pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0110922**
Facility Type	**Non-Municipal**	APS ID	**666683**
Major / Minor	**Minor**	Authorization ID	**1385925**

Applicant and Facility Information

Applicant Name	**Camp Allegheny Inc.**	Facility Name	**Camp Allegheny**
Applicant Address	100 Camp Allegheny Drive	Facility Address	100 Camp Allegheny Drive
	Stoystown, PA 15563-8823		Stoystown, PA 15563-8823
Applicant Contact	Dennis Tawney	Facility Contact	Same as applicant
Applicant Phone	(814) 754-5122	Facility Phone	Same as applicant
Client ID	45036	Site ID	237179
Ch 94 Load Status	Not Overloaded	Municipality	Stonycreek Township
Connection Status		County	Somerset
Date Application Received	February 10, 2022	EPA Waived?	Yes
Date Application Accepted	February 23, 2022	If No, Reason	

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

Summary of Review

The applicant has applied for the renewal of NPDES Permit No. PA0110922. The previous permit was issued on August 11, 2017 and expired on August 31, 2022. The permit is currently under administrative extension.

Sewage from this facility is treated with a holding tank, aeration chamber, clarifying tank, settling chamber, sand beds, and a dechlorination tank. Liquid chlorine is used for disinfection. The addition of tablet chlorine was approved by WQM Permit 5678402-A1 on May 4, 2004. Alum is used to remove phosphorus from the effluent.

DEP Biologists conduced a Point of First Use (POFU) survey on August 9, 2022. The POFU survey concluded that the UNT to Calendars Run is not capable of supporting aquatic life. The complete findings of the POFU survey can be found in Appendix G.

The applicant is currently enrolled in and will continue to use eDMR.

The Act 14-PL 834 Municipal Notification was provided by the January 23, 2022 letters and no comments were received.

Below is a summary of changes made to this permit:

- *E. Coli* monitoring was imposed
- Stricter TRC limits were imposed
- Phosphorus limits were removed (refer to “Development of Effluent Limitations” for more detail and justification)

Sludge use and disposal description and location(s): Piles Concrete and Septic; Friedens, PA 15541

Approve	Deny	Signatures	Date
X		Grace Polakoski Grace Polakoski, E.I.T. / Environmental Engineering Specialist	September 14, 2022
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	November 29, 2022

Summary of Review
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)	.015
Latitude	40º 4' 15.8"	Longitude	-78º 52' 6.7"
Quad Name	Central City	Quad Code	40078A7
Wastewater Description:	Sewage Effluent		
Receiving Waters	UNT Calendars Run (CWF)	Stream Code	45766
NHD Com ID	123716656	RMI	1.27
Drainage Area	0.67 sq. mi.	Yield (cfs/mi^2)	0.0572
Q_{7-10} Flow (cfs)	0.0383	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	2459	Slope (ft/ft)	
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	**Metals; pH; siltation; TSS; turbidity; aluminum; iron; manganese; pH, low**		
Source(s) of Impairment	**AMD pollutants**		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake	Hooversville Muni Auth		
PWS Waters	Stonycreek River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	18.87

Changes Since Last Permit Issuance: N/A

Kiskiminetas-Conemaugh River Watershed TMDL
A TMDL for the Kiskiminetas-Conemaugh River Watershed – of which Calendars Run is a part – was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment, and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The Camp Allegheny STP was not assigned wasteload alloations for aluminum, iron and manganese by the Kiskiminetas-Conemaugh River Watershed TMDL (Appendix G) and is listed as a Negligible Discharge Facility (Appendix C).

Effluent concentrations (as found in eDMR records) for Aluminum, Iron and Manganese were less than the most stringent water quality criteria for those pollutants. Reasonable Potential does not exist, the Department will reimpose annual monitoring for Aluminum, Iron, and Manganese.

Treatment Facility Summary

Treatment Facility Name: Camp Allegheny STP

WQM Permit No.	Issuance Date
5678402	5/31/1978
5678402 A-1	5/4/2004

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorination	0.015

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.015		Not Overloaded		Other WWTP

Changes Since Last Permit Issuance: This facility now can only be considered secondary treatment, instead of tertiary treatment since there is no need for nutrient removal.

Compliance History

Facility: Camp Allegheny STP
NPDES Permit No.: PA0110922
Compliance Review Period: 3/2017 – 3/2022

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3310626	01/06/2022	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
3310625	01/06/2022	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted
2950186	10/18/2019	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
2869503	03/12/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
01/06/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/23/2022
10/18/2019	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/18/2019

Open Violations by Client ID: No open violations for client id 45036

Enforcement Summary:

ENF ID	ENF TYPE	EXECUTED DATE	VIOLATIONS	PENALTY AMOUNT	ENF FINALSTATUS	ENF CLOSED DATE
400807	NOV	01/23/2022	92A.44		Administrative Close Out	03/18/2022
380221	CACP	10/18/2019	92A.44	$7,500.00	Comply/Closed	10/18/2019

DMR Violation Summary:

DATE	PARAMETER	STAT_BASE_CODE	PERMIT	SAMPLE	UNIT
2/29/20	Fecal Coliform	Geometric Mean	2000	3644	No./100 ml
2/29/20	Total Suspended Solids	Average Monthly	20	27	mg/L
2/28/21	Total Suspended Solids	Average Monthly	20	30.5	mg/L
2/28/21	Total Suspended Solids	Instantaneous Maximum	40	44	mg/L
8/31/21	Ammonia-Nitrogen	Average Monthly	3	15.6	mg/L
8/31/21	Ammonia-Nitrogen	Instantaneous Maximum	6	23.2	mg/L
8/31/21	Fecal Coliform	Instantaneous Maximum	1000	5547	No./100 ml

Compliance Status: In compliance
Completed by: John Murphy
Completed date: 3/18/2022

Compliance History

DMR Data for Outfall 001 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
Flow (MGD) Average Monthly	0.006	0.003	0.0025	0.005	0.0076	0.0035	0.0055	0.003	0.0095	0.0075	0.006	0.002
pH (S.U.) Minimum	7.06	6.67	6.92	7.04	6.51	6.59	6.64	6.44	6.59	6.96	7.10	7.01
pH (S.U.) Maximum	7.92	7.77	7.41	7.62	7.62	7.48	7.82	7.89	7.98	7.85	7.66	8.15
DO (mg/L) Minimum	8.27	9.25	8.25	6.39	6.37	6.48	6.54	6.45	7.25	7.51	8.31	7.32
TRC (mg/L) Average Monthly	0.10	0.04	0.04	0.04	0.041	0.091	0.041	0.073	0.03	0.06	0.02	0.031
TRC (mg/L) Instantaneous Maximum	0.35	0.12	0.09	0.09	0.10	0.21	0.10	0.39	0.09	0.18	0.06	0.08
CBOD5 (mg/L) Average Monthly	3.5	< 6.0	< 2.0	< 2.0	< 2.0	3.5	< 2.0	< 2.0	2.0	< 2.0	< 2.5	6.0
CBOD5 (mg/L) Instantaneous Maximum	4.0	10.0	< 2.0	< 2.0	2.0	4.0	< 2.0	2.0	2.0	< 2.0	3.0	8.0
TSS (mg/L) Average Monthly	5.5	< 4.0	< 2.0	< 2.0	2.0	< 5.0	< 2.0	2.0	2.0	< 2.0	3.5	30.5
TSS (mg/L) Instantaneous Maximum	6.0	6.0	< 2.0	< 2.0	2.0	8.0	< 2.0	2.0	2.0	< 2.0	5.0	44.0
Fecal Coliform (No./100 ml) Geometric Mean	1967	49.85	1.41	11.13	15.92	74.47	1.0	1.41	10.54	1.0	6.61	537.44
Fecal Coliform (No./100 ml) Instantaneous Maximum	2586.5	2485	2.0	15.89	26.34	5547	1.0	2.0	111	1.0	43.8	2462.5
Total Nitrogen (mg/L) Average Monthly	3.08	5.92	1.90	11.7	18.0	16.15	22.05	4.15	3.95	4.95	1.5	3.15
Ammonia (mg/L) Average Monthly	0.99	< 0.71	< 0.4	< 0.10	1.94	15.6	< 0.1	1.20	0.40	0.15	0.09	1.87
Ammonia (mg/L) Instantaneous Maximum	1.31	1.32	0.80	< 0.10	3.79	23.2	< 0.1	1.30	0.70	0.2	0.18	2.19

Total Phosphorus (mg/L) Average Monthly	0.19	0.15	0.155	0.245	0.28	0.452	0.26	0.145	0.18	0.15	0.44	0.55
Total Phosphorus (mg/L) Instantaneous Maximum	0.21	0.18	0.16	0.27	0.33	0.67	0.27	0.16	0.25	0.16	0.71	0.72
Total Aluminum (mg/L) Daily Maximum		< 0.10										
Total Iron (mg/L) Daily Maximum		< 0.05										
Total Manganese (mg/L) Daily Maximum		0.04										

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2021 To: January 31, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	08/31/21	IMAX	5547	No./100 ml	1000	No./100 ml
Ammonia	08/31/21	Avg Mo	15.6	mg/L	3.0	mg/L
Ammonia	08/31/21	IMAX	23.2	mg/L	6.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .015
Latitude 40º 4' 15.8" **Longitude** -78º 52' 6.7"
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	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

Due to a discrepancy of information between eMapPA and USGS StreamStats, the discharge to receiving waters was modeled differently for this permit cycle. USGS StreamStats confirms that the outfall from Camp Allegheny STP discharges to an Unnamed Tributary to Calendars Run. This Unnamed Tributary is not listed as a stream on eMapPA and, therefore, does not have a Stream Code assigned to it. Therefore, for the purposes of modeling in WQM7.0, the discharge was assigned the stream code of Calendars Run (45766). The RMI, elevation, $Q_{7\text{-}10}$ flow, drainage area, and low-flow yield parameters are all derived from the Unnamed Tributary to Calendars Run, based on the data from USGS StreamStats.

The result of the POFU Survey show that the UNT to Calendars Run is not capable of supporting aquatic life. As such, this facility is subject to DEP Guidance Document “Policy and Procedure for Evaluating Wastewater Dischargers to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers” (391-2000-014, April 12, 2008). Camp Allegheny STP was issued WQM Permit 5678402 on May 31, 1978 and was originally permitted with NPDES Permit PA0110922 on September 12, 1980. Therefore, the facility pre-dates the Department Guidance Document and is considered an “existing discharge.” However, an existing discharge may still be subject to the advance treatment requirements (below) if the facility can meet the limits based on the past 5 years of data.

When evaluating an existing discharge, if the advance treatment requirements (below) cannot be achieved, the standards in the Guidance Document do not apply unless the receiving stream is impaired and the point source discharge contributes to the impairment.

Advance Treatment Requirement Standards		
Parameter	**Limit (mg/L)**	**SBC**
$CBOD_5$	10	Average Monthly
TSS	10	Average Monthly
Total N	5	Average Monthly
Dissolved Oxygen	6	Minimum
Phosphorus	0.5	Average Monthly

The past 5 years of eDMR data for Camp Allegheny STP show that the facility cannot meet the advance treatment requirements for TSS or Total N. The receiving stream is not impaired. Therefore, Camp Allegheny STP is not subject to the advance treatment requirement standards.

The model results, presented in the table below, show technology-based effluent limitations for $CBOD_5$ are appropriate. The recommended ammonia-nitrogen limits are less stringent than those that were imposed in the previous permit cycle. To comply with anti-backsliding regulations, the more stringent of the limits will be imposed during this permit cycle. Output files from WQM7.0 can be found in Attachments B and C.

The discharge was evaluated using TRC_CALC to analyze total residual chlorine. The model recommended more stringent TRC limits for this permit cycle. Output files from TRC_CALC can be found in Attachment D.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	4	Minimum	WQM7.0
Ammonia Nitrogen (Nov 1 – Apr 30)	11.95	Average Monthly	WQM7.0
Ammonia Nitrogen (May 1 – Oct 31)	6.12	Average Monthly	WQM7.0
Total Residual Chlorine	0.25	Average Monthly	TRC_CALC

Best Professional Judgment (BPJ) Limitations

Typically, a dissolved oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment. However, the previous permit set a limit of 5.0 mg/L so the more stringent of the two limits will be imposed in this permit cycle to comply with antibacksliding regulations.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.**

The facility is not seeking to revise the previously permitted effluent limits. However, Total Phosphorus limit was applied based on misinterpretation of previous guidance. Monitoring will be applied during the current permit cycle. Details are discussed below.

Phosphorus Point Source

This facility is identified as point source to Indian Lake in a 2007 Trophic State Index Survey performed by PADEP biologists. In this 2007 Trophic State Index Survey, Indian Lake was identified as mesotrophic, with an average Trophic State Index (TSI) of 36.55. The TSI Results and Study Summary can be found in Appendix E.

DEP guidance document "Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments" (391-2000-010) includes a decision matrix for imposing phosphorus limits on point source dischargers (matrix found in Appendix F). According to this matrix, phosphorus controls will not be imposed on mesotrophic lakes (TSI ≤ 50). Phosphorus limits will not be imposed on Camp Allegheny STP this permit cycle since the previous limits were based on a misinterpretation of the Clean Water Act and DEP guidance.

Eliminating the previously-imposed Phosphorus limits is acceptable pursuant to Section 402(o)(2)(B)(ii) of the Clean Water Act, which states that a permit may contain a less stringent effluent limit if "the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit…".

Phosphorus monitoring will be imposed in its place (discussed below) to comply with DEP SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-003).

Additional Considerations

Sewage discharges will include monitoring, at a minimum, for *E. coli*, in new and reissued permits, with a monitoring frequency of 1/year for design flows 0.002-0.05 MGD.

The receiving stream is not impaired for nutrients, therefore, twice-monthly sampling for nitrogen and phosphorus will be imposed per 25 PA Code §92.61b.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's Technical Guidance for the Development and Specification of Effluent Limitations.

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)	0.015	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.25	XXX	0.818	1/day	Grab
CBOD5	XXX	XXX	XXX	20.0	XXX	40.0	2/month	Grab
TSS	XXX	XXX	XXX	20.0	XXX	40.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

Outfall 001, Continued (from 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		
Total Aluminum	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

APPENDIX A:
USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20220321163047093000
Clicked Point (Latitude, Longitude): 40.07111, -78.86815
Time: 2022-03-21 12:31:06 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.67	square miles
ELEV	Mean Basin Elevation	2563	feet
PRECIP	Mean Annual Precipitation	43	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.67	square miles	2.33	1720
ELEV	Mean Basin Elevation	2563	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0976	ft^3/s
30 Day 2 Year Low Flow	0.14	ft^3/s
7 Day 10 Year Low Flow	0.0383	ft^3/s
30 Day 10 Year Low Flow	0.0519	ft^3/s
90 Day 10 Year Low Flow	0.0784	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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APPENDIX B:
WQM7.0 Modeling Results (Summer)

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18E	45766	CALENDARS RUN	**1.270**	2459.00	0.67	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.057	0.04	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Camp Allegheny	PA0110922	0.0000	0.0000	0.0150	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	9.01	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18E	45766	CALENDARS RUN	**0.010**	2285.00	1.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.060	0.10	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.270	0.04	0.00	0.04	.0232	0.02615	.326	3.41	10.46	0.06	1.394	20.00	7.00
Q1-10 Flow												
1.270	0.02	0.00	0.02	.0232	0.02615	NA	NA	NA	0.05	1.607	20.00	7.00
Q30-10 Flow												
1.270	0.05	0.00	0.05	.0232	0.02615	NA	NA	NA	0.06	1.245	20.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.270	0.015	10.659	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WDRatio	Reach Velocity (fps)
3.413	0.326	10.458	0.055
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
10.68	1.179	4.51	0.341
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
9.299	19.823	Owens	6
Reach Travel Time (days)			
1.394			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.139	9.59	4.30	9.99
0.279	8.62	4.10	9.99
0.418	7.75	3.91	9.99
0.558	6.96	3.73	9.99
0.697	6.25	3.56	9.99
0.837	5.62	3.39	9.99
0.976	5.05	3.23	9.99
1.116	4.54	3.08	9.99
1.255	4.08	2.94	9.99
1.394	3.66	2.80	9.99

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.270	Camp Allegheny	16.76	34.46	16.76	34.46	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.270	Camp Allegheny	1.89	6.12	1.89	6.12	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.27	Camp Allegheny	25	25	6.12	6.12	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

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)
1.270	Camp Allegheny	PA0110922	0.000	CBOD5	25		
				NH3-N	6.12	12.24	
				Dissolved Oxygen			4

APPENDIX C:
WQM7.0 Modeling Results (Winter)

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18E	45766	CALENDARS RUN	**1.270**	2459.00	0.67	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.114	0.04	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Camp Allegheny	PA0110922	0.0000	0.0000	0.0150	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18E	45766	CALENDARS RUN	**0.010**	2285.00	1.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.119	0.10	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.270	0.04	0.00	0.04	.0232	0.02615	.326	3.41	10.46	0.06	1.394	10.66	7.00
Q1-10 Flow												
1.270	0.02	0.00	0.02	.0232	0.02615	NA	NA	NA	0.05	1.607	12.29	7.00
Q30-10 Flow												
1.270	0.05	0.00	0.05	.0232	0.02615	NA	NA	NA	0.06	1.245	9.62	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.270	0.015	10.659	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.413	0.326	10.458	0.055
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.68	1.179	4.51	0.341
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
9.299	19.823	Owens	6
Reach Travel Time (days)			
1.394			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.139	9.59	4.30	9.99
0.279	8.62	4.10	9.99
0.418	7.75	3.91	9.99
0.558	6.96	3.73	9.99
0.697	6.25	3.56	9.99
0.837	5.62	3.39	9.99
0.976	5.05	3.23	9.99
1.116	4.54	3.08	9.99
1.255	4.08	2.94	9.99
1.394	3.66	2.80	9.99

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.270	Camp Allegheny	16.76	34.46	16.76	34.46	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.270	Camp Allegheny	1.89	6.12	1.89	6.12	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.27	Camp Allegheny	25	25	6.12	6.12	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45766	CALENDARS RUN

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)
1.270	Camp Allegheny	PA0110922	0.000	CBOD5	25		
				NH3-N	11.95	23.9	
				Dissolved Oxygen			4

APPENDIX D:
TRC_CALC Results

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0383	= Qstream (cfs)	0.5	= CV Daily
0.015	= Qdischarge (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 = 0.546	1.3.2.iii	WLA cfc = 0.524
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.203	5.1d	LTA_cfc = 0.305

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.250	AFC
		INST MAX LIMIT (mg/l) = 0.818	

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)**
LTAMULTafc	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)**

APPENDIX E:
Trophic Survey for Indian Lake

TSI Results

Results of the water samples collected in 2007 showed nitrogen and phosphorus amounts comparable for both lakes. The highest reading of total nitrogen and phosphorus for Indian Lake was 0.54 mg/l and 0.018 mg/l, respectfully. The highest reading of total nitrogen and phosphorus for Stonycreek Lake was 0.50 mg/l and 0.017 mg/l, respectfully. The average total nitrogen and phosphorus for Indian Lake was 0.35 mg/l and 0.0094 mg/l, respectfully. The average total nitrogen and phosphorus for Stonycreek Lake was 0.38 mg/l and 0.013 mg/l, respectfully. Indian and Stonycreek Lakes are phosphorus limited (See Attachment C).

Secchi disk readings for Indian Lake reached a depth of 5.5 meters during the fall sample at station location 005 and 006. Secchi disk readings for Stonycreek Lake reached a depth of 2.75 meters during the spring sample at station location 009 and 010. Alkalinity was slightly higher in Stonycreek Lake with a total year average of 26.08 mg/l compared to 21.64 mg/l for Indian Lake.

The average Trophic State index (TSI) on total phosphorus for 2007 calculated to 36.55 for Indian Lake and 40.59 for Stonycreek Lake. The average TSI score for chlorophyll a calculated to 47.37 for Indian Lake and 47.56 for Stonycreek Lake and the average TSI on secchi scored 40.12 for Indian Lake and 45.74 for Stonycreek Lake. These TSI results when reviewed together indicate that both lakes are mesotrophic (scores ranging between 40 and 50).

In addition to the lake data collected, the average TSI on phosphorus of Clear Run and Calendar Run combined, calculated to 48.21 (See Attachment C). This TSI score indicates mesotrophic influence.

Summary

The water chemistry profiles collected throughout the year showed mostly normal lake stratification and indicated some evidence of eutrophication with lower dissolve oxygen and higher specific conductivity at bottom depths. All Trophic State Index scores calculated for Indian Lake, Stonycreek Lake, and the streams Clear Run and Calendar Run in 2007 range between 40 and 50. Indian Lake and Stonycreek Lake are presently mesotrophic. Indian Lake is one of the best scoring lakes in the Commonwealth of Pennsylvania.

Source: “Trophic State Index Surveys: Indian Lake and Stonycreek Lake, 2007” by Rick Spear and Gary Kenderes

APPENDIX F:
Phosphorus Control Decision Matrix

TABLE 6-1
PHOSPHORUS CONTROL DECISION MATRIX

		Lake Status		
		Regular	HQ	EV
Category	TSI Scenario	Discharge has SEJ	Discharge doesn't have SEJ	
Mesotrophic	Design TSI <= 50	No PS Controls required at this time.		
Eutrophic	Design TSI 50-65 and Design Load > 1.2 NPS Load[1]	Require 2 mg/L on all significant discharges.	Require more stringent of existing conc. or 2 mg/L (*)	
Hyper-Eutrophic	Design TSI 65-80 and Design Load > 1.2 NPS Load[1]	Require 1 mg/L on all significant discharges.	Require more stringent of existing conc. or 1 mg/L (*)	
Hyper-Eutrophic	Existing NPS TSI > 80	Place lake on Section 303(d) list. Defer any additional controls until a Lake Diagnostic Study (TMDL) is performed		

(*) Discharges to HQ lakes without SEJ, and all discharges to EV lakes must also provide sufficient treatment to assure no change in existing lake quality, which is defined as a maximum of a 20 percent change in the noncontrollable phosphorus load.

[1] Research to verify these relationships was conducted in 9/98. Original documentation and literature citations from the rationale documents were reviewed along with (M.W. Marsden 1989).

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Source: "Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments" (391-2000-010)

APPENDIX G:
POFU Survey

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO	Grace Polakoski Environmental Enginering Specialist Clean Water Program
FROM	Richard Spear Aquatic Biologist Supervisor Clean Water Program
DATE	September 1. 2022
RE	Point of First Use Survey Unnamed and Undocumetned Tributary to Calendars Run State Water Plan: 18E Hydrologic Unit Code: 05010007 Stream Code: N/A Stonycreek Township, Somerset County, PA

INTRODUCTION

On August 9, 2022, at the request of Grace Polakoski of the Clean Water Program, a Point of First Surface Water Use (POFU) Survey was attempted in the vicinity of an Unnamed and Undocumented Tributary to Calendars Run. This is a facility named Camp Allegheny STP, permit number PA0110922, that is currently discharging. The property's address is 100 Camp Allegheny Drive, Stoystown, PA 15563 in Stonycreek Township, Somerset County (Figure 1). The sampling location was at latitude 40.071026 and the longitude was -78.868571. I went with Grace Polakoski, and Lisa Milsop of the Clean Water Program.

SAMPLING METHODOLOGY

The POFU is the location at which a body of water can support aquatic life as defined in 25 Pennsylvania Code §93. Guidance for determining the POFU is in the Department's guidance document #391-2000-014, Policy and Procedures for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (revised April 12, 2008). Specifically, Appendix B of the guidance document provides additional guidance when making a POFU determination.

Unnamed and Undocumented Tributary to Calendars Run did not have any flowing water in it, just some pockets of standing water. At the time of our site visit, only 1 macroinvertebrate taxa, which was a Perlodidae Stonefly was found, but if they were found then the protocol used would have been in accordance to the Department's Qualitative Benthic Macroinvertebrate Data Collection Protocol, found in the Water Quality Monitoring Protocols for Streams and Rivers 2021 (Monitoring Book), which can be found by accessing the following website:

Southwest Regional Office
400 Waterfront Drive | Pittsburgh, PA 16335 | 412.442.4000 | Fax. 412.442.4194 | www.dep.pa.gov

https://files.dep.state.pa.us/Water/Drinking Water and Facility Regulation/WaterQualityPortalFiles/Technical Documentation/MONITORING_BOOK.pdf

RESULTS, DISCUSSION, AND CONCLUSIONS

The objective of this study was to examine aquatic life in Unnamed and Undocumented Tributary to Calendars Run to determine if and where the stream is capable of supporting an aquatic life use as defined in 25 Pennsylvania Code §93.9q, where water quality standards must be met. Unnamed and Undocumented Tributary to Calendars Run, had one taxon found in it, which was a Perlodidae Stonefly. Only one long-lived taxa was found, and you need two, so Unnamed and Undocumented Tributary to Calendars Run does not have an aquatic life use. Taxa were found in Calendars from a survey done on 05/15/2014, and that makes Calendars the point of first use.

cc: Stream File – Unnamed and Undocumented Tributary to Calendars Run
Thomas Flanagan – SWRO Sewage Planning Specialist Supervisor
Lisa Milsop – SWRO, Water Quality Specialist
Stacey Greenwald – SWRO, Environmental Group Manager
Christopher Kriley – SWRO, Environmental Program Manager
Mahbuba Iasmin – SWRO, Environmental Group Manager
Erika Arnold – CO, Acting Environmental Group Manager

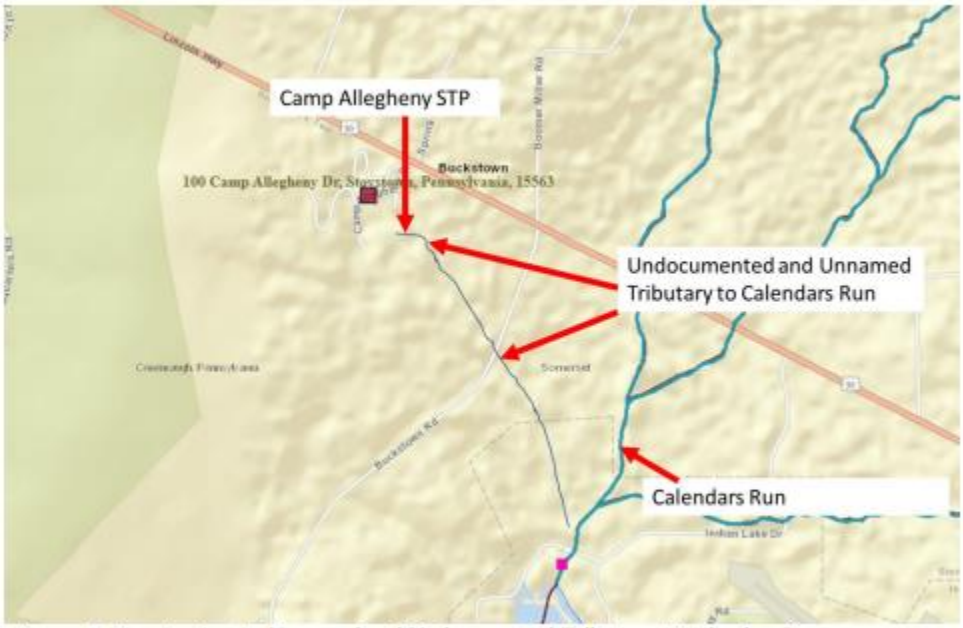

Figure 1. Map showing the Unnamed and Undocumented Tributary to Calendars Run.