pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0050644**
Facility Type	**Industrial**	APS ID	**1096040**
Major / Minor	**Minor**	Authorization ID	**1452910**

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

Applicant and Facility Information

Applicant Name	**Borough of East Greenville**	Facility Name	**East Greenville Water Filtration Plant**
Applicant Address	206 Main Street	Facility Address	1200 Water Street
	East Greenville, PA 18041-1405		East Greenville, PA 18041-1405
Applicant Contact	James Fry	Facility Contact	Joel Pilgert
Applicant Phone	(215) 679-5194X2	Facility Phone	(215) 679-2012
Client ID	83527	Site ID	238201
SIC Code	4941	Municipality	East Greenville Borough
SIC Description	Trans. & Utilities - Water Supply	County	Montgomery
Date Application Received	August 8, 2023	EPA Waived?	Yes
Date Application Accepted	September 13, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Cowan Associates, Inc. (consultant) on August 8, 2023 on behalf of Borough of East Greenville (permittee) for East Greenville Water Filtration Plant (facility). This is a minor industrial waste facility with a design flow of 0.016 MGD that discharges into Perkiomen Creek (TSF, MF) in state watershed 3-E. The current permit will expire on February 29, 2024. 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 to existing permit: None.

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	September 14, 2023
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	09/18/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.016
Latitude	40º 24' 23.22"	Longitude	-75º 31' 18.15"
Quad Name	East Greenville	Quad Code	1541
Wastewater Description:	Filter backwash and sedimentation basin cleaning water		
Receiving Waters	Perkiomen Creek (TSF, MF)	Stream Code	01017
NHD Com ID	25971714	RMI	27.82
Drainage Area	36.3 mi^2	Yield (cfs/mi^2)	0.197
Q_{7-10} Flow (cfs)	7.16	Q_{7-10} Basis	Please see below
Elevation (ft)	313.3	Slope (ft/ft)	
Watershed No.	3-E	Chapter 93 Class.	TSF, MF
Existing Use	**TSF**	Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	**None proposed**	Name	**N/A**

Background/Ambient Data		Data Source
pH (SU)	7.0	Previous fact sheet and default per 391-2000-007
Temperature (°C)	20	Default per 391-2000-013
Hardness (mg/L)	117	Application data

Nearest Downstream Public Water Supply Intake		AQUA PA Main Division	
PWS Waters	Perkiomen Creek	Flow at Intake (cfs)	
PWS RMI	0.93	Distance from Outfall (mi)	26.89

Changes Since Last Permit Issuance: None

Drainage Area:
The discharge from Outfall 001 is into Perkiomen Creek at RMI 27.82. The drainage area upstream of the point of discharge is 36.3 mi^2 according to USGS PA StreamStats, accessible at https://streamstats.usgs.gov/ss/

Stream Flow:
There is a dam (46-069) located just upstream of the discharge point (DP). However, no information regarding the minimum release rate could be retrieved. The nearest USGS Streamgage is 01472198 on Perkiomen Creek at Upper Hanover Township, PA which is approximately 1.77 miles downstream of the discharge point at RMI 26.15. Recent stream flow retrievals resulted in a Q_{7-10}, Q_{1-10}, and Q_{30-10} of 7.5 cfs, 7.1 cfs, and 9.6 cfs, respectively, at this gage for record period of 1983-2008. These values were obtained from the latest USGS streamflow report (1). The drainage area is reported to be 38.0 mi^2 at the gage station. The drainage area at DP is found to be 36.3 mi^2 from USGS StreamStats Version 3.0, accessed on November 28, 2018. The flow calculations are shown below:

Q_{7-10} runoff rate (yield) = 7.5/38 = 0.197 cfs/mi^2.
Q_{30-10}: Q_{7-10} = 9.6/7.5 = 1.28:1
Q_{1-10}: Q_{7-10} = 7.1/7.5 = 0.95:1
Q_{7-10} = 0.197*36.3 = 7.15 cfs

(1) Stuckey, M.H., Roland, M.A., 2011, Selected streamflow statistics for streamgage locations in and near Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-1070, 10p, 23p.

PWS Intake:
The nearest downstream public water supply is AQUA PA Main Division on Perkiomen Creek at RMI 0.93. It is approximately 26.89 miles downstream of the discharge. Due to the distance, dilution, and effluent limits the discharge is not expected to impact the water supply.

Wastewater Characteristics:
A median pH of 7.7 S.U. during July through September for the reporting years 2022-2023 from daily eDMR and a default temperature of 20^0C (per 391-2000-013) will be used for modeling, if needed.

Background/Ambient Stream Data:
The stream background data was collected from application data, previous permit fact sheet, and from 391-2000-013 and 391-2000-007. The values are listed on page 2 of this report.

303d Listed Streams:
The discharge from this facility is in Perkiomen Creek at 36.3 RMI in state watershed 3-E which is supporting its designated uses.

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. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are 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: East Greenville Water Filtration Plant

WQM Permit No.	Issuance Date

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Sedimentation Tanks	No Disinfection	0.016

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal

Changes Since Last Permit Issuance: None

Other Comments:
East Greenville Water Filtration Plant (WFP/facility) is owned and operated by Borough of East Greenville (permittee). The facility is in Upper Hanover Township, Montgomery County. The treated effluent is discharged to Perkiomen Creek in state watershed 3-E through outfall 001. The receiving stream has a Chapter 93 designation of TSF, MF.

