pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0095010**
Facility Type	**Industrial**	APS ID	**1053944**
Major / Minor	**Minor**	Authorization ID	**1380225**

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

Applicant and Facility Information

Applicant Name	**Greater Johnstown Water Authority**	Facility Name	**Riverside Water Treatment Plant**
Applicant Address	P.O. Box 1407 640 Franklin Street	Facility Address	242 Neil Street
	Johnstown, PA 15907-1407		Johnstown, PA 15904-4404
Applicant Contact	Tom Brown	Facility Contact	Tom Brown
Applicant Phone	(814) 533-4300	Facility Phone	(814) 536-0770
Client ID	26159	Site ID	255260
SIC Code	4941	Municipality	Stonycreek Township
SIC Description	Trans. & Utilities - Water Supply	County	Cambria
Date Application Received	December 22, 2021	EPA Waived?	Yes
Date Application Accepted	December 29, 2021	If No, Reason	
Purpose of Application	Renewal of NPDES permit for the discharge of process wastewater and stormwater from the water treatment plant.		

Summary of Review

Background

The Department received an NPDES permit renewal application from the Greater Johnstown Water Authority (GJWA) on December 22, 2021 for coverage of the discharge from its Riverside Water Treatment Plant (WTP) in Stonycreek Township of Cambria County. The facility is a municipal water treatment plan with an SIC Code 4941 (Water Supply). The current NPDES permit was renewed on July 1, 2017 and expired on June 30, 2022. Water Quality Management (WQM) permit 1184202 was approved in 1984 and amended in 2008.

Riverside WTP's application and previous permit contained incorrect outfall locations. The plant field-located the outfall locations and provided updated outfall coordinates and an updated outfall map on April 17, 2023.

Property and Operations

The 14 million-gallon-per-day (MGD) Riverside WTP serves Johnstown, PA as a municipal water treatment plant and has been in operation since 1985. Riverside WTP withdraws water from the Quemahoning Reservoir, the Dalton Run Reservoir, and the North Fork Reservoir. Riverside WTP's treatment system includes chemical treatment, microfiltration and disinfection.

Riverside WTP operates as a municipal water treatment plant that treats water to produce potable water for community use in the Johnstown area. Riverside WTP's treatment system consists of chemical pre-treatment and post-treatment, a flocculation basin, mixed media filters, clearwell, and finished water storage tank. Wastewater discharges to the plant's two

Approve	Deny	Signatures	Date
X		Lauren Nolfi, E.I.T. / Environmental Engineering Specialist	April 19, 2023
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	May 12, 2023

Summary of Review

wastewater treatment lagoons. A site plan of the plant is included in Attachment A. A line drawing of the treatment system is included in Attachment B.

Outfalls

The facility has four outfalls, Outfalls 001 – 004, which discharge to Stonycreek River, designated in 25 PA Code Chapter 93 as a Warm Water Fishery (WWF). Outfall 001 discharges supernatant water from the plant's two wastewater treatment lagoons at a design flow of 0.243 MGD. The wastewater treatment lagoons receive filter backwash and filter to wastewater, flocculation basin drain water, sample sink drain water, plant overflow roof and floor drain water, and roof drain and unloading dock stormwater. Lagoon supernatant discharges via Outfall 001 to Stonycreek River. Solids from the lagoons are dewatered in the sludge drying beds before being mixed with topsoil and spread at line projects.

Outfall 002 discharges stormwater runoff from south side of the parking lot, loading dock, and building roof drain. The stormwater is piped to a conveyance ditch, which discharges to Stonycreek River. Outfall 003 discharges stormwater runoff from the catch basin on the north side of the building via a drainage ditch. The drainage ditch is piped west into a wetland area, which discharges to Stonycreek River. Outfall 004 discharges stormwater runoff from north side of the parking lot. The stormwater is conveyed via a ditch on the east side of the property where it is commingled with offsite water prior to discharging to Stonycreek River.

Riverside WTP reported in the application that a PPC plan was in development and would be completed prior to the date of permit expiration in June of 2022.

Public Participation

Greater Johnstown Water Authority provided evidence of Act 14 municipal and county notifications to Stonycreek Township and Cambria County on November 2, 2021.

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.

Conclusion

Draft permit issuance is recommended.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.243
Latitude	40º 17' 1.96"	Longitude	-78º 55' 36.19"
Quad Name	Johnstown	Quad Code	1614
Wastewater Description:	Filter backwash and filter to waste water, flocculation basin drain water, sample sink drain water, plant overflow roof and floor drain water, and roof drain and unloading dock stormwater.		
Receiving Waters	Stonycreek River (WWF)	Stream Code	45084
NHD Com ID	123720396	RMI	5.77
Drainage Area	452	Yield (cfs/mi^2)	0.0808
Q_{7-10} Flow (cfs)	36.5	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1191	Slope (ft/ft)	0.002
Watershed No.	18-E	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Waterworks		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	0.93
PWS RMI	0.52	Distance from Outfall (mi)	57

Changes Since Last Permit Issuance: Outfall 001's coordinates in the previous permit corresponded to a location discharging to Bens Creek. Outfall 001's location has been field-located and the outfall coordinates have been updated.

Other Comments: The USGS Stream Stats Data for the drainage area is displayed in Attachment C.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	See Table 1	Design Flow (MGD)	Varies (Stormwater)
Latitude	See Table 1	Longitude	See Table 1
Quad Name	Johnstown	Quad Code	1614
Wastewater Description:	Stormwater		
Receiving Waters	Stonycreek River (WWF)	Stream Code	45084
NHD Com ID	123720424/ 123720396	RMI	See Table 1
Drainage Area	See Table 1	Yield (cfs/mi^2)	See Table 1
Q_{7-10} Flow (cfs)	See Table 1	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	See Table 1	Slope (ft/ft)	0.002
Watershed No.	18-E	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Cause Unknown		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Waterworks		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	0.93
PWS RMI	0.52	Distance from Outfall (mi)	57

Changes Since Last Permit Issuance: Outfalls 003 and 004 were not identified or included in the previous permit. Outfall 002's coordinates in the previous permit corresponded to a location discharging to Bens Creek. Locations for Outfalls 002 - 004 have been field-located and the outfall coordinates have been updated.

Other Comments: Outfall locations for the above-mentioned outfalls are displayed below in Table 1.

Table 1: Stormwater Outfall Locations

Outfall	Latitude	Longitude	RMI	Drainage Area (mi^2)	Q_{7-10} Flow (cfs)	Yield (cfs/mi^2)	Elevation (ft)
002	40º 16' 55.38"	-78º 55' 33.36"	6.03	403	32.6	0.0809	1198
003	40º 16' 57.99"	-78º 55' 35.24"	6.03	403	32.6	0.0809	1198
004	40º 17' 3.13"	-78º 55' 34.8"	5.74	452	36.5	0.0808	1191

Compliance History

DMR Data for Outfall 001 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly	0.2661	0.33587	0.3328	0.3929	0.3724	0.36066	0.35245	0.3638	0.2636	0.2278	0.20446	0.27004
Flow (MGD) Daily Maximum	0.3944	0.56402	0.4206	0.6247	0.4797	0.75059	0.49194	0.66588	0.3926	0.5152	0.28903	0.45618
pH (S.U.) Minimum	6.53	6.26	7.06	6.90	6.27	6.90	6.41	6.77	6.62	6.04	6.07	6.03
pH (S.U.) Maximum	6.77	6.91	7.07	7.00	6.70	7.16	6.60	6.84	6.65	6.22	6.63	6.06
TRC (mg/L) Average Monthly	0.23	0.055	0.455	0.135	0.25	0.365	0.30	0.175	0.515	0.265	0.30	0.065
TRC (mg/L) Instantaneous Maximum	0.31	0.060	0.55	0.22	0.44	0.71	0.32	0.26	0.52	0.38	0.55	0.070
TSS (mg/L) Average Monthly	2.00	3.20	3.40	2.20	3.60	2.40	7.80	2.40	4.80	4.80	1.80	3.80
TSS (mg/L) Instantaneous Maximum	2.40	3.20	4.40	2.40	4.40	3.20	10.0	3.20	5.60	5.20	2.00	6.00
Total Aluminum (mg/L) Average Monthly	0.414	0.4535	0.413	0.3665	0.4405	0.3965	0.313	0.484	0.5135	0.577	0.440	0.460
Total Aluminum (mg/L) Instantaneous Maximum	0.441	0.467	0.433	0.457	0.564	0.409	0.367	0.542	0.543	0.578	0.466	0.501
Total Iron (mg/L) Average Monthly	< 0.200	< 0.200	< 0.200	< 0.200	0.245	0.2025	< 0.200	< 0.200	< 0.200	0.765	< 0.200	< 0.200
Total Iron (mg/L) Instantaneous Maximum	< 0.200	< 0.200	< 0.200	< 0.200	0.290	0.205	< 0.200	< 0.200	< 0.200	1.33	< 0.200	< 0.200
Total Manganese (mg/L) Average Monthly	0.0736	0.164	0.1955	0.188	0.09835	0.6085	0.512	0.0935	0.381	1.749	0.0373	0.145
Total Manganese (mg/L) Instantaneous Maximum	0.0773	0.193	0.309	0.286	0.110	1.04	0.641	0.0944	0.635	3.30	0.0546	0.216

DMR Data for Outfall 002 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly	0.02663	0.0138	0.0132	0.0201	0.00465	0.0163	0.0077	0.01657	0.0214	0.0213	0.011317	0.01158
Flow (MGD) Daily Maximum	0.05791	0.0606	0.04504	0.1287	0.00751	0.04075	0.0874	0.05738	0.0402	0.0879	0.049869	0.048796

Compliance History

Effluent Violations for Outfall 001, from: April 1, 2022 To: February 28, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	06/30/22	Avg Mo	0.515	mg/L	.5	mg/L
Total Manganese	05/31/22	Avg Mo	1.749	mg/L	1.0	mg/L
Total Manganese	05/31/22	IMAX	3.30	mg/L	2.0	mg/L

Summary of Inspections: The facility was most recently inspected on February 12, 2021 by Lisa Milsop as a compliance evaluation. Riverside WTP received violations on February 12, 2021 (resolved February 16, 2021) and July 9, 2018 (resolved July 17, 2018) for exceeding effluent limitations.

Other Comments:

Monitoring data from the past three years shows six effluent violations for the parameters aluminum, pH, manganese, and total residual chlorine.

The client has five open violations. One violation, from the SWRO's Safe Drinking Water Program, was issued to GJWA's Saltlick Plant for failure to meet design and construction standards. Four violations, from the SWRO's Storage Tanks Program, were issued to GJWA's Riverside WTP for UST requirement failures and failure to meet performance standards for new/ upgraded tanks.

Outfall No.	001	**Design Flow (MGD)**	0.243
Latitude	40º 17' 1.96"	**Longitude**	-78º 55' 36.19"
Wastewater Description:	Filter backwash and filter to waste water, flocculation basin drain water, sample sink drain water, plant overflow roof and floor drain water, and roof drain and unloading dock stormwater.		

Technology-Based Limitations (TBELs)

Riverside WTP is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

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

Effluent standards for pH pursuant to 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2(1), as indicated in Table 1, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 2.

Table 2: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
TRC	0.5 mg/l	1.0 mg/l	1.6 mg/l

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of water treatment plant (WTP) sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which recommends effluent limitations be imposed under Best Professional Judgement in accordance with 40 CFR § 125.3, and detailed in Table 3.

Table 3: BPT Limits for WTP sludge and filter backwash wastewater

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Total Suspended solids	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow (MGD)	Monitor and Report	
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Management Analysis

The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken form the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters 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].

   - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

   - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

   - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and contained in the DMRs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Tables 4 and 5 below.

Table 4: TMS Design Inputs

Parameter	Value
Design Flow (MGD)	0.243
Hardness (mg/L)	22.4
pH (S.U.)	7.5
Partial Mix Factors (PMFs)	
AFC	calc.
CFC	calc.
THH	calc.
CRL	calc.
Complete Mix Times	
Q_{7-10} (min)	calc.
Q_h (min)	calc.

Table 5: TMS Stream Inputs

Parameter	Value
Stream Code	45084
RMI	5.77
Elevation	1191
Drainage Area (mi^2)	452
Slope (ft/ft)	0.002
PWS Withdrawal (MGD)	
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	0.0808
Stream Flow (cfs)	36.5
Tributary Flow (cfs)	N/A
Width (ft)	
Stream Hardness (mg/L)	100
Stream pH (S.U.)	7

Output from the TMS model runs is included in Attachment D. Based on the recommendations of the TMS, no WQBELs are to be imposed at Outfall 001.

Total Dissolved Solids (TDS)

Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 2,000 mg/L TDS should be applied at minimum. The maximum reported TDS concentration at Outfall 001 is 50 mg/L. Since the TDS discharge concentration is below 2,000 mg/L, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

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 Edse, identify that BPT is the most stringent criteria for TRC at an average monthly limit of 0.5 mg/L. The maximum daily limit is 2 times the average monthly limit resulting in a 1.0 mg/L limit for maximum daily.

Total Maximum Daily Load (TMDL)

Stonycreek River is located within the Kiskiminetas-Conemaugh River Watershed, for which the Department has developed a TMDL. The Kiskiminetas-Conemaugh River Watershed TMDL was finalized on January 29, 2010 to control acid mine drainage pollutants including aluminum, iron, manganese, sediment, and pH. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's ("EPA'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 its water quality standard 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 to restore and maintain the quality of the state's water resources (USEPA 1991).

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). The Kiskiminetas-Conemaugh River Watershed TMDL does not include a wasteload allocation (WLA) for Riverside WTP.

The current permit's effluent limitations for aluminum, iron, manganese, and pH will be maintained to address the TMDL's target concentrations and meet in the instream criterion values for these parameters at the point of discharge.

Anti-Backsliding

The effluent limitations and monitoring requirements in Table 6 below are from the current permit, issued on July 1, 2017. The draft permit does not propose any effluent limits that are less stringent than those imposed in the previous permit.

Table 6: Current Permit Effluent Limitations – Outfall 001

Parameter	Average Monthly	Maximum Daily	IMAX	Units	Monitoring Frequency
Flow	Monitor & Report		-	MGD	2/ month
Total Residual Chlorine	0.5	-	1.0	$^{mg}/_{L}$	2/ month
Total Suspended Solids	30	-	60	$^{mg}/_{L}$	2/ month
Aluminum, total	0.75	-	1.5	$^{mg}/_{L}$	2/ month
Iron, total	1.5	-	3.0	$^{mg}/_{L}$	2/ month
Manganese, total	1.0	-	2.0	$^{mg}/_{L}$	2/ month
pH	6.0	-	9.0	S.U.	2/ month

Effluent Limitations and Monitoring Requirements

Effluent limitations and monitoring requirements applicable at Outfall 001 are the most stringent of TBELs, WQBELs, and regulatory effluent standards and monitoring requirements, as summarized below in Table 7. The applicable limits and monitoring requirements provided below are based on those in Tables 1-6 of this Fact Sheet.

Table 7: Effluent Limits and Monitoring Requirements – Outfall 001						
Parameter	**Mass**		**Concentration**		**Monitoring Requirements**	
	Average Monthly	**Daily Maximum**	**Average Monthly (mg/L)**	**Daily Maximum (mg/L)**	**Monitoring Frequency**	**Sample Type**
Flow (MGD)	Monitor & Report		-	-	2/ month	Measured
Total Residual Chlorine	-	-	0.5	1.0	2/ month	Grab
Total Suspended Solids	-	-	30.0	60.0	2/ month	Grab
Aluminum, total	-	-	0.75	1.5	2/ month	Grab
Iron, total	-	-	1.5	3.0	2/ month	Grab
Manganese, total	-	-	1.0	2.0	2/ month	Grab
pH (S.U.)	-	-	Not less than 6.0 nor greater than 9.0		2/ month	Grab

Development of Effluent Limitations

Outfall No. 002, 003, 004 **Design Flow (MGD)** 0
Latitude See Table 8 **Longitude** See Table 8
Wastewater Description: See Table 8

Stormwater Drainage Overview

Stormwater runoff information for the stormwater outfalls is displayed below in Table 8. Stormwater monitoring will not be imposed at Outfall 004 since it is considered a no exposure outfall and contains comingled stormwater.

Table 8: Stormwater Outfall Locations and Description

Outfall	Latitude	Longitude	Stormwater Description
002	40º 16' 55.38"	-78º 55' 33.36"	Stormwater runoff from south side of the parking lot, loading dock, and building roof drain. The stormwater is piped to a conveyance ditch, which discharges to Stonycreek River.
003	40º 16' 57.99"	-78º 55' 35.24"	Stormwater runoff from the catch basin on the north side of the building via a drainage ditch. The drainage ditch is piped west into a wetland area, which discharges to Stonycreek River.
004	40º 17' 3.13"	-78º 55' 34.8"	Stormwater runoff from north side of the parking lot. The stormwater is conveyed via a ditch on the east side of the property where it is commingled with offsite water prior to discharging to Stonycreek River.

Technology-Based Limitations

Stormwater Technology Limits

Outfalls 002 and 003 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall discharges stormwater. The SIC code for the site is 4941 (Water Supply) and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix J. The reporting requirements applicable to stormwater discharges are shown in Table 9 below. Along with the monitoring requirements, sector specific BMPs included in Appendix J (Additional Facilities) of the PAG-03 will also be included in Part C of the Draft Permit.

Table 9: PAG-03 Appendix J Monitoring Requirements

Parameters	Average Monthly (mg/L)	Daily Maximum (mg/L)	Benchmark Values (mg/L)	Monitoring Requirements	
				Monitoring Frequency	Sample Type
Nitrogen, total	-	Monitor & Report	-	1/6 Months	Grab
Phosphorus, total	-	Monitor & Report	-	1/6 Months	Grab
Total Suspended Solids	-	Monitor & Report	100	1/6 Months	Grab
Oil and Grease	-	Monitor & Report	30	1/6 Months	Grab
pH	-	Monitor & Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand	-	Monitor & Report	120	1/6 Months	Grab

Water Quality-Based Limitations

Stormwater WQBELs

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

Additionally, reported analytical results submitted in the NPDES permit application for Outfall 002 did not indicate any parameters of concern.

Total Maximum Daily Load (TMDL)

Stonycreek River is located within the Kiskiminetas-Conemaugh River Watershed, for which the Department has developed a TMDL. The Kiskiminetas-Conemaugh River Watershed TMDL was finalized on January 29, 2010 to control acid mine drainage pollutants including aluminum, iron, manganese, sediment, and pH. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's ("EPA'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 its water quality standard 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 to restore and maintain the quality of the state's water resources (USEPA 1991).

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). The Kiskiminetas-Conemaugh River Watershed TMDL does not include a wasteload allocation (WLA) for Riverside WTP.

Since the discharges from Outfalls 002 and 003 are composed entirely of stormwater, only monitor and report for aluminum, iron and manganese will be imposed at Outfalls 002 and 003 to address the Kiskiminetas-Conemaugh River Watersheds TMDL.

Anti-Backsliding

The monitoring requirements in Table 10 below are from the current permit, issued on July 1, 2017. Since the discharges from Outfalls 002 and 003 are composed entirely of stormwater, flow monitoring is not applicable to these outfalls and will be removed from the permit.

Table 10: Current Permit Monitoring Requirements – Outfall 002

Parameter	Average Monthly	Maximum Daily	IMAX	Units	Monitoring Frequency
Flow	Monitor & Report		-	MGD	1/ quarter

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent monitoring requirements for Outfalls 002 and 003 are displayed in Table 11 below. Since discharges from Outfalls 002 and 003 are composed entirely of stormwater, flow monitoring is no longer imposed at Outfall 002. No effluent monitoring is proposed for Outfall 004 since it is considered a no exposure outfall and contains comingled stormwater.

A Part C condition is included in the Draft Permit requiring submission of a Corrective Action Plan when there are two consecutive exceedances of the benchmark values. The benchmark values are displayed below in Table 11 and included in the Part C condition. These values are from the EPA'S 2021 Multisector General Permit document and are not effluent limitations. Exceedance of the benchmark values is not a violation. If there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

The monitoring frequency for stormwater outfalls is reduced from quarterly to semiannually to reflect the monitoring frequency in the PAG-03 General Stormwater Permit.

Table 11: Proposed Effluent Monitoring Requirements – Outfalls 002, 003

Parameters	Average Monthly (mg/L)	Daily Maximum (mg/L)	Benchmark Values (mg/L)	Monitoring Requirements	
				Monitoring Frequency	Sample Type
Aluminum, total	-	Monitor & Report	-	1/6 Months	Grab
Iron, total	-	Monitor & Report	-	1/6 Months	Grab
Manganese, total	-	Monitor & Report	-	1/6 Months	Grab
Nitrogen, total	-	Monitor & Report	-	1/6 Months	Grab
Phosphorus, total	-	Monitor & Report	-	1/6 Months	Grab
Total Suspended Solids	-	Monitor & Report	100	1/6 Months	Grab
Oil and Grease	-	Monitor & Report	30	1/6 Months	Grab
pH	-	Monitor & Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand	-	Monitor & Report	120	1/6 Months	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see **Attachment D**)
☒	TRC Model Spreadsheet (see **Attachment** E)
☐	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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☒	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

Attachment A: Site Plan

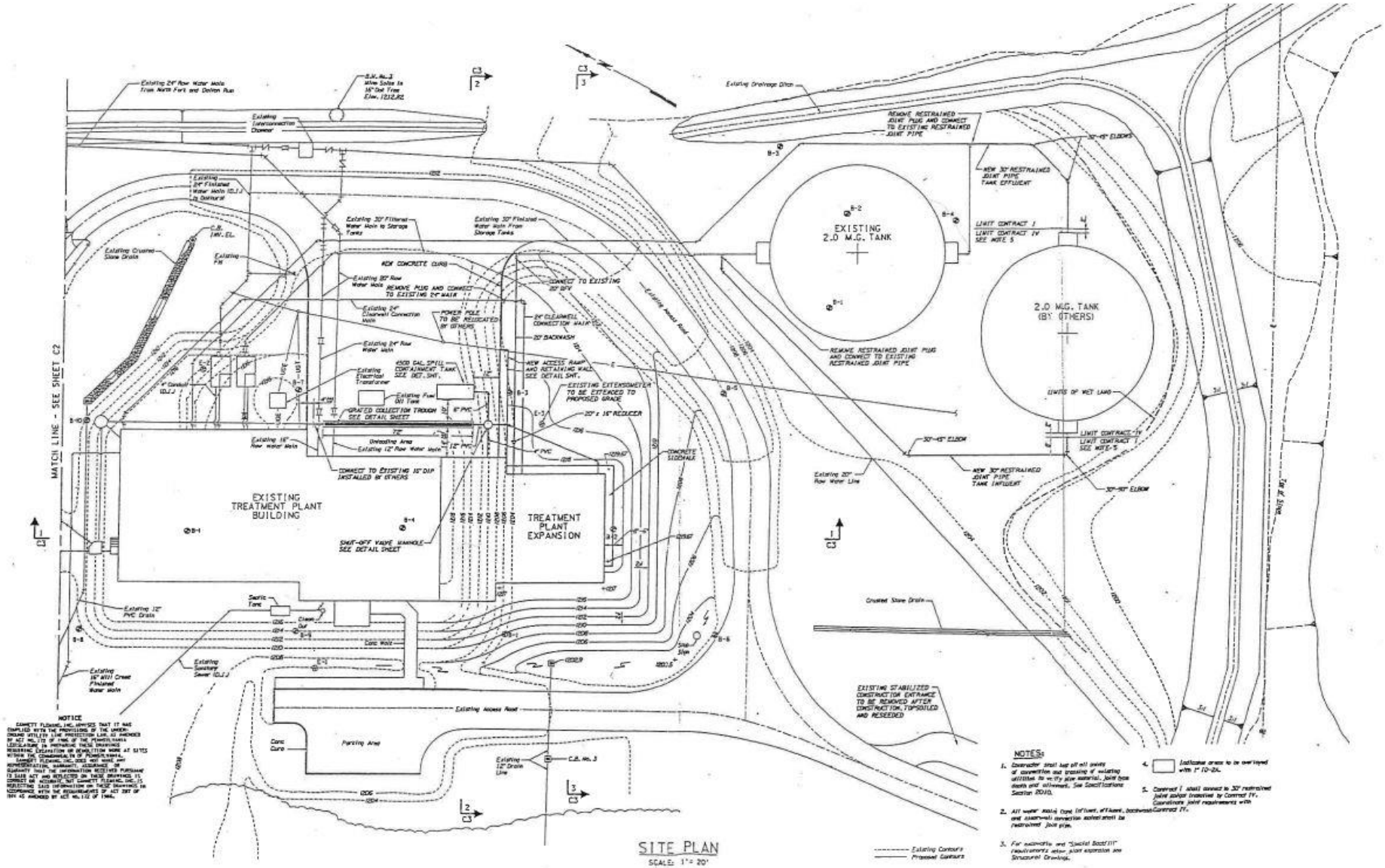
Attachment B: Line Drawing

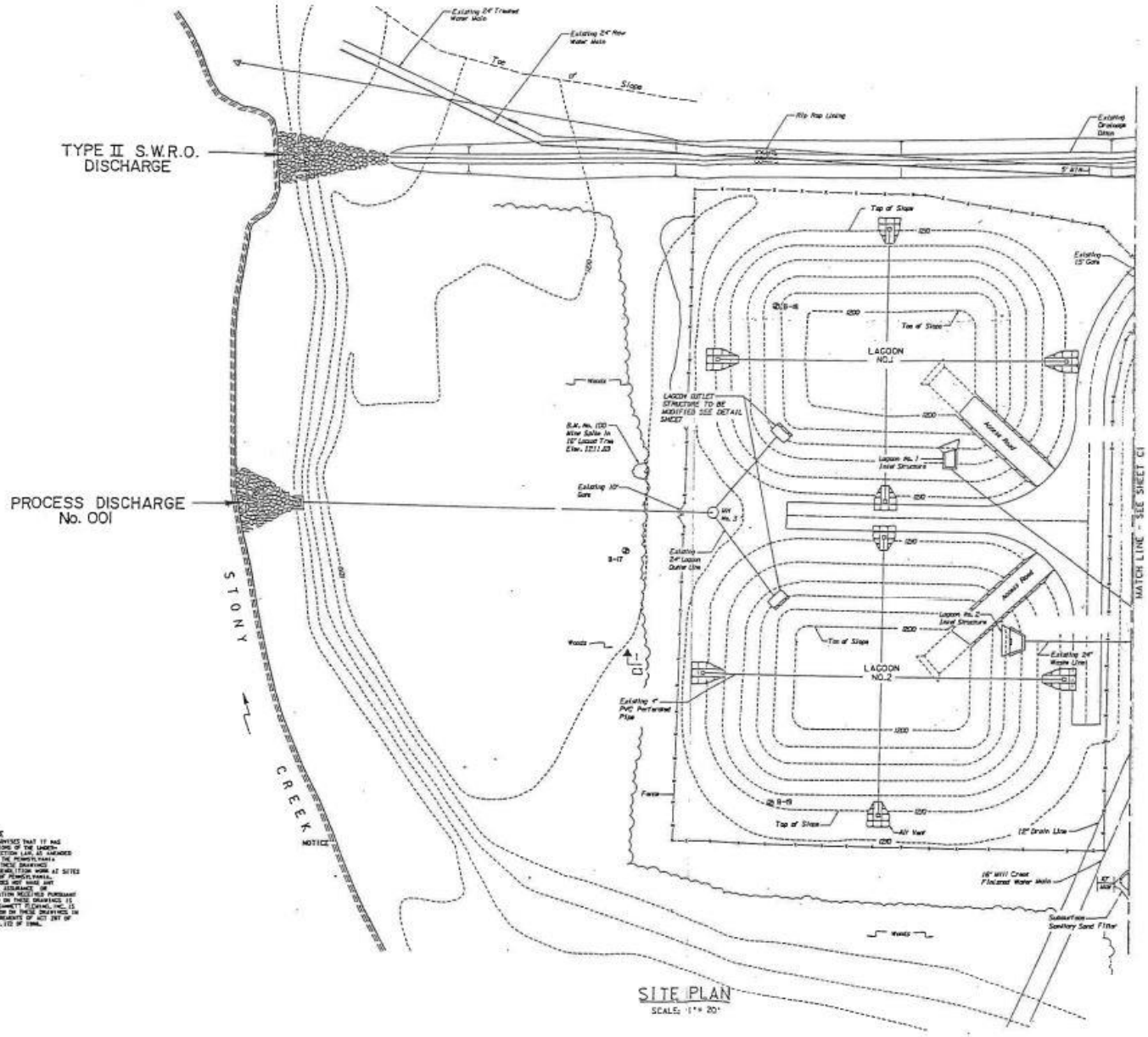
Attachment C: USGS StreamStats Report

Attachment D: Toxics Management Spreadsheet Model Output

Attachment E: TRC Modeling Results

ATTACHMENT A:
Site Plan


EXISTING TREATMENT PLANT BUILDING
TREATMENT PLANT EXPANSION
EXISTING 2.0 M.G. TANK
2.0 M.G. TANK (BY OTHERS)
MATCH LINE - SEE SHEET C2
SITE PLAN
SCALE: 1" = 20'
NOTES:

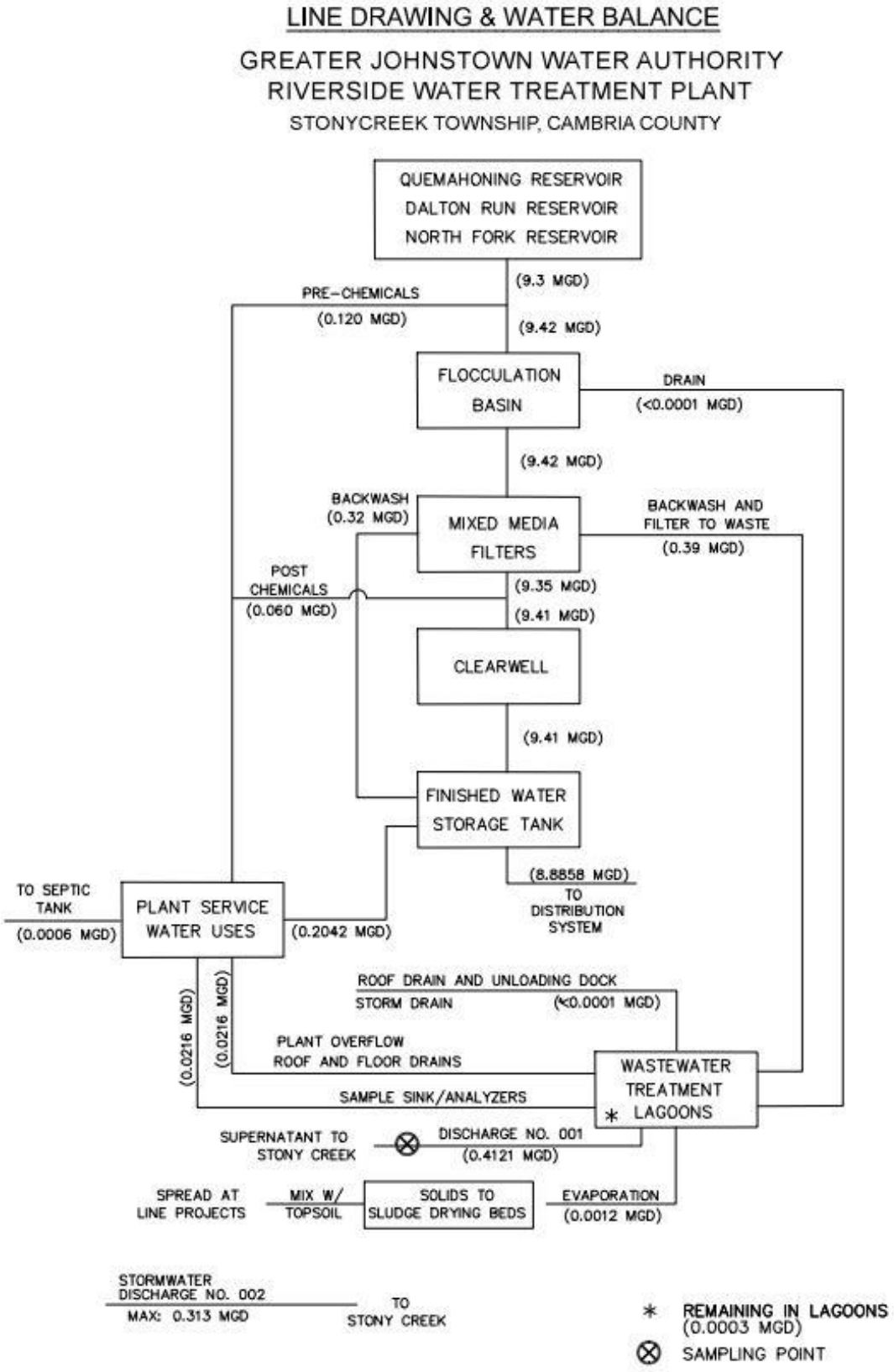


SITE PLAN
SCALE: 1" = 20'

NOTICE

NOTE:
1. Lagoon outlet structure should be provided with weir orifice plates, and sonic level transmitters.

Attachment B:
Line Drawing


LINE DRAWING & WATER BALANCE
GREATER JOHNSTOWN WATER AUTHORITY
RIVERSIDE WATER TREATMENT PLANT
STONYCREEK TOWNSHIP, CAMBRIA COUNTY
QUEMAHONING RESERVOIR
DALTON RUN RESERVOIR
NORTH FORK RESERVOIR
(9.3 MGD)
PRE-CHEMICALS
(0.120 MGD)
(9.42 MGD)
FLOCCULATION BASIN
DRAIN
(<0.0001 MGD)
(9.42 MGD)
BACKWASH
(0.32 MGD)
MIXED MEDIA FILTERS
BACKWASH AND FILTER TO WASTE
(0.39 MGD)
POST CHEMICALS
(0.060 MGD)
(9.35 MGD)
(9.41 MGD)
CLEARWELL
(9.41 MGD)
FINISHED WATER STORAGE TANK
(8.8858 MGD)
TO DISTRIBUTION SYSTEM
TO SEPTIC TANK
(0.0006 MGD)
PLANT SERVICE WATER USES
(0.2042 MGD)
(0.0216 MGD)
(0.0216 MGD)
ROOF DRAIN AND UNLOADING DOCK
STORM DRAIN
(<0.0001 MGD)
PLANT OVERFLOW
ROOF AND FLOOR DRAINS
SAMPLE SINK/ANALYZERS
WASTEWATER TREATMENT * LAGOONS
SUPERNATANT TO STONY CREEK
DISCHARGE NO. 001
(0.4121 MGD)
SPREAD AT LINE PROJECTS
MIX W/ TOPSOIL
SOLIDS TO SLUDGE DRYING BEDS
EVAPORATION
(0.0012 MGD)
STORMWATER DISCHARGE NO. 002
MAX: 0.313 MGD
TO STONY CREEK
* REMAINING IN LAGOONS (0.0003 MGD)
SAMPLING POINT

Attachment C:
USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20230407151248948000
Clicked Point (Latitude, Longitude): 40.28581, -78.92585
Time: 2023-04-07 11:13:09 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	452	square miles
ELEV	Mean Basin Elevation	2160	feet
PRECIP	Mean Annual Precipitation	43	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (452 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	452	square miles	2.33	1720
ELEV	Mean Basin Elevation	2160	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Flow Report [99.9 Percent (452 square miles) Low Flow Region 3]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	66.1	ft^3/s	43	43
30 Day 2 Year Low Flow	86	ft^3/s	38	38
7 Day 10 Year Low Flow	36.5	ft^3/s	54	54
30 Day 10 Year Low Flow	44.5	ft^3/s	49	49
90 Day 10 Year Low Flow	62.4	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.14.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT D:

Toxics Management Spreadsheet Model Output

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Riverside Water Treatment Plant** NPDES Permit No.: **PA0095010** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Filter 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
0.243	22.4	7.5						

					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		50									
	Chloride (PWS)	mg/L		9.67									
	Bromide	mg/L	<	0.036									
	Sulfate (PWS)	mg/L		12.6									
	Fluoride (PWS)	mg/L	<	0.05									
Group 2	Total Aluminum	µg/L		466									
	Total Antimony	µg/L	<	0.348									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		34.7									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L	<	0.565									
	Total Cadmium	µg/L	<	0.123									
	Total Chromium (III)	µg/L	<	0.00199									
	Hexavalent Chromium	µg/L	<	0.00025									
	Total Cobalt	µg/L	<	0.119									
	Total Copper	µg/L		2.43									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	0.006									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		82.3									
	Total Lead	µg/L	<	0.172									
	Total Manganese	µg/L		176									
	Total Mercury	µg/L	<	0.000104									
	Total Nickel	µg/L	<	1.44									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.002									
	Total Selenium	µg/L	<	1.67									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.068									
	Total Zinc	µg/L		48.3									
	Total Molybdenum	µg/L	<	0.2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Riverside Water Treatment Plant, NPDES Permit No. PA0095010, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Stonycreek River**

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	045084	5.77	1191	452	0.002		Yes
End of Reach 1	045084	5.27	1185	453	0.002		Yes

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

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	5.77	0.0808	36.5									100	7		
End of Reach 1	5.27	0.0808	36.6												

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	5.77														
End of Reach 1	5.27														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Riverside Water Treatment Plant, NPDES Permit No. PA0095010, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.219 Analysis Hardness (mg/l): 96.509 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 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	16,672	
Total Antimony	0	0		0	1,100	1,100	24,453	
Total Arsenic	0	0		0	340	340	7,558	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	466,828	
Total Boron	0	0		0	8,100	8,100	180,062	
Total Cadmium	0	0		0	1.945	2.06	45.7	Chem Translator of 0.945 applied
Total Chromium (III)	0	0		0	553.422	1,751	38,932	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	362	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,112	
Total Copper	0	0		0	12.997	13.5	301	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	62.129	78.0	1,735	Chem Translator of 0.796 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	36.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	454.370	455	10,121	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	3.026	3.56	79.1	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,445	
Total Zinc	0	0		0	113.705	116	2,585	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 99.209 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total 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	21,581	
Total Arsenic	0	0		0	150	150	14,714	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	402,189	
Total Boron	0	0		0	1,600	1,600	156,952	
Total Cadmium	0	0		0	0.245	0.27	26.4	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	73.634	85.6	8,399	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,020	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	1,864	
Total Copper	0	0		0	8.895	9.27	909	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	147,142	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.495	3.15	309	Chem Translator of 0.792 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	88.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.658	51.8	5,083	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	489	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	1,275	
Total Zinc	0	0		0	117.347	119	11,675	Chem Translator of 0.986 applied

☑ *THH* CCT (min): ###### 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	549	
Total Arsenic	0	0		0	10	10.0	981	
Total Barium	0	0		0	2,400	2,400	235,428	
Total Boron	0	0		0	3,100	3,100	304,094	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	29,428	
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	98,095	
Total Mercury	0	0		0	0.050	0.05	4.9	
Total Nickel	0	0		0	610	610	59,838	
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	23.5	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): ####### 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	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***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 Aluminum	10,686	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	235,428	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	115,413	µg/L	Discharge Conc < TQL
Total Cadmium	26.4	µg/L	Discharge Conc < TQL
Total Chromium (III)	8,399	µg/L	Discharge Conc < TQL
Hexavalent Chromium	232	µg/L	Discharge Conc < TQL
Total Cobalt	1,354	µg/L	Discharge Conc < TQL
Total Copper	193	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	29,428	µg/L	Discharge Conc < TQL
Total Iron	147,142	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	309	µg/L	Discharge Conc < TQL
Total Manganese	98,095	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	4.9	µg/L	Discharge Conc < TQL
Total Nickel	5,083	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	489	µg/L	Discharge Conc < TQL
Total Silver	50.7	µg/L	Discharge Conc < TQL
Total Thallium	23.5	µg/L	Discharge Conc < TQL
Total Zinc	1,657	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

ATTACHMENT E:
TRC Modeling Results

TRC EVALUATION

36.5	= Q stream (cfs)	0.5	= CV Daily
0.243	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.219	= 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	313.75	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 6.802	1.3.2.iii	WLA cfc = 30.208
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.535	5.1d	LTA_cfc = 17.561

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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)**