pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0014621**
Facility Type	**Industrial**	APS ID	**276486**
Major / Minor	**Minor**	Authorization ID	**1434789**

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

Applicant and Facility Information

Applicant Name	**Veolia Water PA Inc.**	Facility Name	**Veolia Water PA**
Applicant Address	4405 N 6th Street	Facility Address	4405 N 6th Street
	Harrisburg, PA 17110-1654		Harrisburg, PA 17110-1654
Applicant Contact	Helen King	Facility Contact	Helen King
Applicant Phone	(223) 259-3207	Facility Phone	(717) 232-6207
Client ID	64718	Site ID	452750
SIC Code	4941	Municipality	Susquehanna Township
SIC Description	Trans. & Utilities - Water Supply	County	Dauphin
Date Application Received	March 30, 2023	EPA Waived?	Yes
Date Application Accepted	April 12, 2023	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

1.0 General Discussion

This factsheet supports the renewal of an existing NPDES permit for a discharge of treated industrial wastewater from a potable water treatment plant. Veolia Water PA Inc. owns and operates the treatment plant located in Susquehanna Township, Dauphin County. The name of the facility changed from Suez Water PA to Veolia Water PA during the last permit cycle. The facility discharge filter backwash and clarifier wash supernatant from an existing water treatment plant to Susquehanna River. Raw water is supplied to the facility from Susquehanna River and/or Stony Creek to produce potable water. Alum, Caustic Soda and chorine are added to the raw water prior to clarification and filtration with 8 filters to produce potable water. Wastewater generated from backwashing of the filters and clarifier wash supernatant are directed to treatment lagoons. The existing permit was based on a wastewater flow of 0.544mgd which will be continued for this permit renewal. Treatment of the wastewater is provided in two settling lagoons connected in parallel. Lagoons are periodically cleaned to remove sludge for land application by a certified hauler. Susquehanna River is classified for warm water fishes and migratory fishes. The facility is not covered by ELG but has technology-based treatment limits developed by the Department. See details at technology limits section of the report. The existing permit was issued on September 24, 2018 with effective date of October 1, 2018 and expiration date of September 30, 2023. The permit was amended on October 6, 2022 for a name change. The permittee submitted an administratively completed NPDES permit renewal application to the Department has been operating under the conditions in the existing permit pending permit renewal. A

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	April 5, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	April 15, 2024
X		*Maria D. Bebenek* Maria D. Bebenek, P.E, / Program Manager	April 15, 2024

Summary of Review

Topographical map showing discharge location is attached as attachment A and process flow schematic diagram is presented in attachment B.

1.1 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.

1.2 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.544
Latitude	40º 19' 35.89"	Longitude	-76º 53' 33.52"
Quad Name	Harrisburg - West	Quad Code	1630
Wastewater Description:	Water Treatment Effluent		

Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	56400713	RMI	76.00
Drainage Area	23564	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	2356.4	Q_{7-10} Basis	USGS Gage Station
Elevation (ft)		Slope (ft/ft)	
Watershed No.	6-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status			
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Steelton Municipal Waterworks	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	>6.0

Changes Since Last Permit Issuance: None

1.2.1 Water Supply Intake:

The closest water supply intake located downstream from the discharge is the Steelton Municipal Waterworks on Susquehanna River in Steelton Borough, Dauphin County. The distance downstream from the discharges to the intake is approximately 6 miles. The discharge is not expected to have an impact on the intake.

1.3 Existing Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
TSS	Report	Report	XXX	30	60	75	1/week	24-Hr Composite
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Aluminum	Report	Report	XXX	4.0	8.0	10	1/week	24-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	1/week	24-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	1/week	24-Hr Composite

2.0 Compliance History

2.1 DMR Data for Outfall 001 (from March 1, 2023 to February 29, 2024)

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Flow (MGD) Average Monthly	0.314	0.325	0.314	0.345	0.296	0.284	0.279	0.312	0.332	0.258	0.258	0.322
Flow (MGD) Daily Maximum	0.444	0.445	0.444	0.471	0.419	0.375	0.377	0.401	0.615	0.383	0.319	0.403
pH (S.U.) Daily Minimum	6.83	6.79	6.66	7.17	7.21	7.25	7.2	7.29	7.16	7.07	7.01	7.12
pH (S.U.) Daily Maximum	7.61	7.65	8.26	8.33	7.97	8.4	8.0	8.55	7.94	8.04	7.82	7.88
TRC (mg/L) Average Monthly	0.5	0.4	0.35	0.30	0.12	0.08	0.08	0.05	0.06	0.07	0.09	0.19
TRC (mg/L) Instantaneous Maximum	0.81	0.91	0.74	0.87	0.40	0.25	0.36	0.1	0.18	0.27	0.21	0.36
TSS (lbs/day) Average Monthly	32.2	< 20.1	61.5	19.6	< 22.8	43.8	< 24.2	< 24.1	< 19.4	< 10.33	< 23.7	< 16.1
TSS (lbs/day) Daily Maximum	51.8	42.7	107.6	24.6	40.2	62.6	38.3	36.4	25.7	15.97	42.4	16.9
TSS (mg/L) Average Monthly	12.3	< 7.4	23.5	6.8	< 9.25	18.5	< 10.4	< 9.25	< 7.0	< 4.80	< 11.0	< 6.0
TSS (mg/L) Daily Maximum	21.0	13.0	62.0	8.0	16.0	23.0	17	14.0	10	8.00	18	9.0
Nitrate-Nitrite (mg/L) Annual Average			< 1.0									
Total Nitrogen (mg/L) Annual Average			< 2.025									
TKN (mg/L) Annual Average			< 1.025									
Total Phosphorus (mg/L) Annual Ave.			0.105									
Total Aluminum (lbs/day) Ave. Monthly	2.7	1.5	10.4	1.1	1.83	3.22	2.9	1.67	2.46	1.2	3.57	1.1
Total Aluminum (lbs/day) Daily Max.	3.7	4.9	22.0	2.8	3.01	5.63	3.9	4.42	3.32	3.5	6.82	3.0
Total Aluminum (mg/L) Ave. Monthly	1.03	0.56	3.98	0.38	0.74	1.36	1.25	0.64	0.89	0.56	1.66	0.41
Total Aluminum (mg/L) Daily Max.	1.5	1.5	12.7	0.92	1.20	1.80	2.2	1.7	1.7	1.4	2.7	1.6
Total Iron (lbs/day) Average Monthly	0.7	< 0.30	1.4	< 0.17	0.30	0.11	0.42	< 0.29	< 0.16	< 0.10	0.56	< 0.29

Total Iron (lbs/day) Daily Maximum	0.9	0.82	2.1	0.37	0.58	2.69	0.92	0.83	0.21	0.15	0.95	0.64
Total Iron (mg/L) Average Monthly	0.27	< 0.11	0.53	< 0.06	0.12	0.45	0.18	< 0.11	< 0.058	< 0.048	0.26	< 0.108
Total Iron (mg/L) Daily Maximum	0.38	0.25	1.20	0.12	0.23	1.0	0.41	0.32	0.11	0.07	0.36	0.34
Total Manganese (lbs/day) Ave. Monthly	0.4	0.24	1.0	0.35	0.84	0.99	0.72	0.44	0.61	0.39	0.67	< 0.16
Total Manganese (lbs/day) Daily Max.	0.6	0.46	1.1	0.52	1.23	1.66	0.92	0.94	0.72	1.08	1.36	0.41
Total Manganese (mg/L) Ave. Monthly	0.17	0.09	0.4	0.12	0.34	0.42	0.31	0.17	0.22	0.18	0.31	< 0.058
Total Manganese (mg/L Daily Max.	0.24	0.14	0.64	0.17	0.49	0.53	0.52	0.36	0.37	0.43	0.54	0.22

2.2 Effluent Violations for Outfall 001, from: April 1, 2023 To: February 29, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	12/31/23	Daily Max	62.0	mg/L	60	mg/L
Total Aluminum	12/31/23	Daily Max	12.7	mg/L	8.0	mg/L
Total Iron	09/30/23	Daily Max	4.5	mg/L	4.0	mg/L

2.3 Summary of DMRs:

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented in section 2.1 above indicate permit limits have been met most of the time. Three permit violations were noted on DMRs during the period reviewed. Total Iron violation occurred in September 2023, and TSS and Total Aluminum violations occurred in December 2023 and presented in section 2.2. The violations appear to have been addressed. No violations occurred in 2024 monitoring reports.

2.4 Summary of Inspections:

The facility was inspected a couple of times during the past permit cycle. Inspection reports review for the facility during the period indicate permit limits have been met satisfactorily. The reports indicate good operation and maintenance of the facility.

3.0 Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	.544
Latitude	40º 19' 38.32"	**Longitude**	-76º 53' 52.59"
Wastewater Description:	Water Treatment Effluent		

3.1 Basis for Effluent Limitations

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit (WQBEL) is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

3.2 Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Technology-based (BAT) effluent limits for water treatment plant wastewater discharges are presented in the Department's June 1989 Guidance document entitled, “Technology Based Controls for Discharges from Water Treatment Plants” as follows:

Parameter	Monthly Average (mg/l)	Daily Max (mg/l)
Suspended Solids	30	60
Iron (total)	2	4
Aluminum (total)	4	8
Manganese (total)	1	2
Flow	Monitor	
pH	6-9 at all time	
Total Residual Chlorine*	0.5	1.0

Comments: *See TRC section of the report for details

3.3 Water Quality-Based Limitations

3.3.1 Receiving Stream

The receiving stream is the Susquehanna River. According to 25 PA § 93.9o, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List o and State Watershed 6-C. It has been assigned stream code 06685. According to the Department’s Integrated Water Quality Monitoring and Assessment Report, the Susquehanna River, is impaired for fish consumption due to PCB.

3.3.2 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No. 01570500 on Susquehanna River in Harrisburg. The $Q_{7\text{-}10}$ and drainage area at the gage is 2610 ft3/s and 24100mi^2 respectively. The resulting yields are as follows:

- $Q_{7\text{-}10}$ = (2610 ft^3/s)/ 24100 mi^2 = 0.10 ft^3/s/ mi^2
- $Q_{30\text{-}10}$ / $Q_{7\text{-}10}$ = 1.17
- $Q_{1\text{-}10}$ / $Q_{7\text{-}10}$ = 0.95

The drainage area at discharge calculated from streamStats = 23564 mi^2
The $Q_{7\text{-}10}$ at discharge = 23564 mi^2 x 0.10 ft^3/s/mi^2 = 2356.4 ft^3/s.

3.3.3 Toxics

A reasonable potential (RP) analysis was done for pollutant Groups 1 and 2 submitted with the application. All pollutants that were presented in the application sampling data were entered into the Toxics Management Spreadsheet (TMS) to calculate WQBELs. WQBELs recommended by the TMS are presented in attachment C. The results of the TMS indicate discharge levels for all pollutants are well below DEP's target quantitation limits and the calculated WQBELs, therefore, no monitoring or limitation was recommended. Mass load will be established for water-quality base limits and reported for technology-based limits following DEP permit writer's manual No. 362-0400-001 Table 5-2, 10/1/97 Edition.

Mass-based limits are expressed in pounds per day and are calculated as follows: Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34.

The recommended limitations follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL

3.3.4 Per- and Polyfluoroalkyl Substances (PFAS) Monitoring Strategy

DEP is implementing PFAS monitoring program to investigate PFAS discharges. Applicants are required to test for 4 of the PFAS parameters, PFOA, PFOS, HFPO-DA and PFBS during permit application. If the results of the tests are non-detect using screening level at or below the Target QLs, an annual monitoring is required and if there are detections or non-detects above the TQLs a quarterly monitoring required in the permit. Applications received without the tests and applications already received will be drafted with annual or quarterly monitoring depending on if the industrial facility falls under or If a major sewage facility received flow from an industry EPA believes to be sources (organic chemicals, plastics & synthetic fibers; metal finishing; electroplating; electric and electronic components; landfills; pulp, paper & paperboard; leather tanning & finishing; plastics molding & forming; textile mills; paint formulating, and airport). This facility does not fall under any of the sources, annual monitoring of PFOA, PFOS, HFPO-DA, and PFBS is required in the permit. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees shall enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

3.3.5 Total Residual Chlorine

The attached TRC result utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached results presented in attachment D indicates a technology limit of 0.5 mg/l and 1.6mg/l IMAX would be needed to prevent toxicity concerns. In addition, the BPT TBEL referenced in section 3.2 requires a Daily Maximum TRC of 1.0 mg/l. Therefore, it is recommended that a TRC limit of 0.5 mg/l monthly average and 1.0 mg/l as daily maximum limit and 1.6mg/l IMAX be applied for this permit cycle with minimum monitoring frequency of 1/day.

3.3.6 Total Suspended Solids (TSS):

There is no water quality criteria for TSS. The existing BPT TBEL referenced in section 3.2 will remain in the permit with a monitoring frequency of 1/week.

3.3.7 Instantaneous Maximum:

The existing IMAX limitations in the permit determined using multiplier of 2.5 will be carried forward.

3.3.8 Chesapeake Bay Strategy:

In 2003, EPA established state-wide cap loads for Total Nitrogen and Total Phosphorus for Pennsylvania that are needed to ensure compliance with new water quality standards enacted to restore the water quality of the Chesapeake Bay. DEP released Pennsylvania's Chesapeake Bay Tributary Strategy (CBTS) in January of 2005 to guide Pennsylvania's efforts to meet those cap loads and made revisions to the Strategy in 2006-2007 following a stakeholder process. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed Chesapeake Bay IW monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with little or no potential to introduce nutrients to the receiving stream but has been monitoring TP and the TN series (nitrate-nitrite, TKN) and will continue monitoring them annually to collect data for Chesapeake Bay modelling in future.

3.3.9 Cleaning of Sedimentation Tanks/Lagoons

A permit condition will be added in PART C. II of the permit to address cleaning of lagoons and notification requirement during lagoon cleaning.

4.0 Other Considerations

4.1 Anti-backsliding

Not applicable to this permit

4.2 Anti-Degradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

4.3 Class A Wild Trout Fisheries:

No Class A Wild Trout Fisheries are impacted by this discharge.

4.4 303d Listed stream:

The discharge is located on a 303d listed stream segment. It is impaired for fish consumption by PCB. The source of the impairment is unknown. This discharge does not contribute to the impairment; therefore, no action is warranted at this time.

4.5 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

4.6 Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. lf no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

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Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
TSS	Report	Report	XXX	30	60	75	1/week	24-Hr Composite
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Total Aluminum	Report	Report	XXX	4.0	8.0	10	1/week	24-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	1/week	24-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	1/week	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

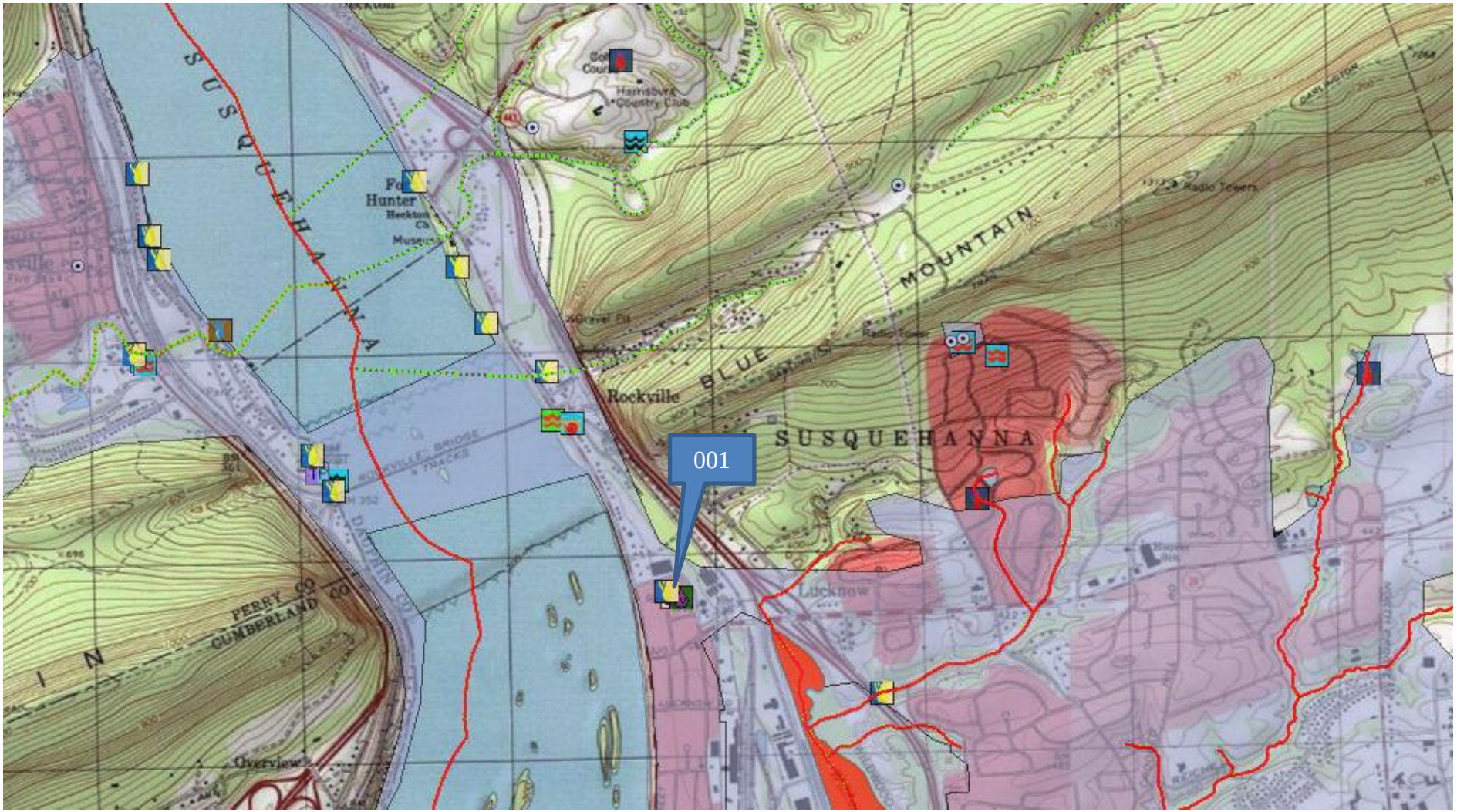
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: At Outfall 001

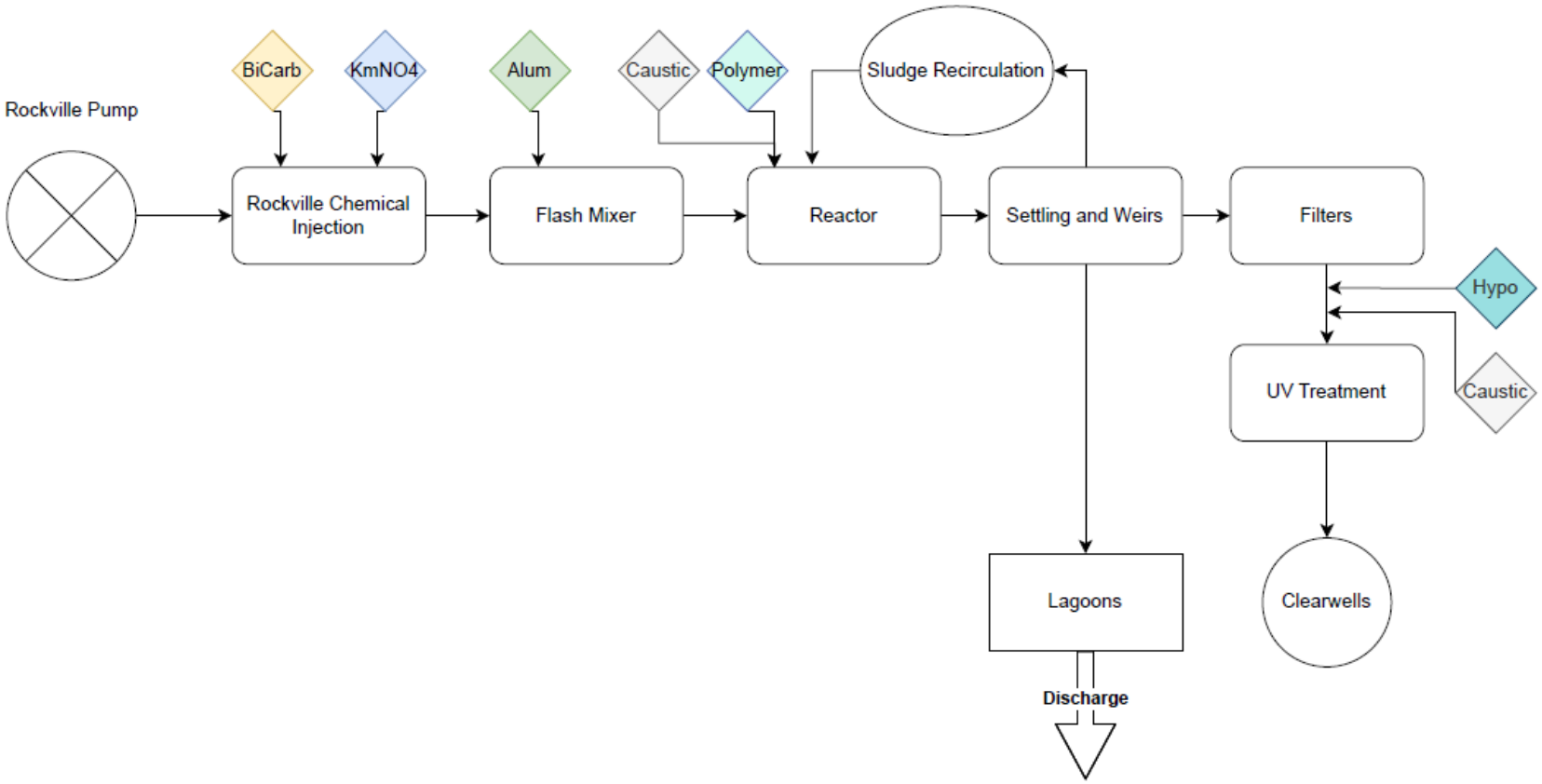
6.0 Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment C)
☒	TRC Model Spreadsheet (see Attachment **D**)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.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

7. Attachments

A. Topographical Map



B. Process Flow Diagram



C. Toxic Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Veolia Harrisburg Plant** NPDES Permit No.: **PA0014621** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial watewater**

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
0.544	74	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		222									
	Chloride (PWS)	mg/L		73.7									
	Bromide	mg/L		1.1									
	Sulfate (PWS)	mg/L		40									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L		1200									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L		1.5									
	Total Barium	µg/L		26									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.42									
	Total Cobalt	µg/L	<	2.5									
	Total Copper	µg/L	<	2.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	4									
	Dissolved Iron	µg/L	<	60									
	Total Iron	µg/L		900									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		180									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.7									
	Total Phenols (Phenolics) (PWS)	µg/L	<	4									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L	<	97									
	Total Molybdenum	µg/L	<	1									

Stream / Surface Water Information

Veolia Harrisburg Plant, NPDES Permit No. PA0014621, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	76	300	23564			Yes
End of Reach 1	006685	73.83	295.94	23842			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	76	0.1										100	7		
End of Reach 1	73.83	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	76														
End of Reach 1	73.83														

Model Results

Veolia Harrisburg Plant, NPDES Permit No. PA0014621, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***AFC*** CCT (min): 15 PMF: 0.009 Analysis Hardness (mg/l): 98.96 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	18,756	
Total Antimony	0	0		0	1,100	1,100	27,509	
Total Arsenic	0	0		0	340	340	8,503	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	525,180	
Total Boron	0	0		0	8,100	8,100	202,570	
Total Cadmium	0	0		0	1.993	2.11	52.8	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	564.908	1,788	44,707	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	407	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,376	
Total Copper	0	0		0	13.307	13.9	347	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	63.851	80.6	2,015	Chem Translator of 0.793 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	41.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	464.114	465	11,630	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	3.159	3.72	93.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,626	
Total Zinc	0	0		0	116.147	119	2,970	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 720 PMF: 0.059 Analysis Hardness (mg/l): 99.845 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	36,814	
Total Arsenic	0	0		0	150	150	25,100	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	686,079	
Total Boron	0	0		0	1,600	1,600	267,738	
Total Cadmium	0	0		0	0.246	0.27	45.2	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.020	86.1	14,403	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,739	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	3,179	

Total Copper	0	0		0	8.944	9.32	1,559	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	4,201,517	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.512	3.18	531	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	152	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.938	52.1	8,717	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	835	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	2,175	
Total Zinc	0	0		0	117.983	120	20,023	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.059 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	937	
Total Arsenic	0	0		0	10	10.0	1,673	
Total Barium	0	0		0	2,400	2,400	401,607	
Total Boron	0	0		0	3,100	3,100	518,743	
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	50,201	
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	167,336	
Total Mercury	0	0		0	0.050	0.05	8.37	
Total Nickel	0	0		0	610	610	102,075	
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	40.2	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.083 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

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

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

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

Pollutants	Governing WQBEL	Units	Comments
Total 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	12,022	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	1,673	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	336,619	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	129,839	µg/L	Discharge Conc < TQL
Total Cadmium	33.8	µg/L	Discharge Conc < TQL
Total Chromium (III)	14,403	µg/L	Discharge Conc < TQL
Hexavalent Chromium	261	µg/L	Discharge Conc < TQL
Total Cobalt	1,523	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	222	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	50,201	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	4,201,517	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	531	µg/L	Discharge Conc < TQL
Total Manganese	167,336	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	8.37	µg/L	Discharge Conc < TQL
Total Nickel	7,454	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	835	µg/L	Discharge Conc < TQL
Total Silver	59.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	40.2	µg/L	Discharge Conc < TQL
Total Zinc	1,904	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

D. TRC Calculations

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

2356.4	= Q stream (cfs)	0.5	= CV Daily
0.544	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.009	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.059	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 8.058	1.3.2.iii	WLA cfc = 51.388
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 3.003	5.1d	LTA_cfc = 29.875

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

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