The filtration plant is a well and surface water filtration plant which is permitted to discharge 16,000 GPD that is generated from the routine sand filter backwash and yearly sedimentation tank draining operation. The surface water is withdrawn from the creek just upstream of the State Road bridge and the discharge point is located downstream of the bridge. The plant was constructed in 1937 and has three intake pumps. The raw water is treated for odor control, pH adjustment, and chlorination. Coagulant aids are added for floc formation, which is removed either in sedimentation basins or in filters. The filters are backwashed after 65-75 hours of operation, based on time and/or pressure loss. Filter backwash is discharged to a settling tank, allowed to settle 4-5 days, and decanted by gravity to outfall 001. The discharge occurs approximately 1/week. On as-needed basis, the settling basin is dewatered and cleaned once a year. Sludge is transferred to the old plant settling tanks for thickening and sent to Pottstown WWTP. Decant is discharged through Outfall 001.

The permit application indicated no chemicals are added to the backwash water. Chlorine is used as mean of disinfection of the finished potable water which may end up in backwash water. TRC_Spreadsheet will be utilized to see if the existing limits are still protective.

A process flow diagram is attached at Appendix.

Planned upgrade during the next permit cycle:
There is no planned upgrade to the facility in next permit cycle.

Compliance History	
Summary of DMRs:	A summary of 12-month DMR data is presented on the next page.
Summary of Inspections:	**07/26/2023:** INCDT inspection conducted to investigate vandal that entered the wastewater tank area and released stored wastewater through the permitted outfall. No violations were observed. Standing water was clear with settled solids visible on the bottom. **05/18/2023:** RTPT conducted for a reported possible solids discharge due to recent WFP settling tank cleaning operations. No compliance issues were identified. The facility recently conducted routine sedimentation tank cleaning operations and was inspected by the DEP on April 18, 2023. **04/18/2023:** RTPT inspection conducted during settling tank cleaning operations. No compliance issues were identified. **11/10/2022:** CEI conducted. No compliance issues were identified. The facility conducted sedimentation tank cleaning operation during first week of May. A minor Manganese effluent concentration exceedance was reported. The cause may be decaying leaves that had fallen into the settling tanks. Flow in the receiving stream was clear and there was no indication of solids deposition at or below the outfall. **08/25/2021:** INCDT inspection conducted to investigate a water main break due to road excavation. Approximately 20,000 gallons of water was leaked into the ground and into sanitary sewer. **06/10/2021:** RTPT inspection conducted to observe settling tank cleaning operation. No violations were observed. **11/04/2020:** CEI conducted. No violation noted. The facility wasn't in operation and didn't operate during first part of 2020. The plant normally operates when the source (Perkiomen Creek) has low TSS. **12/04/2019:** CEI conducted. No violation observed. The plant wasn't in operation due to new DEP drinking water disinfection guidelines that will require the sedimentation tanks to be covered if the finished water temperature goes below approximately 54°F.

Other comments: None

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	0.02	0.012	0.017417						0.018625	0.01575	0.018375	0.02
Flow (MGD) Special Effluent Gross Average Monthly	GG	GG	GG	0.08	GG	GG	GG	GG	GG	GG	GG	GG
Flow (MGD) Daily Maximum	0.02	0.01675	0.01975						0.0185	0.01575	0.0185	0.0215
Flow (MGD) Special Effluent Gross Daily Maximum	GG	GG	GG	0.08	GG	GG	GG	GG	GG	GG	GG	GG
pH (S.U.) Instantaneous Minimum	6.58	6.52	6.41						6.95	6.7	7.24	7.33
pH (S.U.) Special Effluent Gross Instantaneous Minimum	GG	GG	GG	6.7	GG	GG	GG	GG	GG	GG	GG	GG
pH (S.U.) Instantaneous Maximum	7.66	7.29	7.95						7.49	7.44	7.77	7.59
pH (S.U.) Special Effluent Gross Instantaneous Maximum	GG	GG	GG	8.2	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Average Monthly	0.16	0.12	0.11						0.05	0.05	0.06	0.02
TRC (mg/L) Special Effluent Gross Average Monthly	GG	GG	GG	0.04	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	0.46	0.21	0.26						0.06	0.1	0.07	0.04
TRC (mg/L) Special Effluent Gross Instantaneous Maximum	GG	GG	GG	0.08	GG	GG	GG	GG	GG	GG	GG	GG
TSS (lbs/day) Average Monthly	1.00	0.58	0.57						0.16	0.5	1.1	0.3

TSS (lbs/day) Special Effluent Gross Average Monthly	GG	GG	GG	2.0	GG	GG	GG	GG	GG	GG	GG	GG
TSS (lbs/day) Daily Maximum	1.17	0.60	1.09						0.16	0.8	1.1	0.5
TSS (lbs/day) Special Effluent Gross Daily Maximum	GG	GG	GG	3.34	GG	GG	GG	GG	GG	GG	GG	GG
TSS (mg/L) Average Monthly	6.0	7.0	3.7						1.0	4.0	7.0	2.0
TSS (mg/L) Special Effluent Gross Average Monthly	GG	GG	GG	3.0	GG	GG	GG	GG	GG	GG	GG	GG
TSS (mg/L) Daily Maximum	7.0	10.0	7.0						1.0	6.0	7.0	3.0
TSS (mg/L) Special Effluent Gross Daily Maximum	GG	GG	GG	5.0	GG	GG	GG	GG	GG	GG	GG	GG
Turbidity (NTU) Special Effluent Gross Average Monthly	GG	GG	GG	2.62	GG	GG	GG	GG	GG	GG	GG	GG
Turbidity (NTU) Special Effluent Gross Instantaneous Maximum	GG	GG	GG	3.01	GG	GG	GG	GG	GG	GG	GG	GG
Total Aluminum (lbs/day) Average Monthly	0.05	0.01	0.02						0.015	0.021	0.019	0.0164
Total Aluminum (lbs/day) Special Effluent Gross Average Monthly	GG	GG	GG	0.26	GG	GG	GG	GG	GG	GG	GG	GG
Total Aluminum (lbs/day) Daily Maximum	0.09	0.01	0.03						0.022	0.033	0.026	0.0233
Total Aluminum (lbs/day) Special Effluent Gross Daily Maximum	GG	GG	GG	0.5	GG	GG	GG	GG	GG	GG	GG	GG
Total Aluminum (mg/L) Average Monthly	0.30	0.09	0.14						0.10	0.16	0.13	0.10

