pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0217948**
Facility Type	**Industrial**	APS ID	**1097378**
Major / Minor	**Minor**	Authorization ID	**1455872**

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

Applicant and Facility Information

Applicant Name	**Highridge Water Authority**	Facility Name	**Sugar Run Water Treatment Plant**
Applicant Address	17 Maple Avenue	Facility Address	T899 Sugar Run Road
	Blairsville, PA 15717-1232		New Florence, PA 15944
Applicant Contact	George Sulkosky	Facility Contact	Calvin Gindlesperger
Applicant Phone	(724) 459-8033	Facility Phone	(724) 459-8033
Client ID	73099	Site ID	242497
SIC Code	4941	Municipality	Saint Clair Township
SIC Description	Trans. & Utilities - Water Supply	County	Westmoreland
Date Application Received	September 21, 2023	EPA Waived?	Yes
Date Application Accepted	September 21, 2023	If No, Reason	

Purpose of Application: Renewal of NPDES permit

Summary of Review

The Department received an NPDES permit application from Gibson Thomas Engineering Co., Inc., on behalf of Highridge Water Authority for renewal coverage of the Sugar Run Water Treatment Plant on September 21, 2023.

The site is a water treatment plant designed to produce a maximum of 2.5 MGD of drinking water. Water pulled from a surface water intake on Sugar Run Reservoir is pretreated with soda ash, potassium permanganate, polymer, alum, and a chlorine pre-treatment, ran through a system of four parallel filters & clarifiers, receives orthophosphate and a chlorine post-treatment, and finally goes to the potable water holding tank for distribution. Stored water from the potable water holding tank is used to backwash the filters, and any excess water is discharged to surface water. Filter backwash water and clarifier wastewater is treated by settling basins before discharge of supernatant to surface water at a maximum of 0.165 MGD. Sludge from the settling basins is disposed of via landfill. Process flows are shown in the line drawing in Figure 1.

Outfall 001 discharges supernatant from the settling basins to Tributary 44984 to Conemaugh River which has a 25 PA Code Chapter 93 Cold Water Fishes designation and is not considered impaired. Outfalls 002 and 003 are stormwater outfalls draining roof runoff and runoff from the gravel parking lot surrounding the treatment building that also discharge to Tributary 44984 to Conemaugh River. Outfall 004 is the emergency overflow from the potable water holding tank and discharges to Tributary 44984 to Conemaugh River. Outfalls 006 and 007 included in the prior permit are untreated surface water diversions to the Sugar Run Reservoir from two surrounding Conemaugh River tributaries, and since they are natural waters and involve no discharge of industrial waste or industrial stormwater, they will be disregarded for this permit renewal. These diversions are permitted under Water Allocation Permit No. WA65-298D.

Approve	Deny	Signatures	Date
x		Jace William Marsh / Environmental Engineering Specialist	November 7, 2023
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	December 4, 2023

Summary of Review

The Permittee has three open violations: two are with Dam Safety and one with Safe Drinking Water. The Dam Safety violations are “Failure to make conservation releases” in 2002 and “Failure to update a Dam Emergency Action Plan upon a third notification by DEP” in 2001. It is assumed since these are historic open violations that these are not consequential to NPDES permit issuance. The Safe Drinking Water violation is “Failure to implement a filter bed evaluation program” and the SWRO’s Safe Drinking Water Program has stated that it should not interfere with NPDES permit issuance. The site was last inspected by the Clean Water program on September 22, 2020 with no violations were noted.

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.

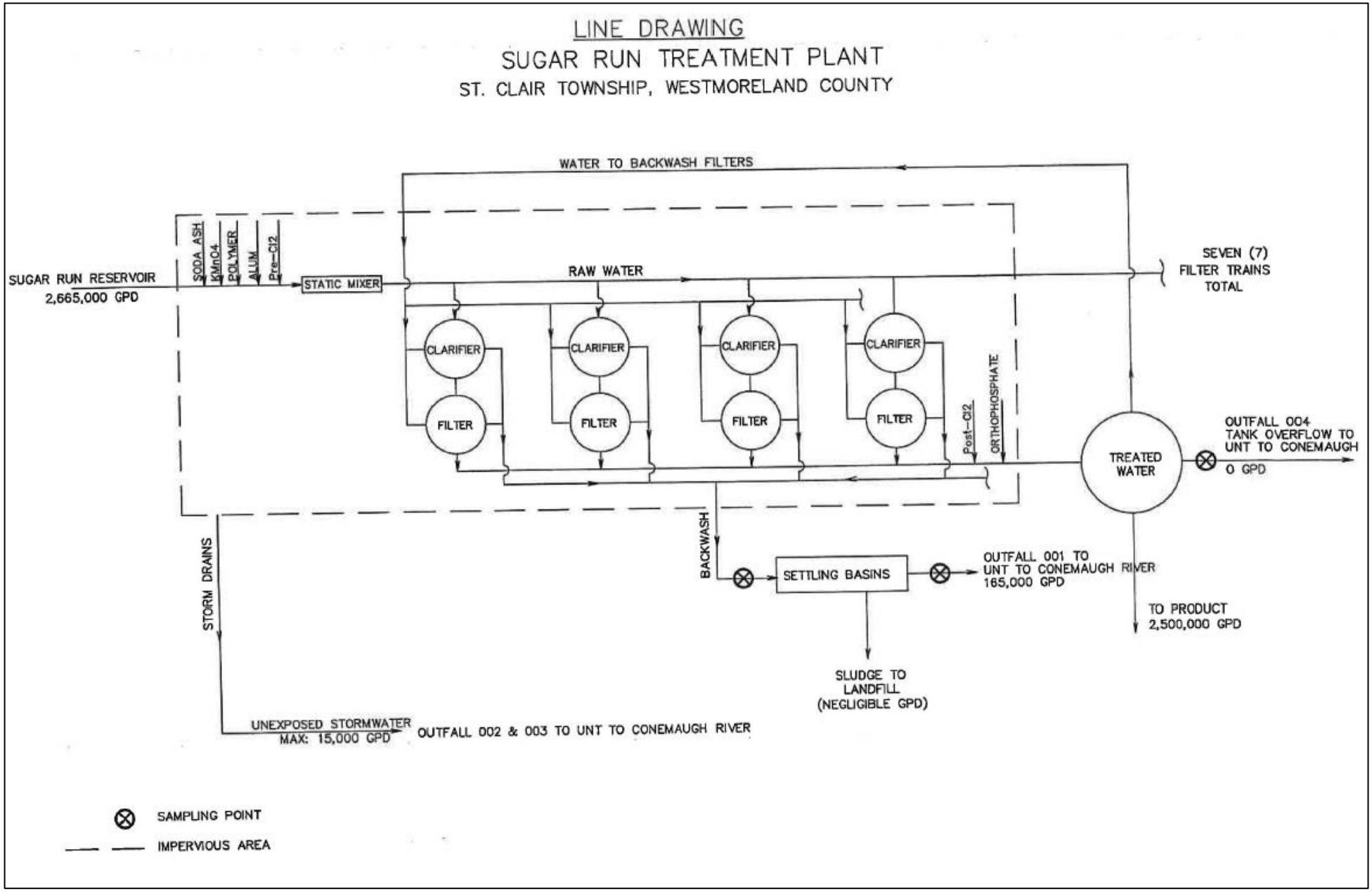


Figure 1. Line drawing of Sugar Run Water Treatment Plant

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.165
Latitude	40º 23' 35.34"	Longitude	-79º 01' 28.56"
Quad Name	New Florence	Quad Code	1513
Wastewater Description:	Supernatant from filter backwash and clarifier wastewater settling basins		
Receiving Waters	Tributary 44984 to Conemaugh River (CWF)	Stream Code	44984
NHD Com ID	123721467	RMI	0.7
Drainage Area	1.62 mi^2	Yield (cfs/mi^2)	0.0858
Q_{7-10} Flow (cfs)	0.139	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1181	Slope (ft/ft)	0.16
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use	Cold Water Fishes	Existing Use Qualifier	Aquatic Life
Exceptions to Use	Potable Water Supply	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport (nearest *active* downstream intake)		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	29.4	Distance from Outfall (mi)	68

Changes Since Last Permit Issuance: Saltsburg Municipal Waterworks intake is inactive so is no longer the nearest downstream PWS intake.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 23' 34.95"	Longitude	-79º 01' 27.93"
Quad Name	New Florence	Quad Code	1513
Wastewater Description:	Stormwater from roof and gravel parking lot surrounding treatment plant building		
Receiving Waters	Tributary 44984 to Conemaugh River (CWF)	Stream Code	44984
NHD Com ID	123721467	RMI	0.7
Drainage Area	1.62 mi^2	Yield (cfs/mi^2)	0.0858
Q_{7-10} Flow (cfs)	0.139	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1181	Slope (ft/ft)	0.16
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use	Cold Water Fishes	Existing Use Qualifier	Aquatic Life
Exceptions to Use	Potable Water Supply	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	29.4	Distance from Outfall (mi)	68

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 23' 35.39"	Longitude	-79º 01' 27.83"
Quad Name	New Florence	Quad Code	1513
Wastewater Description:	Stormwater from roof and gravel parking lot surrounding treatment plant building		
Receiving Waters	Tributary 44984 to Conemaugh River (CWF)	Stream Code	44984
NHD Com ID	123721467	RMI	0.7
Drainage Area	1.62 mi^2	Yield (cfs/mi^2)	0.0858
Q_{7-10} Flow (cfs)	0.139	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1181	Slope (ft/ft)	0.16
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use	Cold Water Fishes	Existing Use Qualifier	Aquatic Life
Exceptions to Use	Potable Water Supply	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	29.4	Distance from Outfall (mi)	68

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 23' 24"	Longitude	-79º 01' 28"
Quad Name	New Florence	Quad Code	1513
Wastewater Description:	Emergency overflow from potable water holding tank		
Receiving Waters	Tributary 44984 to Conemaugh River (CWF)	Stream Code	44984
NHD Com ID	123721467	RMI	0.7
Drainage Area	1.62 mi^2	Yield (cfs/mi^2)	0.0858
Q_{7-10} Flow (cfs)	0.139	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1181	Slope (ft/ft)	0.16
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use	Cold Water Fishes	Existing Use Qualifier	Aquatic Life
Exceptions to Use	Potable Water Supply	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	29.4	Distance from Outfall (mi)	68

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.165
Latitude 40º 23' 35.34" **Longitude** -79º 01' 28.56"
Wastewater Description: Supernatant from filter backwash and clarifier wastewater settling basins

001.A. Technology-Based Effluent Limitations (TBEL)

Federal Effluent Limitation Guidelines

The Sugar Run Water Treatment Plant is not subject to Federal Effluent Limitation Guidelines (ELGs).

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 1 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 92a.48(b) the imposition of technology-based Total Residual Chlorine (TRC) limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELG's or a facility specific BPJ evaluation as indicated in Table 1 below.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max	Instantaneous Max
Flow (MGD)	Monitor	Monitor	----
Iron, Dissolved	----	----	7.0 mg/L
pH (S.U.)	Wastes must have a pH of not less than 6.0 nor greater than 9.0		
Total Residual Chlorine	0.5 mg/L	----	----

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. The facility is not new or expanding waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Best Practicable Control Technology Currently Achievable (BPT)

The Department's reference document *Technology-Based Control Requirements for Water Treatment Plant Wastes* (DEP-ID 362-2183-003) established BPT for discharges of WTPs wastewater, which are illustrated in Table 2 below.

Table 2. BPT Limits for WTP Filter Backwash Wastewater

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Suspended solids (TSS)	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow	Monitor	----
pH (S.U.)	6-9 at all times	
Total Residual Chlorine	0.5	1.0

001.B. Water Quality-Based Effluent Limitations (WQBEL)

Total Maximum Daily Load (TMDL)

Wastewater discharges from Sugar Run Water Treatment Plant are located within the Kiskiminetas-Conemaugh River Watersheds for which the Department has developed a TMDL. The TMDL was finalized on January 29, 2010 and establishes waste load allocations for the discharge of aluminum, iron and manganese within the Kiskiminetas-Conemaugh River Watersheds. Sugar Run Water Treatment plant's permit, PA0217948, is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations and is displayed below in Table 5. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 of the Code of Federal Regulations Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Kiskiminetas-Conemaugh River Watersheds are included in the state's 2008 Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL includes consideration for each river and tributary within the target watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 $^{mg}/_{L}$ total recoverable aluminum, 1.5 $^{mg}/_{L}$ total recoverable iron based on a 30-day average and 1.0 $^{mg}/_{L}$ total recoverable manganese. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

Table 3. Kiskiminetas-Conemaugh River Watershed TMDL PA02178948 Load Allocations

Kiskiminetas River Watershed Major Non-Mining Wasteload Allocations

Region	SWS	PERMIT	PIPE	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction	Comments
5	4064	PA0217948	0	Aluminum	3	0.75	3	0.75	0	
5	4064	PA0217948	0	Iron	6	1.50	6	1.50	0	
5	4064	PA0217948	0	Manganese	4	1.00	4	1.00	0	
5	4064	PA0217948	1	Aluminum	2,011	4.00	377	0.75	81	
5	4064	PA0217948	1	Iron	1,005	2.00	754	1.50	25	
5	4064	PA0217948	1	Manganese	503	1.00	503	1.00	0	
5	4064	PA0217948	4	Aluminum	1,219	4.00	228	0.75	81	
5	4064	PA0217948	4	Iron	609	2.00	457	1.50	25	
5	4064	PA0217948	4	Manganese	305	1.00	305	1.00	0	
5	4064	PA0217948	006 007	Aluminum	1,451	0.75	1,451	0.75	0	
5	4064	PA0217948	006 007	Iron	2,902	1.50	2,902	1.50	0	
5	4064	PA0217948	006 007	Manganese	1,935	1.00	1,935	1.00	0	

Aluminum: The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93.8(c). Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for Outfall 001 at 0.75 mg/L for both the AML and MDL

Iron: The specific water quality criterion for iron is expressed as a 30-day average of 1.5 $^{mg}/_{L}$ in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. The 2x multiplier was chosen for the MDL. Accordingly, TMDL iron limits are proposed for Outfall 001 at 1.5 mg/L for the AML and 3.0 mg/L for the MDL.

Manganese: The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply. Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 1 on Page 10 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL may be made less stringent according to procedures explained in the "Iron" section above. Accordingly, TMDL manganese limits are proposed for Outfall 001 at 1.0 mg/L for the AML and 2.0 mg/L for the MDL.

Table 4. TMDL Limits for Outfall 001

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0
Total Manganese	1.0	2.0

Toxics Management Spread Sheet

The Department of Environmental Protection has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The TMS is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The TMS is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the TMS. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the TMS. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion. The TMS is run with the discharge and receiving stream characteristics shown in Table 5. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL.

Effluent limitations recommended by the TMS are shown in Table 6. The Output from the TMS is included in Attachment C. **The site received these WQBELs due to the Quantitation Limits (QLs) that were used during the sample analysis. The QLs that were used are less stringent than the QLs that the Department requires, therefore it is uncertain if the pollutants are present at Outfall 001 above the Department's QLs. During the 30-day public comment period, Highridge Water Authority may resample these parameters at the Department's QLs to verify**

that they are not present in the discharge. If it is determined that the parameters are not present in the discharge at the Department's QLs, these parameters will be removed from the Final Permit.

Table 5. TMS Inputs for Outfall 001

Discharge Information	
Parameter	**Value**
River Mile Index	0.7
Discharge Flow (MGD)	0.165
Basin/Stream Information	
Parameter	**Value**
Drainage Area (mi^2)	1.62
Q_{7-10} (cfs)	0.139
Low-flow yield (cfs/mi^2)	0.0858
Elevation (ft)	1181
Slope (ft/ft)	0.16

Table 6. WQBELs from TMS

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Antimony	8.65	13.5
Total Arsenic	15.4	24.1
Total Cadmium	Report	Report
Total Cobalt	29.3	45.8
Total Selenium	7.71	12.0
Total Thallium	0.37	0.58

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and discharge chlorine demands for the receiving stream, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is then proposed. The results of the modeling, included in Attachment D, indicate that average monthly limits of 0.123 mg/L and daily maximum limits of 0.288 mg/L are required for TRC.

Table 7. TRC limits from TRC_CALC

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Residual Chlorine	0.123	0.288

001.C. Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 8.

Table 8. Effluent limitations from current permit

Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/month	Measure
Total Residual Chlorine	—	—	0.5	1.0	2/month	Grab
Total Suspended Solids	—	—	30.0	60.0	2/month	Grab
Total Iron	—	—	1.5	3.0	2/month	Grab
Total Aluminum	—	—	0.75	0.75	2/month	Grab
Total Manganese	—	—	1.0	2.0	2/month	Grab
pH (S.U.)	—	—	6.0-9.0		2/month	Grab

001.D. Proposed Effluent Limitations and Monitoring Requirements

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 9.

Table 9. Effluent limits and monitoring requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/month	Measure
Total Residual Chlorine	—	—	0.123	0.288	2/month	Grab
Total Suspended Solids	—	—	30.0	60.0	2/month	Grab
Total Iron	—	—	1.5	3.0	2/month	Grab
Total Aluminum	—	—	0.75	0.75	2/month	Grab
Total Manganese	—	—	1.0	2.0	2/month	Grab
Total Antimony (ug/L)	—	—	8.65	13.5	2/month	Grab
Total Arsenic (ug/L)	—	—	15.4	24.1	2/month	Grab
Total Cadmium (ug/L)	—	—	Report	Report	2/month	Grab
Total Cobalt (ug/L)	—	—	29.3	45.8	2/month	Grab
Total Selenium (ug/L)	—	—	7.71	12.0	2/month	Grab
Total Thallium (ug/L)	—	—	0.37	0.58	2/month	Grab
pH (S.U.)	—	—	6.0-9.0		2/month	Grab

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 40º 23' 34.95" **Longitude** -79º 01' 27.93"
Wastewater Description: Stormwater from roof and gravel parking lot surrounding treatment plant building

Outfall No. 002 and 003 **Design Flow (MGD)** 0
Latitude 40º 23' 35.39" **Longitude** -79º 01' 27.83"
Wastewater Description: Stormwater from roof and gravel parking lot surrounding treatment plant building

Technology-Based Limitations

2016 PAG-03 Appendix J stormwater benchmarks were applied to these outfalls as a minimum requirement in the current permit to determine if the outfalls were truly uncontaminated stormwater since no stormwater sampling data existed at the time. All stormwater data submitted since permit issuance in 2019 has been significantly below benchmarks as summarized in Table 10. Stormwater data appears to support the claim that the discharge is only uncontaminated stormwater. Less stringent effluent limitations are permitted under 40 CFR 12.44(l)(2)(i)(B)(*1*) in the case of having information that was not available upon prior permit issuance. Shown in Figure 2, drainage area for the outfalls is only approximately 0.7 acres of permeable gravel with likely minor runoff from the surrounding green space. Considering this information, no PAG-03 benchmarks will be applied to Outfall 002 and Outfall 003 for this permit renewal.

Table 10. Stormwater data for Outfall 002 and Outfall 003

Outfall	Parameter	Average Concentration (mg/L)	Maximum Concentration (mg/L)	# of Storm Events Sampled	2016 PAG-03 Benchmark Concentration (mg/L)
Outfall 002	TSS	<8.3	28.0	9	100
	Oil & Grease	<5.1	<5.4	9	30
Outfall 003	TSS	<4.2	8.0	9	100
	Oil & Grease	<5.2	<6.2	9	30

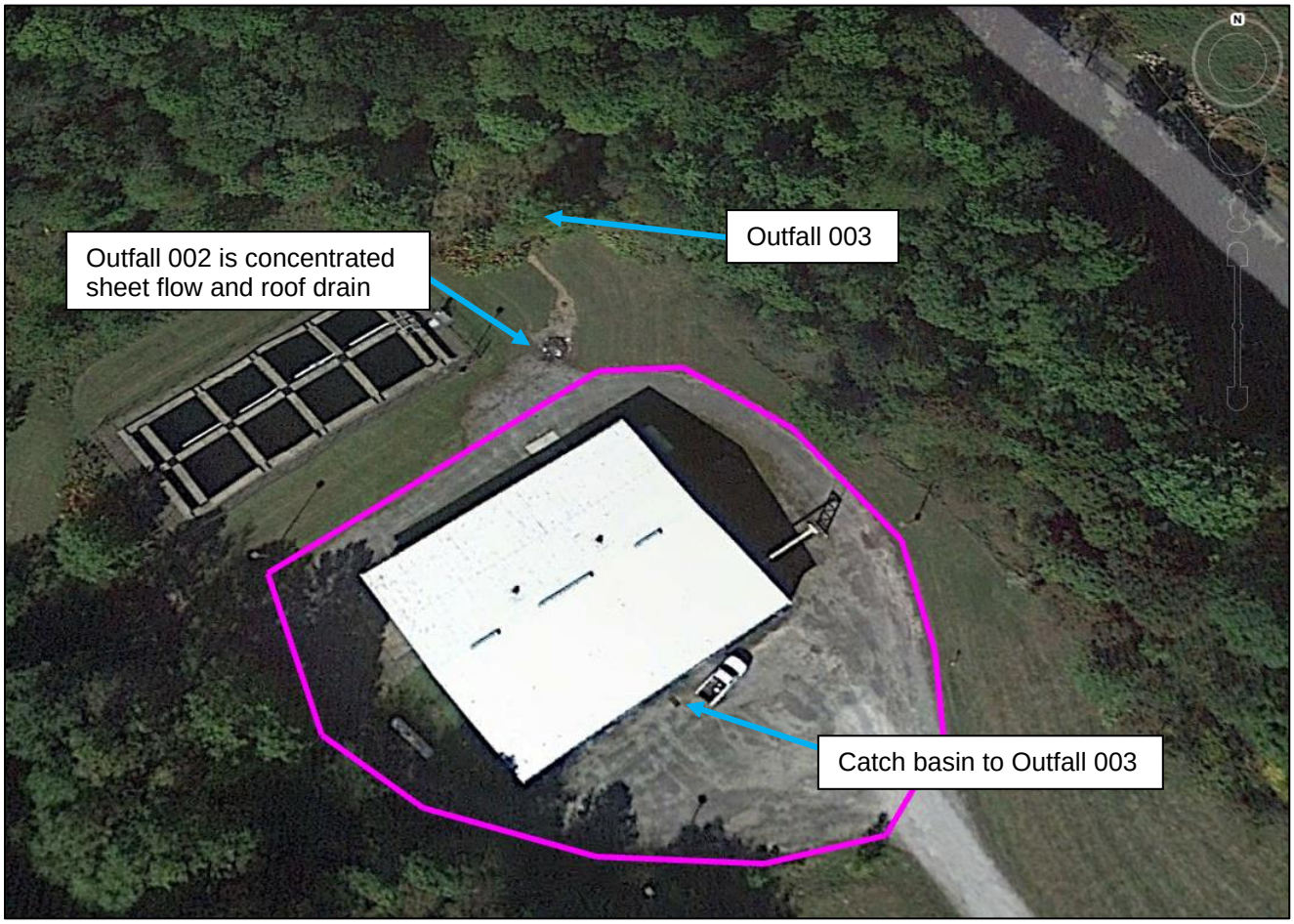


Figure 2. Sugar Run Water Treatment Plant with stormwater drainage area shown in pink

Water Quality-Based Limitations

Water quality analyses are typically performed under low-flow (Q7-10) stream conditions. Stormwater discharges occur at variable flow rates and frequencies but not however during Q7-10 conditions. Since the discharge from Outfall 002 and Outfall 003 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Proposed Effluent Limitations and Monitoring Requirements

No effluent limitations or monitoring requirements are proposed for Outfall 002 and Outfall 003 for this renewal.

Development of Effluent Limitations

Outfall No. 004 **Design Flow (MGD)** 0
Latitude 40º 23' 24" **Longitude** -79º 01' 28"
Wastewater Description: Emergency overflow from potable water holding tank

004.A. Technology-Based Limitations

As discussed in section 001.A and shown in Table 11, TRC limitations and flow monitoring are imposed pursuant to 25 Pa. Code § 92a.48(b) and 25 Pa. Code § 92a.61(d)(1). Dissolved Iron and pH, included in section 001.A., are not included since this discharge is potable water which should already be compliant with industrial waste limitations set by 25 Pa. Code § 95.2.

Table 21. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max
Flow (MGD)	Monitor	Monitor
Total Residual Chlorine	0.5 mg/L	----

004.B. Water Quality-Based Limitations

The discharge from this outfall is an emergency discharge that has not occurred in the past five years, so no effluent quality data is available for a water quality analysis. Additionally, no water quality analysis is required for the discharge from this outfall because the discharge is finished potable water. The Department authorizes potable water discharges that do not contain measurable concentrations of Total Residual Chlorine. Therefore, a daily maximum limitation equal to the Department's quantitation limit will be imposed, 0.02 mg/L.

Total Maximum Daily Load (TMDL)

TMDL limits are proposed based on section 001.B. and are displayed in Table 12.

Table 12. TMDL Limits for Outfall 004

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0
Total Manganese	1.0	2.0

004.C. Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 13. Sampling frequency will remain the same, but pH will be removed from monitoring for reasoning stated in 004.A.

Table 13. Effluent limitations from current permit

Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/discharge	Measure
Total Residual Chlorine	—	—	—	0.02	2/discharge	Grab
Total Iron	—	—	1.5	3.0	2/discharge	Grab
Total Aluminum	—	—	0.75	0.75	2/discharge	Grab
Total Manganese	—	—	1.0	2.0	2/discharge	Grab
pH (S.U.)	—	—	6.0-9.0		2/discharge	Grab

004.D. Proposed Effluent Limitations and Monitoring Requirements

Effluent limits applicable at Outfall 004 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 9.

Table 9. Effluent limits and monitoring requirements for Outfall 004

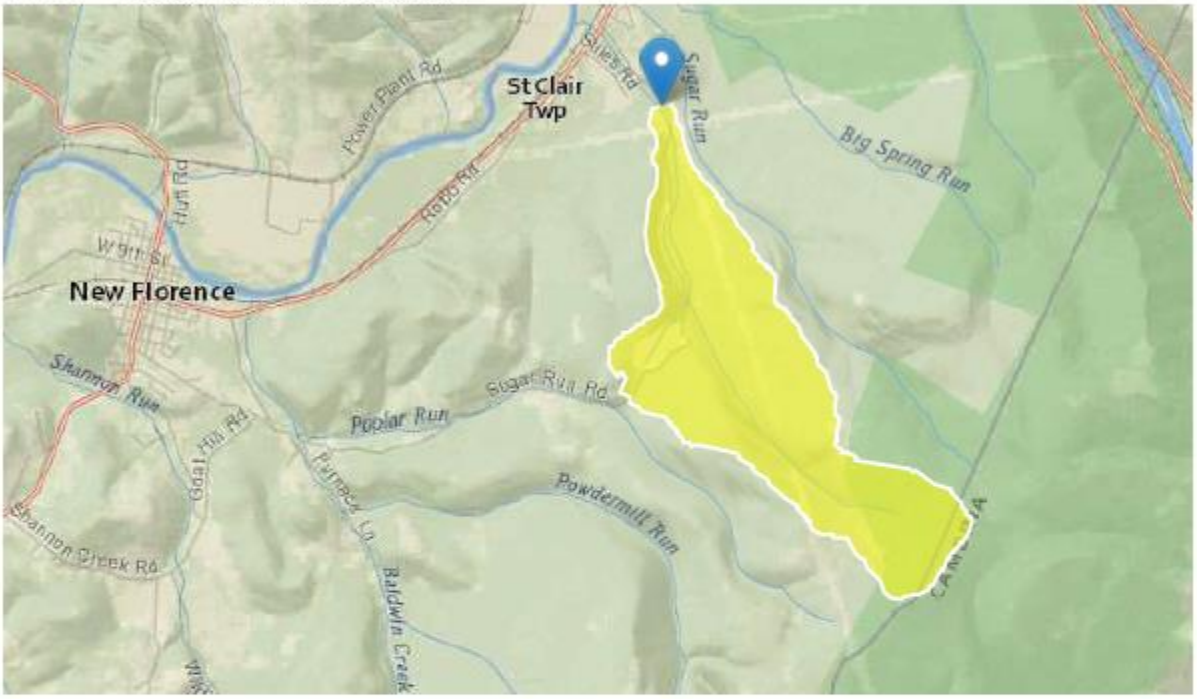
Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/discharge	Measure
Total Residual Chlorine	—	—	—	0.02	2/discharge	Grab
Total Iron	—	—	1.5	3.0	2/discharge	Grab
Total Aluminum	—	—	0.75	0.75	2/discharge	Grab
Total Manganese	—	—	1.0	2.0	2/discharge	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment C)
☒	TRC Model Spreadsheet (see Attachment D)
☐	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: Establishing Effluent Limits for Individual Industrial Permits (BCW-PMT-032)
☒	Other: USGS StreamStats (see Attachment A, B)

Attachment A:
USGS StreamStats at Point of Discharge

StreamStats Report

Region ID: PA
Workspace ID: PA20231108175418030000
Clicked Point (Latitude, Longitude): 40.39348, -79.02416
Time: 2023-11-08 12:54:39 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	8.9686	degrees
DRNAREA	Area that drains to a point on a stream	1.62	square miles
ELEV	Mean Basin Elevation	1965	feet
PRECIP	Mean Annual Precipitation	50	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	1.62	square miles	2.33	1720
ELEV	Mean Basin Elevation	1965	feet	898	2700
PRECIP	Mean Annual Precipitation	50	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.279	ft^3/s
30 Day 2 Year Low Flow	0.421	ft^3/s
7 Day 10 Year Low Flow	0.139	ft^3/s
30 Day 10 Year Low Flow	0.186	ft^3/s
90 Day 10 Year Low Flow	0.268	ft^3/s

Low-Flow Statistics Citations

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

Attachment B:
USGS StreamStats at End of Reach

StreamStats Report

Region ID: PA
Workspace ID: PA20231109183155672000
Clicked Point (Latitude, Longitude): 40.39991, -79.03208
Time: 2023-11-09 13:32:18 -0500

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.24	square miles
ELEV	Mean Basin Elevation	1741	feet
PRECIP	Mean Annual Precipitation	49	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	2.24	square miles	2.33	1720
ELEV	Mean Basin Elevation	1741	feet	898	2700
PRECIP	Mean Annual Precipitation	49	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.338	ft^3/s
30 Day 2 Year Low Flow	0.509	ft^3/s
7 Day 10 Year Low Flow	0.166	ft^3/s
30 Day 10 Year Low Flow	0.225	ft^3/s
90 Day 10 Year Low Flow	0.326	ft^3/s

Low-Flow Statistics Citations

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

Attachment C:
Toxics Management Spreadsheet

Discharge Information

Instructions | Discharge | Stream

Facility: **Sugar Run Water Treatment Plan** NPDES Permit No.: **PA0217948** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW Process Effluent without ELG**

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
0.165	16000	6.88						

					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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		22									
	Chloride (PWS)	mg/L	<	2									
	Bromide	mg/L	<	0.5									
	Sulfate (PWS)	mg/L		8									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L	<	200									
	Total Antimony	µg/L	<	60									
	Total Arsenic	µg/L	<	10									
	Total Barium	µg/L	<	200									
	Total Beryllium	µg/L	<	5									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	2.5									
	Total Chromium (III)	µg/L	<	10									
	Hexavalent Chromium	µg/L	<	0.02									
	Total Cobalt	µg/L	<	50									
	Total Copper	mg/L	<	0.025									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		139									
	Total Lead	µg/L	<	5									
	Total Manganese	µg/L		221									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	40									
	Total Phenols (Phenolics) (PWS)	µg/L		0.0034									
	Total Selenium	µg/L	<	10									
	Total Silver	µg/L	<	10									
	Total Thallium	µg/L	<	10									
	Total Zinc	mg/L	<	0.02									
	Total Molybdenum	µg/L	<	2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Stream / Surface Water Information

Sugar Run Water Treatment Plan, NPDES Permit No. PA0217948, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Tributary 44984 to Conemaugh River**

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	044984	0.7	1181	1.62	0.16		Yes
End of Reach 1	044984	0	1065	2.24	0.16		Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.7	0.0858										100	7		
End of Reach 1	0	0.741													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.7														
End of Reach 1	0														

Model Results

Sugar Run Water Treatment Plan, NPDES Permit No. PA0217948, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 0.015 PMF: 1 Analysis Hardness (mg/l): 10394 Analysis pH: 6.92

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,158	
Total Antimony	0	0		0	1,100	1,100	1,699	
Total Arsenic	0	0		0	340	340	525	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	32,435	
Total Boron	0	0		0	8,100	8,100	12,511	
Total Cadmium	0	0		0	179.555	239	370	Chem Translator of 0.75 applied
Total Chromium (III)	0	0		0	25553.556	80,866	124,900	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	25.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	147	
Total Copper	0	0		0	1068.063	1,113	1,718	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	3447.469	30,152	46,571	Chem Translator of 0.114 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.54	Chem Translator of 0.85 applied
Total Nickel	0	0		0	23805.365	23,853	36,842	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	9469.109	11,140	17,206	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	100	
Total Zinc	0	0		0	5993.593	6,128	9,466	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 0.015 PMF: 1 Analysis Hardness (mg/l): 10394 Analysis pH: 6.92

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	
Fluoride (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	340	
Total Arsenic	0	0		0	150	150	232	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,333	
Total Boron	0	0		0	1,600	1,600	2,471	
Total Cadmium	0	0		0	6.036	8.45	13.0	Chem Translator of 0.715 applied
Total Chromium (III)	0	0		0	3323.993	3,865	5,970	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	16.1	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	29.3	
Total Copper	0	0		0	473.647	493	762	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	2,317	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	134.343	1,175	1,815	Chem Translator of 0.114 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	2644.041	2,652	4,096	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	7.71	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	20.1	
Total Zinc	0	0		0	6042.621	6,128	9,466	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.015 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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	8.65	
Total Arsenic	0	0		0	10	10.0	15.4	
Total Barium	0	0		0	2,400	2,400	3,707	
Total Boron	0	0		0	3,100	3,100	4,788	
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	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,545	
Total Mercury	0	0		0	0.050	0.05	0.077	
Total Nickel	0	0		0	610	610	942	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.37	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 0.033 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	
Fluoride (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	
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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Antimony	0.012	0.019	8.65	13.5	21.6	µg/L	8.65	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Arsenic	0.021	0.033	15.4	24.1	38.6	µg/L	15.4	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	13.0	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Cobalt	0.04	0.063	29.3	45.8	73.4	µg/L	29.3	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	1,545	THH	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.011	0.017	7.71	12.0	19.3	µg/L	7.71	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.0005	0.0008	0.37	0.58	0.93	µg/L	0.37	THH	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Barium	3,707	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Chromium (III)	5,970	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	16.1	µg/L	Discharge Conc < TQL
Total Copper	0.76	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2,317	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	1,815	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.077	µg/L	Discharge Conc < TQL
Total Nickel	942	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	11,140	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	6.13	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

Attachment D:
TRC Model Spreadsheet

TRC EVALUATION

0.139	= Q stream (cfs)	0.5	= CV Daily
0.165	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.995	= 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)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.192	1.3.2.iii	WLA cfc = 0.180
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.071	5.1d	LTA_cfc = 0.105

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.123	AFC
		INST MAX LIMIT (mg/l) = 0.288	

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)**