Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0101052**
Facility Type	**Industrial**	APS ID	**1095386**
Major / Minor	**Minor**	Authorization ID	**1451803**

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

Applicant and Facility Information

Applicant Name	**Union City Borough Municipal Authority**	Facility Name	**Union City Borough WTP**
Applicant Address	22 North Main Street Union City, PA 16438-1329	Facility Address	9530 Route 6n Union City, PA 16438
Applicant Contact	Daniel Brumagin	Facility Contact	Daryl Nunemaker
Applicant Phone	(814) 438-3721	Facility Phone	(814) 438-3611
Client ID	77400	Site ID	270926
SIC Code	4941	Municipality	Union Township
SIC Description	Trans. & Utilities - Water Supply	County	Erie
Date Application Received	August 4, 2023	EPA Waived?	Yes
Date Application Accepted	September 11, 2023	If No, Reason	
Purpose of Application	Renewal of existing NPDES permit		

Summary of Review

The Union City Municipal Authority (UCMA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of a NPDES permit for the Union City Borough WTP. The permit was last reissued on January 22, 2019 with an effective date of February 1, 2019. The permit expired on January 31, 2024, but the terms and conditions of the permit have been administratively extended since that time.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted, and a notice of the draft permit be published in the *Pennsylvania Bulletin* for public comments for 30 days.

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
x		*Aaron Baar* Aaron Baar / Project Manager	April 13, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	April 14, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.025
Latitude	41º 54' 22.51"	Longitude	-79º 49' 10.71"
Quad Name	Union City	Quad Code	01041
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Bentley Run (CWF)	Stream Code	53663
NHD Com ID	127354077	RMI	1.46
Drainage Area	2.66 mi^2	Yield (cfs/mi^2)	0.0474
Q_{7-10} Flow (cfs)	0.126	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1342.39	Slope (ft/ft)	
Watershed No.	16-A	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	ORGANIC ENRICHMENT, SILTATION		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.8	June 30, 1993 stream survey
Temperature (°C)	20	CWF default
Hardness (mg/L)	100	Model default
Other:		

Nearest Downstream Public Water Supply Intake		Cambridge Springs Waterworks	
PWS Waters	French Creek	Flow at Intake (cfs)	49
PWS RMI	49 mi	Distance from Outfall (mi)	approx. 30 mi

Drainage Area

The discharge is to Bentley Run at RMI 1.46. A drainage area upstream of the discharge is determined to be 2.66 sq.mi. according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow

According to StreamStats, the watershed has a Q_{7-10} of 0.126 cfs. This information was used to obtain a Low Flow Yield (LFY), a chronic 30-day (Q_{30-10}) and acute (Q_{1-10}) exposure stream flows for the discharge point as follows (Guidance No. 391-2000-023).

Q_{7-10} = 0.126 cfs
Q_{30-10} = 1.36 * 0.126 cfs = 0.1714 cfs
Q_{1-10} = 0.64 * 0.126 cfs = 0.0806 cfs
LFY = 0.126 cfs/2.66 mi^2 = 0.0474 cfs/mi^2

Bentley Run

25 Pa Code §93.9 classifies the receiving water, Bentley Run, with a Cold-Water Fishery (CWF) Existing Use designation. 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 discharge is in a stream segment listed as impaired for aquatic life due to siltation (dam or impoundment) and organic enrichment (source unknown).

Local Watershed Total Maximum Daily Loads (TMDLs)

According to PA's 2024 Integrated Water Quality Monitoring and Assessment Report, Bentley Run in the vicinity of the point of discharge is impaired for aquatic life due to siltation (dam or impoundment) and organic enrichment (source unknown). The waterway's impairments are listed as Category 5 in the 2024 Integrated Report, indicating that the receiving water is impaired for one or more uses by a pollutant that require the development of a TMDL. No TMDL has been developed for Bentley Run to date, so no local watershed TMDL has been taken into consideration during this review.

Public Water Supply Intake

The nearest downstream public water supply intake is the Cambridge Springs Waterworks intake, locate on French Creek approximately 30 miles from the point of discharge. Considering the nature of the discharge and distance, the discharge is not expected to impact the water supply.

Class A Wild Trout Streams

The receiving stream is not a Class A Wild Trout stream; therefore, no Class A Wild Trout Fishery is impacted by this discharge.

Miscellaneous

During the previous permit cycle, it was noted that there was an inquiry made to the Regional Biologist as to the probability that endangered mussels were located in the receiving stream. It was determined at the time that no stream survey information exists that indicates that endangered mussels are present in the Bentley Run.

Treatment Facility Summary				
Treatment Facility Name: Union City Municipal Authority WTP				
WQM Permit No.	**Issuance Date**			
2514201	May 29, 2014			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial			No Disinfection	0.025
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.179	0			

UCMA operates and owns the wastewater treatment facility located at RD #3 Corry Road (Union Township, Erie County). The facility currently only treats industrial wastewater generated at the Union City Water Treatment Plant. The facility has a permitted annual average design flow of 0.025 MGD.

Treatment units consist of two settling impoundments.

1. One impoundment is dedicated to receiving flow from three sources:
    a. filter backwash from gravity filters
    b. filter wastewater from plant activation
    c. and analyzer wastewater.

    Discharge flow and sampling is obtained from this impoundment during day-to-day operations.

2. The other impoundment is used for sedimentation basin cleaning. Water from basin cleaning is flushed into this impoundment, where it is retained and not discharged until the impoundment is cleaned (typically annually).

The facility alternates the usages of impoundments annually. Discharge flow can manually be controlled from each impoundment.

Ferric Chloride is utilized as a coagulant and Sodium Permanganate is utilized as an oxidizer.

Note: The facility's 2013 NPDES renewal was based on the facility's design annual average flow of 0.025 mgd, while the facility's 2019 NPDES renewal was based on actual flow rates through the facility. Given that the treatment plant is rated for 0.025 mgd in the facility's 2014 WQM permit and in the 2013 NPDES renewal, the value utilized in the last renewal will be treated as anomalous. All limits determined in the course of this renewal utilize the facility's design annual average flow of 0.025 mgd.

Compliance History	
Summary of DMRs:	DMR results for the past year are presented below.
Summary of Inspections:	Since the last renewal of the facility's NPDES permit, the following inspection has been logged in WMS: December 14, 2022: A routine CEI was conducted by Shane Krause. No violations were noted. Non-Compliance was noted for not submitting DMRs in a timely manner.

Other Comments: As of April 13, 2025, the following open violations are associated with this facility:

CLIENT ID	CLIENT	PF ID	FACILITY	PF KIND	PF STATUS	INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID	VIOLATION ID	INSPECTION CATEGORY	VIOLATION DATE	VIOLATION CODE	VIOLATION	PF INSPECTOR	INSP REGION
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293594	UNION CITY MUNI AUTH	Water Purveyor	Active	Water Planning and Conservation	102265-001	3653404	8186963	PF	11/30/2023	110.301	Reporting for all water withdrawals and usage		NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293594	UNION CITY MUNI AUTH	Water Purveyor	Active	Water Planning and Conservation	102265-001	3872207	8208718	PF	11/20/2024	110.301	Reporting for all water withdrawals and usage		NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193809	PF	07/10/2024	C7	FAILURE TO COMPLY WITH A PERMIT CONDITION	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193810	PF	07/10/2024	C3B	FAILURE OF A PUBLIC WATER SYSTEM TO PROVIDE THE LEVEL OF TREATMENT APPROVED IN ITS PERMIT	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193811	PF	07/10/2024	C4A	FAILURE TO OPERATE AND MAINTAIN THE WATER SYSTEM	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193812	PF	07/10/2024	B5A	FAILURE OF A PUBLIC WATER SYSTEM TO OBTAIN A PERMIT	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193813	PF	07/10/2024	D2E	FAILURE TO SUBMIT OR REVISE A MONITORING PLAN FOR THE LEAD AND COPPER RULE	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3794367	8193815	PF	07/10/2024	C3E	FAILURE TO IMPLEMENT A FILTER BED EVALUATION PROGRAM	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3920421	8217716	PF	01/08/2025	C3F	FAILURE TO TEST ALARM AND SHUTDOWN CAPABILITIES OR RESPOND TO ALARM AND SHUTDOWN EQUIPMENT FAILURES	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3920421	8217717	PF	01/08/2025	C4A	FAILURE TO OPERATE AND MAINTAIN THE WATER SYSTEM	BLASHAW,JUSTIN	NWRO
77400	UNION CITY BORO MUNI AUTH ERIE CNTY	293595	UNION CITY MUNICIPAL AUTHORITY	Community	Active	Safe Drinking Water	6250064	3920421	8217718	PF	01/08/2025	C2D	FAILURE TO CALIBRATE TURBIDIMETERS USED FOR COMPLIANCE MONITORING	BLASHAW,JUSTIN	NWRO

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
TRC	XXX	XXX	XXX	0.13	XXX	0.2	1/week	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Total Aluminum	0.51	XXX	XXX	3.4	XXX	6.8	2/month	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Compliance History

DMR Data for Outfall 001 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
Flow (MGD) Average Monthly	0.027	0.027	0.034	0.027	0.024	0.022	0.021	0.032	0.022	0.02	0.024	0.028
pH (S.U.) Instantaneous Minimum	7.0	6.9	7.0	6.9	7.0	6.9	6.9	6.9	6.9	6.9	7.0	6.9
pH (S.U.) Instantaneous Maximum	7.3	7.2	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.3
TRC (mg/L) Average Monthly	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.03
TRC (mg/L) Instantaneous Maximum	0.03	0.04	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.04	0.04
TSS (mg/L) Average Monthly	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 3	< 3
Total Aluminum (lbs/day) Average Monthly	0.10	< 0.008	< 0.03	< 0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.03
Total Aluminum (mg/L) Average Monthly	0.4	< 0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Iron (mg/L) Average Monthly	0.18	0.55	0.34	0.27	0.15	0.12	0.13	0.33	0.44	0.36	0.58	0.3
Total Manganese (mg/L) Average Monthly	0.11	0.16	0.19	0.32	0.25	0.3	0.25	0.35	0.36	0.45	0.22	0.23

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.025
Latitude 41º 54' 23.00" **Longitude** -79º 49' 10.71"
Wastewater Description: IW Process Effluent without ELG

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
Total Suspended Solids	30	Average Monthly		362-2183-001
Total Suspended Solids	60	Daily Maximum		362-2183-001
Aluminum	4.0	Average Monthly		362-2183-001
Aluminum	8.0	Daily Maximum		362-2183-001
Manganese	1.0	Average Monthly		362-2183-001
Manganese	2.0	Daily Maximum		362-2183-001
Total Iron	2.0	Average Monthly		362-2183-001
Total Iron	4.0	Daily Maximum		362-2183-001
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Total Residual Chlorine	1.0	Daily Maximum		362-2183-001
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Comments: The DEP Guidance "Technology-based Control Requirements for Water Treatment Plant Wastes" (362-2183-001) provides these limits that are based on Best Practical Control Technology (BPT). The Union City Borough WTP is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Water Quality-Based Limitations

Toxics

The Department's Toxics Management Spreadsheet (Version 1.4) was used to perform a Reasonable Potential (RP) Analysis for all Group 1 and Group 2 priority pollutants at a pH of 7.1 and a discharge hardness of 103.8 mg/L. The RP Analysis was done for all priority pollutants using the sampling results provided with the application with the exception of Total Aluminum, Total Iron and Total Manganese. Total Aluminum, Total Iron and Total Manganese historical data from the facility's DMRs from the preceding 24 months (March 2023 thru February 2025) was compiled and evaluated using the Department's TOXCONC spreadsheet. The TOXCONC output of the mean value and the CV value for Total Aluminum, Total Iron and Total Manganese was entered as the input to the Toxics Management Spreadsheet (Version 1.4). The model output recommended the following monitoring and reporting requirements:

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

No. Samples/Month: 4

Model Results 4/13/2025 Page 7

	Mass Limits		Concentration Limits						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	mg/L	0.039	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	6,387	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	4,258	THH	Discharge Conc > 10% WQBEL (no RP)

The facility currently has limits for Total Iron and Total Manganese; due to anti-backsliding provisions, those limits are proposed to remain intact. Based on the Reasonable Potential Analysis, a new monitor and report requirement for Total Copper is proposed to be included in this renewal.

The sampling interval for Total Copper is proposed as 2/month in conformity with DEP's Technical Guidance for the Development and Specification of Effluent Limitations (PA Doc. No. 362-0400-001), Table 6-3 (plant design flow 5.0 to 25.0 mgd).

All model inputs and outputs are included at the end of this fact Sheet.

Best Professional Judgment (BPJ) Limitations

TDS / Sulfate / Chloride / Bromide / 1,4-Dioxane:

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Under the authority of § 92a.61, statewide guidance distributed by the Department's Central Office on January 23, 2014 stated the following:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- *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.*

- *Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.*

The table below compares the above thresholds for monitoring requirements with the concentrations documented in the current application:

Department Monitoring Thresholds and Expected Discharge Concentrations for TDS and Related Parameters

Parameter	Threshold for Discharges ≤0.1 MGD	Max. Concentration in Application
TDS	5,000 mg/L	1560 mg/L
Sulfate	NA	6.48 mg/L
Chloride	NA	45.2 mg/L
Bromide	10 mg/L	<0.036 mg/L
1,4-Dioxane	100 µg/L	Not Tested

Based on the sampling results in the application, no additional limits are proposed in the draft permit. 1,4-Dioxane was not evaluated as drinking water associated Treatment Plants are only required to sample Group 1 and Group 2 priority pollutants.

Total Residual Chlorine

Since chlorine is used for disinfection, Total Residual Chlorine (TRC) effluent levels must be regulated in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet is utilized to determine if the existing BAT TBEL is still appropriate. The worksheet indicates that the existing limits of 0.13 mg/L (average monthly) and 0.2 mg/L (IMAX) are still protective of water quality.

The Department's TRC_CALC worksheet is presented at the end of this report.

Additional Considerations

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). The current permit requires the flow to be monitored 1/week. No change is proposed.

Monitoring Frequency and Sample Type

Unless discussed otherwise above, the permit's monitoring frequency and sample type for all parameters will remain unchanged from the last permit renewal.

Antidegradation Requirements

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-backsliding Requirement

All effluent limits proposed in this fact sheet are as stringent as effluent limits specified in the existing permit renewal unless noted otherwise above. This approach is in accordance with 40 CFR §122.44(l(1).

Annual Fees

An annual fee clause is continued in the permit in accordance with 25 Pa. Code § 92a.62. The facility covered by the permit is classified in the Minor IW Facility without ELG fee category, which has an annual fee of $1,500.

Mass Loading Limitations

As documented in the facility's 2013 renewal, the previous permit's mass limits were not included except for the one associated with the water quality based Total Aluminum limit. This makes the permit design consistent with other water treatment plant permit's issued in the Region. The Total Aluminum mass loading effluent limit is calculated based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34).

Proposed Effluent Limitations and Monitoring Requirements

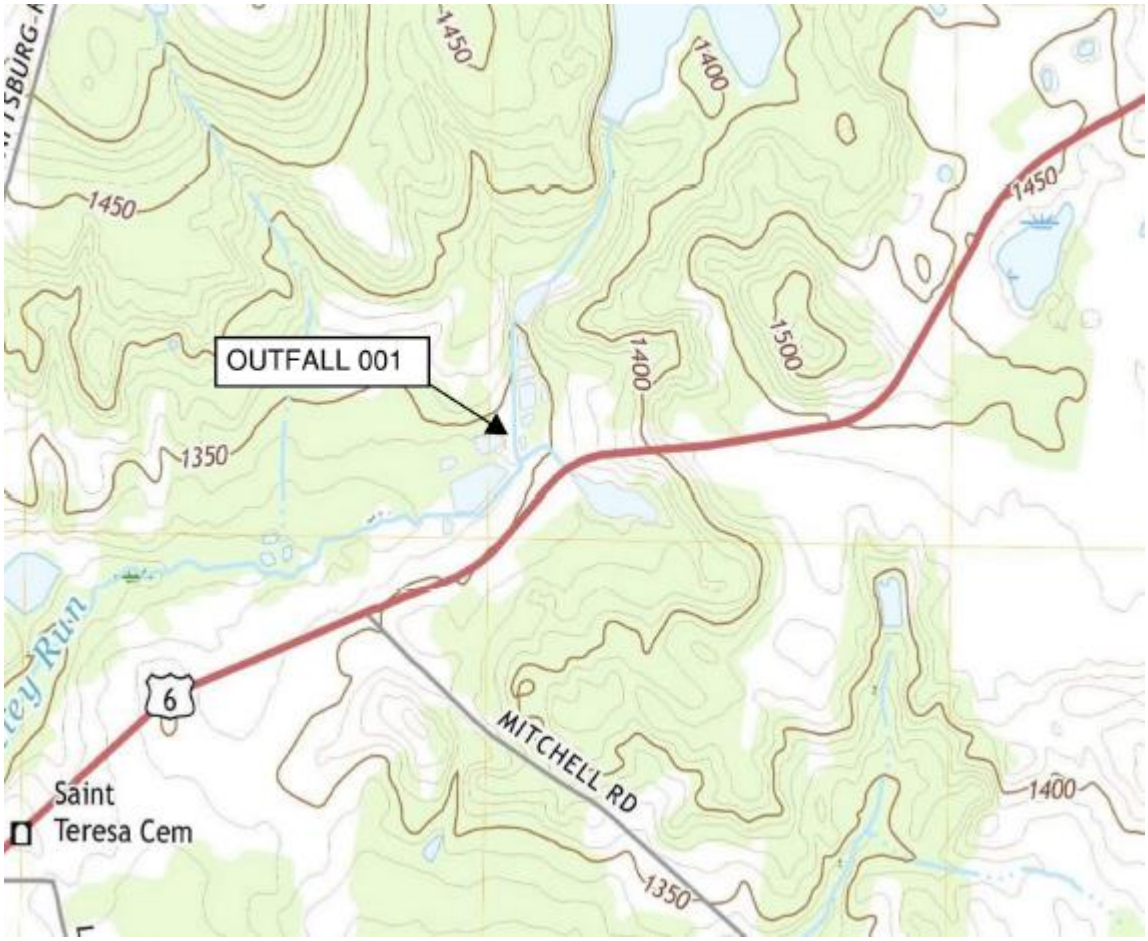
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
TRC	XXX	XXX	XXX	0.13	XXX	0.2	1/week	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Total Aluminum	0.51	XXX	XXX	3.4	XXX	6.8	2/month	8-Hr Composite
Total Copper	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

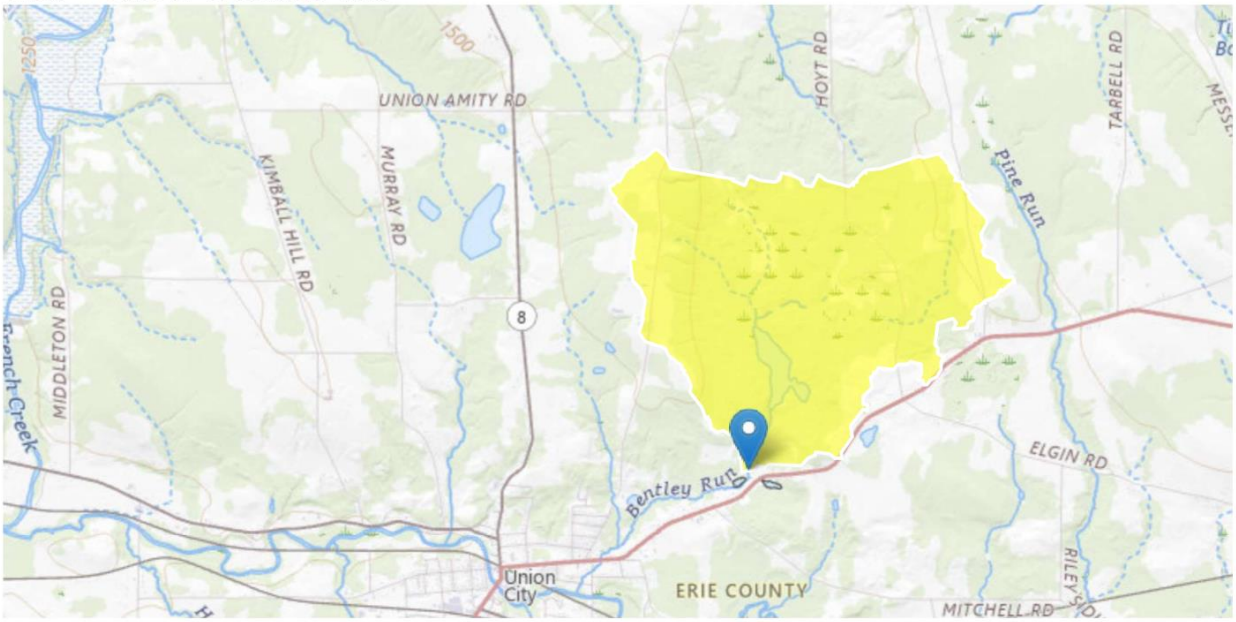
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical 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:


OUTFALL 001
1450
1400
1500
1350
6
MITCHELL RD
Saint
Teresa Cem

Outfall 001

StreamStats Report

Region ID: PA
Workspace ID: PA20250413132425094000
Clicked Point (Latitude, Longitude): 41.90758, -79.81771
Time: 2025-04-13 09:24:55 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.66	square miles
ELEV	Mean Basin Elevation	1464	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.66	square miles	2.33	1720
ELEV	Mean Basin Elevation	1464	feet	898	2700

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.289	ft^3/s	43	43
30 Day 2 Year Low Flow	0.43	ft^3/s	38	38
7 Day 10 Year Low Flow	0.126	ft^3/s	54	54
30 Day 10 Year Low Flow	0.18	ft^3/s	49	49
90 Day 10 Year Low Flow	0.266	ft^3/s	41	41

Low-Flow Statistics Citations

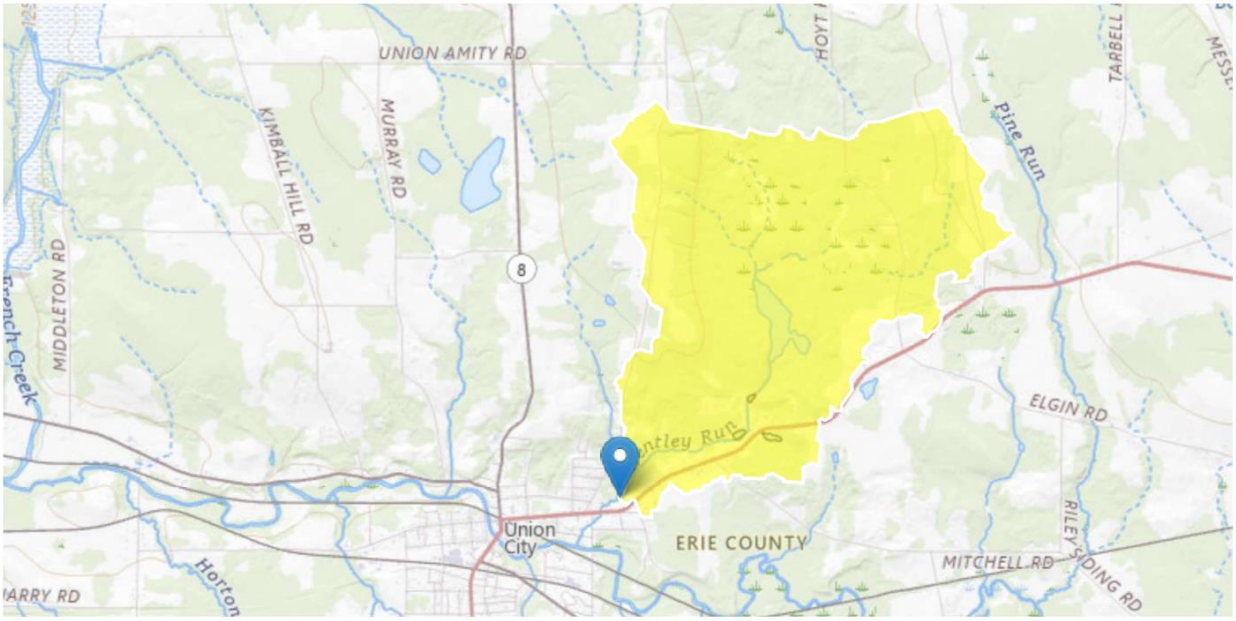
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.28.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Downstream Reach

StreamStats Report

Region ID: PA
Workspace ID: PA20250413132829765000
Clicked Point (Latitude, Longitude): 41.90133, -79.83209
Time: 2025-04-13 09:28:56 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.37	square miles
ELEV	Mean Basin Elevation	1449	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.37	square miles	2.33	1720
ELEV	Mean Basin Elevation	1449	feet	898	2700

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.365	ft^3/s	43	43
30 Day 2 Year Low Flow	0.541	ft^3/s	38	38
7 Day 10 Year Low Flow	0.161	ft^3/s	54	54
30 Day 10 Year Low Flow	0.229	ft^3/s	49	49
90 Day 10 Year Low Flow	0.338	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.28.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

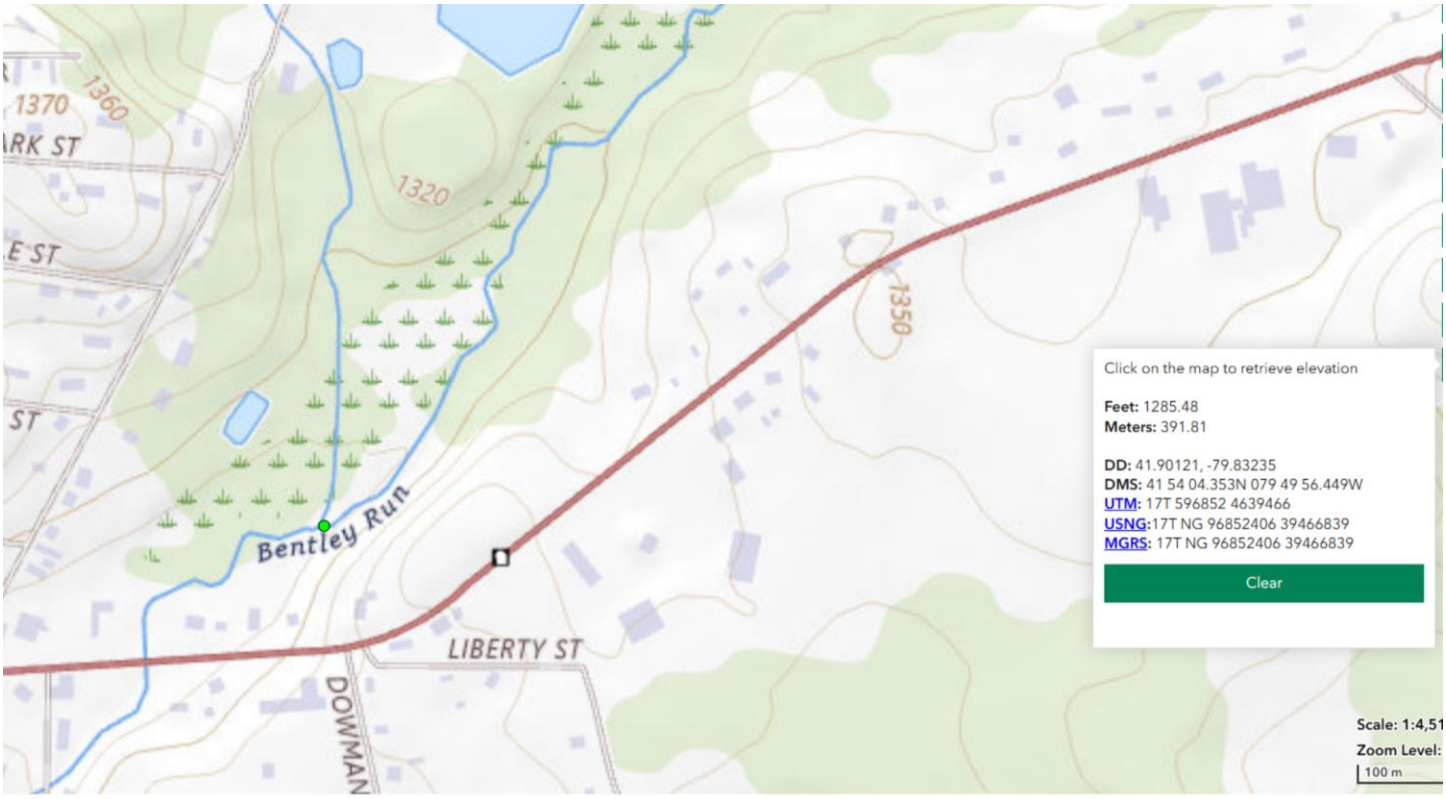
Effluent pH Modelling

	Feb-25	Jan-25	Dec-24	Nov-24	Oct-24	Sep-24	Aug-24	Jul-24	Jun-24	May-24	Apr-24	Mar-24
Min pH:	7	6.9	7	6.9	7	6.9	6.9	6.9	6.9	6.9	7	6.9
10^ -pH	1E-07	1.26E-07	1E-07	1.26E-07	1E-07	1.26E-07	1.26E-07	1.26E-07	1.26E-07	1.26E-07	1E-07	1.26E-07
Max pH:	7.3	7.2	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.3
10^ -pH	5.01E-08	6.31E-08	5.01E-08	5.01E-08	5.01E-08	5.01E-08	5.01E-08	5.01E-08	5.01E-08	3.98E-08	5.01E-08	5.01E-08
AVG:	7.51E-08	9.45E-08	7.51E-08	8.8E-08	7.51E-08	8.8E-08	8.8E-08	8.8E-08	8.8E-08	8.29E-08	7.51E-08	8.8E-08
AVG pH:	7.1	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1

Mean pH: 7.1

Elevation at 001

Elevation at Downstream Reach



TOXCONC Imputs

Facility:	Union City Municipal Authority WTP		