Total Aluminum (mg/L) Special Effluent Gross Average Monthly	GG	GG	GG	0.39	GG	GG	GG	GG	GG	GG	GG	GG
Total Aluminum (mg/L) Daily Maximum	0.53	0.13	0.21						0.14	0.25	0.17	0.13
Total Aluminum (mg/L) Special Effluent Gross Daily Maximum	GG	GG	GG	0.75	GG	GG	GG	GG	GG	GG	GG	GG
Total Iron (lbs/day) Average Monthly	0.011	0.003	0.01						0.0039	0.009	0.005	0.0034
Total Iron (lbs/day) Special Effluent Gross Average Monthly	GG	GG	GG	0.04	GG	GG	GG	GG	GG	GG	GG	GG
Total Iron (lbs/day) Daily Maximum	0.017	0.004	0.024						0.0046	0.014	0.006	0.0036
Total Iron (lbs/day) Special Effluent Gross Daily Maximum	GG	GG	GG	0.093	GG	GG	GG	GG	GG	GG	GG	GG
Total Iron (mg/L) Average Monthly	0.07	0.04	0.11						0.03	0.07	0.03	0.02
Total Iron (mg/L) Special Effluent Gross Average Monthly	GG	GG	GG	0.06	GG	GG	GG	GG	GG	GG	GG	GG
Total Iron (mg/L) Daily Maximum	0.1	0.06	0.21						0.03	0.11	0.04	0.02
Total Iron (mg/L) Special Effluent Gross Daily Maximum	GG	GG	GG	0.14	GG	GG	GG	GG	GG	GG	GG	GG
Total Manganese (lbs/day) Average Monthly	0.139	0.029	0.239						0.106	0.0447	0.0568	0.0086
Total Manganese (lbs/day) Special Effluent Gross Average Monthly	GG	GG	GG	0.495	GG	GG	GG	GG	GG	GG	GG	GG
Total Manganese (lbs/day) Daily Maximum	0.207	0.032	0.311						0.125	0.0617	0.0741	0.0109
Total Manganese (lbs/day) Special Effluent Gross Daily Maximum	GG	GG	GG	1.354	GG	GG	GG	GG	GG	GG	GG	GG

Total Manganese (mg/L) Average Monthly	0.835	0.325	1.69						0.685	0.34	0.372	0.05
Total Manganese (mg/L) Special Effluent Gross Average Monthly	GG	GG	GG	0.74	GG	GG	GG	GG	GG	GG	GG	GG
Total Manganese (mg/L) Daily Maximum	1.24	0.421	2.25						0.809	0.47	0.487	0.061
Total Manganese (mg/L) Special Effluent Gross Daily Maximum	GG	GG	GG	2.0	GG	GG	GG	GG	GG	GG	GG	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
Total Manganese	05/31/23	Avg Mo	1.69	mg/L	1.0	mg/L
Total Manganese	05/31/23	Daily Max	2.25	mg/L	2.0	mg/L

Other Comments: There was one average monthly and Daily Max violation noted for Total Manganese for the month of May 2023. The submitted Non Compliance Report Form didn't identify any cause or corrective actions for this non-compliance.

Existing Limits

Outfall 001: Filter Backwash Water

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	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	1/week	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	2/month	Grab
Aluminum, Total	Report	Report	XXX	4.0	8.0	10	2/month	Grab
Iron, Total	Report	Report	XXX	2.0	4.0	5	2/month	Grab
Manganese, Total	Report	Report	XXX	1.0	2.0	2.5	2/month	Grab

Outfall 001: Sedimentation Basin Cleaning water.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when discharging	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	See permit	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.3	See permit	Grab
Total Suspended Solids	Report	Report	XXX	30	60	75	See permit	Grab
Total Aluminum	Report	Report	XXX	4.0	8.0	10.0	See permit	Grab
Total Iron	Report	Report	XXX	2.0	4.0	5.0	See permit	Grab
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	See permit	Grab
Turbidity (NTU)	XXX	XXX	XXX	100	XXX	100	See permit	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .016
Latitude 40º 24' 25.00" **Longitude** -75º 31' 17.00"
Wastewater Description: IW Process water without ELG

Technology-Based Limitations

A majority of industrial wastewaters generated from this water treatment plant is filter backwash. DEP's technical guidance no. 362-2183-003 addresses technology-based control requirements along with the following recommended Best Practicable Control Technology Currently Available (BPT) effluent requirements for WTP sludge and filter backwash:

Parameter	Limit (mg/l)	SBC
Suspended Solids	30	Average Monthly
	60	Daily Maximum
Iron, Total	2.0	Average Monthly
	4.0	Daily Maximum
Aluminum, Total	4.0	Average Monthly
	8.0	Daily Maximum
Manganese, Total	1.0	Average Monthly
	2.0	Daily Maximum
Flow	Monitor	Average Monthly
pH	6.0	Minimum
	9.0	Maximum
Total Residual Chlorine	0.5	Average Monthly
	1.0	Daily Maximum

Water Quality-Based Limitations

DEP's SOP no. BPNPSM-PMT-032 recommends the average monthly flow as a design flow in water quality modeling unless a different flow is determined to be more representative of site-specific conditions. The volume of effluent discharged from facilities such as water treatment plants is heavily depended upon the quality of source water as more backwashing is needed to maintain acceptable filter performance if the intake water quality is poor. As such, maximum flow is often used to account for the worst-case scenario (i.e., highest discharge events). Past three-year effluent flow data were analyzed. the average of the data was 0.025149 MGD with the 90th percentile of 0.0366 MGD and maximum of 0.1 MGD. Based on this, DEP has determined that 0.1 MGD will be used as a design flow in water quality modeling for this permit renewal. It is noteworthy that this design flow value should be once again reevaluated at the time of the subsequent permit renewal application review.

