pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027634**
Facility Type	**Industrial**	APS ID	**1069227**
Major / Minor	**Minor**	Authorization ID	**1406237**

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

Applicant and Facility Information

Applicant Name	**PA American Water Company**	Facility Name	**Yardley Water Treatment Plant**
Applicant Address	852 Wesley Drive	Facility Address	1145 Edgewood Road
	Mechanicsburg, PA 17055		Yardley, PA 19067
Applicant Contact	Kristin May	Facility Contact	Jamie Yakes
Applicant Phone	(484) 946-7453	Facility Phone	(215) 528-4431
Client ID	87712	Site ID	270440
SIC Code	4941	Municipality	Lower Makefield Township
SIC Description	Trans. & Utilities - Water Supply	County	Bucks
Date Application Received	August 2, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of NPDES permit.

Summary of Review

The applicant requests renewal of an NPDES permit to discharge 0.402 MGD of settling lagoon supernatant from water filtration plant into unnamed tributary to Brock Creek.

The water filtration plant processes up to 6.0 MGD of potable water and supplies to the Borough of Yardley, Falls Township and Lower Makefield Township. The Yardley Water Treatment Plant purifies water withdrawn from Delaware River for potable public consumption. Water is then pumped through a distribution system to residentisl, commercial and industrial customers located in Falls and Lower Makefield Township alog with Yardley Borough.

The treatment process consists of water intake from the Delaware River, pre-chemical addition, clarification, filtration, post-chemical addition and distribution. The wastewater flowing to the settling lagoons consists of clarifier flush water, spent filter backwash, filtered wastewater and sludge press filtrate. After the appropriate settling period, supernatant is drawn off the lagoons and discharged. There are two wastewater lagoons that are rotated online once per year. The sludge is removed from lagoons and is taken offsite for disposal. The wastewater lagoons receive flow consisting of backwash water from media filters which are used for water treatment and supernatant from the sludge thickener from pretreatment screening. Generally, one backwash is conducted per day. The sludge thickener accepts process waste from the settling basins. The wastewater tanks allow sludge to settle and their effluent overflows the weirs to the lagoons. Chemical addition includes Ferric Chloride for coagulation, a catonic polymer for coagulation & settling, carbon, sodium permanganate for oxidation and pre coagulation, and sodium hypochlorite for disinfection and additional oxidation. The plant upgrades had been completed. There is a new parshall flume for metering wastewater into the wastewater lagoons.

The current NPDES permit has two Outfalls 001 and 002. These outfalls are essentially discharging identical water to creek from Lagoon No. 1 and 2. Discharge from outfalls 001 and 002 occurs alternatively, and lasting up to one year. The discharge is in compliance with existing permit limits and is expected to be in compliance in the future. The effluent limits for all the parameters will remain the same for this permit renewal. The effluent limits are based on Best Available Technology

Approve	Deny	Signatures	Date
X		Ketan Thaker Ketan Thaker / Project Manager	October 24, 2022
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	10/24/2022

Summary of Review

(BAT) and previous PENTOX Model analysis. The discharge flow ranges from 10,000 to 150,000 gallons per day (GPD). As the discharge is located in the Special Protection Waters (SPW) of Delaware River, any increase in wastewater flow may result in more stringent limits in future.

Following are effluent limits:

PARAMETER	AVERAGE MONTHLY LIMIT (Mg/L)	BASIS
Total Suspended Solids	20	BAT
Total Iron	2.0	BAT
Total Aluminum	0.7	Previous PENTOX Model
Total Manganese	1.0	BAT
pH (Standard Units SU)	6.0 to 9.0 SU	BAT
Total Residual Chlorine	0.5	BAT

Act-14 Notification to Lower Makefield Township and Bucks County Commissioners Office on March 15, 2022 by certified mail.

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.	002	Design Flow (MGD)	0.402
Latitude	40Âº 13' 27.30"	Longitude	-74Âº 50' 53.05"
Quad Name		Quad Code	
Wastewater Description:	Water Treatment Effluent		

Receiving Waters	Brock Creek (WWF, MF)	Stream Code	2946
NHD Com ID	26064864	RMI	1.50
Drainage Area	7.60	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.25	Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, FLOW REGIME MODIFICATION, HABITAT ALTERATIONS		
Source(s) of Impairment	HABITAT MODIFICATION - OTHER THAN HYDROMODIFICATION, URBAN RUNOFF/STORM SEWERS		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.402
Latitude	40Âº 13' 26.96"	Longitude	-74Âº 50' 53.30"
Quad Name		Quad Code	
Wastewater Description:	Water Treatment Effluent		
Receiving Waters	Brock Creek (WWF, MF)	Stream Code	2946
NHD Com ID	26064864	RMI	1.50
Drainage Area	7.60	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.25	Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, FLOW REGIME MODIFICATION, HABITAT ALTERATIONS		
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TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Compliance History

DMR Data for Outfall 001 (from September 1, 2021 to August 31, 2022)

Parameter	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21
Flow (MGD) Average Monthly								0.0371	0.0176	0.025	0.032	0.032087
Flow (MGD) Daily Maximum								0.0775	0.0402	0.041	0.045	0.042283
pH (S.U.) Instantaneous Minimum								6.82	6.93	6.85	6.99	7.03
pH (S.U.) Instantaneous Maximum								7.29	7.57	7.56	7.58	7.50
TRC (mg/L) Average Monthly								0.21	0.16	0.2	0.05	0.14
TRC (mg/L) Instantaneous Maximum								0.45	0.24	0.52	0.2	0.28
TSS (lbs/day) Average Monthly								< 1	< 0.9	1	2	2
TSS (lbs/day) Daily Maximum								2	1	2	2	3
TSS (mg/L) Average Monthly								< 5.0	< 5	6	7	6.0
TSS (mg/L) Daily Maximum								5.5	5.5	6.5	8	8.4
Total Aluminum (lbs/day) Average Monthly								< 0.03	< 0.02	< 0.2	< 0.03	< 0.03
Total Aluminum (lbs/day) Daily Maximum								< 0.03	< 0.02	< 0.3	< 0.03	< 0.03
Total Aluminum (mg/L) Average Monthly								< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Aluminum (mg/L) Daily Maximum								< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Iron (lbs/day) Average Monthly								0.2	0.2	0.3	0.4	0.4

Total Iron (lbs/day) Daily Maximum								0.3	0.3	0.4	0.4	0.6
Total Iron (mg/L) Average Monthly								0.7	0.9	1.4	1.6	1.5
Total Iron (mg/L) Daily Maximum								0.82	1.22	1.38	1.73	1.93
Total Manganese (lbs/day) Average Monthly								0.02	0.007	0.01	0.02	0.02
Total Manganese (lbs/day) Daily Maximum								0.03	0.007	0.01	0.02	0.04
Total Manganese (mg/L) Average Monthly								0.1	0.04	0.040	0.1	0.1
Total Manganese (mg/L) Daily Maximum								0.091	0.047	0.047	0.071	0.114

DMR Data for Outfall 002 (from September 1, 2021 to August 31, 2022)

Parameter	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21
Flow (MGD) Average Monthly	0.0435	0.0317	0.130	0.0364	0.03556	0.0313	0.0104					
Flow (MGD) Daily Maximum	0.349	0.0459	0.318	0.0415	0.1264	0.157	0.0111					
pH (S.U.) Instantaneous Minimum	7.21	7.03	6.99	7.12	6.72	6.84	6.71					
pH (S.U.) Instantaneous Maximum	7.64	7.68	7.49	7.53	7.52	7.19	7.29					
TRC (mg/L) Average Monthly	0.06	0.03	0.16	0.18	0.26	0.24	0.19					
TRC (mg/L) Instantaneous Maximum	0.36	0.42	0.29	0.39	0.58	0.65	0.39					
TSS (lbs/day) Average Monthly	1	< 0.8	< 6	< 2	< 1	< 1	< 0.4					
TSS (lbs/day) Daily Maximum	1	< 0.9	7	< 3	< 1	< 1	0.4					
TSS (mg/L) Average Monthly	4.45	< 4	< 5	< 4	< 4	< 4	< 5					
TSS (mg/L) Daily Maximum	4.5	< 4	6.0	< 4	< 4	< 4	5					

Total Aluminum (lbs/day) Average Monthly	< 0.03	< 0.02	< 0.1	< 0.05	< 0.03	< 0.02	< 0.009					
Total Aluminum (lbs/day) Daily Maximum	< 0.03	< 0.02	< 0.2	< 0.08	< 0.03	< 0.03	< 0.009					
Total Aluminum (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1					
Total Aluminum (mg/L) Daily Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1					
Total Iron (lbs/day) Average Monthly	0.3	0.1	1.0	0.2	0.1	0.1	0.1					
Total Iron (lbs/day) Daily Maximum	0.4	0.1	1.4	0.3	0.2	0.1	0.1					
Total Iron (mg/L) Average Monthly	1.2	0.650	0.79	0.4	0.55	0.44	1.1					
Total Iron (mg/L) Daily Maximum	1.38	0.697	0.79	0.45	0.55	0.456	1.25					
Total Manganese (lbs/day) Average Monthly	0.06	0.06	0.3	0.09	0.02	0.01	0.006					
Total Manganese (lbs/day) Daily Maximum	0.07	0.08	0.4	0.1	0.03	0.01	0.007					
Total Manganese (mg/L) Average Monthly	0.213	0.289	0.278	0.147	0.081	0.053	0.1					
Total Manganese (mg/L) Daily Maximum	0.23	0.351	0.339	0.188	0.083	0.053	0.076					

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" (362-0400-001), 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	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
TSS	67	134	XXX	20	40	50	2/month	Grab
Total Aluminum	2.4	4.8	XXX	0.7	1.4	1.8	2/month	Grab
Total Iron	6.7	13.4	XXX	2.0	4.0	5	2/month	Grab
Total Manganese	3.4	6.7	XXX	1.0	2.0	2.5	2/month	Grab

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" (362-0400-001), SOPs and/or BPJ.

Outfall 002, 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	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
TSS	67	134	XXX	20	40	50	2/month	Grab
Total Aluminum	2.4	4.8	XXX	0.7	1.4	1.8	2/month	Grab
Total Iron	6.7	13.4	XXX	2.0	4.0	5	2/month	Grab
Total Manganese	3.4	6.7	XXX	1.0	2.0	2.5	2/month	Grab