pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0037052**
Facility Type	**Municipal**	APS ID	**605167**
Major / Minor	**Minor**	Authorization ID	**1352649**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Pen Argyl Municipal Authority**	Facility Name	**Pen Argyl Wastewater Treatment Plant**
Applicant Address	11 North Robinson Avenue, POB 128	Facility Address	249 South Main Street
	Pen Argyl, PA 18072-1452		Pen Argyl, PA 18072-9520
Applicant Contact	John Cuono, Authority Chairman	Facility Contact	Jeffrey Markovitz, WWTP Operator
Applicant Phone	(610) 863-4119	Facility Phone	(610) 863-5422
Client ID	62404	Site ID	255664
Ch 94 Load Status	Not Overloaded	Municipality	Pen Argyl Borough
Connection Status	No Limitations	County	Northampton
Date Application Received	April 30, 2021	EPA Waived?	Yes
Date Application Accepted	May 11, 2021	If No, Reason	-

Purpose of Application: Renewal of NPDES permit for discharge of treated sewage.

Summary of Review

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.95 MGD of treated sewage into Waltz Creek, a Cold-Water Fishery, Migratory Fish (CWF, MF) receiving stream in State Water Plan Basin 1-F (Jacoby – Bushkill Creeks). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. This stream segment is designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies.

The renewal application and the previous permit lists the receiving stream as Waltz Creek. It appears the discharge is really to an Unnamed Tributary to Waltz Creek. This Unnamed Tributary does not appear on eMAP PA but does appear on USGS StreamStats. The DRBC Docket, the Waltz Creek TMDL, and the Water Quality Pollution Report dated August 4, 2011 all list the receiving stream as an Unnamed Tributary to Waltz Creek. However, the Water Quality Pollution Report indicates that the point of first use is considered to be at the point of discharge along Waltz Creek. The wording on this NPDES Permit renewal will continue to list the receiving stream as Waltz Creek since the modeling is based at the point where the Unnamed Tributary meets Waltz Creek,

Limitations for pH, $CBOD_5$, Total Suspended Solids (TSS), and Fecal Coliform are technology-based and carried over from the previous permit.

Limitations for Ammonia Nitrogen are water quality-based and carried over from the previous permit. WQM 7.0 did not recommend stricter limits.

A final Total Maximum Daily Load (TMDL) exists for Waltz Creek. The Total Copper, Total Lead, and Total Zinc limits are carried over from the previous permit and are derived from the Waste Load Allocations (WLAs) specified in the Waltz Creek TMDL dated August 9, 2004.

Approve	Deny	Signatures	Date
X		/s/ Allison Seyfried / Environmental Engineering Specialist	April 12, 2022
X		/s/ Amy M. Bellanca, P.E. / Environmental Engineer Manager	May 13, 2022

Summary of Review

WQM 7.0 modeling recommends a stricter limit for Dissolved Oxygen (DO) of 7.0 mg/L due to the stream being designated as a naturally reproducing trout stream. eDMR data from March 1, 2021 to February 28, 2022 (included on pages 4-6 of this Fact Sheet) indicates that the facility is consistently above 7.0 mg/L (and typically even over 8.0 mg/L). Therefore, the new DO limitations will become effective at the permit effective date.

Weekly influent monitoring requirements for TSS has been carried over from the previous permit. The latest DRBC Docket No. D-1975-028 CP-5 requires the addition of monitoring/reporting for 85% minimum $CBOD_5$ Percent Removal at the same monitoring frequency as $CBOD_5$. The weekly influent monitoring for BOD_5 has been changed to influent monitoring of $CBOD_5$ to better determine the removal percentages. The DRBC Docket requirement of 1,000 mg/L average quarterly limit for Total Dissolved Solids was also carried over from the previous permit.

The annual monitoring and reporting for Total Nitrogen, Total Phosphorous, Total Kjeldahl Nitrogen, and Nitrate-Nitrite as N has been maintained in this permit.

The Total Residual Chlorine (TRC) Calculation Spreadsheet recommends stricter limitations than the previous permit. The permittee will be required to meet the new water quality-based limits for TRC starting four years after the effective date of the permit (see Part C.III.). TRC limitations from the previously issued permit are in effect for the first three years after the permit effective date. The WWTP utilizes ultraviolet light for disinfection. Therefore, these limits are only applicable in the event the facility uses chlorine for cleaning purposes or as a back-up disinfection option (see requirements under Part C.I.D).

Sewage discharges now require monitoring and reporting for E. Coli. A monitoring frequency of 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD, 1/year for design flows of 0.002 – 0.05 MGD will be utilized.

For this permit renewal, all monitoring frequencies for parameters with limitations are consistent with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (document no. 362-0400-001).

There are no representative stream gages in the vicinity of the outfall and the drainage area at Outfall 001 is too small for USGS StreamStats to estimate accurate low flow values. Therefore, the default Low Flow Yield (LFY) of 0.1 cfs/mi^2 was used to model the discharge. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA, drainage areas were delineated using USGS's StreamStats Interactive Map, and elevations were obtained using the elevation profile feature of StreamStats.

The existing permit expired on October 31, 2021 and the application for renewal was received on time.

A Water Management System Inspection query indicated a Compliance Evaluation was performed on January 27, 2022.

There are currently no open violations for this client that warrant withholding issuance of this permit.

Sludge use and disposal description and location(s): As per the permittee's NPDES Renewal Application, sludge is hauled to the Grand Central Sanitary Landfill by Allstate Septic Systems, LLP.

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.	001	Design Flow (MGD)	0.95
Latitude	40º 51' 29.24"	Longitude	-75º 14' 58.64"
Quad Name	Bangor	Quad Code	1244
Wastewater Description:	Sewage Effluent		
Receiving Waters	Waltz Creek (CWF, MF)	Stream Code	63243
NHD Com ID	26066412	RMI	4.086
Drainage Area	2.56 mi^2	Yield (cfs/mi^2)	0.10
Q_{7-10} Flow (cfs)	0.256	Q_{7-10} Basis	State-wide default
Elevation (ft)	622.4	Slope (ft/ft)	-
Watershed No.	1-F	Chapter 93 Class.	CWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, FLOW REGIME MODIFICATION, HABITAT ALTERATIONS, SILTATION		
Source(s) of Impairment	EROSION FROM DERELICT LAND (BARREN LAND), EROSION FROM DERELICT LAND (BARREN LAND), URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Waltz Creek TMDL
Nearest Downstream Public Water Supply Intake	Easton Area Water Authority		
PWS Waters	Delaware River	Flow at Intake (cfs)	-
PWS RMI	110.4	Distance from Outfall (mi)	~ 14

Treatment Facility Summary

Treatment Facility Name: Pen Argyl Municipal Authority WWTP

WQM Permit No.	Issuance Date
4806405	6/11/207
4815401	10/13/2015

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Ultraviolet	0.554

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.95	1,596	Not Overloaded	Primary aerobic digestor, secondary aerobic digestors, reed beds, sludge dewatering centrifuge	Hauled

Compliance History

DMR Data for Outfall 001 (from March 1, 2021 to February 28, 2022)

Parameter	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21
Flow (MGD) Average Monthly	0.586	0.350	0.389	0.557	0.571	1.002	0.559	0.388	0.406	0.45	0.679	0.741
Flow (MGD) Daily Maximum	1.327	0.462	0.455	0.746	1.294	1.843	1.92	0.437	0.443	0.534	1.014	1.085
pH (S.U.) Minimum	6.9	6.9	6.8	6.9	6.8	6.8	6.9	7.1	6.9	7.0	7.0	6.9
pH (S.U.) Instantaneous Maximum	7.3	7.3	7.2	7.2	7.0	7.1	7.2	7.3	7.4	7.3	7.2	7.2
DO (mg/L) Minimum	8.9	8.5	8.6	8.3	8.2	8.2	7.9	7.2	7.6	8.4	8.3	8.7
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	15	7.1	9	16	< 10	< 17	< 11	< 7	< 8	< 8	< 12	< 13
CBOD5 (lbs/day) Weekly Average	32	8.3	15	35	< 12	< 25	< 14	< 7	< 8	< 9	< 13	< 17
CBOD5 (mg/L) Average Monthly	3.2	2.2	2.6	3.3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Weekly Average	5.0	2.7	5.1	7.2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	837	908	781	998	894	978	1083	933	928	820	888	852
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	10.85	984	1146	1043	1146	1520	3008	1311	1308	1220	1399	1455
BOD5 (mg/L) Raw Sewage Influent Average Monthly	225	319	238	217	220	146	157	297	279	232	163	149
BOD5 (mg/L) Raw Sewage Influent Weekly Average	390	355	302	242	332	187	193	397	415	374	223	268