NPDES #:	PA0101052		
Outfall No:	001		
n (Samples/Month):	4		
Reviewer/Permit Engineer:	Aaron Baar		

Parameter Name	Total Aluminum	Total Iron	Total Manganese
Units	mg/L	mg/L	mg/L
Detection Limit	0.01	0.02	0.002
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*		
2/11/2025	0.38	0.2	0.12
2/25/2025	0.42	0.15	0.1
1/14/2025	<0.03	0.64	0.19
1/24/2025	<0.03	0.45	0.12
12/10/2024	<0.1	0.32	0.11
12/17/2024	<0.1	0.36	0.26
11/12/2024	<0.1	0.17	0.44
11/18/2024	<0.1	0.36	0.19
10/15/2024	<0.1	0.18	0.24
10/22/2024	<0.1	0.11	0.26
9/10/2024	<0.1	0.11	0.34
9/17/2024	<0.1	0.12	0.26
8/13/2024	<0.1	0.12	0.22
8/20/2024	<0.1	0.14	0.27
7/16/2024	<0.1	0.37	0.3
7/21/2024	<0.1	0.28	0.39
6/11/2024	<0.1	0.55	0.31
6/18/2024	<0.1	0.33	0.4
5/7/2024	<0.1	0.21	0.2
5/14/2024	<0.1	0.5	0.69
4/9/2024	<0.1	0.46	0.16
4/16/2024	<0.1	0.69	0.28
3/5/2024	<0.1	0.38	0.29
3/19/2024	<0.1	0.22	0.16
2/6/2024	<0.1	0.45	0.27
2/13/2024	<0.1	0.22	0.13
1/9/2024	<0.1	0.27	0.25
1/16/2024	<0.1	0.64	0.14
12/11/2023	<0.1	0.53	0.53
12/19/2023	<0.1	0.3	0.61
11/14/2023	<0.1	0.09	0.26
11/19/2023	<0.1	0.12	0.91
10/2/2023	<0.1	0.29	0.23
10/19/2023	<0.1	0.37	0.27
9/6/2023	<0.1	0.14	0.32
9/20/2023	<0.1	0.05	0.64
8/9/2023	<0.1	0.1	0.32
8/16/2023	<0.1	0.32	0.32
7/17/2023	<0.1	0.221	0.162
7/24/2023	<0.1	0.242	0.435
6/7/2023	<0.1	<0.2	0.08
6/19/2023	<0.1	0.343	0.162
5/8/2023	<0.1	<0.2	0.258
5/15/2023	<0.1	<0.2	0.134
4/12/2023	<0.1	0.688	0.199
4/17/2023	<0.1	<0.2	0.129
3/6/2023	<0.1	<0.2	0.0807
3/15/2023	<0.1	0.554	0.159

TOXCONC Output

Reviewer/Permit Engineer: Aaron Baar

Facility: Union City Municipal Authority WTP
NPDES #: PA0101052
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Aluminum (mg/L)	Delta-Lognormal	2.9784742	0.1299565
Total Iron (mg/L)	Delta-Lognormal	0.8059163	0.6449380
Total Manganese (mg/L)	Lognormal	0.5963367	0.5230377

TRC Modelling

TRC_CALC

	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	**Input appropriate values in B4:B8 and E4:E7**					
4	0.126	= Q stream (cfs)		0.5	= CV Daily	
5	0.018	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.13	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 1.462		1.3.2.iii	WLA cfc = 1.418
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.545		5.1d	LTA_cfc = 0.824
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.130		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 0.425			

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

TMS Inp

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Union City Municipal Authority WTP** NPDES Permit No.: **PA0101052** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water Treatment Plant Backwash**

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
0.025	103.8	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		1560									
	Chloride (PWS)	mg/L		45.2									
	Bromide	mg/L	<	0.036									
	Sulfate (PWS)	mg/L		6.48									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	129.9565			2.9785						
	Total Antimony	µg/L	<	0.07									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		40.5									
	Total Beryllium	µg/L	<	0.135									
	Total Boron	µg/L		376									
	Total Cadmium	µg/L	<	0.025									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.278									
	Total Copper	mg/L		0.00945									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		127									
	Total Iron	µg/L	<	644.938			0.8059						
	Total Lead	µg/L		0.083									
	Total Manganese	µg/L		523.0377			0.5963						
	Total Mercury	µg/L	<	0.093									
	Total Nickel	µg/L		7.2									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	mg/L	<	0.00354									
	Total Molybdenum	µg/L		0.631									
	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	<										
	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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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Union City Municipal Authority WTP, NPDES Permit No. PA0101052, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Bentley 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	053663	1.46	1342.39	2.66			Yes
End of Reach 1	053663	0.41	1285.48	3.37			Yes

Q_{7-10}

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	1.46		0.126									100	7.8		
End of Reach 1	0.41		0.161												

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	1.46														
End of Reach 1	0.41														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Union City Municipal Authority WTP, NPDES Permit No. PA0101052, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.488 PMF: 1 Analysis Hardness (mg/l): 100.89 Analysis pH: 7.51

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 Aluminum	0	0		0	750	750	3,193	
Total Antimony	0	0		0	1,100	1,100	4,684	
Total Arsenic	0	0		0	340	340	1,448	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	89,416	
Total Boron	0	0		0	8,100	8,100	34,489	
Total Cadmium	0	0		0	2.031	2.15	9.17	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	573.925	1,816	7,733	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	69.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	405	
Total Copper	0	0		0	13.552	14.1	60.1	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	65.209	82.6	352	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	7.01	Chem Translator of 0.85 applied
Total Nickel	0	0		0	471.769	473	2,013	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	3.266	3.84	16.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	277	
Total Zinc	0	0		0	118.066	121	514	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 1.488 PMF: 1 Analysis Hardness (mg/l): 100.89 Analysis pH: 7.51

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	937	
Total Arsenic	0	0		0	150	150	639	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	17,457	
Total Boron	0	0		0	1,600	1,600	6,813	
Total Cadmium	0	0		0	0.248	0.27	1.16	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.656	86.8	370	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	44.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	80.9	
Total Copper	0	0		0	9.024	9.4	40.0	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	6,387	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.541	3.22	13.7	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3.86	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.399	52.6	224	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	21.2	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	55.4	
Total Zinc	0	0		0	119.032	121	514	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 1.488 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	23.8	
Total Arsenic	0	0		0	10	10.0	42.6	
Total Barium	0	0		0	2,400	2,400	10,219	
Total Boron	0	0		0	3,100	3,100	13,200	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	

Dissolved Iron	0	0		0	300	300	1,277	
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	4,258	
Total Mercury	0	0		0	0.050	0.05	0.21	
Total Nickel	0	0		0	610	610	2,597	
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	1.02	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.625 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
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	

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

No. Samples/Month: 4

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	Report	Report	Report	Report	Report	mg/L	0.039	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	6,387	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	4,258	THH	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	8,200	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	10,219	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	6,813	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1.16	µg/L	Discharge Conc < TQL
Total Chromium (III)	370	µg/L	Discharge Conc < TQL
Hexavalent Chromium	44.3	µg/L	Discharge Conc < TQL
Total Cobalt	80.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,277	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	13.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.21	µg/L	Discharge Conc < TQL
Total Nickel	224	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	21.2	µg/L	Discharge Conc < TQL
Total Silver	10.5	µg/L	Discharge Conc < TQL
Total Thallium	1.02	µg/L	Discharge Conc < TQL
Total Zinc	0.33	mg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS