 10 Year Low Flow	403	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.11.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

At node 2

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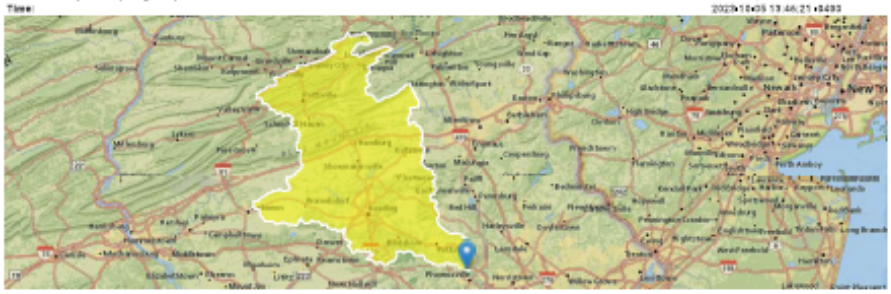

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.362	degrees
CARBON	Percentage of area of carbonate rock	17.95	percent
DRNAREA	Area that drains to a point on a stream	1200	square miles
PRECIP	Mean Annual Precipitation	45	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.39	miles per square mile
URBAN	Percentage of basin with urban development	7.0969	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [24.8 Percent (299 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1200	square miles	4.78	1160
BSLOPD	Mean Basin Slope degrees	6.362	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	7.0969	percent	0	89

Low-Flow Statistics Parameters [75.2 Percent (905 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1200	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
STRDEN	Stream Density	1.39	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	17.95	percent	0	99

Low-Flow Statistics Disclaimers [24.8 Percent (299 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [24.8 Percent (299 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	303	ft^3/s
30 Day 2 Year Low Flow	368	ft^3/s
7 Day 10 Year Low Flow	188	ft^3/s
30 Day 10 Year Low Flow	235	ft^3/s
90 Day 10 Year Low Flow	288	ft^3/s

Low-Flow Statistics Flow Report [75.2 Percent (905 square miles) Low Flow Region 2]

PI: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	468	ft^3/s	38	38
30 Day 2 Year Low Flow	553	ft^3/s	33	33
7 Day 10 Year Low Flow	325	ft^3/s	51	51
30 Day 10 Year Low Flow	381	ft^3/s	46	46
90 Day 10 Year Low Flow	443	ft^3/s	36	36

Low-Flow Statistics Flow Report [AreaAveraged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	426	ft^3/s
30 Day 2 Year Low Flow	507	ft^3/s
7 Day 10 Year Low Flow	276	ft^3/s
30 Day 10 Year Low Flow	327	ft^3/s
90 Day 10 Year Low Flow	405	ft^3/s

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Low-Flow Statistics Citations

Application Version: 4.7.3

Streamstats Services Version: 1.2.22

NSS Services Version: 2.2.1

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	43.120	93.01	1190.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.230	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
UniTech	PA0054526	0.1000	0.1000	0.1000	0.000	24.00	7.10

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	10.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	41.300	87.83	1200.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.230	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
43.120	273.70	0.00	273.70	.1547	0.00054	1.151	279.83	243.16	0.85	0.131	25.00	7.00
Q1-10 Flow												
43.120	175.17	0.00	175.17	.1547	0.00054	NA	NA	NA	0.66	0.168	25.00	7.00
Q30-10 Flow												
43.120	325.70	0.00	325.70	.1547	0.00054	NA	NA	NA	0.94	0.119	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.19	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
43.120	UniTech	11.07	20	11.07	20	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
43.120	UniTech	1.37	10	1.37	10	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
43.12	UniTech	25	25	10	10	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
43.120	0.100	24.999	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
279.826	1.151	243.156	0.850
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.009	0.01	1.028
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.240	2.407	Tsivoglou	5
Reach Travel Time (days)			
0.131			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.01	0.01	7.54
0.026	2.01	0.01	7.54
0.039	2.01	0.01	7.54
0.052	2.01	0.01	7.54
0.065	2.01	0.01	7.54
0.078	2.01	0.01	7.54
0.092	2.01	0.01	7.54
0.105	2.01	0.01	7.54
0.118	2.01	0.01	7.54
0.131	2.01	0.00	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
43.120	UniTech	PA0054526	0.100	CBOD5	25		
				NH3-N	10	20	
				Dissolved Oxygen			3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **UniTech Services Group** NPDES Permit No.: **PA0054526** Outfall No.: **001**

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

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
0.1	74.3	7.1						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		30									
	Total Antimony	µg/L		24									
	Total Arsenic	µg/L		5									
	Total Barium	µg/L		30									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.29									
	Total Cobalt	µg/L		0.3									
	Total Copper	mg/L		1.04			0.365						
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		9									
	Dissolved Iron	µg/L		0.1									
	Total Iron	µg/L		130									
	Total Lead	µg/L		2									
	Total Manganese	µg/L		13									
	Total Mercury	µg/L	<	0.02									
	Total Nickel	µg/L		10.7									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.3									
	Total Thallium	µg/L	<	3									
	Total Zinc	µg/L		422									
	Total Molybdenum	µg/L	<	3									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<											
	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	<	0.00181									
	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											
	Color	Pt-Co		18.7			0.351						

Receiving Surface Water Name: _____ 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	000833	43.12	93.01	1190			Yes
End of Reach 1	000833	41.3	87.83	1200			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	43.12	0.23										105	7		
End of Reach 1	41.3	0.23													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	43.12														
End of Reach 1	41.3														

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.063 Analysis Hardness (mg/l): 104.73 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	84,782	
Total Antimony	0	0		0	1,100	1,100	124,347	
Total Arsenic	0	0		0	340	340	38,434	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	2,373,892	
Total Boron	0	0		0	8,100	8,100	915,644	
Total Cadmium	0	0		0	2.106	2.24	253	Chem Translator of 0.942 applied
Hexavalent Chromium	0	0		0	16	16.3	1,842	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	10,739	
Total Copper	0	0		0	14.037	14.6	1,653	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	67.911	86.6	9,788	Chem Translator of 0.784 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	186	Chem Translator of 0.85 applied
Total Nickel	0	0		0	486.899	488	55,151	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.483	4.1	463	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	7,348	
Total Zinc	0	0		0	121.859	125	14,085	Chem Translator of 0.978 applied
PCBs, Total	0	0		0	N/A	N/A	N/A	
Color	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.439 Analysis Hardness (mg/l): 104.96 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	170,996	
Total Arsenic	0	0		0	150	150	116,588	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	3,186,738	
Total Boron	0	0		0	1,600	1,600	1,243,605	
Total Cadmium	0	0		0	0.254	0.28	218	Chem Translator of 0.907 applied
Hexavalent Chromium	0	0		0	10	10.4	8,080	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	14,768	
Total Copper	0	0		0	9.334	9.72	7,557	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,655,346	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.653	3.38	2,630	Chem Translator of 0.784 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	704	Chem Translator of 0.85 applied
Total Nickel	0	0		0	54.181	54.3	42,239	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	3,878	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	10,104	
Total Zinc	0	0		0	123.086	125	97,027	Chem Translator of 0.986 applied
PCBs, Total	0	0		0	0.014	0.014	10.9	
Color	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 720 PMF: 0.439 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	4,353	
Total Arsenic	0	0		0	10	10.0	7,773	
Total Barium	0	0		0	2,400	2,400	1,865,408	
Total Boron	0	0		0	3,100	3,100	2,409,485	
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	
Dissolved Iron	0	0		0	300	300	233,176	
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	777,253	
Total Mercury	0	0		0	0.050	0.05	38.9	
Total Nickel	0	0		0	610	610	474,124	
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	187	
Total Zinc	0	0		0	N/A	N/A	N/A	
PCBs, Total	0	0		0	N/A	N/A	N/A	
Color	0	0		0	75	75.0	58,294	

☑ ***CRL*** CCT (min): 720 PMF: 0.673 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
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	
PCBs, Total	0	0		0	0.000064	0.00006	0.28	
Color	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.77	1.1	0.92	1.32	2.31	mg/L	0.92	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge

concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	54,342	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	4,353	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	7,773	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	1,521,569	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Hexavalent Chromium	N/A	N/A	Discharge Conc < TQL
Total Cobalt	6,883	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	233,176	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2,655,346	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2,630	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	777,253	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	38.9	µg/L	Discharge Conc < TQL
Total Nickel	35,349	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	3,878	µg/L	Discharge Conc < TQL
Total Silver	297	µg/L	Discharge Conc < TQL
Total Thallium	187	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	9,028	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
PCBs, Total	0.28	µg/L	Discharge Conc < TQL
Color	58,294	Pt-Co	Discharge Conc ≤ 10% WQBEL

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Acute
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.8
TST alpha value	0.1

Facility Name: UniTech

Permit No.: PA0054562

Replicate No.	Test Completion Date 5/18/2019 Control	TIWC
1	10	10
2	10	10
3	10	10
4	9	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	10.000
Std Dev.	0.500	0.000
# Replicates	4	4
T-Test Result	9.6643	
Deg. of Freedom	3	
Critical T Value	1.6377	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 9/13/2020 Control	TIWC
1	10	10
2	10	10
3	10	10
4	9	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	10.000
Std Dev.	0.500	0.000
# Replicates	4	4
T-Test Result	9.6643	
Deg. of Freedom	3	
Critical T Value	1.6377	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 7/31/2021 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	4	4
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 9/28/2022 Control	TIWC
1	8	9
2	9	9
3	9	8
4	9	8
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	8.750	8.500
Std Dev.	0.500	0.577
# Replicates	4	4
T-Test Result	4.1587	
Deg. of Freedom	5	
Critical T Value	1.4759	
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Acute
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.02
No. Per Replicate	10
TST b value	0.8
TST alpha value	0.1

Facility Name: UniTech

Permit No.: PA0054526

Replicate No.	Test Completion Date 5/16/2019 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5	10	10
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	5	5
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 9/11/2020 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5	10	10
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	5	5
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 7/29/2021 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5	10	10
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	5	5
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 9/28/2022 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5	10	10
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	5	5
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

WET Summary and Evaluation

Facility Name	UniTech
Permit No.	PA0054562
Design Flow (MGD)	0.1
Q_{7-10} Flow (cfs)	275
PMF_a	0.063
PMF_c	0.439

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/18/19	9/13/20	7/31/21	9/28/22
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/16/19	9/11/20	7/29/21	9/28/22
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**				

Reasonable Potential? NO

Permit Recommendations

Test Type	**Acute**
TIWC	**3** % Effluent
Dilution Series	**1, 3, 30, 60, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	