

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0210161
APS ID 1007766
Authorization ID 1298990

Applicant and Facility Information

Applicant Name	<u>PA American Water Company</u>	Facility Name	<u>PA American Water Butler (Seven Fields Facility)</u>
Applicant Address	<u>60 Elrama Avenue</u> <u>Elrama, PA 15038</u>	Facility Address	<u>Seven Hills Road</u> <u>Butler, PA 16001</u>
Applicant Contact	<u>Daniel J. Hufton, P.E.</u>	Facility Contact	<u>Kevin Mortimer</u>
Applicant Phone	<u>(717) 531-3308</u>	Facility Phone	<u>(724) 287-7150</u>
Client ID	<u>87712</u>	Site ID	<u>451534</u>
SIC Code	<u>4941</u>	Municipality	<u>Oakland Township</u>
SIC Description	<u>Trans. & Utilities - Water Supply</u>	County	<u>Butler</u>
Date Application Received	<u>December 2, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>December 23, 2019</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of Industrial wastewater</u>		

Summary of Review

This facility is primarily engaged in inter basin water transfer from the Allegheny River near East Brady to an unnamed tributary to Connoquenessing Creek and Thorn Creek to replenish water levels in the Oneida and Thorn Run Reservoirs when necessary.

There is currently no treatment installed at this facility for the transferred water. The facility does however have a WQM Permit (No. 1095201) for dechlorination equipment, which was never installed.

The permittee is currently using the eDMR system for reporting.

There are currently four open violations listed in EFACTS for this permittee, all at different facilities (4/14/2021). The Department encourages the permittee to address these violations during the draft comment period.

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.

Approve	Deny	Signatures	Date
X		Adam Pesek Adam J. Pesek, E.I.T. / Environmental Engineer	April 14, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	April 16, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	4.5
Latitude	40° 56' 38.4"	Longitude	-79° 47' 56.4"
Quad Name	East Butler	Quad Code	1107
Wastewater Description: Water Transfer Discharge			
Receiving Waters	Unnamed Tributary to Connoquenessing Creek	Stream Code	35315
NHD Com ID	126217967	RMI	2.55
Drainage Area	0.017	Yield (cfs/mi ²)	0.028
Q ₇₋₁₀ Flow (cfs)	0.00476	Q ₇₋₁₀ Basis	
Elevation (ft)	1227	Slope (ft/ft)	0.011
Watershed No.	20-C	Chapter 93 Class.	HQ-WWF
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		Name	
Background/Ambient Data		Data Source	
pH (SU)	7.0		12/5/94 Point of First Use stream survey on both streams
Temperature (°C)	25		Default (WWF)
Hardness (mg/L)	82		12/5/94 Point of First Use stream survey on both streams
Other:			
Nearest Downstream Public Water Supply Intake	PA American Water Company – Butler District		
PWS Waters	Oneida Reservoir	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approx 2.55 miles

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	1.5
Latitude	40° 56' 16.8"	Longitude	-79° 47' 42.0"
Quad Name	East Butler	Quad Code	1107
Wastewater Description: Water Transfer Discharge			
Receiving Waters	Thorn Creek	Stream Code	35188
NHD Com ID	126217950	RMI	6.45
Drainage Area	0.07	Yield (cfs/mi²)	0.028
Q7-10 Flow (cfs)	0.00196	Q7-10 Basis	Buffalo Ck @ Freeport (period of record cfsm used in the water allocation permit modeling)
Elevation (ft)	1255	Slope (ft/ft)	0.01
Watershed No.	20-C	Chapter 93 Class.	HQ-WWF
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		Name	
Background/Ambient Data		Data Source	
pH (SU)	7.0		12/5/94 Point of First Use stream survey on both streams
Temperature (°C)	25		Default (WWF)
Hardness (mg/L)	82		12/5/94 Point of First Use stream survey on both streams
Other:			
Nearest Downstream Public Water Supply Intake	PA American Water Company – Butler District		
PWS Waters	Thorn Creek Reservoir	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approx. 4.2 miles

Changes Since Last Permit Issuance:

Other Comments:

Compliance History	
Summary of DMRs:	No violations as current permit did not have any numerical effluent limitations.
Summary of Inspections:	Last site inspection was conducted on 2/01/2018. No issues reported on the inspection report.

Other Comments:

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	4.5
Latitude	40° 56' 38.40"	Longitude	-79° 47' 56.40"
Wastewater Description:	Water Transfer Discharge		

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
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Total Copper	0.0069	Average Monthly	Toxic Management Spreadsheet Ver 1.3
Total Copper	0.012	Daily Maximum	Toxic Management Spreadsheet Ver 1.3

Comments: The TMS was first run using effluent data collected during the renewal application. This resulted in numerous parameters having recommended WQBELs due to reasonable potential. Since only one effluent sample was collected and tested for the renewal application, and the fact that this is essentially water that is drawn from the Allegheny River, water quality data from the nearest upstream WQN Station on the Allegheny River (WQN 867 in Kennerdale, PA) was used for modeling purposes for parameters that had recommended WQBELs. Data from May through September (typical low flow period) from 2013-2017 was tabulated in the Department's TOXCONC Ver. 2.0 Spreadsheet to calculate an average monthly concentration and a daily CV to input into the TMS.

The permittee indicated on the "Pre-Draft Permit Survey that they did not know if they could meet the new total copper limits currently and did not know how long it would take them to meet the new limits. A four-year compliance schedule was added to the permit, with monitoring in the interim period, to give the permittee to conduct studies, additional sampling, and/or make operational changes in order to meet the new limits.

The Toxic Management Spreadsheet (TMS) also recommended monitoring for total dissolved solids, total aluminum, total arsenic, total iron, total nickel, total phenols (phenolics), and total zinc in the renewed permit. Monitoring for total dissolved solids and total phenols was based on public water supply criteria at the nearest downstream water supply, which happens to be this same permittee. Since there is significant dilution available in the downstream reservoirs where the water is drawn from, and the fact that the permittee is also the owner of the public water supply which treats the surface water, it was decided not include monitoring for these parameters over public water supply concerns. All other parameters that the spreadsheet recommended monitoring for will have a monitoring requirement in the permit at a reduced monitoring frequency of 2/month to collect data for future water quality modeling. Monitoring will be conducted and reported for at the internal monitoring point (IMP 100) due to monitoring being recommended for the same parameters at both Outfall 001 and 002, and the effluent quality should be identical at IMP 100 and this outfall.

Best Professional Judgment (BPJ) Limitations

Comments: None

Other Considerations

Comments: Monitoring of flow will be retained based on Chapter 92a.61.

Monitoring for total hardness will be placed in the permit at a frequency of 1/month to collect data for future water quality modeling since many of the metal criteria for parameters of concern are hardness-based.

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No.	002	Design Flow (MGD)	1.5
Latitude	40° 56' 16.80"	Longitude	-79° 47' 42.00"
Wastewater Description: Water Transfer Discharge			

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
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Total Copper	0.0069	Average Monthly	Toxic Management Spreadsheet Ver 1.3
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Comments: The TMS was first run using effluent data collected during the renewal application. This resulted in numerous parameters having recommended WQBELs due to reasonable potential. Since only one effluent sample was collected and tested for the renewal application, and the fact that this is essentially water that is drawn from the Allegheny River, water quality data from the nearest upstream WQN Station on the Allegheny River (WQN 867 in Kennerdale, PA) was used for modeling purposes for parameters that had recommended WQBELs. Data from May through September (typical low flow period) from 2013-2017 was tabulated in the Department's TOXCONC Ver. 2.0 Spreadsheet to calculate an average monthly concentration and a daily CV to input into the TMS.

The permittee indicated on the "Pre-Draft Permit Survey that they did not know if they could meet the new total copper limits currently and did not know how long it would take them to meet the new limits. A four-year compliance schedule was added to the permit, with monitoring in the interim period, to give the permittee to conduct studies, additional sampling, and/or make operational changes in order to meet the new limits.

The Toxic Management Spreadsheet (TMS) also recommended monitoring for total dissolved solids, total aluminum, total arsenic, total iron, total nickel, total phenols (phenolics), and total zinc in the renewed permit. Monitoring for total dissolved solids and total phenols was based on public water supply criteria at the nearest downstream water supply, which happens to be this same permittee. Since there is significant dilution available in the downstream reservoirs where the water is drawn from, and the fact that the permittee is also the owner of the public water supply which treats the surface water, it was decided not include monitoring for these parameters over public water supply concerns. All other parameters that the spreadsheet recommended monitoring for will have a monitoring requirement in the permit at a reduced monitoring frequency of 2/month to collect data for future water quality modeling. Monitoring will be conducted and reported for at the internal monitoring point (IMP 100) due to monitoring being recommended for the same parameters at both Outfall 001 and 002, and the effluent quality should be identical at IMP 100 and this outfall.

Best Professional Judgment (BPJ) Limitations

Comments: None

Other Considerations

Comments: Monitoring of flow will be retained based on Chapter 92a.61.

Monitoring for total hardness will be placed in the permit at a frequency of 1/month to collect data for future water quality modeling since many of the metal criteria for parameters of concern are hardness-based.

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No.	100	Design Flow (MGD)	6.0
Latitude	40° 56' 16"	Longitude	-79° 47' 30"
Wastewater Description:	Internal Monitoring Point for Outfalls 001 and 002		

Technology-Based Limitations

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

Comments: None

Water Quality-Based Limitations

Comments: Not applicable

Best Professional Judgment (BPJ) Limitations

Comments: None

Other Considerations

Comments: Monitoring for total aluminum, total arsenic, total copper, total iron, , total nickel, and total zinc will be placed in this permit for purposes of reporting requirements at Outfall 001 and 002 since the wastestream quality going to each outfall is identical.

Anti-Backsliding

N/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: July 1, 2025 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	Maximum	Instant. Maximum		
Total Copper	0.26	0.45 Daily Max	XXX	0.0069	0.012 Daily Max	0.017	1/week	Calculation

Compliance Sampling Location: Outfall 001 (see comment below)

Other Comments: The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used to determine compliance with the above limits

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 June 30, 2025.

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	Maximum	Instant. Maximum		
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	Calculation

Compliance Sampling Location: Outfall 001 (see comment below)

Other Comments: The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used for reporting purposes

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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab

Compliance Sampling Location: Outfall 001 (The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used to determine compliance with the above limits)

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: **July 1, 2025** 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	Maximum	Instant. Maximum		
Total Copper	0.086	0.15 Daily Max	XXX	0.0069	0.012 Daily Max	0.017	1/week	Calculation

Compliance Sampling Location: Outfall 002 (see comment below)

Other Comments: The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used to determine compliance with the above limits

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 **June 30, 2025**.

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	Maximum	Instant. Maximum		
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	Calculation

Compliance Sampling Location: Outfall 002 (see comment below)

Other Comments: The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used for reporting purposes

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab

Compliance Sampling Location: Outfall 002 (The sampling conducted at Internal Monitoring Point 100, along with the flow measured at this outfall during the day of sampling, shall be used to determine compliance with the above limits)

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 100, 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		
Total Aluminum Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Arsenic Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Copper Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Iron Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Nickel Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Zinc Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Hardness Internal Monitoring Point	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
pH (S.U.) Internal Monitoring Point	XXX	XXX	Report Daily Min	XXX	Report Daily Max	XXX	1/week	Grab

Compliance Sampling Location: Internal Monitoring Point 100

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4/14/2021

Facility:		PA American Water Company Butler									
NPDES #:		PA0210161									
Outfall No:		WCN 867									
n (Samples/Month):		4									
Parameter Name	Total Aluminum	Total Copper	Total Iron	Total Lead	Total Manganese	Total Zinc					
Number of Samples	20	20	20	20	20	20					
Samples Nondetected	4	13	0	19	0	14					
LOGNORMAL											
Log MEAN	NA	NA	5.4134305	NA	3.6390293	NA					
Log VAR			0.4644366		0.1413194						
(LTA) [E(x)]			283.0571468		40.8411039						
Variance [V(x)]			47361.1339034		253.1892117						
CV (raw)			0.7688417		0.3896055						
CV (n)			0.3844208		0.1948028						
Monthly Avg. (99%, n-day)			626.5757779		62.8006141						
DELTA-LOGNORMAL											
Delta-Log MEAN	4.3074311	2.2557070	NA	0.0099503	NA	2.5287856					
Delta-Log VAR	0.6374182	0.2766649		#DIV/0!		0.0521629					
(LTA) [E(x)]	121.6953153	6.4351838		#DIV/0!		10.8608764					
Variance [V(x)]	5971.1407467	24.4073694		#DIV/0!		4.3595083					
CV (raw)	0.7783053	0.7677141		#DIV/0!		0.1929136					
Delta-Log VAR (n)	0.1409177	0.1140448		#DIV/0!		0.0081246					
A. Table E-2, TSD	0.1522394	0.1864202		#DIV/0!		0.0153344					
B. Table E-2, TSD	-0.0043373	-0.0716819		#DIV/0!		-0.2549298					
C. Table E-2, TSD	0.0052729	0.2496085		#DIV/0!		0.5676206					
Delta-Log MEAN (n)	4.7300300	1.8837799		#DIV/0!		2.4053407					
phi (Φ)	0.9875000	0.9714286		0.8000000		0.9666667					
Z*	2.2400000	1.9000000		0.8400000		1.8300000					
Monthly Avg. (99%, n-day)	262.6713358	12.4961409		#DIV/0!		13.1990851					
NORMAL											
MEAN	NA	NA	NA	NA	NA	NA					
VAR											
(LTA) [E(x)]											
Variance [V(x)]											
CV (raw)											
CV (n)											
Monthly Avg. (99%, n-day)											



Discharge Information

Instructions Discharge Stream

Facility: **PA American Water Butler** NPDES Permit No.: **PA0210161** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water Transfer Discharge**

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
4.5	70.2	8						

	Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
				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	106									
	Chloride (PWS)	mg/L	13									
	Bromide	mg/L	< 0.1									
	Sulfate (PWS)	mg/L	14.4									
	Fluoride (PWS)	mg/L	< 0.05									
Group 2	Total Aluminum	µg/L	262.67			0.7783						
	Total Antimony	µg/L	< 0.5									
	Total Arsenic	µg/L	1.2									
	Total Barium	µg/L	42.7									
	Total Beryllium	µg/L	< 0.5									
	Total Boron	µg/L	58									
	Total Cadmium	µg/L	< 0.1									
	Total Chromium (III)	µg/L	0.7									
	Hexavalent Chromium	µg/L	< 0.002									
	Total Cobalt	µg/L	0.6									
	Total Copper	µg/L	12.496			0.7677						
	Free Cyanide	µg/L										
	Total Cyanide	µg/L	< 0.01									
	Dissolved Iron	µg/L	29									
	Total Iron	µg/L	626.57			0.7688						
	Total Lead	µg/L	< 1									
	Total Manganese	µg/L	62.8			0.3896						
	Total Mercury	µg/L	< 0.1									
	Total Nickel	µg/L	< 5									
	Total Phenols (Phenolics) (PWS)	µg/L	11									
	Total Selenium	µg/L	< 0.5									
	Total Silver	µg/L	< 0.1									
	Total Thallium	µg/L	< 0.1									
	Total Zinc	µg/L	13.199			0.1929						
	Total Molybdenum	µg/L	< 10									
	Acrolein	µg/L	<									
	Acrylamide	µg/L	<									
	Acrylonitrile	µg/L	<									
	Benzene	µg/L	<									
	Bromoform	µg/L	<									

Group 3	Carbon Tetrachloride	µg/L	<																	
	Chlorobenzene	µg/L																		
	Chlorodibromomethane	µg/L	<																	
	Chloroethane	µg/L	<																	
	2-Chloroethyl Vinyl Ether	µg/L	<																	
	Chloroform	µg/L	<																	
	Dichlorobromomethane	µg/L	<																	
	1,1-Dichloroethane	µg/L	<																	
	1,2-Dichloroethane	µg/L	<																	
	1,1-Dichloroethylene	µg/L	<																	
	1,2-Dichloropropane	µg/L	<																	
	1,3-Dichloropropylene	µg/L	<																	
	1,4-Dioxane	µg/L	<																	
	Ethylbenzene	µg/L	<																	
	Methyl Bromide	µg/L	<																	
	Methyl Chloride	µg/L	<																	
	Methylene Chloride	µg/L	<																	
	1,1,2,2-Tetrachloroethane	µg/L	<																	
	Tetrachloroethylene	µg/L	<																	
	Toluene	µg/L	<																	
	1,2-trans-Dichloroethylene	µg/L	<																	
	1,1,1-Trichloroethane	µg/L	<																	
	1,1,2-Trichloroethane	µg/L	<																	
	Trichloroethylene	µg/L	<																	
	Vinyl Chloride	µg/L	<																	
Group 4	2-Chlorophenol	µg/L	<																	
	2,4-Dichlorophenol	µg/L	<																	
	2,4-Dimethylphenol	µg/L	<																	
	4,6-Dinitro-o-Cresol	µg/L	<																	
	2,4-Dinitrophenol	µg/L	<																	
	2-Nitrophenol	µg/L	<																	
	4-Nitrophenol	µg/L	<																	
	p-Chloro-m-Cresol	µg/L	<																	
	Pentachlorophenol	µg/L	<																	
	Phenol	µg/L	<																	
	2,4,6-Trichlorophenol	µg/L	<																	
Group 5	Acenaphthene	µg/L	<																	
	Acenaphthylene	µg/L	<																	
	Anthracene	µg/L	<																	
	Benzidine	µg/L	<																	
	Benzo(a)Anthracene	µg/L	<																	
	Benzo(a)Pyrene	µg/L	<																	
	3,4-Benzofluoranthene	µg/L	<																	
	Benzo(ghi)Perylene	µg/L	<																	
	Benzo(k)Fluoranthene	µg/L	<																	
	Bis(2-Chloroethoxy)Methane	µg/L	<																	
	Bis(2-Chloroethyl)Ether	µg/L	<																	
	Bis(2-Chloroisopropyl)Ether	µg/L	<																	
	Bis(2-Ethylhexyl)Phthalate	µg/L	<																	
	4-Bromophenyl Phenyl Ether	µg/L	<																	
	Butyl Benzyl Phthalate	µg/L	<																	
	2-Chloronaphthalene	µg/L	<																	
	4-Chlorophenyl Phenyl Ether	µg/L	<																	
	Chrysene	µg/L	<																	
	Dibenzo(a,h)Anthracene	µg/L	<																	
	1,2-Dichlorobenzene	µg/L	<																	
	1,3-Dichlorobenzene	µg/L	<																	
	1,4-Dichlorobenzene	µg/L	<																	
	3,3-Dichlorobenzidine	µg/L	<																	
	Diethyl Phthalate	µg/L	<																	
	Dimethyl Phthalate	µg/L	<																	
	Di-n-Butyl Phthalate	µg/L	<																	
	2,4-Dinitrotoluene	µg/L	<																	

	2,6-Dinitrotoluene	µg/L	<																
	Di-n-Octyl Phthalate	µg/L	<																
	1,2-Diphenylhydrazine	µg/L	<																
	Fluoranthene	µg/L	<																
	Fluorene	µg/L	<																
	Hexachlorobenzene	µg/L	<																
	Hexachlorobutadiene	µg/L	<																
	Hexachlorocyclopentadiene	µg/L	<																
	Hexachloroethane	µg/L	<																
	Indeno(1,2,3-cd)Pyrene	µg/L	<																
	Isophorone	µg/L	<																
	Naphthalene	µg/L	<																
	Nitrobenzene	µg/L	<																
	n-Nitrosodimethylamine	µg/L	<																
	n-Nitrosodi-n-Propylamine	µg/L	<																
	n-Nitrosodiphenylamine	µg/L	<																
	Phenanthrene	µg/L	<																
	Pyrene	µg/L	<																
	1,2,4-Trichlorobenzene	µg/L	<																
Group 6	Aldrin	µg/L	<																
	alpha-BHC	µg/L	<																
	beta-BHC	µg/L	<																
	gamma-BHC	µg/L	<																
	delta BHC	µg/L	<																
	Chlordane	µg/L	<																
	4,4-DDT	µg/L	<																
	4,4-DDE	µg/L	<																
	4,4-DDD	µg/L	<																
	Dieldrin	µg/L	<																
	alpha-Endosulfan	µg/L	<																
	beta-Endosulfan	µg/L	<																
	Endosulfan Sulfate	µg/L	<																
	Endrin	µg/L	<																
	Endrin Aldehyde	µg/L	<																
	Heptachlor	µg/L	<																
	Heptachlor Epoxide	µg/L	<																
	PCB-1016	µg/L	<																
	PCB-1221	µg/L	<																
	PCB-1232	µg/L	<																
Group 7	PCB-1242	µg/L	<																
	PCB-1248	µg/L	<																
	PCB-1254	µg/L	<																
	PCB-1260	µg/L	<																
	PCBs, Total	µg/L	<																
	Toxaphene	µg/L	<																
	2,3,7,8-TCDD	ng/L	<																
	Gross Alpha	pCi/L	<																
	Total Beta	pCi/L	<																
	Radium 226/228	pCi/L	<																
	Total Strontium	µg/L	<																
	Total Uranium	µg/L	<																
	Osmotic Pressure	mOs/kg	<																



Stream / Surface Water Information

PA American Water Butler, NPDES Permit No. PA0210161, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **UNT Connoquenessing Creek**

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	035315	2.55	1227	0.17			Yes
End of Reach 1	035315	0.01	1076	1.83		0.001	Yes

Q₇₋₁₀

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	2.55	0.028										82	7		
End of Reach 1	0.01	0.028										82	7		

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	2.55														
End of Reach 1	0.01														



Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

PA American Water Butler, NPDES Permit No. PA0210161, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.55	0.00		0.00	6.962	0.011	0.808	8.765	10.853	0.984	0.158	0.
0.01	0.05	0.002	0.05								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.55	0.07		0.07	6.962	0.011	0.811	8.765	10.809	0.989	0.157	0.00013
0.01	0.554	0.002	0.55								

☒ Wasteload Allocations

☒ AFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 70.208

Analysis pH: 8.00

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	751	
Total Antimony	0	0		0	1,100	1,100	1,101	
Total Arsenic	0	0		0	340	340	340	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,014	
Total Boron	0	0		0	8,100	8,100	8,106	
Total Cadmium	0	0		0	1.428	1.49	1.49	Chem Translator of 0.959 applied
Total Chromium (III)	0	0		0	426.467	1,350	1,351	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	95.1	

Model Results

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Total Copper	0	0		0	9.630	10.0	10.0	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	43.850	52.0	52.1	Chem Translator of 0.843 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.65	Chem Translator of 0.85 applied
Total Nickel	0	0		0	347.143	348	348	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	1.751	2.06	2.06	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	65.0	
Total Zinc	0	0		0	86.836	88.8	88.8	Chem Translator of 0.978 applied

☒ CFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 70.208

Analysis pH: 8.00

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	220	
Total Arsenic	0	0		0	150	150	150	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,103	
Total Boron	0	0		0	1,600	1,600	1,601	
Total Cadmium	0	0		0	0.192	0.21	0.21	Chem Translator of 0.924 applied
Total Chromium (III)	0	0		0	55.475	64.5	64.5	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.4	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.0	
Total Copper	0	0		0	6.620	6.9	6.9	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	1,501	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.709	2.03	2.03	Chem Translator of 0.843 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.91	Chem Translator of 0.85 applied
Total Nickel	0	0		0	38.557	38.7	38.7	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	4.99	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	13.0	
Total Zinc	0	0		0	87.546	88.8	88.8	Chem Translator of 0.986 applied

☒ THH

CCT (min): 0.000

THH PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

PWS PMF: 1

Pollutants	Stream Conc	Stream CV	Trib Conc	Fate	WQC	WQ Obj	WLA (µg/L)	Comments
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Model Results

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Pollutants	Stream Conc (µg/L)	CV	Tri 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	503,680	WQC applied at RMI 0.01 with a design stream flow of 0.05124 cfs
Chloride (PWS)	0	0		0	250,000	250,000	251,840	WQC applied at RMI 0.01 with a design stream flow of 0.05124 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	251,840	WQC applied at RMI 0.01 with a design stream flow of 0.05124 cfs
Fluoride (PWS)	0	0		0	2,000	2,000	2,015	WQC applied at RMI 0.01 with a design stream flow of 0.05124 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.6	
Total Arsenic	0	0		0	10	10.0	10.0	
Total Barium	0	0		0	2,400	2,400	2,402	
Total Boron	0	0		0	3,100	3,100	3,102	
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	300	
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	1,001	
Total Mercury	0	0		0	0.050	0.05	0.05	
Total Nickel	0	0		0	610	610	610	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	5.04	WQC applied at RMI 0.01 with a design stream flow of 0.05124 cfs
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	0.24	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ CRL

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Tri 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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Dissolved Solids (PWS)	Report	Report	Report	Report	Report	mg/L	504	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Arsenic	Report	Report	Report	Report	Report	µg/L	10.0	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.26	0.45	6.9	12.1	17.3	µg/L	6.9	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,501	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	38.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Phenols (Phenolics) (PWS)	0.19	0.29	5.04	7.86	12.6	µg/L	5.04	THH-PWS	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	88.8	AFC	Discharge Conc > 10% WQBEL (no RP)

☒ **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
Chloride (PWS)	252	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	252	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Barium	2,402	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,601	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.21	µg/L	Discharge Conc < TQL
Total Chromium (III)	64.5	µg/L	Discharge Conc ≤ 10% WQBEL

Hexavalent Chromium	10.4	µg/L	Discharge Conc < TQL
Total Cobalt	19.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	300	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2.03	µg/L	Discharge Conc < TQL
Total Manganese	1,001	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.05	µg/L	Discharge Conc < TQL
Total Selenium	4.99	µg/L	Discharge Conc < TQL
Total Silver	2.06	µg/L	Discharge Conc < TQL
Total Thallium	0.24	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS



Discharge Information

Instructions Discharge Stream

Facility: **PA American Water Butler** NPDES Permit No.: **PA0210161** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water Transfer Discharge**

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
1.5	70.2	8						

	Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
				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	106									
	Chloride (PWS)	mg/L	13									
	Bromide	mg/L	< 0.1									
	Sulfate (PWS)	mg/L	14.4									
	Fluoride (PWS)	mg/L	< 0.05									
Group 2	Total Aluminum	µg/L	262.67			0.7783						
	Total Antimony	µg/L	< 0.5									
	Total Arsenic	µg/L	1.2									
	Total Barium	µg/L	42.7									
	Total Beryllium	µg/L	< 0.5									
	Total Boron	µg/L	58									
	Total Cadmium	µg/L	< 0.1									
	Total Chromium (III)	µg/L	0.7									
	Hexavalent Chromium	µg/L	< 0.002									
	Total Cobalt	µg/L	0.6									
	Total Copper	µg/L	12.496			0.7677						
	Free Cyanide	µg/L										
	Total Cyanide	µg/L	< 0.01									
	Dissolved Iron	µg/L	29									
	Total Iron	µg/L	626.57			0.7688						
	Total Lead	µg/L	< 1									
	Total Manganese	µg/L	62.8			0.3896						
	Total Mercury	µg/L	< 0.1									
	Total Nickel	µg/L	< 5									
	Total Phenols (Phenolics) (PWS)	µg/L	11									
	Total Selenium	µg/L	< 0.5									
	Total Silver	µg/L	< 0.1									
	Total Thallium	µg/L	< 0.1									
	Total Zinc	µg/L	13.199			0.1929						
	Total Molybdenum	µg/L	< 10									
	Acrolein	µg/L	<									
	Acrylamide	µg/L	<									
	Acrylonitrile	µg/L	<									
	Benzene	µg/L	<									
	Bromoform	µg/L	<									

Group 3	Carbon Tetrachloride	µg/L	<																	
	Chlorobenzene	µg/L																		
	Chlorodibromomethane	µg/L	<																	
	Chloroethane	µg/L	<																	
	2-Chloroethyl Vinyl Ether	µg/L	<																	
	Chloroform	µg/L	<																	
	Dichlorobromomethane	µg/L	<																	
	1,1-Dichloroethane	µg/L	<																	
	1,2-Dichloroethane	µg/L	<																	
	1,1-Dichloroethylene	µg/L	<																	
	1,2-Dichloropropane	µg/L	<																	
	1,3-Dichloropropylene	µg/L	<																	
	1,4-Dioxane	µg/L	<																	
	Ethylbenzene	µg/L	<																	
	Methyl Bromide	µg/L	<																	
	Methyl Chloride	µg/L	<																	
	Methylene Chloride	µg/L	<																	
	1,1,2,2-Tetrachloroethane	µg/L	<																	
	Tetrachloroethylene	µg/L	<																	
	Toluene	µg/L	<																	
	1,2-trans-Dichloroethylene	µg/L	<																	
	1,1,1-Trichloroethane	µg/L	<																	
	1,1,2-Trichloroethane	µg/L	<																	
	Trichloroethylene	µg/L	<																	
	Vinyl Chloride	µg/L	<																	
Group 4	2-Chlorophenol	µg/L	<																	
	2,4-Dichlorophenol	µg/L	<																	
	2,4-Dimethylphenol	µg/L	<																	
	4,6-Dinitro-o-Cresol	µg/L	<																	
	2,4-Dinitrophenol	µg/L	<																	
	2-Nitrophenol	µg/L	<																	
	4-Nitrophenol	µg/L	<																	
	p-Chloro-m-Cresol	µg/L	<																	
	Pentachlorophenol	µg/L	<																	
	Phenol	µg/L	<																	
	2,4,6-Trichlorophenol	µg/L	<																	
Group 5	Acenaphthene	µg/L	<																	
	Acenaphthylene	µg/L	<																	
	Anthracene	µg/L	<																	
	Benzidine	µg/L	<																	
	Benzo(a)Anthracene	µg/L	<																	
	Benzo(a)Pyrene	µg/L	<																	
	3,4-Benzofluoranthene	µg/L	<																	
	Benzo(ghi)Perylene	µg/L	<																	
	Benzo(k)Fluoranthene	µg/L	<																	
	Bis(2-Chloroethoxy)Methane	µg/L	<																	
	Bis(2-Chloroethyl)Ether	µg/L	<																	
	Bis(2-Chloroisopropyl)Ether	µg/L	<																	
	Bis(2-Ethylhexyl)Phthalate	µg/L	<																	
	4-Bromophenyl Phenyl Ether	µg/L	<																	
	Butyl Benzyl Phthalate	µg/L	<																	
	2-Chloronaphthalene	µg/L	<																	
	4-Chlorophenyl Phenyl Ether	µg/L	<																	
	Chrysene	µg/L	<																	
	Dibenzo(a,h)Anthracene	µg/L	<																	
	1,2-Dichlorobenzene	µg/L	<																	
	1,3-Dichlorobenzene	µg/L	<																	
	1,4-Dichlorobenzene	µg/L	<																	
	3,3-Dichlorobenzidine	µg/L	<																	
	Diethyl Phthalate	µg/L	<																	
	Dimethyl Phthalate	µg/L	<																	
	Di-n-Butyl Phthalate	µg/L	<																	
	2,4-Dinitrotoluene	µg/L	<																	

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Stream / Surface Water Information

PA American Water Butler, NPDES Permit No. PA0210161, Outfall 002

Instructions Discharge **Stream**

Receiving Surface Water Name: **Thorn Creek**

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	035188	6.45	1255	0.07			Yes
End of Reach 1	035188	3.4	1089	2.65		0.001	Yes

Q₇₋₁₀

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	6.45	0.028										82	7		
End of Reach 1	3.4	0.028										82	7		

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	6.45														
End of Reach 1	3.4														



Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

PA American Water Butler, NPDES Permit No. PA0210161, Outfall 002

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
6.45	0.00		0.00	2.321	0.01	0.731	4.947	6.765	0.642	0.29	0.
3.4	0.07	0.002	0.073								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
6.45	0.03		0.03	2.321	0.01	0.735	4.947	6.727	0.647	0.288	0.0001
3.4	0.765	0.002	0.76								

☒ Wasteload Allocations

☒ AFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 70.21

Analysis pH: 8.00

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	751	
Total Antimony	0	0		0	1,100	1,100	1,101	
Total Arsenic	0	0		0	340	340	340	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,018	
Total Boron	0	0		0	8,100	8,100	8,107	
Total Cadmium	0	0		0	1.428	1.49	1.49	Chem Translator of 0.959 applied
Total Chromium (III)	0	0		0	426.477	1,350	1,351	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	95.1	

Model Results

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Total Copper	0	0		0	9.630	10.0	10.0	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	43.852	52.0	52.1	Chem Translator of 0.843 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.65	Chem Translator of 0.85 applied
Total Nickel	0	0		0	347.151	348	348	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	1.751	2.06	2.06	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	65.1	
Total Zinc	0	0		0	86.838	88.8	88.9	Chem Translator of 0.978 applied

☒ CFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 70.21

Analysis pH: 8.00

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	220	
Total Arsenic	0	0		0	150	150	150	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,103	
Total Boron	0	0		0	1,600	1,600	1,601	
Total Cadmium	0	0		0	0.192	0.21	0.21	Chem Translator of 0.924 applied
Total Chromium (III)	0	0		0	55.476	64.5	64.6	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.4	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.0	
Total Copper	0	0		0	6.620	6.9	6.9	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	1,501	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.709	2.03	2.03	Chem Translator of 0.843 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.91	Chem Translator of 0.85 applied
Total Nickel	0	0		0	38.558	38.7	38.7	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	4.99	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	13.0	
Total Zinc	0	0		0	87.548	88.8	88.9	Chem Translator of 0.986 applied

☒ THH

CCT (min): 0.000

THH PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

PWS PMF: 1

Pollutants	Stream Conc	Stream CV	Trib Conc	Fate	WQC	WQ Obj	WLA (µg/L)	Comments
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Model Results

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Pollutants	Stream Conc (µg/L)	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	515,988	WQC applied at RMI 3.4 with a design stream flow of 0.0742 cfs
Chloride (PWS)	0	0		0	250,000	250,000	257,994	WQC applied at RMI 3.4 with a design stream flow of 0.0742 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	257,994	WQC applied at RMI 3.4 with a design stream flow of 0.0742 cfs
Fluoride (PWS)	0	0		0	2,000	2,000	2,064	WQC applied at RMI 3.4 with a design stream flow of 0.0742 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.6	
Total Arsenic	0	0		0	10	10.0	10.0	
Total Barium	0	0		0	2,400	2,400	2,402	
Total Boron	0	0		0	3,100	3,100	3,103	
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	300	
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	1,001	
Total Mercury	0	0		0	0.050	0.05	0.05	
Total Nickel	0	0		0	610	610	611	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	5.16	WQC applied at RMI 3.4 with a design stream flow of 0.0742 cfs
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	0.24	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ CRL

CCT (min): 0.000

PMF: 1

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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Dissolved Solids (PWS)	Report	Report	Report	Report	Report	mg/L	516	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Arsenic	Report	Report	Report	Report	Report	µg/L	10.0	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.086	0.15	6.9	12.1	17.3	µg/L	6.9	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,501	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	38.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Phenols (Phenolics) (PWS)	0.065	0.1	5.16	8.05	12.9	µg/L	5.16	THH-PWS	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	88.8	AFC	Discharge Conc > 10% WQBEL (no RP)

☒ **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
Chloride (PWS)	258	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	258	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Barium	2,402	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,601	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.21	µg/L	Discharge Conc < TQL
Total Chromium (III)	64.6	µg/L	Discharge Conc ≤ 10% WQBEL

Hexavalent Chromium	10.4	µg/L	Discharge Conc < TQL
Total Cobalt	19.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	300	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2.03	µg/L	Discharge Conc < TQL
Total Manganese	1,001	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.05	µg/L	Discharge Conc < TQL
Total Selenium	4.99	µg/L	Discharge Conc < TQL
Total Silver	2.06	µg/L	Discharge Conc < TQL
Total Thallium	0.24	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS