Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0102911**
Facility Type	**Non-Municipal**	APS ID	**1150656**
Major / Minor	**Minor**	Authorization ID	**1549458**

Applicant and Facility Information

Applicant Name	**Conneaut Lake Family Campground LLC**	Facility Name	**Conneaut Lake Family Campground**
Applicant Address	9655 State Highway 285	Facility Address	9655 State Highway 285
	Conneaut Lake, PA 16316-2449		Conneaut Lake, PA 16316-2449
Applicant Contact	Isaac Grinnell	Facility Contact	
Applicant Phone	(724) 815-5026	Facility Phone	
Client ID	389065	Site ID	271126
Ch 94 Load Status	Not Overloaded	Municipality	Sadsbury Township
Connection Status	No Limitations	County	Crawford
Date Application Received	November 17, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal Application for a Minor Sewage Facility

Summary of Review

The permittee is applying for reissuance of Individual Permit No. **PA0102911** which will expire on January 31, 2026. The facility is a 368,615-gallon primary contact stabilization lagoon with two surface aerators, a 67,020-gallon secondary contact lagoon with one surface aerator, manual soda ash addition for ammonia-nitrogen control, and tablet chlorination with a 350-gallon contact tank.

This is an existing discharge with a design hydraulic capacity of 0.0084-MGD - Trib 52355 Of Conneaut Outlet (HQ- WWF)

Act 14 – Notifications were submitted and received.

Sludge use and disposal description and location(s):

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		Adebayo Olude Adebayo Olude / Civil Engineer Trainee	November 20, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	December 16, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0084
Latitude	41º 36' 16.42"	Longitude	-80º 20' 9.96"
Quad Name	Conneaut Lake	Quad Code	41080E3
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Conneaut Outlet (HQ-WWF)	Stream Code	52355
NHD Com ID	127346686	RMI	1.1600
Drainage Area	0.22	Yield (cfs/mi^2)	0.0245
Q_{7-10} Flow (cfs)	0.00539	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	-
Watershed No.	16-D	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	Default -WWF
Temperature (°F)	25	Default -WWF
Hardness (mg/L)	100	Default -WWF
Other:	-	-

Nearest Downstream Public Water Supply Intake		Aqua Pennsylvania, Inc. - Emlenton	
PWS Waters	Allegheny River	Flow at Intake (cfs)	1,376
PWS RMI	90.0	Distance from Outfall (mi)	>10miles

Changes Since Last Permit Issuance: Elevation was revised using Google Earth. Drainage Area and Q_{7-10} Flow were revised using USGS StreamStats.

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Conneaut Lake Family Campground

WQM Permit No.	Issuance Date
2087404	07/17/2009
2087404	12/27/2012
2087404	02/11/2025

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Aerated Lagoon	Hypochlorite	0.0084

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0084	20	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The WQM Permit No. 2087404 was newly issued on 07/17/2009 and then transferred on 12/27/2012 and 02/11/2025 respectively.

Compliance History	
Summary of DMRs:	DMRs were submitted for the past five years.
Summary of Inspections:	A total of 3 inspection was conducted at 01/10/202, 09/19/2023 and 05/08/2024.

Other Comments:

There are six open violations in WMS for the subject Client ID (389065) as of 11/20/25. They include the following:

Inspection Program	Violations
Safe Drinking Water	Failure to revise and resubmit a monitoring plan for the total coliform rule
Safe Drinking Water	Failure to operate and maintain the water system
Safe Drinking Water	Failure to meet design and construction standards
Safe Drinking Water	Failure to sample at appropriate locations or follow sample collection protocols
Safe Drinking Water	Failure to use chemicals, materials or equipment that are certified by ANSI/NSF standard 60 or 61
Safe Drinking Water	Failure to submit or revise a seasonal system startup procedure for the total coliform rule

Compliance History

DMR Data for Outfall 001 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Average Monthly	0.003	0.002	0.003	0.002	0.002	0.001						0.002
Flow (MGD) Daily Maximum	0.003	0.002	0.003	0.003	0.002	0.002						0.002
pH (S.U.) Instantaneous Minimum	8.1	8.1	8.1	8.0	7.5	8.2						7.6
pH (S.U.) Instantaneous Maximum	8.8	8.9	8.6	8.9	8.8	8.6						8.6
DO (mg/L) Daily Minimum	7.9	7.1	7.1	7.4	7.2	6.7						7.5
TRC (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1						< 0.1
TRC (mg/L) Instantaneous Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1						
CBOD5 (mg/L) Average Monthly	< 4.8	< 2.0	< 2.0	6.2	< 2.0	10.2						< 2.2
CBOD5 (mg/L) Instantaneous Maximum	7.5	< 2.0	< 2.0	8.0	< 2.0	15.8						
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	13.5	17.5						10.5
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	< 5.0	22.0	22.0						
Fecal Coliform (No./100 ml) Geometric Mean	12	< 8	7	< 5	17	< 3						5
Fecal Coliform (No./100 ml) Instantaneous Maximum	72	58	44	6	18	8						
Total Nitrogen (mg/L) Average Monthly	1.88	2.16	3.85	1.77	4.24	1.3						2.94

Ammonia (mg/L) Average Monthly	< 0.4	< 0.2	< 0.2	0.24	2.9	< 0.2						0.3
Ammonia (mg/L) Instantaneous Maximum	0.6	0.2	0.2	0.24	3.0	0.2						
Total Phosphorus (mg/L) Average Monthly	0.57	0.79	0.33	0.22	0.21	< 0.15						< 0.5

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0084
Latitude 41º 36' 16.37" **Longitude** -80º 20' 10.20"
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)
E. Coli	Report	IMAX		92a.61

Comments: The limits for pH are technology-based on Chapter 93.7. The limits for Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. The limit for TRC is applicable under chapter 92a.48. New Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits." With a design flow between 0.002 – 0.05 MGD, a sample frequency of 1/year is being proposed.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
CBOD5	25	Average Monthly	WQM 7.0
	50	IMAX	
NH3-N May 1 – Oct 31	6.0	Average Monthly	WQM 7.0
	13.5	IMAX	
NH3-N Nov 1 – Apr 30	2.0	Average Monthly	WQM 7.0
	4.5	IMAX	
Dissolved Oxygen	6.0	Daily minimum	WQM 7.0
TRC	0.069	Average Monthly	TRC Spreadsheet Model
	0.227	IMAX	

Comments: This discharge was evaluated using the WQM 7.0 model to determine appropriate effluent limitations for $CBOD_5$, Ammonia-Nitrogen, and Dissolved Oxygen. The modeling results confirmed that the current $CBOD_5$ limitations remain appropriate, and existing Dissolved Oxygen limits are also adequate for the facility. The model calculated WQBELs for NH3-N that are more stringent than what is currently imposed in the previous permit. The model recommended summertime average monthly limitations of 2.4 and an IMAX of 4.8. Respectively these will round down to 2.0 mg/l Average Monthly Average and 4.5 Instantaneous Maximum based on the rounding guidelines in the Permit Writers Manual. A seasonal multiplier of 3 times the summertime average monthly limit is established for the winter

period. The default pH value of 7.0 S.U. was used in this most recent WQM 7.0 model run, instead of a site-specific pH value.

The Department's TRC model was also performed. The model indicated an average monthly limit of 0.069 mg/L and an IMAX limit of 0.227 mg/L. However, the model recommended a more stringent than the previous limits - an average monthly limit of 0.1mg/L and an IMAX limit of 0.4mg/L.

Based on the discharge data, the permittee will not be able to achieve the new WQBELs for Ammonia or the TRC upon permit issuance; therefore, the renewal permit will contain a three-year schedule of compliance for the permittee to come into compliance with the new limits.

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

The previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous permit limitations, monitoring requirements, and conditions will be retained. New or more stringent limitations are being proposed for E. Coli, Ammonia-Nitrogen, and TRC.

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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.4	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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	1/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	12.6	XXX	25.2	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	4.2	XXX	8.4	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Three Years After Permit Effective 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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.4	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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	1/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	12.6	XXX	25.2	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	4.2	XXX	8.4	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

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" (386-0400-001), SOPs and/or BPJ.

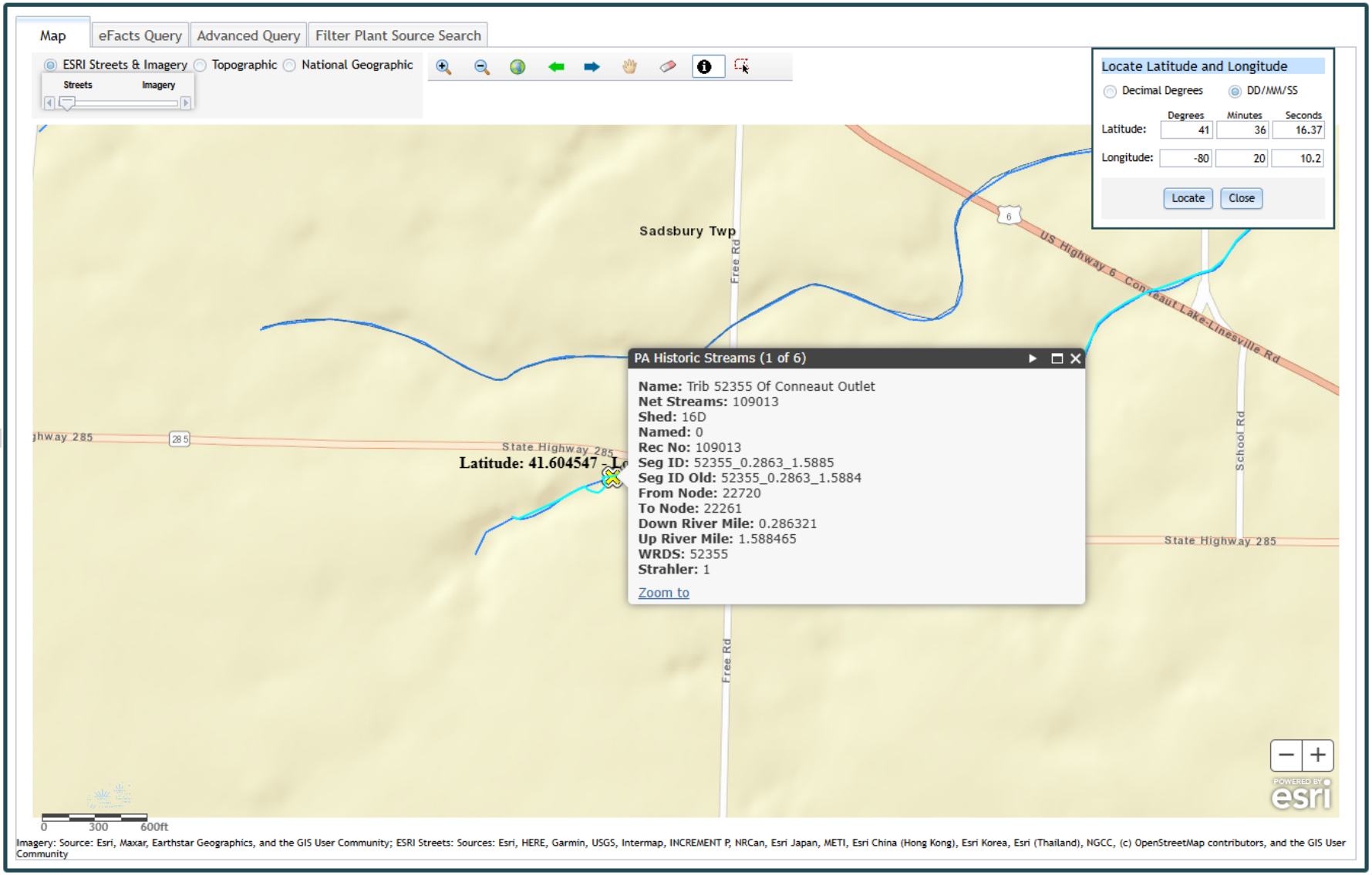
Outfall 001, Effective Period: Three Years After Permit Effective Date through Permit Expiration Date.

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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.069	XXX	0.227	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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	1/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	13.5	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.5	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

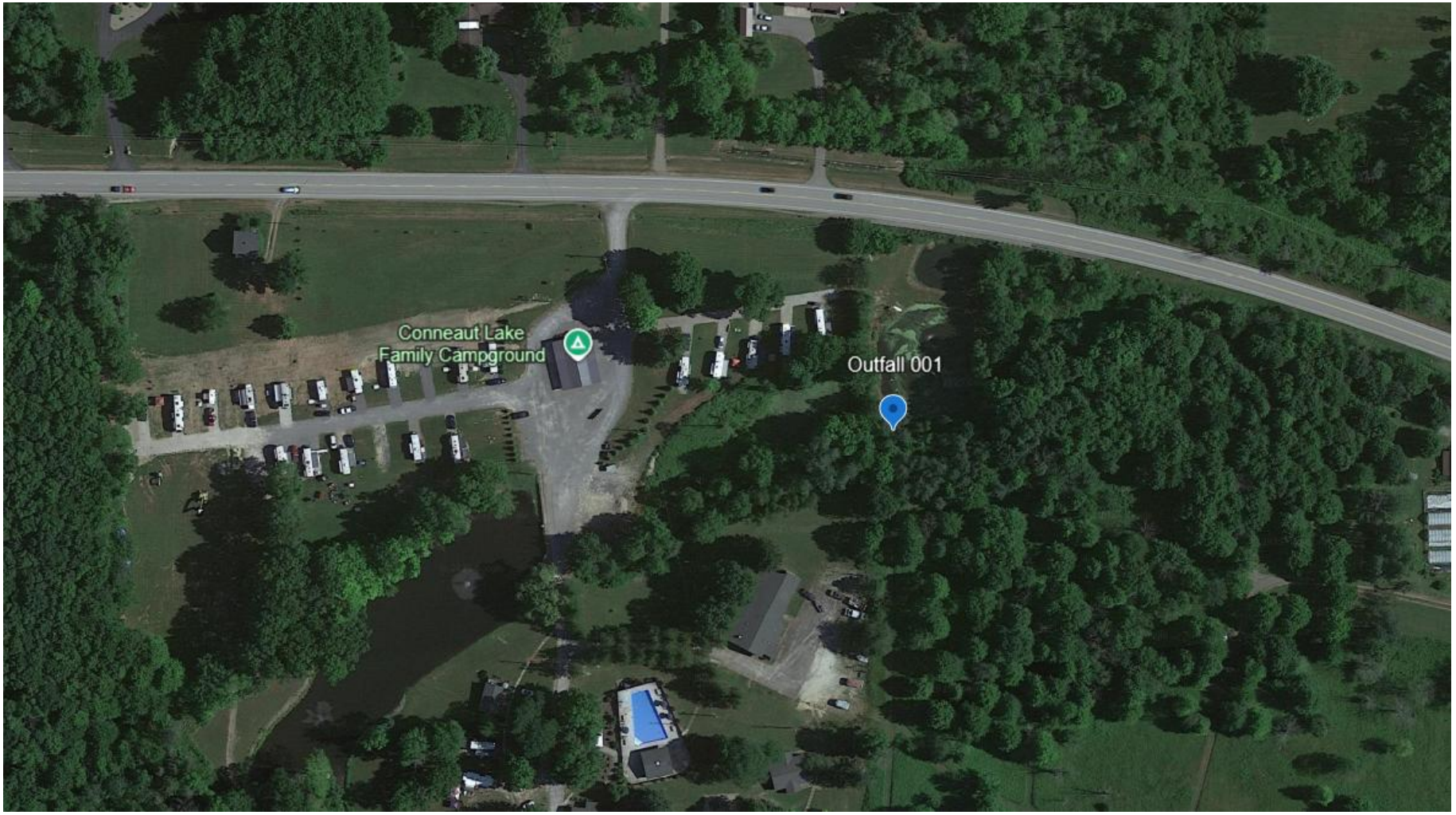
Compliance Sampling Location: Outfall 001 after disinfection

Other Comments:

Attachment 1
eMAP – Receiving stream location and Designation

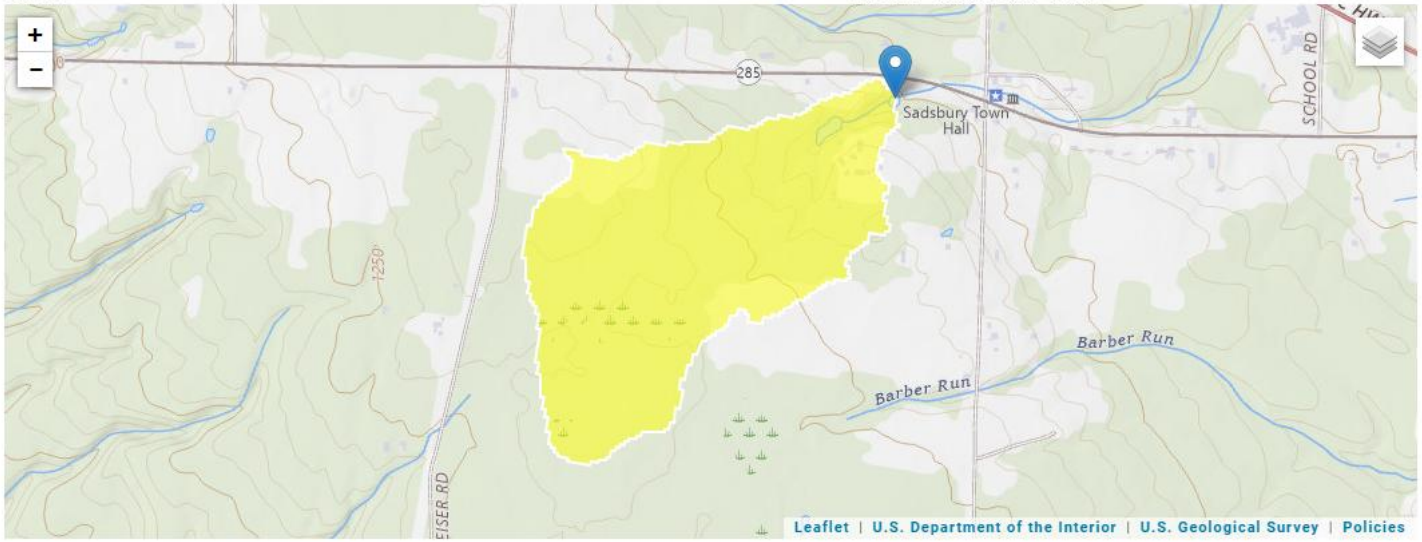


Attachment 2
Google Earth Aerial Site View



StreamStats Report

Region ID:	PA
Workspace ID:	PA20251125131925290000
Clicked Point (Latitude, Longitude):	41.60440, -80.33660
Time:	2025-11-25 08:19:48 -0500



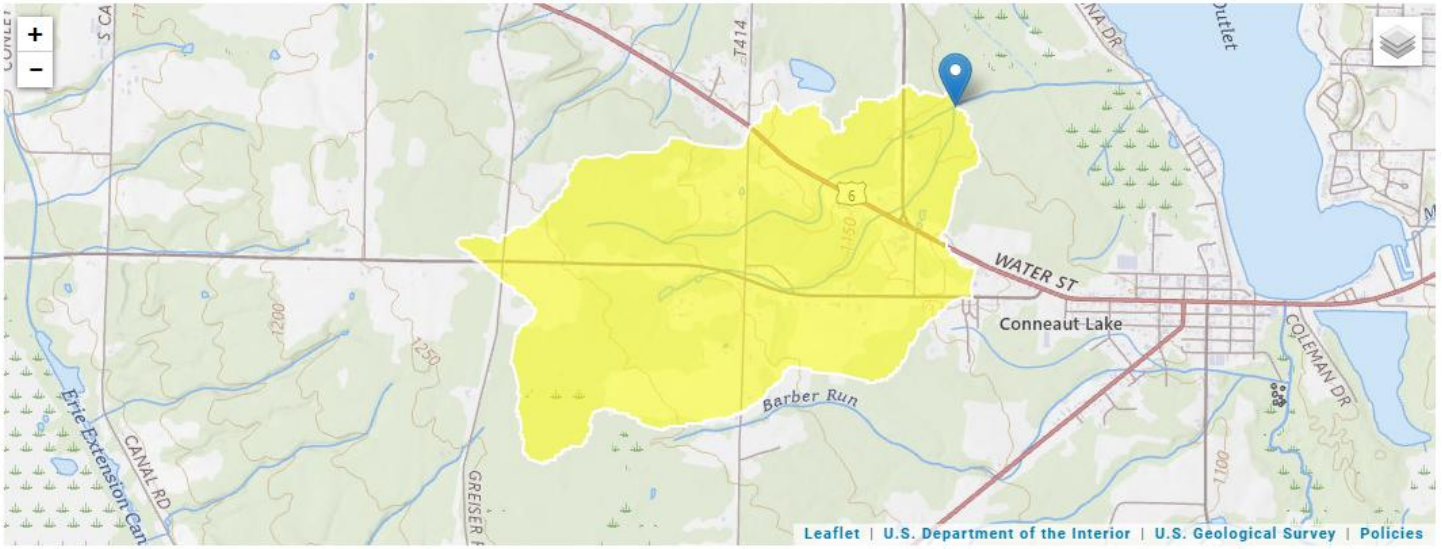
Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.22	square miles
ELEV	Mean Basin Elevation	1258	feet
PRECIP	Mean Annual Precipitation	41	inches

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251125150100636000
Clicked Point (Latitude, Longitude):	41.61246, -80.32036
Time:	2025-11-25 10:01:25 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.27	square miles
ELEV	Mean Basin Elevation	1200	feet
PRECIP	Mean Annual Precipitation	43	inches

Attachment 3
WQM 7.0 Modeling Output files

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
16D	52355	Trib 52355 of Conneaut Outlet	1.580	1204.00	0.22	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	0.024	0.00	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
Conneaut Lake	PA0102911	0.0084	0.0084	0.0084	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	6.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
16D	52355	Trib 52355 of Conneaut Outlet

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												
1.580	0.01	0.00	0.01	.013	0.01311	.27	2.01	7.42	0.03	2.110	23.53	7.00
Q1-10 Flow												
1.580	0.00	0.00	0.00	.013	0.01311	NA	NA	NA	0.03	2.246	23.95	7.00
Q30-10 Flow												
1.580	0.01	0.00	0.01	.013	0.01311	NA	NA	NA	0.04	1.995	23.20	7.00

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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
16D	52355	Trib 52355 of Conneaut Outlet

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
1.580	Conneaut Lake	12.08	15.29	12.08	15.29	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
1.580	Conneaut Lake	1.54	2.4	1.54	2.4	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)		
1.58	Conneaut Lake	25	25	2.4	2.4	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
16D	52355	Trib 52355 of Conneaut Outlet

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.580	0.008	23.534	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.006	0.270	7.418	0.034
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
18.26	0.891	1.70	0.919
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.658	27.448	Owens	5
Reach Travel Time (days)			
2.110			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.211	14.63	1.40	7.50
0.422	11.73	1.15	7.71
0.633	9.40	0.95	7.73
0.844	7.54	0.78	7.73
1.055	6.04	0.64	7.73
1.266	4.84	0.53	7.73
1.477	3.88	0.44	7.73
1.688	3.11	0.36	7.73
1.899	2.49	0.30	7.73
2.110	2.00	0.24	7.73

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
16D	52355	Trib 52355 of Conneaut Outlet

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)
1.580	Conneaut Lake	PA0102911	0.008	CBOD5	25		
				NH3-N	2.4	4.8	
				Dissolved Oxygen			6

Attachment 4
TRC_CALC Modeling Output files

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.00539	= Q stream (cfs)	0.5	= CV Daily
0.0084	= 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 = 0.151	1.3.2.iii	WLA cfc = 0.140
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.056	5.1d	LTA_cfc = 0.081

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.069	AFC
		INST MAX LIMIT (mg/l) = 0.227	

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)**