Pennsylvania Department of Environmental Protection

NORTHEAST REGIONAL OFFICE
CLEAN WATER PROGRAM

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

NPDES PERMIT FACT SHEET ADDENDUM

Applicant and Facility Information

Applicant Name	**Pen Argyl Borough 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	David Mondello, Operator
Applicant Phone	(610) 863-4119	Facility Phone	(610) 863-5422
Client ID	62404	Site ID	255664
SIC Code	4952	Municipality	Pen Argyl Borough
SIC Description	Trans. & Utilities - Sewerage Systems	County	Northampton
Date Published in PA Bulletin	June 4, 2022	EPA Waived?	Yes
Comment Period End Date	July 4, 2022	If No, Reason	-

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated sewage.

Internal Review and Recommendations

The first draft of this application appeared in the PA Bulletin on Saturday, June 4, 2022.

A comment letter dated June 14, 2022 was received via email from Colliers Engineering & Design on behalf of Pen Argyl Municipal Authority. The full comment letter is included on pages 8 and 9 of this fact sheet for reference.

The comment letter requests the Dissolved Oxygen (DO) limitation of 5.0 mg/L from the previous permit be maintained instead of being increased to 7.0 mg/L. The comment letter states, “The Pen Argyl Borough Municipal Authority does not believe the draft NPDES Permit limits should be based on the designations of Waltz Creek. It is our belief that the modeling and designations used to determine the draft NPDES Permit Dissolved Oxygen (DO) limits for the Pen Argyl WWTP do not accurately portray the existing conditions in the discharge to Unnamed Tributary of Waltz Creek”.

The first draft of this permit indicated the Point of First Use (POFU) is where the Unnamed Tributary to Waltz Creek meets Waltz Creek. A new POFU study was conducted in response to the comment letter. DEP’s Aquatic Biologist Supervisor, Walter “JR” Holtsmaster, completed a site visit on July 20, 2022. The site visit included walking the steam upstream of the discharge. The different age classes of trout, aquatic plants, and benthic macroinvertebrates were observed in the Unnamed Tributary to Waltz Creek above the discharge. Pictures from the site visit are provided on pages 2 and 3 of this fact sheet. Additional stream reports for the Unnamed Tributary and Waltz Creek above the WWTP indicated a benthic macroinvertebrate community. The Point of First Use was determined to be the Pen Argyl WWTP discharge location on the Unnamed Tributary to Waltz Creek.

The 7.0 mg/L minimum DO limitation has been maintained since trout were identified in the stream and because Waltz Creek, which is less than a mile downstream, is identified as a Natural Trout Reproduction Stream.

Approve	Return	Deny	Signatures	Date
X			/s/ Allison Seyfried Zukosky / Project Manager	April 29, 2025
X			/s/ Edward Dudick, P.E. / Engineer Manager	April 30, 2025

Internal Review and Recommendations

eDMR data from the previous year (March 1, 2024 through February 28, 2025) also indicates that the facility is consistently above 7.0 mg/L. The lowest reported value for DO was 7.2 mg/L in August 2024. The facility was also at/or above 8.4 mg/L DO for seven of the months in the year. The eDMR data can be observed on page 4 of this fact sheet.

Modeling was also re-run using the new POFU location. There is no stream mapping of the Unnamed Tributary to Waltz Creek in eMapPA. Therefore, the RMI values were obtained by using the measure tool on USGS StreamStats where the Unnamed Tributary is represented. The drainage areas were also obtained using USGS StreamStats. The statewide default Low Flow Yield (LFY) of 0.1 cfs/mi^2 was used for modeling because the USGS StreamStats drainage area is too small to estimate accurate low flow values. Modeling can be observed on pages 5-7 of this fact sheet.

The new WQM 7.0 did not recommend stricter limitations than the first draft.