WQM 7.0

CBOD5 and NH3-N are not pollutants of concern for the water treatment waste as the discharge of these pollutants are not resulting from the water treatment process. Therefore, WQM 7.0 modeling is not necessary and permit requirements for these pollutants are not recommended.

Total Residual Chlorine

Chlorine is used for source water disinfection, injected at the headworks. Because of that, residual chlorine is expected to be present in the effluent discharged via Outfall 001. Accordingly, Total Residual Chlorine (TRC) effluent concentrations must be monitored and regulated per 25 Pa Code §92a.48(b). DEP's TRC CALC worksheet was utilized to determine if existing TBELs are still appropriate under the flow of 0.1 MGD. The worksheet showed that the existing TBEL is still adequate.

Toxics

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)). Pollutant Group 2 was modeled through TMS. Either the maximum reported sample result or the long-term average value were the input into the model. The stream flow data were collected from previous fact sheet. Permit application indicated a discharge hardness of 150 mg/l. 90th percentile discharge pH for dry months for the years 2022-2023 is 7.678 S.U. The second node for modeling is the same as was used in previous fact sheet. The TMS model doesn't recommend any monitoring or limits requirements for toxics. The

existing Total Aluminum, Total Iron, and Total Manganese limits will be carried over as more stringent TBEL. The model output 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

Additional Considerations

Flow Monitoring

Flow monitoring will remain in the permit and is required by 40 CFR § 122.44(i)(1)(ii).

Total Dissolved Solids (TDS), Sulfate, Chloride, Bromide, and 1,4-Dioxane:

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. The current permit doesn't have monitoring requirements for these parameters and will not be imposed in this permit term.

Mass Loading Effluent Limitations

Existing mass loading monitoring requirements will be carried over for Total Suspended Solids, Total Iron, Total Manganese, and Total Aluminum.

Anti-Degradation requirements

The effluent limits for this discharge have been developed to ensure the existing in-stream uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-Backsliding Requirements

Unless stated otherwise in this fact sheet, all proposed effluent limits have developed for this permit renewal are at least as stringent as effluent limits developed for the previous permit renewal.

Sedimentation Basin Cleaning:

The Part C of the existing permit includes a special condition regarding the basin cleaning notification and sampling requirements. An additional stage titled "Special Effluent Gross" is created in WMS for the infrequent basin cleaning discharge. All parameters for "Final Effluent" stage are applicable to this stage. Existing monitoring requirements will be carried over.

Anti-Backsliding

The proposed limits and monitoring requirements are at least as stringent as the existing permit, therefore, anti-backsliding isn't applicable.

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.

Type of Effluent: Filter backwash

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily max	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/week	Grab
TSS	Report	Report	XXX	30	60	75	2/month	Grab
Total Aluminum	Report	Report	XXX	4.0	8.0	10	2/month	Grab
Total Iron	Report	Report	XXX	2.0	4.0	5	2/month	Grab
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	Grab

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

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

Type of Effluent: Sedimentation Basin Cleaning Water

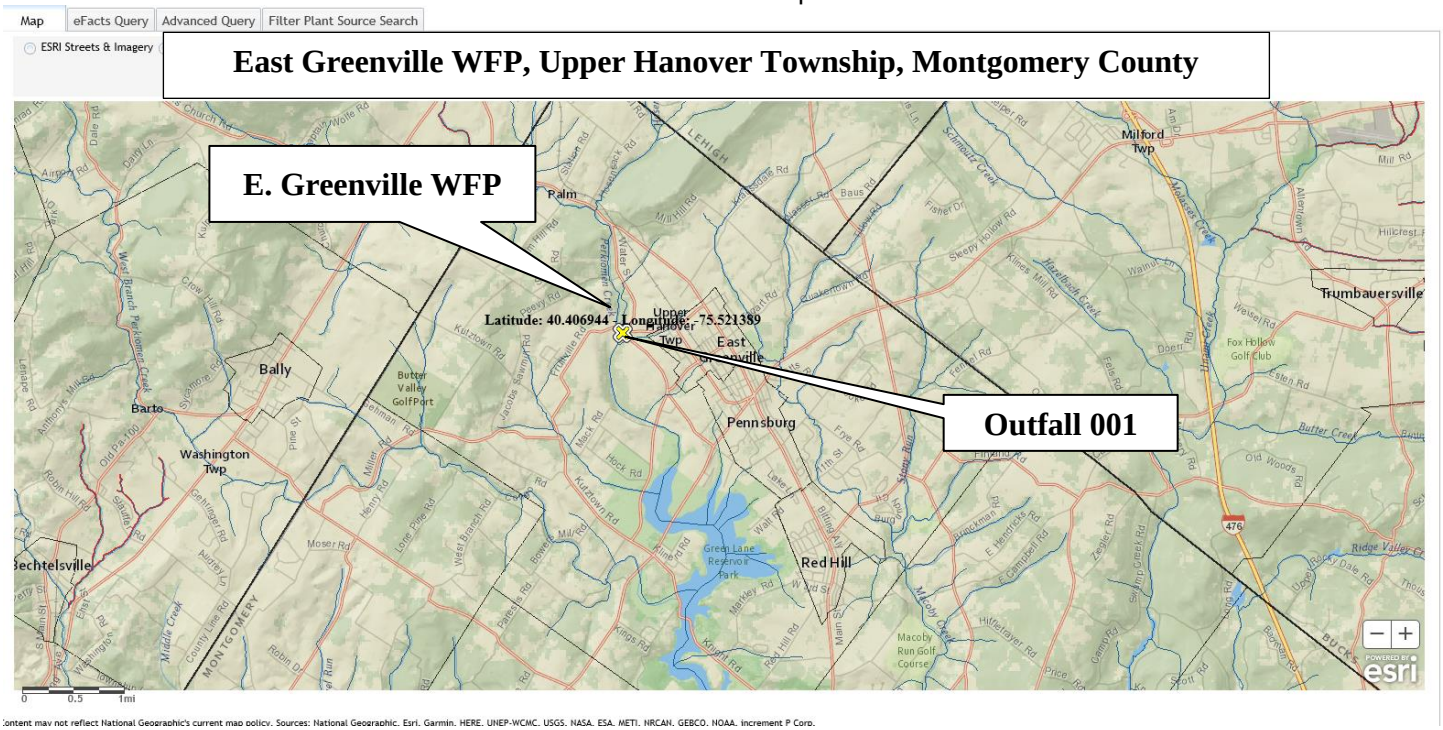
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	See Permit	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	See Permit	Grab
TSS	Report	Report	XXX	30	60	75	See Permit	Grab
Total Aluminum	Report	Report	XXX	4.0	8.0	10	See Permit	Grab
Total Iron	Report	Report	XXX	2.0	4.0	5	See Permit	Grab
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	See Permit	Grab
Turbidity (NTU)	XXX	XXX	XXX	100	XXX	100	See Permit	Grab

Compliance Sampling Location: At Outfall 001

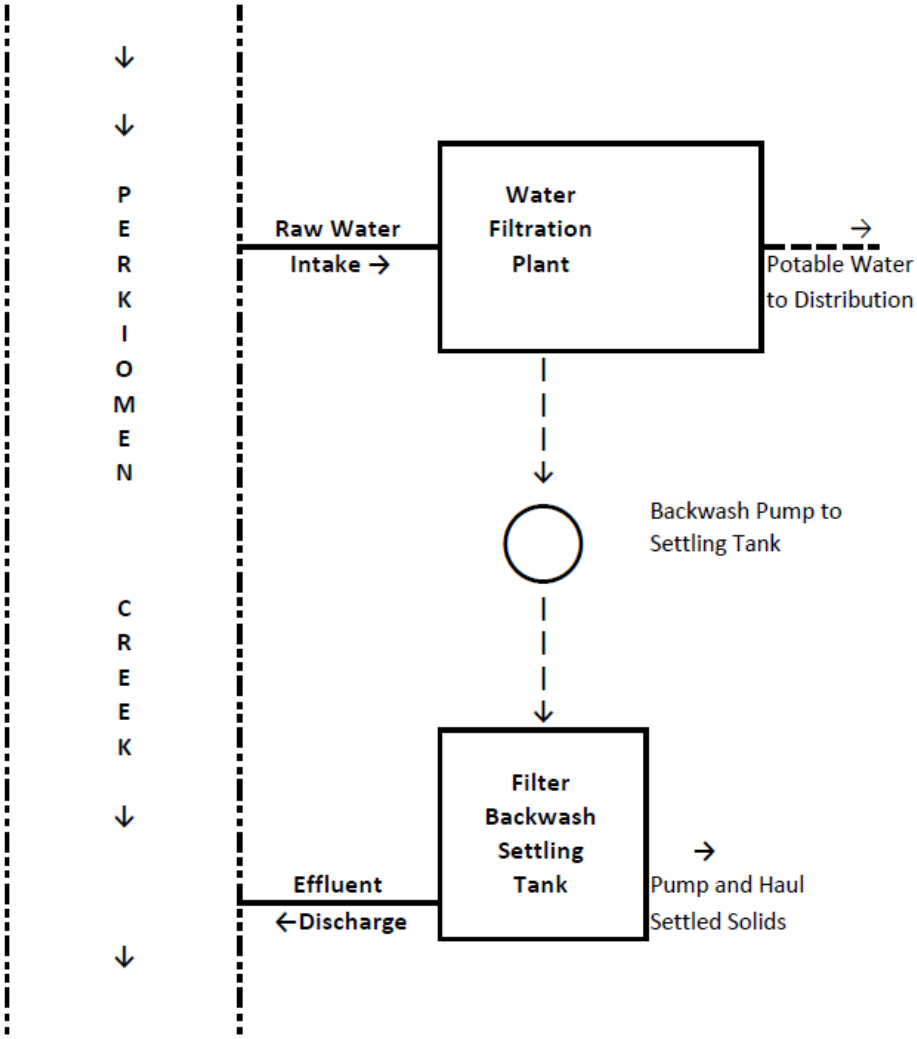
Other Comments: Limits apply during sedimentation basin cleaning discharge. See Part C Sedimentation Basin Cleaning for sampling and notification requirements.

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:

