pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0000256**
Facility Type	**Industrial**	APS ID	**1006823**
Major / Minor	**Minor**	Authorization ID	**1297307**

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

Applicant and Facility Information

Applicant Name	**PA American Water Company**	Facility Name	**PA American Water Punxsutawney District**
Applicant Address	PO Box 888, 800 Hershey Park Drive	Facility Address	3933 Filtering Plant Road
	Hershey, PA 17003		Punxsutawney, PA 15767
Applicant Contact	Dale Warner, Water Quality Supervisor	Facility Contact	David Drozd, Senior Supervisor
Applicant Phone	(814) 280-0013	Facility Phone	(412) 780-6693
Client ID	87712	Site ID	450151
SIC Code	4941	Municipality	Gaskill Township
SIC Description	Trans. & Utilities - Water Supply	County	Jefferson County
Date Application Received	November 4, 2019	EPA Waived?	Yes
Date Application Accepted	November 27, 2019	If No, Reason	-

Purpose of Application: Renewal of an existing NPDES Permit for a discharge of IW process effluent without an ELG.

Summary of Review

Act 14 - Proof of Notification was submitted and received.

This facility is not subject to any ELGs.

A Part II Water Quality Management permit is not required at this time.

The applicant should be able to continue to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

A. Right of Way
B. Solids Handling
C. NPDES Permit Supersedes WQM Permits
D. Modification or Revocation for Changes to BAT or BCT
E. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

II. Chemical Additives

There are 2 open violations in efacts associated with the subject Client ID (87712) as of October 26, 2020.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	10/22/2020
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	October 26, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0474
Latitude	40º 57' 51.0"	Longitude	-78º 50' 58.0"
Quad Name	-	Quad Code	-
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	East Branch Mahoning Creek (CWF)	Stream Code	47974
NHD Com ID	123861912	RMI	1.15
Drainage Area	41.8	Yield (cfs/mi^2)	0.122
Q_{7-10} Flow (cfs)	5.09	Q_{7-10} Basis	calculated
Elevation (ft)	1302	Slope (ft/ft)	0.002140
Watershed No.	17-D	Chapter 93 Class.	CWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	Final*	Name	East Branch Mahoning Creek

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

Nearest Downstream Public Water Supply Intake	PA American Water Company - Kittanning District		
PWS Waters	Allegheny River	Flow at Intake (cfs)	987
PWS RMI	45.6	Distance from Outfall (mi)	45.0

* - This discharge is not expected to discharge pH outside of the range required in the TMDL. Technology-based limits were set for Aluminum, Iron, and Manganese in the previous NPDES Permit and will be retained with this renewal.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.0474 MGD of treated Industrial Waste from an existing public water supply (PWS) backwash discharge in Gaskill Township, Jefferson County.

Treatment permitted under WQM Permit 3377201 consists of: Backwash Lagoons & Drying Tanks.

Facility Area: See the topographical map (Attachment 1)

1. Streamflow: Mahoning Creek at Punxsutawney, PA (USGS Gage no. 03034000):

Q_{7-10}:	19.3	cfs	(USGS StreamStats)
Drainage Area:	158	sq. mi.	(USGS StreamStats)
Yieldrate:	0.122	cfsm	(calculated)

East Branch Mahoning Creek @ Outfall 001:

Yieldrate:	0.122	cfsm	(calculated above)
Drainage Area:	41.8	sq. mi.	(USGS StreamStats)
% of stream allocated:	100%	Basis:	No nearby discharges
Q_{7-10}:	5.09	cfs	

2. Wasteflow: Outfall 001

Maximum discharge: 0.0474 MGD = 0.0733 cfs

Runoff flow period: 24 hours Basis: Potable water treatment backwash with flow equalization

The calculated stream flow is greater than 3 parts to the discharge flow. In accordance with the SOP, since this is an existing discharge, and there is more than 3 parts stream flow (Q7-10) to 1 part effluent (design flow), no treatment requirements will be required from document number 391-2000-014, titled, “Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers”, dated April 12, 2008. Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, and Total Residual Chlorine.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 95.2 technology-based limits.

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as a daily maximum.

Basis: Application of technology-based limits for potable water treatment backwash wastewater from the NPDES Permit Writers’ Manual.

c. Total Residual Chlorine (TRC)

☒ No limit necessary
☐ TRC limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The technology-based TRC limits above were calculated using the Department's TRC Calculation Spreadsheet (see Attachment 2). The limit set in the previous NPDES Permit for instantaneous maximum of 1.2 mg/l will be retained as it is attainable.

3. Reasonable Potential Analysis:

A Reasonable Potential Analysis was performed in accordance with State practices for Outfall 001 by first using the Toxics Screening Analysis Spreadsheet (see Attachment 3) to determine which parameters should be modeled using the PentoxSD program (see Attachment 4). The following parameters were modeled for Outfall 001:

Total Mercury and Total Phenols (Phenolics). Total Phenols (Phenolics) were evaluated in section 4.

Median stream pH to be used:	7.0	Standard Units (S.U.)
Stream hardness to be used:	157	mg/l
	Basis:	Default value for pH and application data for hardness
Median discharge pH to be used:	7.4	Standard Units (S.U.)
Discharge hardness to be used:	252	mg/l
	Basis:	eDMR and Renewal application sampling

Result: The WQBEL calculated (see Attachment 4) for Total Mercury shows there is no reasonable potential for pollution, so no monitoring or limits will be added with this renewal.

4. NO_2-NO_3, Fluoride, Phenolics, Sulfates, Chlorides, and TDS:

Nearest Downstream potable water supply (PWS): PA American Water Company - Kittanning District

Distance downstream from the point of discharge: 45.0 miles (approximate)

☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available (see below).

PWS Evaluation:

Stream flow (sf) at the potable water supply intake = 987 cfs
Waste flow (wf) from the landfill = 0.0474 MGD = 0.0733 cfs
Total Flow = 987.0733 cfs

Background Concentrations: no data (background concentrations set to zero)

Mass balance for Nitrate-Nitrite at the potable water supply intake:
(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)
(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(10 mg/l)

x = 134,662 mg/l (renewal application maximum (for only Nitrate) was 0.11 mg/l - ok)

Mass balance for Fluoride at the potable water supply intake:
(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)
(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(2 mg/l)

x = 26,932 mg/l (renewal application maximum was 0.0 mg/l - ok)

Mass balance for Phenolics at the potable water supply intake:
(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(0.005 mg/l)

x = 67.3 mg/l (renewal application maximum was 10.0 mg/l - ok)

Mass balance for Sulfate at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(250 mg/l)

x = 3,366,552 mg/l (renewal application maximum was 154.0 mg/l - ok)

Mass balance for Chlorides at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(250 mg/l)

x = 3,366,552 mg/l (renewal application maximum was 30.2 mg/l - ok)

Mass balance for TDS at the potable water supply intake:

(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)

(987 cfs)(0) + (0.0733 cfs)(x) = (987.0733 cfs)(500 mg/l)

x = 6,733,105 mg/l (renewal application maximum was 333.0 mg/l - ok)

5. Total Dissolved Solids (TDS):

TDS were also evaluated to protect the water quality standards at the nearest downstream PWS intake.

To calculate the TDS capacity for the Allegheny River at the PA American Water Company - Kittanning District intake, the Q_{7-10} low flow at the PWS intake is needed. From prior work, the Q_{7-10} low flow for the Allegheny River at the PWS was calculated as 987 cfs. Since no background TDS data is readily available, an assumed value of 150 mg/l will be used for this evaluation. Subtracting the 150 mg/l from the allowable 500 mg/l yields a remaining assimilative capacity of 350 mg/l. Multiplying the 350 mg/l by the Allegheny River Q_{7-10} low flow rate of 987 cfs and then by 5.4 for conversions yields a total assimilative capacity of 1,865,430 lbs/day of TDS at the PWS intake.

In order to remain exempt from the treatment requirements in Chapter 95.10, the annual average daily load must remain under 5,000 lbs/day of TDS, which would be more protective than the 1,865,430 lbs/day limit calculated above. If that 5,000 lbs/day is divided by the flowrate of 0.0474 MGD and the 8.34 conversion factor, the resulting TDS concentration limit would be 12,648 mg/l, which is well above the 333 mg/l maximum that was reported in the renewal NPDES Permit application. The Chapter 95 Treatment Requirements special condition will not be necessary with this renewal at this time.

6. Antibacksliding:

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

7. Attachment List:

Attachment 1 - Topographical Map of the Facility Area
Attachment 2 - TRC_Calc Spreadsheet
Attachment 3 - Toxics Screening Analysis Spreadsheet
Attachment 4 - Pentox Modeling Printouts
Attachment 5 - Open violations in efacts for client ID

If viewing this electronically, please refer to the following PDF to view the above Attachments:

Adobe Acrobat Document

Compliance History

DMR Data for Outfall 001 (from September 1, 2019 to August 31, 2020)

Parameter	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19
Flow (MGD) Average Monthly	0.0242	0.0242	0.024	0.0242	0.0240	0.024	0.0241	0.0245	0.0245	0.0243	0.0242	0.0243
Flow (MGD) Daily Maximum	0.0303	0.0303	0.030	0.0303	0.0303	0.030	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303
pH (S.U.) Minimum	7.3	7.3	7.3	7.2	7.4	7.2	7.2	7.3	7.4	7.4	7.4	7.3
pH (S.U.) Maximum	7.6	7.6	7.6	7.5	7.5	7.5	7.6	7.5	7.5	7.6	7.6	7.7
TRC (mg/L) Average Monthly	0.12	0.12	0.11	0.12	0.11	0.1	0.11	0.12	0.14	0.13	0.13	0.13
TRC (mg/L) Instantaneous Maximum	0.20	0.30	0.20	0.3	0.20	0.1	0.3	0.2	0.30	0.20	0.20	0.3
TSS (mg/L) Average Monthly	3	2	2	3	3	3	4	3	< 2	2	< 2	2
TSS (mg/L) Daily Maximum	3	2	2	3	3	3	4	3	< 2	2	< 2	2
Total Aluminum (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.10
Total Aluminum (mg/L) Daily Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.10
Total Iron (mg/L) Average Monthly	0.49	0.8	0.52	0.44	0.93	1.03	1.32	0.82	0.73	1.11	0.47	0.76
Total Iron (mg/L) Daily Maximum	0.49	0.8	0.52	0.44	0.93	1.03	1.32	0.82	0.73	1.11	0.47	0.76
Total Manganese (mg/L) Average Monthly	0.06	0.06	0.11	0.06	0.12	0.11	0.12	0.11	0.08	0.1	0.03	0.03
Total Manganese (mg/L) Daily Maximum	0.06	0.06	0.11	0.06	0.12	0.11	0.12	0.11	0.08	0.1	0.03	0.03

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	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/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75	1/month	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	4.0	8.0	10	1/month	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	4.0	5	1/month	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	1/month	8-Hr Composite

Compliance Sampling Location: Outfall 001.

Flow is monitor only based on Chapter 92a.61. The limits for pH are technology-based on Chapter 95.2. The Total Residual Chlorine (TRC) limits are technology-based on Chapter 92a.48. The Total Suspended Solids limits are technology-based for potable water treatment backwash wastewater from the NPDES Permit Writers' Manual. The limits for Aluminum, Iron, and Manganese are technology-based on Chapter 93.7.