TSS (lbs/day) Average Monthly	19	< 12	< 14	< 17	< 18	< 33	< 21	< 13	< 14	16	< 22	< 24
TSS (lbs/day) Raw Sewage Influent Average Monthly	864	1383	1144	2373	1954	1807	1560	1164	1298	1086	1679	1701
TSS (lbs/day) Raw Sewage Influent Weekly Average	1069	1907	1734	4576	4895	2131	4938	1440	1882	1683	2340	3192
TSS (lbs/day) Weekly Average	32	< 13	< 16	< 19	< 23	< 50	< 28	< 14	< 15	18	< 26	< 34
TSS (mg/L) Average Monthly	4.5	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	4.1	< 4	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	232	488	349	512	443	282	201	372	388	306	318	305
TSS (mg/L) Raw Sewage Influent Weekly Average	385	693	457	978	1050	404	284	436	597	516	478	588
TSS (mg/L) Weekly Average	6.0	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	4.4	< 4	< 4
Total Dissolved Solids (mg/L) Average Monthly			326			316			264			278
Fecal Coliform (CFU/100 ml) Geometric Mean	1	1	< 3	< 1	< 3	3	< 4	< 2	< 2	1	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	1	43	< 1	12	7	23	2	2	1	< 1	< 1
Nitrate-Nitrite (lbs/day) Annual Average			16									
Nitrate-Nitrite (mg/L) Annual Average			3.2									
Total Nitrogen (lbs/day) Annual Average			19.5									
Total Nitrogen (mg/L) Annual Average			3.8									
Ammonia (lbs/day) Average Monthly	1.5	< 0.3	< 0.4	< 0.5	< 0.5	< 0.9	< 0.6	< 0.4	< 0.4	< 0.5	< 0.6	1.0
Ammonia (mg/L) Average Monthly	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.14

TKN (lbs/day) Annual Average			4.7									
TKN (mg/L) Annual Average			0.8									
Total Phosphorus (lbs/day) Annual Average			6.0									
Total Phosphorus (mg/L) Annual Average			1.3									
Total Copper (lbs/day) Average Monthly	0.027	0.023	0.027	0.024	0.033	0.099	0.033	0.027	0.028	0.040	0.050	0.042
Total Copper (lbs/day) Daily Maximum	0.027	0.023	0.027	0.024	0.033	0.099	0.040	0.027	0.028	0.040	0.050	0.042
Total Copper (mg/L) Average Monthly	0.010	0.008	0.007	0.005	0.007	0.008	0.008	0.008	0.008	0.009	0.008	0.007
Total Copper (mg/L) Daily Maximum	0.010	0.008	0.007	0.005	0.007	0.008	0.008	0.008	0.008	0.009	0.008	0.007
Total Lead (lbs/day) Average Monthly	< 0.0027	< 0.0029	< 0.0039	< 0.0049	< 0.0047	< 0.0124	< 0.0041	< 0.0033	< 0.0035	< 0.0005	< 0.0062	< 0.0060
Total Lead (lbs/day) Daily Maximum	< 0.0027	0.0029	< 0.0039	< 0.0049	< 0.0047	< 0.0124	< 0.0051	< 0.0033	< 0.0035	< 0.0005	< 0.0062	< 0.0060
Total Lead (mg/L) Average Monthly	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0005	< 0.0010	< 0.0010
Total Lead (mg/L) Daily Maximum	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00050	< 0.00100	< 0.00100
Total Zinc (lbs/day) Average Monthly	0.32	0.23	0.24	0.17	0.18	0.61	0.22	0.23	0.22	0.32	0.30	0.29
Total Zinc (lbs/day) Daily Maximum	0.32	0.23	0.24	0.17	0.18	0.61	0.23	0.23	0.22	0.32	0.30	0.29
Total Zinc (mg/L) Average Monthly	0.118	0.078	0.062	0.034	0.039	0.049	0.058	0.068	0.062	0.073	0.047	0.049
Total Zinc (mg/L) Daily Maximum	0.118	0.078	0.062	0.034	0.039	0.049	0.067	0.068	0.062	0.073	0.047	0.049

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.95
Latitude 40º 51' 53.00" **Longitude** -75º 14' 44.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	50.0	IMAX	-	-
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
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)
E. Coli	Report	IMAX	-	92a.61

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	7.0	Minimum	WQM 7.0
Total Residual Chlorine	0.03	Average Monthly	TRC Calculation Spreadsheet
	0.11	IMAX	
Ammonia-Nitrogen Nov 1 - Apr 30	4.5	Average Monthly	Previous Permit
	9.0	IMAX	
Ammonia-Nitrogen May 1 - Oct 31	1.5	Average Monthly	
	3.0	IMAX	
Total Dissolved Solids	1,000	Average Quarterly	DRBC Docket
	2,000	IMAX	
$CBOD_5$ Minimum % Removal (%)	85	Minimum Monthly Average	
Copper, Total	0.016	Monthly Average	Waltz Creek TMDL
	0.025	Daily Max	
Lead, Total	0.0059	Monthly Average	
	0.00929	Daily Max	
Zinc, Total	0.135	Monthly Average	
	0.204	Daily Max	
$CBOD_5$ – Raw Sewage Influent	Report	Monthly Average	POTW Requirement and DRBC Docket
Total Suspended Solids – Raw Sewage Influent	Report	Monthly Average	POTW Requirement

Anti-Backsliding

No limitations were made less stringent.

Modeling

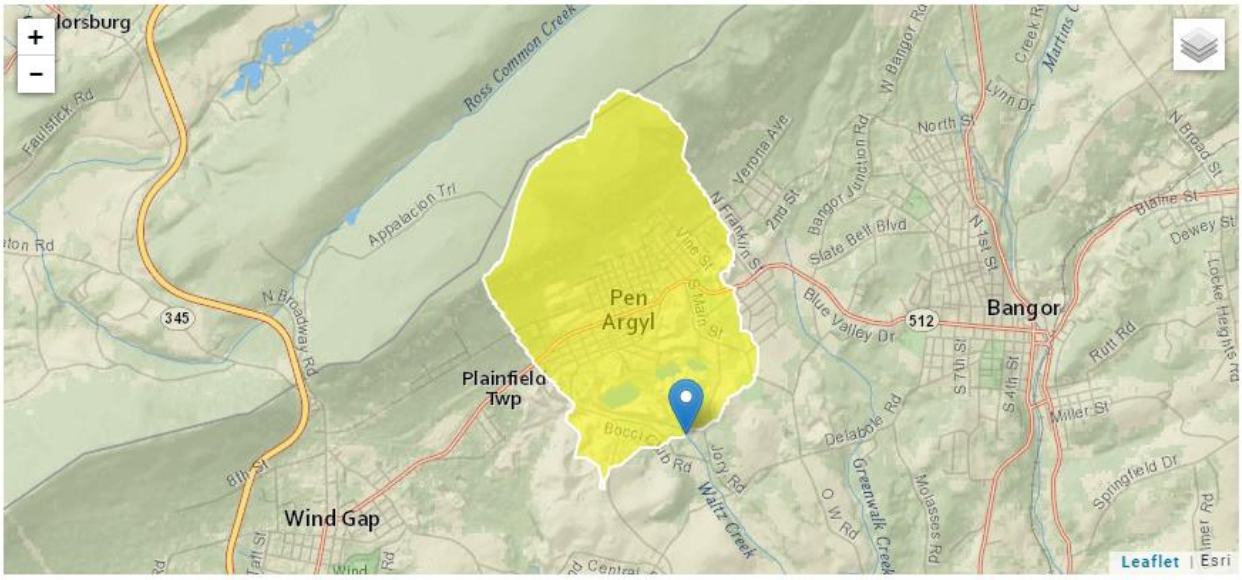
At point of first use on Waltz Creek:

RMI	Elevation (ft)	Drainage Area (mi^2)	Q_{7-10} Flow (cfs)
4.086	622.4	2.56	0.925

$$Low\ Flow\ Yield\ using\ StreamStats = \frac{0.925\ ft^3/sec}{2.56\ mi^2} = \mathbf{0.361}\ \frac{\boldsymbol{ft^3/sec}}{\boldsymbol{mi^2}}$$

StreamStats Report

Region ID:	PA
Workspace ID:	PA20210818151238494000
Clicked Point (Latitude, Longitude):	40.85735, -75.24830
Time:	2021-08-18 11:12:57 -0400



Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.56	square miles

Statistic	Value	Unit
7 Day 2 Year Low Flow	1.87	ft^3/s
30 Day 2 Year Low Flow	2.33	ft^3/s
7 Day 10 Year Low Flow	0.925	ft^3/s

Using the state-wide Low-Flow Yield (LFY) of 0.1 cfs/mi²:

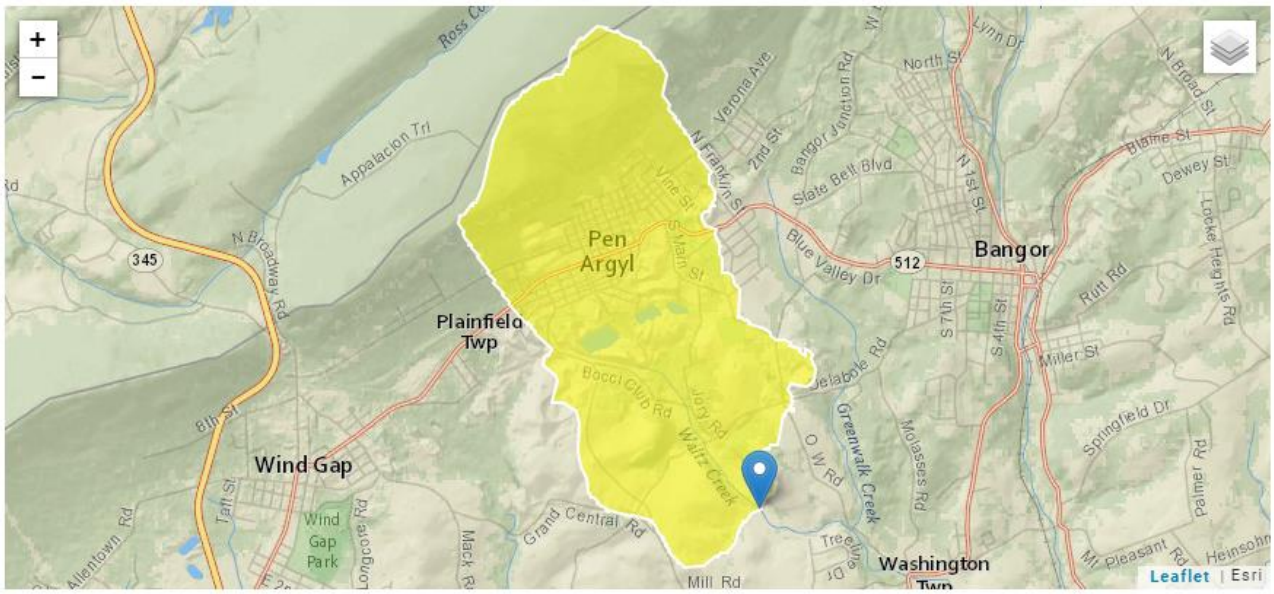
$$\frac{0.1\ ft^3/sec}{mi^2} \times 2.56\ mi^2 = \frac{\mathbf{0.256}\ \boldsymbol{ft^3}}{\boldsymbol{sec}}$$

At confluence with Unnamed Tributary to Waltz Creek:

RMI	Elevation (ft)	Drainage Area (mi^2)	Q_{7-10} Flow (cfs)
4.086	622.4	2.56	0.925

StreamStats Report

Region ID: PA
Workspace ID: PA20210818153429692000
Clicked Point (Latitude, Longitude): 40.84584, -75.23726
Time: 2021-08-18 11:34:48 -0400



WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
01F	63243	WALTZ CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
4.086	Pen Argyl Boro	pa0037052	0.950	CBOD5	25		
				NH3-N	2.93	5.86	
				Dissolved Oxygen			7

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.256	= Q stream (cfs)	0.5	= CV Daily
0.95	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.075	1.3.2.iii	WLA cfc = 0.065
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.028	5.1d	LTA_cfc = 0.038

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.034	AFC
		INST MAX LIMIT (mg/l) = 0.112	

DRBC Docket 1975-028 CP-5 Pen A

WaltzCreekTMDL.pdf

WQ Protection Report.pdf