Locational Map



Flow diagram



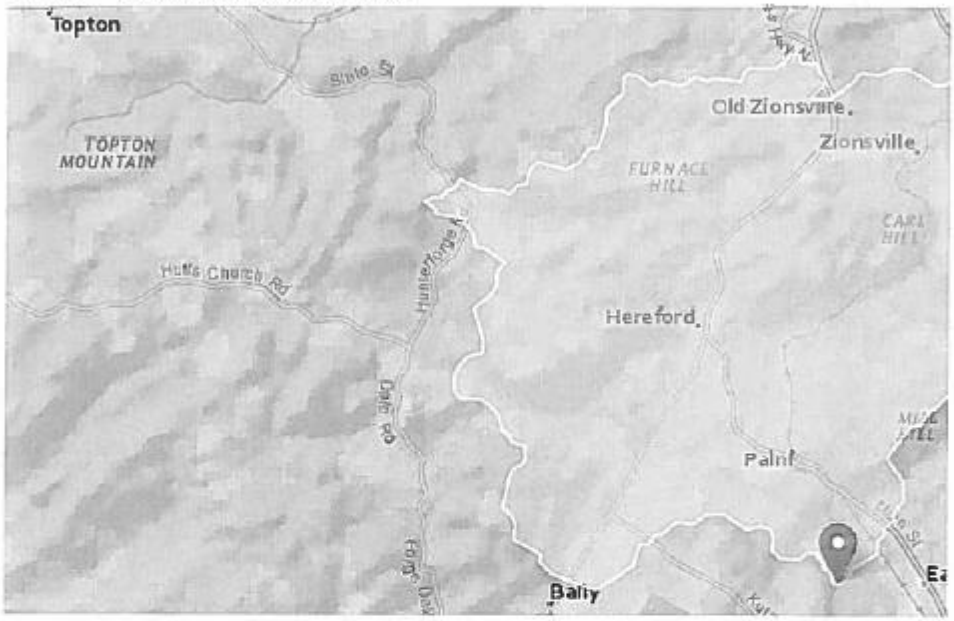
East Greenville Water Filtration Plant
Wastewater Discharge
Schematic Flow Diagram
NPDES PA 0050644

CAI/03008.24/7-25-18

USGS StreamStats

East Greenville WFP at Discharge Point

Region ID: PA
Workspace ID: PA20181128151429844000
Clicked Point (Latitude, Longitude): 40.40567, -75.52240
Time: 2018-11-28 10:14:44 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	36.3	square miles
BSLOPD	Mean basin slope measured in degrees	5.3	degrees
ROCKDEP	Depth to rock	4.9	feet
URBAN	Percentage of basin with urban development	2	percent

Low-Flow Statistics Parameters [100 Percent (36.2 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	36.3	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.3	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.9	feet	4.13	5.21
URBAN	Percent Urban	2	percent	0	89

Low-Flow Statistics Flow Report [100 Percent (36.2 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

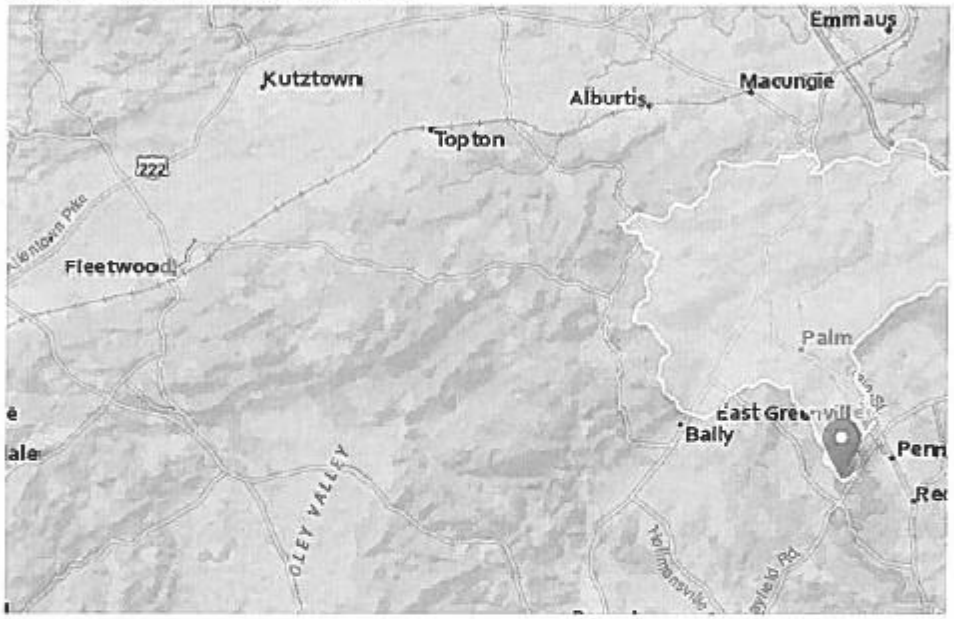
Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	10.2	ft^3/s	46	46
30 Day 2 Year Low Flow	12.4	ft^3/s	38	38
7 Day 10 Year Low Flow	5.45	ft^3/s	51	51
30 Day 10 Year Low Flow	6.71	ft^3/s	46	46
90 Day 10 Year Low Flow	9.33	ft^3/s	41	41

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/)

E. Greenville WFP at Node 2

Region ID: PA
Workspace ID: PA20181128151920430000
Clicked Point (Latitude, Longitude): 40.38369, -75.51526
Time: 2018-11-28 10:19:35 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	38.2	square miles
BSLOPD	Mean basin slope measured in degrees	5.2	degrees
ROCKDEP	Depth to rock	4.8	feet
URBAN	Percentage of basin with urban development	3	percent

Low-Flow Statistics Parameters [100 Percent (38.1 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	38.2	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.2	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.8	feet	4.13	5.21
URBAN	Percent Urban	3	percent	0	89

Low-Flow Statistics Flow Report [100 Percent (38.1 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	9.76	ft^3/s	46	46
30 Day 2 Year Low Flow	12.1	ft^3/s	38	38
7 Day 10 Year Low Flow	5.13	ft^3/s	51	51
30 Day 10 Year Low Flow	6.43	ft^3/s	46	46
90 Day 10 Year Low Flow	9.14	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/)

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

10 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01465780	Poquessing Creek above Byberry Creek at Phila., Pa.	40.070	-74.975	13.2	N
01465798	Poquessing Creek at Grant Ave. at Philadelphia, Pa.	40.057	-74.985	21.4	N
01465850	South Branch Rancocas Creek at Vincentown, N.J.	39.94	-74.763	64.5	N
01466500	McDonalds Branch in Byrne State Forest, N.J.	39.885	-74.505	2.35	N
01467000	North Branch Rancocas Creek at Pemberton, N.J.	39.97	-74.684	118	N
01467042	Pennypack Creek at Pine Road, at Philadelphia, Pa.	40.090	-75.069	37.9	N
01467048	Pennypack Creek at Lower Rhawn St Bdg., Phila., Pa.	40.050	-75.033	49.8	N
01467050	Wooden Bridge Run at Philadelphia, Pa.	40.055	-75.022	3.35	N
01467081	South Branch Pennsauken Creek at Cherry Hill, N.J.	39.942	-75.001	8.98	N
01467086	Tacony Creek ab Adams Avenue, Philadelphia, Pa.	40.047	-75.111	16.7	N
01467087	Frankford Creek at Castor Ave, Philadelphia, Pa.	40.016	-75.097	30.4	N
01467089	Frankford Creek at Torresdale Ave., Phila., Pa.	40.007	-75.092	33.8	N
01467150	Cooper River at Haddonfield, N.J.	39.903	-75.021	17.0	N
01467500	Schuylkill River at Pottsville, Pa.	40.684	-76.186	53.4	N
01468500	Schuylkill River at Landingville, Pa.	40.629	-76.125	133	N
01469500	Little Schuylkill River at Tamaqua, Pa.	40.807	-75.972	42.9	N
01470500	Schuylkill River at Berne, Pa.	40.523	-75.998	355	N
01470756	Maiden Creek at Virginville, Pa.	40.514	-75.883	159	N
01470779	Tulpehocken Creek near Bernville, Pa.	40.413	-76.172	66.5	N
01470853	Furnace Creek at Robesonia, Pa.	40.340	-76.143	4.18	N
01470960	Tulpehocken Creek at Blue Marsh Damsite near Reading, Pa.	40.371	-76.025	175	Y
01471000	Tulpehocken Creek near Reading, Pa.	40.369	-75.979	211	Y
01471510	Schuylkill River at Reading, Pa.	40.335	-75.936	880	Y
01471875	Manatawny Creek near Spangsville, Pa.	40.340	-75.742	56.9	N
01471980	Manatawny Creek near Pottstown, Pa.	40.273	-75.680	85.5	N
01472000	Schuylkill River at Pottstown, Pa.	40.242	-75.652	1,147	Y
01472157	French Creek near Phoenixville, Pa.	40.151	-75.601	59.1	N
01472174	Pickering Creek near Chester Springs, Pa.	40.090	-75.630	5.98	N
01472198	Perkiomen Creek at East Greenville, Pa.	40.394	-75.515	58.0	N
01472199	West Branch Perkiomen Creek at Hillegass, Pa.	40.374	-75.522	23.0	N
01472500	Perkiomen Creek near Frederick, Pa.	40.275	-75.455	152	N
01472620	East Branch Perkiomen Creek near Dublin, Pa.	40.404	-75.234	4.05	LF
01472810	East Branch Perkiomen Creek near Schwenksville, Pa.	40.259	-75.429	58.7	LF
01473000	Perkiomen Creek at Graterford, Pa.	40.230	-75.452	279	LF
01473120	Skippack Creek near Collegeville, Pa.	40.165	-75.433	53.7	N
01473169	Valley Creek at Pa. Turnpike Br near Valley Forge, Pa.	40.079	-75.461	20.8	N
01473500	Schuylkill River at Norristown, Pa.	40.111	-75.347	1,760	N
01473900	Wissahickon Creek at Fort Washington, Pa.	40.124	-75.220	40.8	N
01473950	Wissahickon Creek at Bells Mill Rd, Phila., Pa.	40.080	-75.226	53.6	N
01473980	Wissahickon Creek at Livezey Lane, Phila., Pa.	40.050	-75.214	59.2	N
01474000	Wissahickon Creek at Mouth, Philadelphia, Pa.	40.015	-75.207	64.0	N
01474500	Schuylkill River at Philadelphia, Pa.	39.968	-75.189	1,893	N
01475000	Mantua Creek at Pitman, N.J.	39.737	-75.113	6.05	N
01475300	Darby Creek at Waterloo Mills near Devon, Pa.	40.023	-75.422	5.15	N
01475510	Darby Creek near Darby, Pa.	39.929	-75.272	37.4	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s, cubic feet per second, —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01472174	1969–1984	16	1.2	1.5	2.4	1.8	3.1	2.7
01472198	1983–2008	26	7.1	7.5	12.9	9.6	15.4	13.9
01472199	1983–2008	26	3.8	4.3	6.8	5.1	8.3	7.2
01472500	1886–1913	28	—	14.5	24.0	20.6	34.9	33.2
01472620	1985–2008	24	0	0	7.2	.1	7.3	.5
01472810	1992–2008	15	12.9	18.8	36.0	33.7	49.2	49.8
01473000	[1]1916–1956	41	9.5	14.8	32.1	24.1	44.7	41.4
01473000	[2]1958–2008	51	28.5	33.9	61.6	42.5	77.4	53.3
01473120	1968–1994	27	1.4	1.9	4.4	3.2	6.8	5.6
01473169	1984–2008	25	8.5	9.2	13.2	10.5	15.5	13.2
01473500	1929–2008	9	182	220	422	247	518	328
01473900	1963–2008	14	5.2	6.1	11.3	7.6	14.2	9.9
01473950	1967–1981	15	9.1	11.1	19.1	14.5	24.0	19.7
01474000	1967–2008	42	13.7	16.6	25.6	21.4	32.9	30.4
01474500	1933–2008	76	58.7	108	376	180	515	320
01475000	1942–2006	37	3.5	4.1	6.1	4.8	7.0	5.7
01475300	1974–1997	24	1.0	1.2	2.1	1.6	2.9	2.4
01475510	1965–1990	26	9.3	11.5	18.8	15.5	24.2	22.6
01475530	1966–1981	19	1.2	1.3	2.0	1.8	2.8	2.7
01475550	1965–1990	25	.1	.6	4.4	2.9	8.5	8.9
01475850	1983–2008	26	1.5	2.2	4.6	3.4	6.5	5.4
01476480	1988–2008	19	2.3	3.5	8.5	5.8	11.5	9.0
01476500	1933–1954	22	3.9	4.9	11.4	6.4	14.4	9.7
01477000	1933–2007	73	10.4	12.4	24.9	15.7	31.0	22.8
01477120	1967–2008	42	6.5	7.1	12.9	8.5	15.0	11.2
01477800	1947–2008	62	.2	.2	.6	.5	1.2	1.4
01478000	1944–2008	65	.6	1.5	3.6	2.3	5.0	4.2
01478500	1953–1979	23	9.8	10.7	24.1	13.5	29.1	19.7
01479000	1933–2008	65	12.3	13.7	30.3	18.0	36.8	27.8
01479820	1989–2008	20	3.2	4.1	12.5	5.6	14.6	10.8
01480000	1944–2008	65	8.5	9.8	17.7	12.6	21.1	17.6
01480015	1990–2008	19	9.0	11.0	20.1	14.7	24.5	18.4
01480100	1965–1980	16	.3	.4	1.2	1.2	2.0	2.3
01480300	1962–2008	47	2.6	3.0	6.2	3.9	7.4	5.3
01480500	[1]1945–1993	30	7.3	8.3	14.5	10.4	18.4	14.5
01480500	[2]1995–2008	14	4.8	5.2	12.3	6.6	14.8	9.6
01480617	1971–2008	38	12.1	14.0	23.3	16.6	27.8	22.0
01480675	1968–2008	41	.6	.6	1.7	.9	2.3	1.6
01480685	1975–2008	34	.5	.9	3.7	2.4	7.4	5.7
01480700	[1]1975–2008	34	12.3	14.0	22.3	17.8	28.4	21.9
01480800	1960–1968	9	11.5	12.1	19.8	14.6	23.8	19.5
01480870	1973–2008	36	24.0	26.5	36.8	31.0	44.5	38.0
01481000	[1]1913–1973	51	—	68.5	117	79.0	136	102
01481000	[2]1975–2008	34	60.0	63.8	117	76.9	138	106
01481500	[2]1975–2008	34	64.2	68.3	128	84.5	154	117

Toxics Management Spreadsheet (TMS)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **E. Greenville WFP** NPDES Permit No.: **PA0050644** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **WFP backwash water**

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	150	7.678						

					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		151									
	Total Antimony	µg/L	<	3									
	Total Arsenic	µg/L		5									
	Total Barium	µg/L		78									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	5									
	Total Copper	µg/L		1									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		40									
	Total Iron	µg/L		50									
	Total Lead	µg/L		2									
	Total Manganese	µg/L		1263									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L		2									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L		0.3									
	Total Zinc	µg/L		124									
	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	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

E. Greenville WFP, NPDES Permit No. PA0050644, Outfall 001

Instructions | Discharge | *Stream*

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	001017	27.82	313.3	36.3			Yes
End of Reach 1	001017	25.14	285.1	38.2			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	27.82	0.197										100	7		
End of Reach 1	25.14	0.197													

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	27.82														
End of Reach 1	25.14														

Model Results

E. Greenville WFP, NPDES Permit No. PA0050644, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.456 Analysis Hardness (mg/l): 102.26 Analysis pH: 7.02

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	16,560	
Total Antimony	0	0		0	1,100	1,100	24,288	
Total Arsenic	0	0		0	340	340	7,507	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	463,687	
Total Boron	0	0		0	8,100	8,100	178,851	
Total Cadmium	0	0		0	2.058	2.18	48.2	Chem Translator of 0.943 applied
Hexavalent Chromium	0	0		0	16	16.3	360	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,098	
Total Copper	0	0		0	13.726	14.3	316	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	66.175	84.0	1,855	Chem Translator of 0.788 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	36.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	477.190	478	10,558	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	3.343	3.93	86.8	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,435	
Total Zinc	0	0		0	119.425	122	2,696	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 72.128 PMF: 1 Analysis Hardness (mg/l): 101.06 Analysis pH: 7.01

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	10,390	
Total Arsenic	0	0		0	150	150	7,084	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	193,625	
Total Boron	0	0		0	1,600	1,600	75,561	
Total Cadmium	0	0		0	0.248	0.27	12.9	Chem Translator of 0.909 applied
Hexavalent Chromium	0	0		0	10	10.4	491	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	897	
Total Copper	0	0		0	9.037	9.41	445	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	70,838	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.546	3.22	152	Chem Translator of 0.789 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	42.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.472	52.6	2,485	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	236	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	614	
Total Zinc	0	0		0	119.198	121	5,709	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 72.128 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	264	
Total Arsenic	0	0		0	10	10.0	472	
Total Barium	0	0		0	2,400	2,400	113,341	
Total Boron	0	0		0	3,100	3,100	146,399	
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	14,168	
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	47,226	
Total Mercury	0	0		0	0.050	0.05	2.36	
Total Nickel	0	0		0	610	610	28,808	
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	11.3	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 23.699 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 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	

☑ ***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

☑ ***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	10,614	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	264	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	472	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	113,341	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	12.9	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	N/A	N/A	Discharge Conc < TQL
Total Cobalt	897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	202	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	14,168	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	70,838	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	152	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	47,226	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	2.36	µg/L	Discharge Conc < TQL
Total Nickel	2,485	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	236	µg/L	Discharge Conc < TQL
Total Silver	55.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	11.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	1,728	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

TRC_Spreadsheet

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

7.15	= Q stream (cfs)	0.5	= CV Daily
0.1	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	14.763	1.3.2.iii	WLA cfc =	14.385
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	5.501	5.1d	LTA_cfc =	8.363

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

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)