pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0244775**
Facility Type	**Industrial**	APS ID	**1023248**
Major / Minor	**Minor**	Authorization ID	**1327029**

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

Applicant and Facility Information

Applicant Name	**PA American Water Co.**	Facility Name	**PA American Water**
Applicant Address	852 Wesley Drive	Facility Address	300 W Washington Street
	Mechanicsburg, PA 17055-4436		Norristown, PA 19401-4694
Applicant Contact	Kristin May	Facility Contact	Nathan Pennisi
Applicant Phone	(484) 946-7453	Facility Phone	(484) 806-6349
Client ID	87712	Site ID	524015
SIC Code	4941	Municipality	Norristown Borough
SIC Description	Trans. & Utilities - Water Supply	County	Montgomery
Date Application Received	August 31, 2020	EPA Waived?	Yes
Date Application Accepted	N/A	If No, Reason	

Purpose of Application: Permit Renewal.

Summary of Review

PA American Water Co. (PAWC) submitted an application to renew NPDES permit PA0244775 to discharge up to 1.93 million gallons per day (mgd) of supernatant from wastewater clarifiers to the Schuylkill River from Norristown Water Treatment Plant (WTP).

Clarified wastewater is discharged to the Schuylkill River when the volume or quality of the wastewater clarifier exceeds WTP goals for recycled water. If the discharge to the Schuylkill River occurs during a Maximum Day event, the proposed flow at Outfall 001 would be 1.93 MGD.

Backwash wastewater, and other process wastewater, is directed to the existing wastewater clarifiers. Polymer is applied to the backwash waste to facilitate settling and clarification of the supernatant. After settling of the solids, the clarified wastewater will normally be decanted and recycled to the head of the water treatment process. Alternatively, PAWC may discharge the clarified wastewater to the Schuylkill River. Discharge to the river is expected to occur infrequently, primarily during periods of time when recycling of the wastewater may have a negative impact on the water treatment process or finished water quality, or if wastewater generation exceeds 10% of the plant flow. This discharge is for emergency purposes and only one (1) discharge occurred since the current permit went into effect in 2016.

All parameters will have the same limitations as the current permit except for Total Aluminum which will be reduced from 4 mg/l to 3.35 mg/l based on new analyses.

Act 14 Notifications:
Municipality of Norristown Received August 27, 2020
Montgomery County Received August 28, 2020

Approve	Deny	Signatures	Date
X		Harmonie Hawley, PhD, PE / Environmental Engineering Specialist /s/	October 5, 2020
X		Pravin C. Patel, P.E. / Environmental Engineer Manager /s/	10/7/2020

Summary of Review

The Fact Sheet from the original permit issued in 2016 went into detail regarding the WTP process. That information is copied here for convenience:

> Pennsylvania American Water Company (PAWC) owns and operates the Norristown Water Treatment Plant (WTP). The current plant was constructed in 2001 and is permitted for a capacity of 18.0 MGD. The WTP treats raw water from the Schuylkill River utilizing treatment processes that include oxidation, coagulation, flocculation, high-rate clarification with SuperPulsator clarifiers, granular media filtration, and chemical disinfection. Ferric Chloride is applied in the pre-treatment process as the primary coagulant. A coagulant aid polymer is used to assist in coagulation and reduce the dosage of ferric chloride. Other treatment chemicals include potassium permanganate, lime, activated carbon, caustic soda, chlorine, ammonia, and phosphate.
>
> Process wastewater generated during the treatment process includes sludge blowdown from the SuperPulsators and backwash wastewater generated during the filter cleaning process. Filter backwash water is directed to one of two covered wastewater clarifiers. Supernatant is drawn off the clarifiers from one of three levels, and gravity discharged to the raw water pump station for recycling through the plant. Standby recycle pumps are available to pump the supernatant to the raw water pump station during periods when high river level impedes gravity flow. Mechanical scrapers move settled residuals to the conical center of the clarifiers where the material is pumped to the thickener tank via two 400-gpm horizontal centrifugal sludge transfer pumps. A cationic polymer is added to the filter backwash waste stream to aid in settling solids in the wastewater clarifiers and the thickener.
>
> Sludge that accumulates in the SuperPulsators is periodically removed and flows by gravity to the sludge thickener where the solids are concentrated. A cationic polymer is added to the SuperPulsator blowdown to facilitate thickening and to improve the quality of the thickener supernatant. Supernatant from the sludge thickener is directed to the active wastewater clarifier, while thickened sludge is removed from the bottom of the thickener and pumped to a 10,000-gallon sludge holding tank in the dewatering facility. The tank acts as a suction well for the plate and frame press sludge feed pumps. Thickened sludge may also be removed directly from the thickener and hauled offsite for disposal.

Special conditions:

- Necessary Property Rights
- Proper Sludge Disposal
- WQM Permits
- BAT/BCT Requirements
- Chorine Minimization

<u>Public Participation</u>

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)	1.93
Latitude	40º 6' 50.00"	Longitude	-75º 20' 53.00"
Quad Name	Norristown	Quad Code	1843
Wastewater Description:	Supernatant from wastewater clarifiers		

Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25985556	RMI	24.18
Drainage Area	1760 square miles	Yield (cfs/mi^2)	0.15
Q_{7-10} Flow (cfs)	268	Q_{7-10} Basis	PA StreamStats (USGS)
Elevation (ft)	49.36	Slope (ft/ft)	0.00067
Watershed No.	3-F	Chapter 93 Class.	WWF, MF
Existing Use	Potable water supply	Existing Use Qualifier	Yes
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBS)		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)	7	Toxics Analysis Spreadsheet Default Data
Hardness (mg/L)	146	Application

Nearest Downstream Public Water Supply Intake		Queen Lane Water Plant	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	394
PWS RMI	12.6	Distance from Outfall (mi)	11.6

Changes Since Last Permit Issuance: None

Other Comments:
The source water is taken directly from the Schuylkill River so no net increase in PCBs is expected to be discharged back to the Schuylkill River, thus the Schuylkill River PCB TMDL is not applicable.

Treatment Facility Summary				
Treatment Facility Name: Norristown WTP				
WQM Permit No.	**Issuance Date**			
Not Applicable				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	N/A	N/A	No Disinfection	1.93
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
1.93	N/A	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance: None

Other Comments: Backwash from water treatment plant that is sent to clarifiers.

Compliance History

Parameter	Loading	Loading	Concentration	Concentration
Flow	0.4926 mgd	0.4925 mgd		
pH			7.4 Inst Min	7.48 IMAX
TSS	116 lb/d Avg Mo	966 lb/d Daily Max	28 mg/l Avg Mo	73 mg/l Daily Max
Iron, Total	29 lb/d Avg mo	74 lb/d Daily Max	7.1 mg/l Avg Mo	18.0 mg/l Daily Max
Manganese, Total	1 lb/d Avg Mo	2 lb/d Daily Max	0.3 mg/l Avg Mo	0.511 mg/l Daily max
Aluminum, Total	<0.7 lb/d Avg Mo	1 lb/d Daily Max	<0.2 mg/l Avg mo	0.299 mg/l Daily max
TRC			0.33 mg/l Avg Mo	0.7 mg/l IMAX

This discharge took place on July 1, 2019. There were four (4) non-compliance: TSS Daily maximum and Iron, Total for average monthly concentration and daily maximum for loading and concentration.

While there are no open violations for this facility, there are four open violations for PAWC.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.93
Latitude 40º 6' 50.00" **Longitude** -75º 20' 53.00"
Wastewater Description: Water Treatment Effluent

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments:
CBOD5 is not expected to be in the wastewater. The maximum reported level of CBOD5 was 4.8 mg/l which is below the threshold warranting modeling of the effluent. Fecal coliform is unlikely to be present in the waste stream.

No applicable ELG for this facility, but there is a PA DEP document: PA DEP, Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, effective October 1, 1997. The following tables shows the limits based on the aforementioned document. In addition to the below limits, monitoring for Total THMs which is the sum of the individual concentrations of chloroform (trichloro-methane), bromo dichloromethane, dibromochloromethane, and bromoform (trichloro-methane). The current permit limitations are consistent with this document.

Parameter	Monthly avg (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	
TRC	0.5	1.0

The TRC is more stringent in the Technology-Based limitations and will be used for this permit renewal. Oil and grease was reported at a maximum concentration of 4.9 mg/l with an average of 3.7 mg/l; these are low levels and not expected to be present in the waste stream at elevated levels, thus oil and grease will not be monitored.

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (Attachment A) was evaluated.

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Chloride	Report	When discharging	Toxics Spreadsheet
Sulfate	Report	When discharging	Toxics Spreadsheet
Total Iron	Report	When discharging	Toxics Spreadsheet

Comments: Chloride and sulfate will not be included as the TDS is well below the PA monitoring threshold of 1,000 mg/l (maximum level was 224 mg/l with an average concentration of 213 mg/l). The Aluminum WQBEL was 3.335 (rounded to 3.35) which is lower than the Technology Based Limitations and will be used in the renewed permit. The reported concentrations in the application for Total Aluminum were an average of 0.042 mg/l and a maximum of 0.299 mg/l, which are both well below the new limitation.

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

None

Attachment A

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	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	Daily when Discharging	Grab
TSS	483	966	XXX	30	60	75	Daily when Discharging	Grab
Total Aluminum	54	108	XXX	3.35	6.7	8.4	Daily when Discharging	Grab
Total Iron	32	64	XXX	2.0	4.0	5	Daily when Discharging	Grab
Total Manganese	16	32	XXX	1.0	2.0	2.5	Daily when Discharging	Grab
Bromoform	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	Grab
Chlorodibromomethane	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	Grab
Dichlorobromomethane	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	Grab
Chloroform	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 001

Other Comments: None

	Tools and References Used to Develop Permit
☐	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment A)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☒	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP for Establishing Effluent Limitations for Individual Industrial Permits, BCW-PMT-032, Final November 9, 2012, Revised January 10, 2019, Version 1.5. SOP for New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permits, BPNPSM-PMT-001, Final November 9, 2012, Revised October 11, 2013, Version 1.5.
☐	Other: