pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218227**
Facility Type	**Industrial**	APS ID	**1092284**
Major / Minor	**Minor**	Authorization ID	**1446281**

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

Applicant and Facility Information

Applicant Name	**Washington Township Municipal Authority Fayette County**	Facility Name	**Washington Township Municipal Authority WTP**
Applicant Address	1390 Fayette Avenue	Facility Address	Route 201
	Belle Vernon, PA 15012-2535		Fayette City, PA 15438
Applicant Contact	Janice Armoroso	Facility Contact	Janice Armoroso
Applicant Phone	(724) 929-3370	Facility Phone	(724) 929-3370
Client ID	61893	Site ID	263919
SIC Code	4941	Municipality	Fayette City Borough
SIC Description	Trans. & Utilities - Water Supply	County	Fayette
Date Application Received	July 3, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of NPDES Industrial Waste Permit without ELG.

Summary of Review

The Department received an NPDES permit renewal application from the Municipal Authority of the Township of Washington for the Municipal Authority of the Township of Washington Water Treatment Plant (WTP) located in Fayette City of Fayette County on July 7, 2023. The facility is a potable, public WTP with an SIC Code of 4941. The facility's existing permitted Industrial Waste discharge consist of supernatant from the secondary clarifier, which is discharged back to the Monongahela River. The sludge generated by the two (2) wastewater tanks is removed periodically where it is thickened by means of two (2) sludge drying beds. Polymer is added to the sludge to aid in the dewatering process. The sludge is disposed of at an approved landfill facility.

The Municipal Authority of the Township of Washington WTP Facility (plant capacity rated at 1.8 MGD, and currently operates at 1.5 MGD) purifies water obtained from the Monongahela River. The water is withdrawn from the Monongahela River and directed to the aeration basin, where water treatment chemicals are added (DelPAC coagulant, potassium permanganate, chlorine for pre-disinfection along with caustic soda for pH adjustment). The water then flows to a mixing chamber, where activated carbon can be added when required for taste and odor control. The water then enters a second mixing chamber, which allows further coagulation and flocculation. The water is then directed to the sedimentation basins, allowing the coagulated particles to settle. Effluent from the sedimentation basin is directed to four (4), high-rate, dual-media gravity filters. Each filter has an approximate surface area of 78 square feet and a rated capacity of 450,000 gallons per day at a filtration rate of 4 gallons per minute per square foot. The filters are equipped with head loss and flow rate gauges, rate controllers and filter control valves. From the filters, the water flows into the clearwell, with a detention time of approximately 30 minutes. While in the clearwell, the following chemicals can be added as required: chlorine and caustic soda. From the clearwell, the treated water then enters the distribution system.

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineer	November 17, 2023
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	November 21, 2023

Summary of Review

Finished water from the clearwell is used to backwash the filters. Once the backwash process is completed, each filter goes through a "filter-to-waste" period that ends once turbidity reaches 0.5 NTU or less. While the turbidity remains above the 0.5 NTU, the water is classified as filter-to-waste water and is directed to the wastewater tanks for treatment. The backwash water, sedimentation basins sludge and filter-to-waste water are all discharged to two (2) 325,000 gallons wastewater tanks, where the suspended solids can settle. The wastewater tanks are configured to operate in series, allowing the first tank to function as the primary clarifier and the second tank to function as secondary clarifier. The supernatant is then discharged via Outfall 001 back to the Monongahela River.

Stormwater runoff from the facility discharges from Outfall 002 to a sanitary sewer line that conveys treated sewage from the Fayette City Sewage Treatment Plant, which ultimately flows to the Monongahela River.

Residual waste disposal must meet solid waste regulations.

Part C language in the draft permit provides controls on Floating Solids, Chemical Additives, Residual Solids, Total Residual Chlorine, Requirements Applicable to Stormwater Outfalls and Sedimentation Basin Cleaning.

The Municipal Authority of the Township of Washington has no open violations.

It is recommended that a draft permit be published for public comment in response to this application.

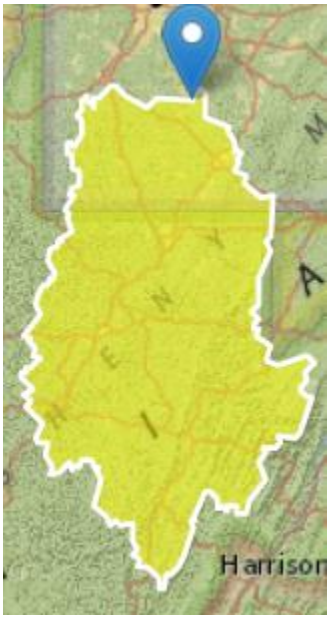
Public Participation

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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.55
Latitude	40° 06’ 09”	Longitude	-79° 50’ 34”
Quad Name	Fayette City	Quad Code	1807
Wastewater Description:	Supernatant from the secondary clarifier.		
Receiving Waters	Monongahela River	Stream Code	37185
NHD Com ID	99410212	RMI	45.93
Drainage Area	5,190	Yield (cfs/mi^2)	0.106
Q_{7-10} Flow (cfs)	550	Q_{7-10} Basis	Army Corp Of Engineers
Elevation (ft)	745	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O., Metals, pH		
Source(s) of Impairment	Agriculture, Abandoned Mine Drainage, Small Residential Runoff		
TMDL Status	Final	Name	Monongahela River TMDL
Nearest Downstream Public Water Supply Intake	Belle Vernon Municipal Authority		
PWS Waters	Monongahela River	Flow at Intake (cfs)	830,00 GPD
PWS RMI	43.2	Distance from Outfall (mi)	Over 2.5

Changes Since Last Permit Issuance: None

Figure 1: Basin Delineation for Outfall 001



Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0.0
Latitude	40° 06’ 04”	Longitude	-79° 50’ 32”
Quad Name	Fayette City	Quad Code	1807
Wastewater Description:	Storm water discharges from the Chemical Feed/Storage and Water Treatment Plant building areas.		
Receiving Waters	Monongahela River	Stream Code	37185
NHD Com ID	99410206	RMI	45.93
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O., Metals, pH		
Source(s) of Impairment	Agriculture, Abandoned Mine Drainage, Small Residential Runoff		
TMDL Status	Final	Name	Monongahela River TMDL
Nearest Downstream Public Water Supply Intake	Belle Vernon Municipal Authority (0.83 MGD)		
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	43.2	Distance from Outfall (mi)	Over 2.5

Changes Since Last Permit Issuance: None

Other Comments: None

Compliance History	
Summary of DMRs:	The pH concentrations reported on April 30, 2023 for Daily Minimum of 0.06 seems to be a typographical error.
Summary of Inspections:	The last inspection conducted by the Department was on August 23, 2023 by James Stewart and had two (2) violations noted. 1) Failure to provide information or records required by the permit or otherwise needed to determine compliance. 2) Failure to submit a plan to prevent pollution from reaching waters of the Commonwealth (PPC Plan).

Other Comments: **None**

Compliance History

DMR Data for Outfall 001 (from November 1, 2022 to September 30, 2023)

Parameter	Limit	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22
Flow (MGD) Average Monthly	**Report**	0.034	0.026	0.038	0.046	0.025	0.044	0.032	0.019	0.024	0.021	0.026
Flow (MGD) Daily Maximum	**Report**	0.041	0.041	0.040	0.049	0.038	0.058	0.041	0.022	0.031	0.022	0.033
pH (S.U.) Daily Minimum	**6.0**	6.82	7.0	7.15	7.05	6.82	**0.06**	6.99	7.04	6.99	7.0	6.8
pH (S.U.) Daily Maximum	**9.0**	7.35	7.0	7.18	7.18	7.00	0.10	7.14	7.17	7.06	7.01	6.9
TRC (mg/L) Average Monthly	**0.5**	0.015	0.035	0.045	0.035	0.04	0.08	0.07	0.075	0.09	0.025	0.045
TRC (mg/L) Daily Maximum	**1.0**	0.03	0.04	0.07	0.06	0.04	0.10	0.08	0.1	0.1	0.03	0.07
TSS (mg/L) Average Monthly	**30.0**	5.0	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0
TSS (mg/L) Daily Maximum	**60.0**	5.0	5.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Aluminum (mg/L) Average Monthly	**4.0**	0.477	0.427	0.385	0.402	0.436	0.243	0.305	0.189	0.196	0.224	0.284
Total Aluminum (mg/L) Daily Maximum	**8.0**	0.628	0.534	0.458	0.447	0.544	0.338	0.414	0.378	0.307	0.245	0.39
Total Iron (mg/L) Average Monthly	**2.0**	0.035	0.041	0.035	0.044	0.076	0.040	0.032	0.043	0.04	0.022	0.03
Total Iron (mg/L) Daily Maximum	**4.0**	0.036	0.062	0.054	0.059	0.095	0.059	0.043	0.065	0.066	0.022	0.039
Total Manganese (mg/L) Average Monthly	**1.0**	0.092	0.049	0.109	0.254	0.126	0.361	0.082	0.087	0.09	0.051	0.16
Total Manganese (mg/L) Daily Maximum	**2.0**	0.101	0.082	0.185	0.302	0.126	0.470	0.084	0.115	0.146	0.052	0.18

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2022 To: September 30, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	04/30/23	Daily Min	0.06	S.U.	6.0	S.U.

Summary of Inspections: None

Other Comments: The pH concentrations reported on April 30, 2023 for Daily Minimum of 0.06 seems to be a typographical error.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.55
Latitude 40° 06' 09" **Longitude** -79° 50' 34"
Wastewater Description: Supernatant from the secondary clarifier.

Technology-Based Limitations

The Washington WTP facility 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

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	IMAX
Flow (MGD)	Monitor	Monitor	----
Iron, Dissolved	----	----	7.0 mg/L
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		
TRC	0.5 mg/L	----	1.6 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. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. 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
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
TRC	0.5	1.0

Water Quality-Based Limitations

Total Maximum Daily Load (TMDL)

Wastewater discharges from Washington WTP are located within the Monongahela River Watersheds for which the Department has developed a TMDL. The TMDL was finalized on March 1, 1999 and establishes waste load allocations for the discharge of PCBs and Chlordane within the Monongahela River Watersheds. 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). 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 TMDLs for the Monongahela River are summarized below in Table 3.

Table 3. Monongahela River TMDL Summary

Pollutant	TMDL	WLA	LA	MOS
PCB	0.0003033 lbs/day	0	0.0002730 lbs/day	0.00003033 lbs/day
Chlordane	0.0037912 lbs/day	0	0.0034121 lbs/day	0.00037912 lbs/day

The Monongahela River TMDL is applicable only to wastewaters that discharge directly to the main stem of the Ohio River. Therefore, the TMDL only feasibly applies to Outfall 001. The TMDL applies only to discharges of PCBs and chlordane to the Monongahela River and does not provide wasteload allocations for either. The Monongahela River TMDL is unique in that the pollutants of concern have been banned from production and use since 1979. In addition, the TMDL acknowledges that there are no longer any known point sources of either pollutant in the watershed and the TMDL is expected to achieve implementation through "natural attenuation". Neither chlordane nor PCB's are used, generated, or stored at the Municipal Authority of the Township of Washington WTP facility; nor is there any evidence to suggest that PCBs and chlordane were ever used, generated, or stored onsite in the past. Based upon these considerations, the Ohio River TMDL is not applicable to Washington WTP wastewater discharges.

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 Table 4 below.

Table 4. TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Washington Township Municipal Authority WTP
Evaluation Type	Industrial
NPDES Permit No.	PA0218227
Wastewater Description	Filter Backwash
Outfall ID	001
Design Flow (MGD)	0.55
Hardness ($^{mg}/_{L}$)	104
pH (S.U.)	9.6
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Monongahela River
Number of Reaches to Model	1
Stream Code	037185
RMI	45.9
Elevation (ft)	745/744*
Drainage Area (mi^2)	5,190
Slope (ft/ft)	
PWS Withdrawal (MGD)	0.83
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	550
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	100
Stream pH (S.U.)	7.0

***** Denotes discharge location/downstream location values.

Based on the recommendations of the TMS, one WQBEL is recommended at Outfall 001 for monitor and report of total phenol. Analysis Report from the TMS run is included in Attachment A.

WQM 7.0 Model

The computer model WQM 7.0 is run to determine wasteload allocations and effluent limitations for CBDO5, NH3-N and Dissolved Oxygen for single and multiple point source discharge scenarios. In general, WQM 7.0 is run if the maximum BOD_5/$CBOD_5$ concentrations exceeds 30/25 mg/L respectively in the permit application or the DMRs. The permit application reports BOD_5 concentrations of 7 mg/L, therefore, WQM 7.0 Model is not required to be run.

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 B, indicate that BAT/BPJ are required for TRC.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits.

Effluent Limitations and Monitoring Requirements for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 5. The applicable limits and monitoring requirements provided below are based on those in Tables 1 and 2 of this Fact Sheet.

Table 5. Effluent limits and monitoring requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Residual Chlorine	—	—	0.5	1.0	—	25 Pa. Code § 92a.48(b)
Total Suspended Solids	—	—	30.0	60.0	—	40 CFR § 125.3
Iron (total)	—	—	2.0	4.0	—	40 CFR § 125.3
Aluminum (total)	—	—	4.0	8.0	—	40 CFR § 125.3
Manganese (total)	—	—	1.0	2.0	—	40 CFR § 125.3
Total Phenols	—	—	—	Report	—	WQBEL
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 92a.48(a)(2) & 25 Pa. Code § 95.2

Monitoring requirements are based on the previous permits monitoring requirements for Washington WTF along with recommendations from the Performance-Based Reduction Analysis and displayed in Table 6 below.

Table 6. Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Meter	2/Month
TRC	Grab	2/Month
TSS	Grab	2/Month
Iron (total)	Grab	2/Month
Aluminum (total)	Grab	2/Month
Manganese (total)	Grab	2/Month
Phenols (total)	Grab	1/quarter
pH (S.U.)	Grab	2/Month

Storm Water Outfall 002

The Department's policy for stormwater discharges is to either (1) require that the stormwater is uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

Stormwater effluent data reported in the application are compared to stream criteria, EPA's Multi-Sector General Permit "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. Otherwise, the storm water outfalls are simply listed as discharge points. In either case, a special condition is added to the permit to include some of the key components of the Department's General Permit (PAG-03) for Discharges of Stormwater Associated with Industrial Activities.

Review of the stormwater data contained in the renewal application was below benchmark values. No monitoring requirements will be applied to the stormwater Outfall 002, it will be listed in Part C of the permit as a discharge point.

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

ATTACHMENTS

ATTACHMENT A: STREAMSTATS DATA

ATTACHMENT B: TOXICS MANAGEMENT SPREADSHEET

ATTACHMENT C: TRC MODELING SPREADSHEET

ATTACHMENT A: STREAMSTATS DATA

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5190	square miles
ELEV	Mean Basin Elevation	1845.4	feet
PRECIP	Mean Annual Precipitation	47.5	inches
FOREST	Percentage of area covered by forest	76.9	percent
URBAN	Percentage of basin with urban development	2.3	percent
CARBON	Percentage of area of carbonate rock	1.6	percent

Low-Flow Statistics Parameters [100 Percent (5190 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5190	square miles	2.26	1400
ELEV	Mean Basin Elevation	1845.4	feet	1050	2580

Low-Flow Statistics Disclaimers [100 Percent (5190 square miles) Low Flow Region 4]

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

Low-Flow Statistics Flow Report [100 Percent (5190 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	687	ft^3/s
30 Day 2 Year Low Flow	912	ft^3/s
7 Day 10 Year Low Flow	400	ft^3/s
30 Day 10 Year Low Flow	468	ft^3/s
90 Day 10 Year Low Flow	696	ft^3/s

ATTACHMENT B: TOXICS MANAGEMENT SPREADSHEET

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Quemahoning Water System NPDES Permit No.: PA0263681 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated Clarifier Rinse & Backwash Waters

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{1-10}	Q_h
0.145	96.7	7.4						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Strea m CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteri a Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		168									
	Chloride (PWS)	mg/L		17.4									
	Bromide	mg/L		0.129									
	Sulfate (PWS)	mg/L		65.9									
	Fluoride (PWS)	mg/L		0.115									
Group 2	Total Aluminum	µg/L		492									
	Total Antimony	µg/L	<	0.6									
	Total Arsenic	µg/L	<	0.01									
	Total Barium	µg/L		0.029									
	Total Beryllium	µg/L	<	0.0008									
	Total Boron	µg/L	<	0.25									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	0.005									
	Hexavalent Chromium	µg/L	<	0.1									
	Total Cobalt	µg/L		0.5									
	Total Copper	mg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	0.5									
	Dissolved Iron	µg/L	<	0.02									
	Total Iron	µg/L		0.0614									
	Total Lead	µg/L	<	0.6									
	Total Manganese	µg/L		1.22									
	Total Mercury	µg/L	<	0.0002									
	Total Nickel	µg/L	<	0.005									
	Total Phenols (Phenolics) (PWS)	µg/L		130									
	Total Selenium	µg/L	<	0.02									
	Total Silver	µg/L	<	0.005									
	Total Thallium	µg/L	<	0.01									
	Total Zinc	mg/L		0.000022									
	Total Molybdenum	µg/L		0.104									
	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 1.4, May 2023

Stream / Surface Water Information

Quemahoning Water System, NPDES Permit No. PA0253561, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Monongahela River**

No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

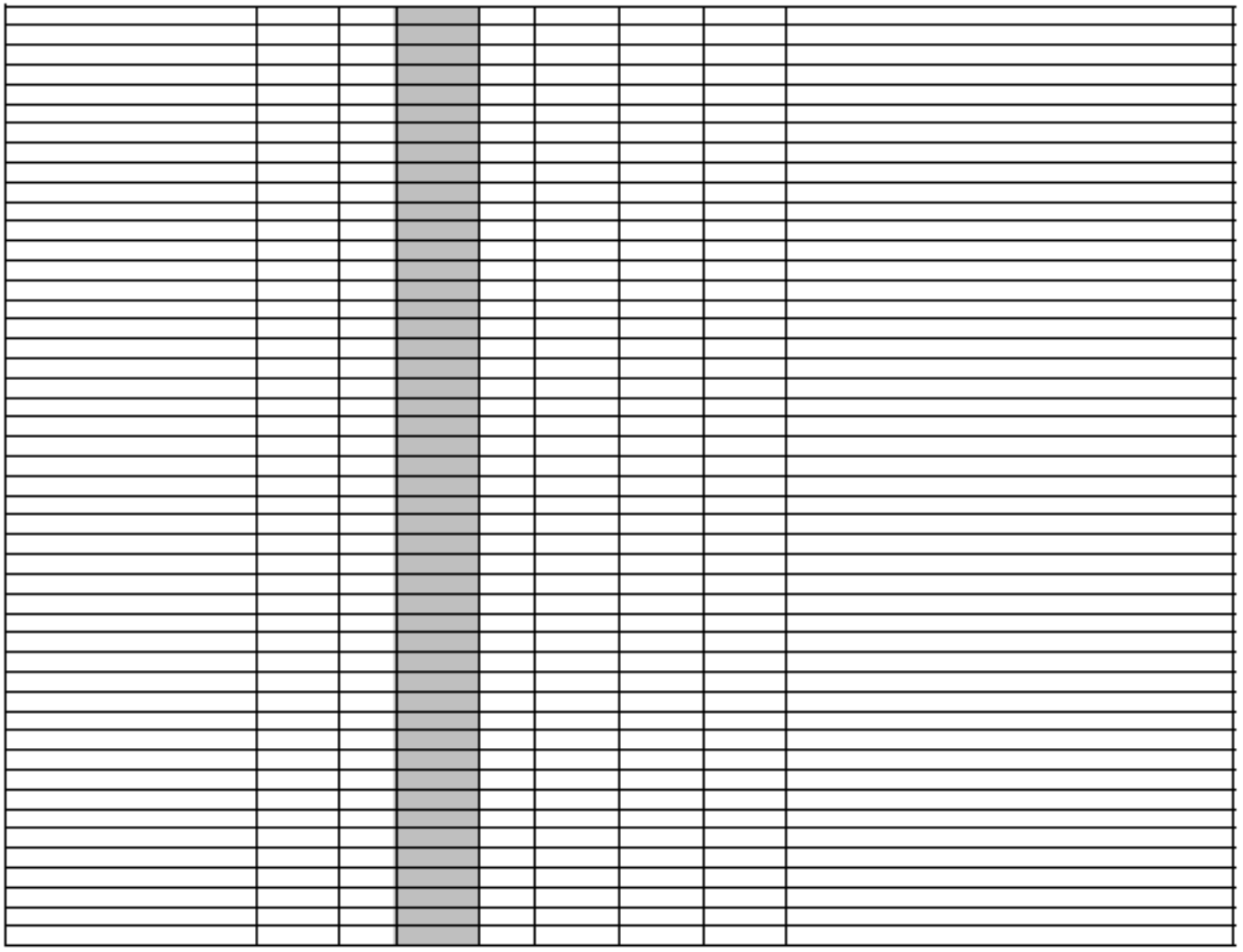
Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037185	45.9	745	5,190			Yes
End of Reach 1	037185	44.2	744	5,200		2.6	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	45.9	0.1	550									100	7		
End of Reach 1	44.2	0.1													

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	45.9														
End of Reach 1	44.2														



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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Quemahoning Water System, NPDES Permit No. PA0253561, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.026 Analysis Hardness (mg/l): 99.948 Analysis pH: 7.00

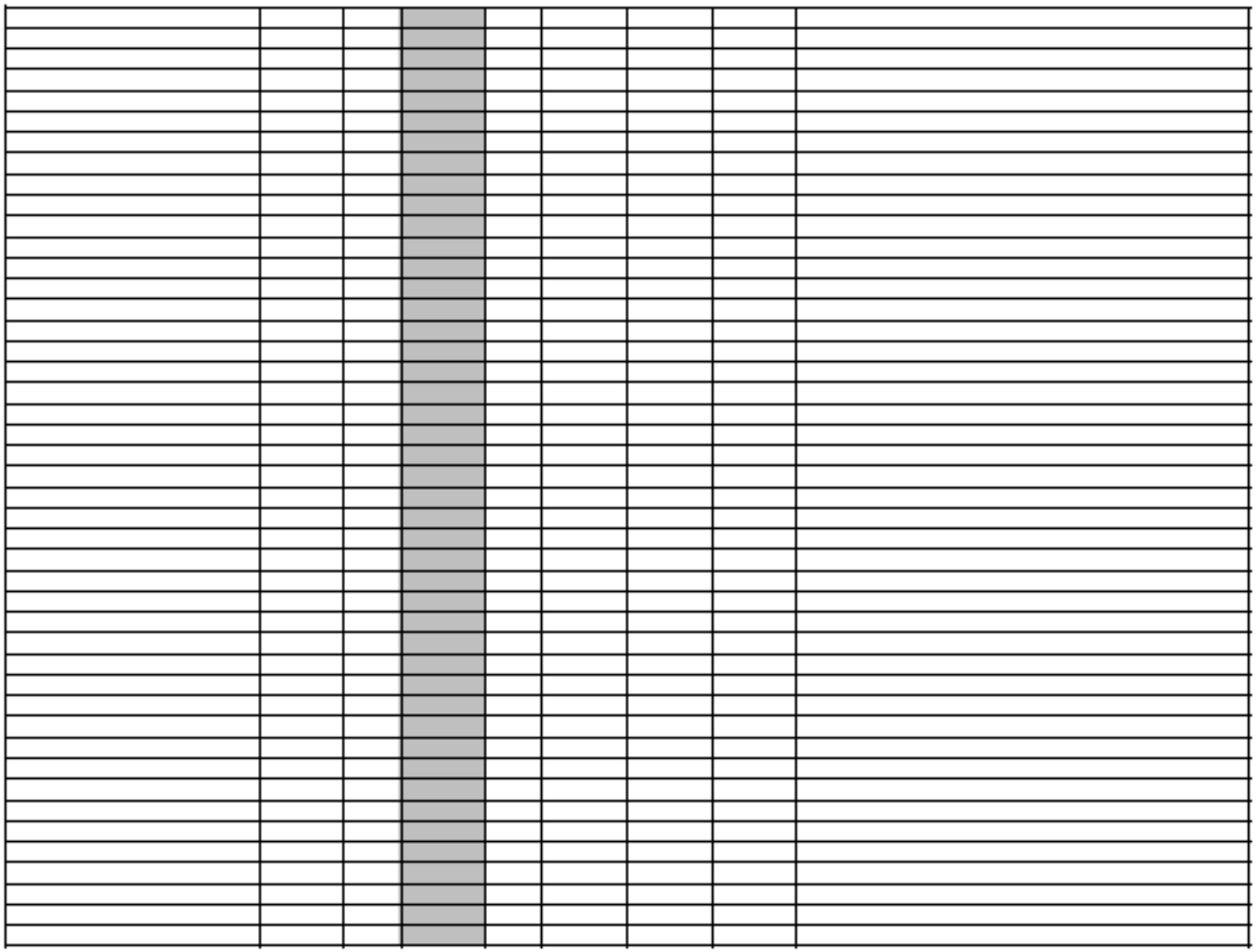
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	47,542	
Total Antimony	0	0		0	1,100	1,100	69,728	
Total Arsenic	0	0		0	340	340	21,552	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	1,331,162	
Total Boron	0	0		0	8,100	8,100	513,448	
Total Cadmium	0	0		0	2.013	2.13	135	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.521	1,802	114,244	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	1,033	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	6,022	
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	64.545	81.6	5,172	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	104	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.030	469	29,727	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	3.214	3.78	240	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	4,120	
Total Zinc	0	0		0	117.129	120	7,592	Chem Translator of 0.978 applied

Model Results 11/17/2023 Page 5

☑ *CFC* CCT (min): 720 PMF: 0.178 Analysis Hardness (mg/l): 99.992 Analysis pH: 7.00

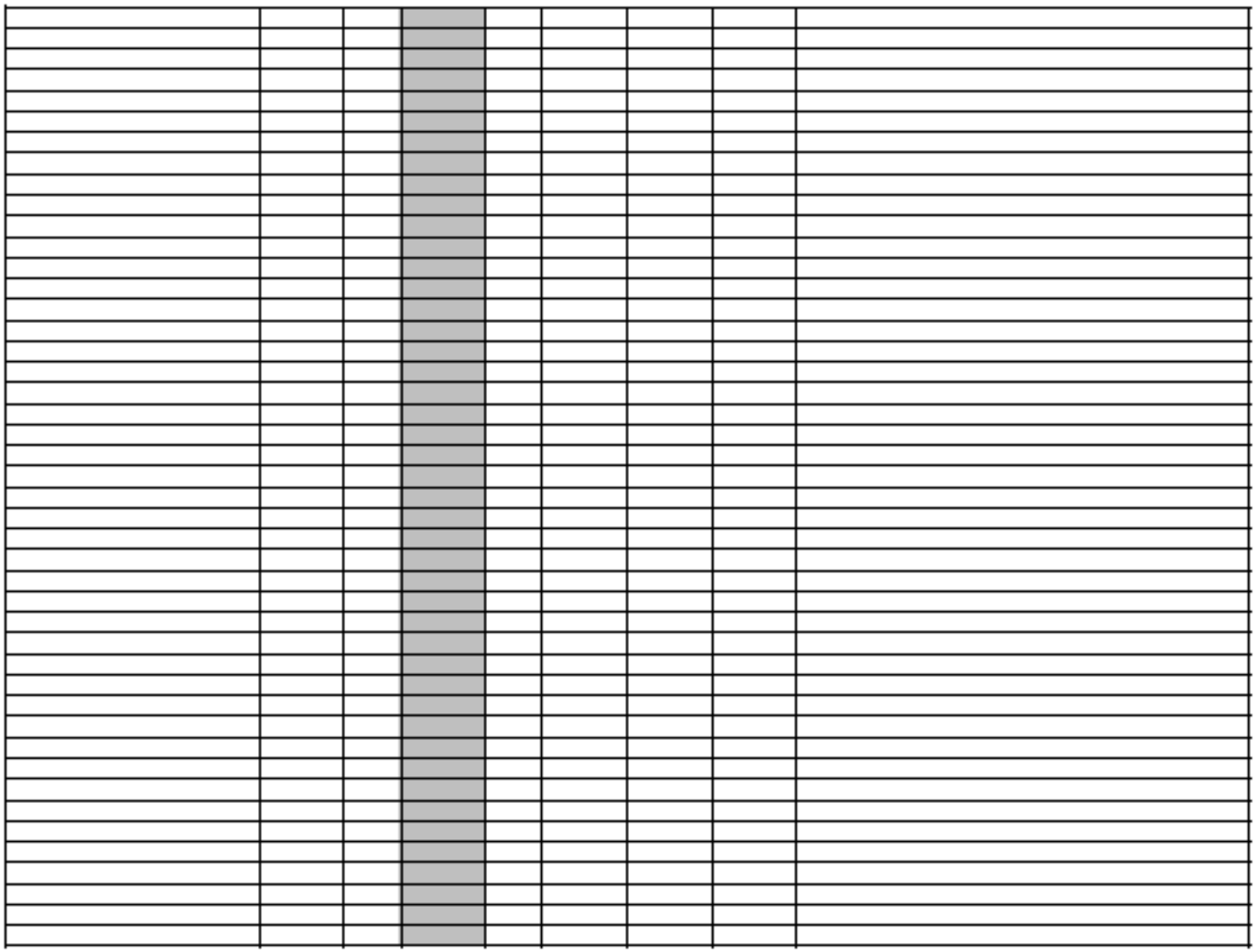
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	95,313	
Total Arsenic	0	0		0	150	150	64,986	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	1,776,290	
Total Boron	0	0		0	1,600	1,600	693,186	
Total Cadmium	0	0		0	0.246	0.27	117	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.110	86.2	37,334	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	4,504	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	8,232	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	3,654,173	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.516	3.18	1,378	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	392	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.003	52.2	22,598	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	2,162	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	5,632	
Total Zinc	0	0		0	118.131	120	51,906	Chem Translator of 0.986 applied



☑ *THH* CCT (min): ####### THH PMF: 0.178 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.0842

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	##########	WQC applied at RMI 44.2 with a design stream flow of 551 cfs
Chloride (PWS)	0	0		0	250,000	250,000	51,582,890	WQC applied at RMI 44.2 with a design stream flow of 551 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	51,582,890	WQC applied at RMI 44.2 with a design stream flow of 551 cfs
Fluoride (PWS)	0	0		0	2,000	2,000	412,663	WQC applied at RMI 44.2 with a design stream flow of 551 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	1,153	THH WQC applied at PWS at RMI 44.2
Total Arsenic	0	0		0	10	10.0	2,060	THH WQC applied at PWS at RMI 44.2
Total Barium	0	0		0	2,400	2,400	494,301	THH WQC applied at PWS at RMI 44.2
Total Boron	0	0		0	3,100	3,100	638,473	THH WQC applied at PWS at RMI 44.2
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	
Dissolved Iron	0	0		0	300	300	61,788	THH WQC applied at PWS at RMI 44.2
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	205,959	THH WQC applied at PWS at RMI 44.2
Total Mercury	0	0		0	0.050	0.05	10.3	THH WQC applied at PWS at RMI 44.2
Total Nickel	0	0		0	610	610	125,635	THH WQC applied at PWS at RMI 44.2
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	1,032	WQC applied at RMI 44.2 with a design stream flow of 551 cfs
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	49.4	THH WQC applied at PWS at RMI 44.2
Total Zinc	0	0		0	N/A	N/A	N/A	



☑ CRL CCT (min): 720 PMF: 0.265 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	
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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Phenols (Phenolics) (PWS)	Report	Report	Report	Report	Report	µg/L	1,032	THH-PWS	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	103,166	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	51,583	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	51,583	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	413	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	30,472	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	494,301	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	329,100	µg/L	Discharge Conc < TQL
Total Cadmium	86.6	µg/L	Discharge Conc < TQL
Total Chromium (III)	37,334	µg/L	Discharge Conc < TQL
Hexavalent Chromium	662	µg/L	Discharge Conc < TQL
Total Cobalt	3,860	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	61,788	µg/L	Discharge Conc < TQL
Total Iron	3,654,173	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	1,378	µg/L	Discharge Conc < TQL
Total Manganese	205,959	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	10.3	µg/L	Discharge Conc < TQL
Total Nickel	19,054	µg/L	Discharge Conc < TQL
Total Selenium	2,162	µg/L	Discharge Conc < TQL

Total Silver	154	µg/L	Discharge Conc < TQL
Total Thallium	49.4	µg/L	Discharge Conc < TQL
Total Zinc	4.87	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

ATTACHMENT C: TRC MODELING SPREADSHEET

TRC_CALC

TRC EVALUATION

550	= Q stream (cfs)	0.5	= CV Daily
0.55	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.138	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.699	= 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 = 28.475	1.3.2.iii	WLA cfc = 140.534
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 10.611	5.1d	LTA_cfc = 81.700

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)**