However, the Total Residual Chlorine (TRC) Calculation Spreadsheet recommends stricter limitations than the first draft. The Total Residual Chlorine (TRC) average monthly effluent limitation has been removed because UV Disinfection is used as the primary disinfection method. The permittee will be required to meet the new water quality-based IMAX limitation for TRC starting four years after the effective date of the permit (see Part C.III.). The IMAX TRC limitation from the previously issued permit is in effect for the first four years after the permit effective date.

Figure 1. Upstream of Pen Argyl Outfall 001

Internal Review and Recommendations

Figure 2. Macroinvertebrates

Figure 3. Trout

Internal Review and Recommendations

DMR Data for Outfall 001 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
Flow (MGD) Average Monthly	0.374	0.340	0.324	0.291	0.309	0.344	0.404	0.351	0.422	0.503	1.029	0.864
Flow (MGD) Daily Maximum	0.691	0.406	0.687	0.414	0.353	0.437	0.854	0.408	0.460	0.639	2.331	1.432
pH (S.U.) Minimum	6.8	6.9	6.9	7.0	7.0	7.0	7.0	6.9	6.8	6.8	6.9	6.8
pH (S.U.) Instantaneous Maximum	7.2	7.3	7.2	7.3	7.3	7.3	7.1	7.1	7.2	7.4	7.4	7.1
DO (mg/L) Minimum	9.3	9.0	9.0	8.4	7.8	7.7	7.2	7.5	7.6	8.4	8.8	8.5
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	< 7	3	7	< 5	< 6	7	< 7	< 7	< 9	13	< 23	23
CBOD5 (lbs/day) Weekly Average	11	16	11	6	8	9	8	10	11	18	36	47
CBOD5 (mg/L) Average Monthly	< 2.5	3.4	2.4	< 2.1	< 2.3	2.5	< 2.2	< 2.5	< 2.6	3.3	< 3.0	< 3.2
CBOD5 (mg/L) Weekly Average	3.5	5.8	2.7	2.3	3.3	2.9	2.3	3.1	3.0	4.4	6.0	6.6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1840	2121	1886	1508	1365	1631	3834	3970	1297	1380	1255	1245
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	2406	2961	3627	1903	1644	1767	10717	15560	1680	2239	1499	1428
BOD5 (mg/L) Raw Sewage Influent Average Monthly	623	775	554	613	534	567	1147	1290	369	343	180	180
BOD5 (mg/L) Raw Sewage Influent Weekly Average	784	1120	685	758	666	638	3119	5029	486	538	297	201

Internal Review and Recommendations

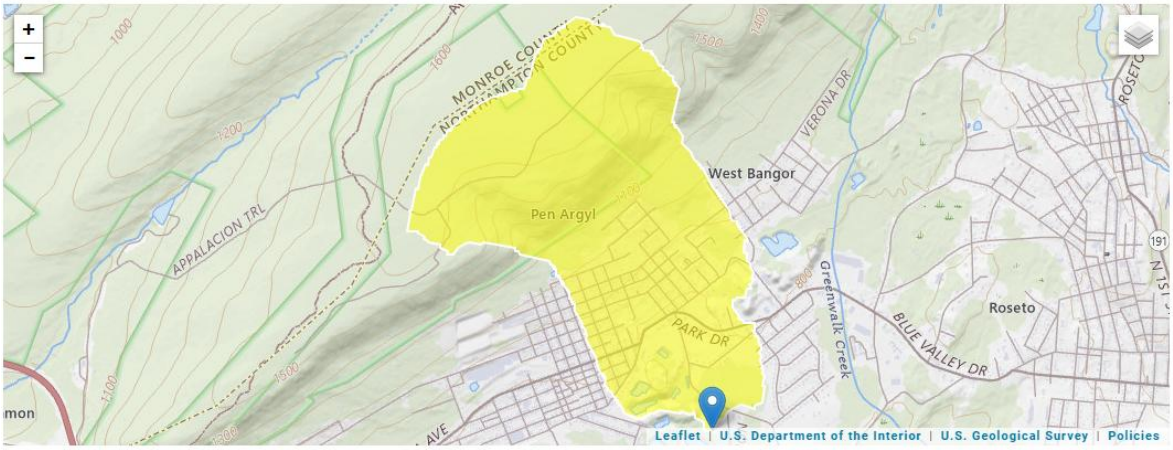
Remodeling After POFU Determination at Outfall 001 on Unnamed Tributary to Waltz Creek:

RMI	Elevation (ft)	Drainage Area (mi^2)
0.63	705.75	1.29

3,328 feet from Outfall 001 to confluence with Waltz Creek = 0.63 miles

StreamStats Report

Region ID: PA
Workspace ID: PA20250429135105873000
Clicked Point (Latitude, Longitude): 40.86446, -75.24558
Time: 2025-04-29 09:51:31 -0400



Parameter Code	Parameter Name	Value	Units
CARBON	Percent Carbonate	0	percent
DRNAREA	Drainage Area	1.29	square miles

Using the state-wide Low-Flow Yield (LFY) of 0.1 cfs/mi^2:

$$\frac{0.1\ ft^3/sec}{mi^2} \times 1.29\ mi^2 = \frac{\mathbf{0.129\ ft^3}}{\mathbf{sec}}$$

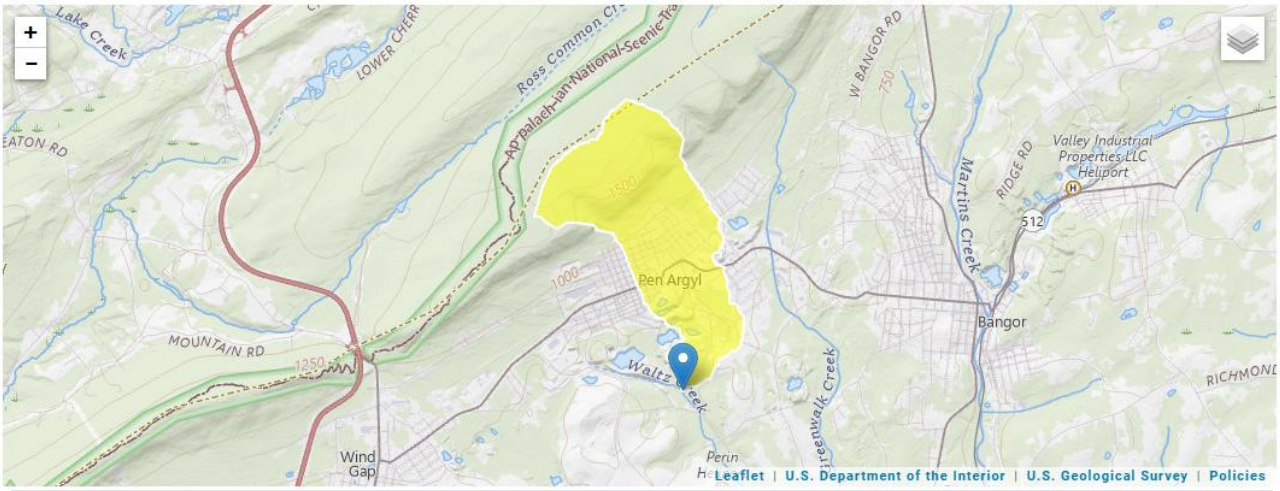
Internal Review and Recommendations

At confluence with Waltz Creek:

RMI	Elevation (ft)	Drainage Area (mi^2)
0.0	624.85	1.51

StreamStats Report

Region ID:	PA
Workspace ID:	PA20250429135545977000
Clicked Point (Latitude, Longitude):	40.85740, -75.24830
Time:	2025-04-29 09:56:10 -0400



Parameter Code	Parameter Name	Value	Units
CARBON	Percent Carbonate	0	percent
DRNAREA	Drainage Area	1.51	square miles

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)
0.630	PenArgyl2025	PA0037052	0.950	CBOD5	25		
				NH3-N	1.56	3.12	
				Dissolved Oxygen			7

Internal Review and Recommendations

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.129	= 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 =	0.047	1.3.2.iii	WLA cfc =	0.038
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.018	5.1d	LTA_cfc =	0.022

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.022	AFC
		INST MAX LIMIT (mg/l) =	0.071	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

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Colliers Engineering & Design

Memorandum

To: Allison Seyfried, Environmental Engineering Specialist
Pennsylvania Department of Environmental Protection

From: Ronald B. Madison, PE

CC: David Kovach, PG, DRBC
Robin Zmoda, Pen Argyl Borough Manager
John Cuono, Pen Argyl Municipal Authority
Jeffrey Markovitz, Pen Argyl WWTP Operator
Tyler B. Evans, PE, Colliers Engineering & Design

Date: June 14, 2022

Subject: Pen Argyl WWTP NPDES Permit Renewal (No. PA0037052)
Draft NPDES Permit Appeal

Project No.: PAB002

On behalf of the Applicant, Pen Argyl Borough Municipal Authority and Pen Argyl Borough, Colliers Engineering & Design is submitting this memorandum in response to the enclosed draft National Pollutant Discharge Elimination System (NPDES) Permit and associated documents for the Pen Argyl Wastewater Treatment Plant (Permit No. PA0037052) which was sent via email on May 17, 2022. We are Appealing the proposed discharge limit change for minimum dissolved oxygen from 5.0 mg/L to 7.0 mg/L.

The Pen Argyl WWTP is classified as a Minor Sewage Facility with a NPDES Permit discharge limit of 0.95 MGD into and Unnamed Tributary to Waltz Creek. 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, according to the draft NPDES Permit, the "point of first use" is considered to be at the point of discharge along Waltz Creek, so therefore all modeling and limits for the draft NPDES Permit are based at the point where the Unnamed Tributary meets Waltz Creek.

According to PADEP Document No. 391-2000-014 entitled "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Stream" a "point of first use" is defined as the first downstream point where the stream is capable of supporting existing or designated uses as defined in Chapter 93. Please note that according to the USGS StreamStats, the Pen Argyl WWTP is located approximately 4,300 feet from the official beginning of Waltz Creek. The Pen Argyl Borough Municipal Authority does not believe the draft NPDES Permit limits should be based on the

Colliers Engineering & Design

designations of Waltz Creek. It is our belief that the modeling and designations used to determine the draft NPDES Permit Dissolved Oxygen (DO) limits for the Pen Argyl WWTP do not accurately portray the existing conditions in the discharge Unnamed Tributary of Waltz Creek.

According to the draft Permit, the minimum DO limit was revised from 5.0 mg/L to 7.0 mg/L because the Waltz Creek is designated as a naturally reproducing trout stream and the PADEP WQM 7.0 modeling recommended a stricter limit. However, the Pen Argyl Borough Municipal Authority respectfully disputes this parameter change and request that the PADEP remove this proposed draft discharge limit change keeping the NPDES permit as the current 5.0 mg/L dissolve oxygen. Please note that according to eDMR data between 2018 and 2021, the average minimum Dissolved Oxygen (DO) limit reported during the summer months of July and August was 7.56 mg/L with the lowest minimum DO limit reported as 7.20 mg/L. We believe the proposed limit of 7.0 mg/L would expose the Pen Argyl WWTP to potential future discharge limit violations.

Based on our review of the Technical Reference Guide for WQM 7.0 modeling (Document No. 391-2000-007), the DO module uses $Q_{7\text{-}10}$ (the minimum 7-day average stream flow over a 10-year period) design stream flow conditions and various other input parameters to model instream deoxygenation, reaeration, and nitrification to determine instream DO concentrations. However, according to the draft NPDES Permit, 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 model low flow values.

The Pen Argyl Borough Municipal Authority is Appealing the draft NPDES Permit limit change for the minimum Dissolved Oxygen (DO) limit.

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