pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0082244**
Facility Type	**Industrial**	APS ID	**22009**
Major / Minor	**Minor**	Authorization ID	**1438802**

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

Applicant and Facility Information

Applicant Name	**Susquehanna Area Region Airport Authority**	Facility Name	**Harrisburg International Airport**
Applicant Address	1 Terminal Drive Suite 300 Middletown, PA 17057-5048	Facility Address	520 Airport Road Middletown, PA 17057-5048
Applicant Contact	Scott Snoke	Facility Contact	Scott Snoke
Applicant Phone	(717) 948-3900	Facility Phone	(717) 948-3900
Client ID	206361	Site ID	452258
SIC Code	4581	Municipality	Lower Swatara Township
SIC Description	Trans. & Utilities - Airports, Flying Fields, And Services	County	Dauphin
Date Application Received	May 4, 2023	EPA Waived?	Yes
Date Application Accepted	May 17, 2023	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

1.0 General Discussion

This factsheet supports the renewal of an existing industrial NPDES permit for the Harrisburg International Airport water treatment system. Raw water with average hardness of about 400 mg/l is pumped from production wells through granular activated carbon (GAC) system which replaced the existing air strippers. The GAC system removes PFAS, VOCs and some organics from the raw water prior to treatment in the 3 water softening vessels to reduce hardness to acceptable levels. Wastewater is generated from backwashing of the 3 water softening vessels. Softener backwash is sent to brine waste holding tank for settling out solids prior to discharge through stormwater outfall 004 to Susquehanna River classified for warm water fishes (WWF). The facility is rated for a discharge of 0.046MGD in the previous permit and will continue in the current permit renewal since there is no significant change in the current discharge levels. The facility is not covered under ELG. The existing NPDES permit was issued on October 18, 2018 with effective date of November 1, 2018 and expiration date of November 30, 2023. The applicant submitted an administratively complete NPDES renewal application to the and is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application. Topographical Map showing discharge location is presented in attachment A

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	May 22, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	May 22, 2024
X		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Program Manager	May 22, 2024

Summary of Review

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.	004	Design Flow (MGD)	.046
Latitude	40º 11' 35"	Longitude	-76º 45' 56"
Quad Name		Quad Code	
Wastewater Description:	Water Treatment Brine Effluent		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	133783828	RMI	63.18
Drainage Area	24281	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	2428.1	Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment			
Source(s) of Impairment	Cause Unknown		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Columbia Borough		
PWS Waters	Susquehanna river	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	20

Changes Since Last Permit Issuance: None

1.2.1 Water Supply Intake

The closest water supply intake located downstream from the discharge is Columbia Borough Lancaster County on the Susquehanna River. The distance downstream from the discharge to the intake is approximately 20 miles. The discharge will have no impact on the intake.

1.3 Existing Effluent 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	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/month	Grab
TSS	XXX	XXX	XXX	30	60	75	1/month	Grab
TDS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Chloride	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Bromide	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Total Sulfate	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab

1.4 Compliance History

1.4.1 DMR Data for Outfall 004 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.014	0.014	0.014	0.012	0.012	0.016	0.010	0.009	0.013	0.013	0.014	0.014
Flow (MGD) Daily Maximum	0.023	0.018	0.020	0.031	0.027	0.030	0.018	0.013	0.026	0.021	0.024	0.021
pH (S.U.) Daily Minimum	7.62	7.44	7.5	7.84	7.62	7.3	7.43	7.34	7.4	7.2	7.22	7.33
pH (S.U.) Daily Maximum	7.62	7.44	7.5	7.84	7.62	7.3	7.43	7.35	7.4	7.2	7.22	7.33
TSS (mg/L) Average Monthly	< 5	28.0	6.0	9.0	8.0	12.0	12.0	10.5	< 5	< 5	< 5	11.0
TSS (mg/L) Daily Maximum	< 5	49.0	6.0	9.0	8.0	12.0	12.0	16.0	< 5	< 5	< 5	11.0
Total Dissolved Solids (mg/L) Daily Maximum	2890	9040	9480	6750	1950	9020	14000	16900	12400	30000	23700	9310
Sulfate (mg/L) Daily Maximum	37.5	62.4	50.2	51.9	51.5	50.9	83.2	67.6	49.4	53.2	65.2	57.4
Chloride (mg/L) Daily Maximum	1400	9230	5100	3070	883	4540	5950	6630	4080	14600	11600	3310
Bromide (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.0	< 5	< 5.0	< 5.0	< 25	6.0	6.0	10.3	11.2	< 2.5

1.4.2 Summary of DMRs:

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented on the table in section 1.4.1 indicate permit limits have been met consistently. No permit violation noted on DMRs during the period reviewed.

1.4.3 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 consistently. The reports indicate good operation and maintenance of the facility.

2.0 Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	.046
Latitude	40º 11' 35.00"	**Longitude**	-76º 45' 56.00"

Wastewater Description: Water Treatment Effluent

2.1 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.

2.2 Technology-Based Limitations

2.2.1 pH

Pennsylvania Water Quality Standards required effluent pH limits of 6.0 to 9.0 standard units at all time under PA Code Chapter 95.2(2). Therefore, the draft permit requires pH limits of 6.0 to 9.0 SU. This is consistent with the existing permit.

2.2.2 Total Suspended Solids(TSS)

A best professional judgment(BPJ) monthly average limit of 30 mg/l, 60 mg/l daily and 75 mg/l IMAX was established in the permit and will be continued in the current permit.

2.3 Water Quality-Based Limitations

2.3.1 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 7-C and has been assigned stream code 06685. According to the Department's Integrated Water Quality Monitoring and Assessment Report, Susquehanna River is impaired for fish consumption by PCB.

2.3.3 Stream flows

Stream flows were determined by correlating with the yield of USGS gage station No. 01571500 on Susquehanna River at Harrisburg. The Q_{7-10} and drainage area at the gage is 2610ft^3/s and 24100mi^2 respectively. The resulting yields are as follows:

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

The drainage area at discharge estimated due to inability to accurately calculate using streamStats = 24,281 mi^2

The Q_{7-10} at discharge = 24,281mi^2 x 0.10 $ft^3/s/mi^2$ = 2428.1 ft^3/s.

2.3.4 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 B.

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. The results presented in attachment B did not recommend any WQBELs for Total Dissolved Solids, Total Chloride and Total Sulfate, but due to higher concentrations of these pollutants in the effluent, monthly monitoring requirements established in the existing permit will remain in the permit. TDS was monitored in the past and the maximum value documented in the 2004 protection report was 35,700mg/l. Current discharge levels are below the maximum reported value therefore treatment requirements for TDS under §95.10 is not applicable.

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.

2.3.5 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 and will not be required to monitor TP and TN at this time.

2.3.6 PFAS Monitoring Strategy:

PFAS, also known as 'forever chemicals,' are prevalent in the environment. They are a category of chemicals used since the 1940s to repel oil and water and resist heat, which makes them useful in everyday products such as nonstick cookware, stain resistant clothing, and firefighting foam. Exposure to certain PFAS over a long period of time can cause cancer, adverse health impacts and other illnesses. EPA categorized the following activities it believes are the main sources of PFAS: 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 airports. DEP is implementing PFAS monitoring program to investigate and address PFAS discharges and pollution. Under the plan, all new industrial and some major sewage permit applicants are required to test for 4 of the PFAS parameters, PFOA, PFOS, HFPO-DA and PFBS during permit applications. If the results of the tests are non-detect using screening level at or below DEP's Target QLs, an annual monitoring will be required and if there are detections or non-detects above the TQLs a quarterly monitoring will be required in the permit. Applications received without the tests and applications already received will be drafted with quarterly monitoring if an industrial facility falls under EPA categories or if a major sewage facility receives flow from one of EPA categories. If an industrial facility does not fall under or a major sewage facility does not receive flow any EPA categories, annual monitoring will be required in the draft permit. This facility is at the airport and has been treating PFAS in the groundwater prior to softening and will be required to monitor PFOA, PFOS, HFPO-DA, and PFBS quarterly 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.

3.0 Other Considerations

3.1 Anti-backsliding

Not applicable to this permit

3.2 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.

3.3 Class A Wild Trout Fisheries:

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

3.4 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.

3.5 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).

3.6 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. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

4.0 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 004, Effective Period: Permit Effective Date through Permit Expiration Date.

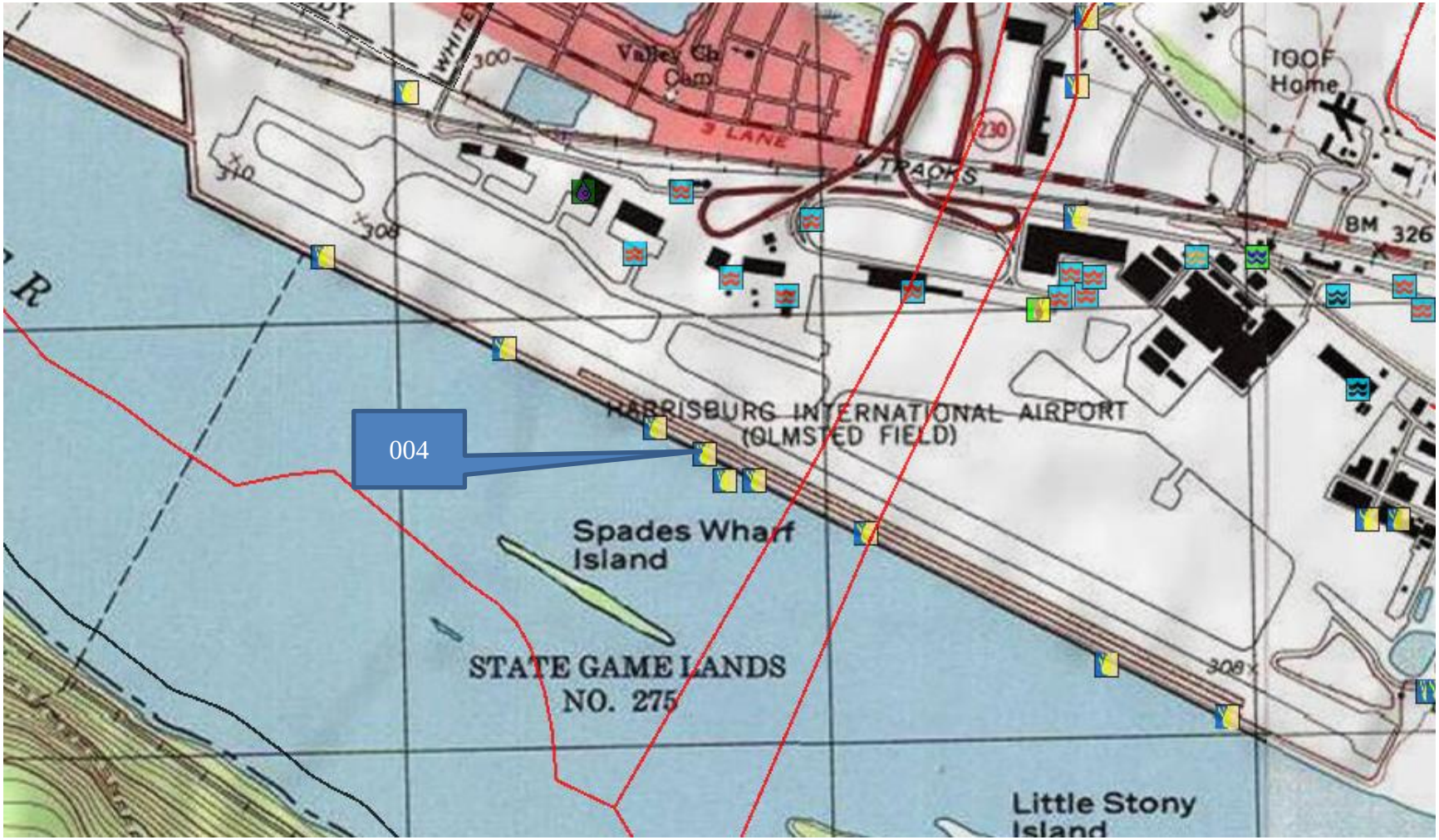
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/month	Grab
TSS	XXX	XXX	XXX	30	60	75	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Sulfate	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Chloride	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Bromide	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: At outfall 004

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

5. Attachment

A. Topographical Map



B. Toxics Management

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **HIA Water Plant** NPDES Permit No.: **PA0082244** Outfall No.: **004**

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
0.046	150	7.4						

					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		12900									
	Chloride (PWS)	mg/L		8060									
	Bromide	mg/L		14.7									
	Sulfate (PWS)	mg/L	<	100									
	Fluoride (PWS)	mg/L	<	1									
Group 2	Total Aluminum	µg/L	<	100									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L		15									
	Total Barium	µg/L		250									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L	<	500									
	Total Cadmium	µg/L	<	20									
	Total Chromium (III)	µg/L	<	100									
	Hexavalent Chromium	µg/L	<	4									
	Total Cobalt	µg/L	<	250									
	Total Copper	µg/L	<	25									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	40									
	Dissolved Iron	µg/L	<	300									
	Total Iron	µg/L	<	300									
	Total Lead	µg/L	<	100									
	Total Manganese	µg/L		250									
	Total Mercury	µg/L	<	0.00224									
	Total Nickel	µg/L	<	250									
	Total Phenols (Phenolics) (PWS)	µg/L	<	20									
	Total Selenium	µg/L	<	200									
	Total Silver	µg/L	<	50									
	Total Thallium	µg/L	<	5									
	Total Zinc	µg/L	<	610									
	Total Molybdenum	µg/L	<	100									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
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Stream / Surface Water Information

HIA Water Plant, NPDES Permit No. PA0082244, Outfall 004

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	63.18	276	24281			Yes
End of Reach 1	006685	61.4	274.4	24282			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	63.18	0.1										100	7		
End of Reach 1	61.4	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	63.18														
End of Reach 1	61.4														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

HIA Water Plant, NPDES Permit No. PA0082244, Outfall 004

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.007 Analysis Hardness (mg/l): 100.22 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	169,894	
Total Antimony	0	0		0	1,100	1,100	249,177	
Total Arsenic	0	0		0	340	340	77,018	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	4,757,021	
Total Boron	0	0		0	8,100	8,100	1,834,851	
Total Cadmium	0	0		0	2.018	2.14	484	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	570.793	1,806	409,174	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	3,691	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	21,520	
Total Copper	0	0		0	13.467	14.0	3,178	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	64.737	81.9	18,547	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	373	Chem Translator of 0.85 applied
Total Nickel	0	0		0	469.110	470	106,478	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	3.229	3.8	861	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	14,724	
Total Zinc	0	0		0	117.400	120	27,192	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.046 Analysis Hardness (mg/l): 100.03 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	343,966	
Total Arsenic	0	0		0	150	150	234,522	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,410,276	
Total Boron	0	0		0	1,600	1,600	2,501,571	
Total Cadmium	0	0		0	0.246	0.27	423	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.134	86.2	134,776	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	16,252	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	29,706	

Total Copper	0	0		0	8.958	9.33	14,590	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	51,182,608	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.518	3.18	4,976	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	1,416	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.021	52.2	81,578	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	7,800	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	20,325	
Total Zinc	0	0		0	118.171	120	187,382	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.046 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	8,755	
Total Arsenic	0	0		0	10	10.0	15,635	
Total Barium	0	0		0	2,400	2,400	3,752,356	
Total Boron	0	0		0	3,100	3,100	4,846,794	
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	469,045	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,563,482	
Total Mercury	0	0		0	0.050	0.05	78.2	
Total Nickel	0	0		0	610	610	953,724	
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	375	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.064 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	PWS Not Applicable
Total Aluminum	108,895	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	15,635	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,049,059	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,176,065	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	310	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	134,776	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	2,366	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	13,793	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	2,037	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	469,045	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	51,182,608	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	4,976	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,563,482	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	78.2	µg/L	Discharge Conc < TQL
Total Nickel	68,248	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	7,800	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	552	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	375	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	17,429	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS