

Application Type Renewal
 Facility Type Non-Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0221945
 APS ID 1101669
 Authorization ID 1463210

Applicant and Facility Information

Applicant Name	<u>Michael C Ernst</u>	Facility Name	<u>Eagle Crest Manor MHP</u>
Applicant Address	<u>6761 Mercer Pike</u> <u>Meadville, PA 16335-5667</u>	Facility Address	<u>7064 Perry Highway</u> <u>Meadville, PA 16335-5748</u>
Applicant Contact	<u>Michael Ernst</u>	Facility Contact	<u></u>
Applicant Phone	<u>(814) 720-7461</u>	Facility Phone	<u></u>
Applicant Email	<u>michael@ernstseed.com</u>		<u></u>
Client ID	<u>94359</u>	Site ID	<u>463485</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Union Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Crawford</u>
Date Application Received	<u>November 2, 2023</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u></u>	If No, Reason	<u></u>

Purpose of Application Renewal of a NPDES Permit for an Existing Discharge of 0.0175

Summary of Review

This is a renewal Sewage Individual NPDES Permit for an Existing Discharge of 0.0041 MGD from a non-municipal minor sewage facility. Treatment facilities permitted under WQM Permit # 2096404 consist of: Comminutor (permitted but currently not installed), Aeration Tank (3 cell), Clarifier, Chlorine Contact Tank with tablet chlorination, Post Aeration and Sludge Holding Tank.

There are no proposed changes to effluent limitations as part of this permit renewal.

Act 14 – Proof of Notification was submitted and received.

This facility is currently using eDMR system.

SPECIAL CONDITIONS: NONE

The EPA waiver is in effect.

There are NO open violations in WMS for the subject Client ID (94359) as of July 3, 2024.

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		Aeshah Shameseldin Aeshah Shameseldin / Civil Engineer	July 3, 2024
		Vacant / Environmental Engineer Manager	Okay to Draft JCD 7/18/2024

Treatment Facility Summary				
Treatment Facility Name: Eagle Crest Manor MHP				
WQM Permit No.		Issuance Date		
2096404		5/01/1996		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.015
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0175	36	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:

Compliance History

DMR Data for Outfall 001 (from May 1, 2023 to April 30, 2024)

Parameter	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23
Flow (MGD) Average Monthly	0.00353 1	0.00346 6	0.00340 1	0.00332 5	0.00353 0	0.00276 6	0.00352 8	0.00042 10	0.00372 9	0.00375 1	0.00370 2	0.00965 4
Flow (MGD) Daily Maximum	0.00362 1	0.00354 2	0.00368	0.00354 6	0.00362 1	0.00294 6	0.00361 2	0.00436 2	0.00379 5	0.00382 1	0.00382 4	0.00978 1
pH (S.U.) Daily Minimum	7.03	7.03	7.09	7.10	7.09	7.11	7.19	7.04	7.09	7.16	7.18	7.21
pH (S.U.) Daily Maximum	7.53	7.49	7.50	7.44	7.43	7.44	7.43	7.58	7.51	7.41	7.43	7.48
DO (mg/L) Daily Minimum	4.87	4.22	5.71	5.01	5.18	5.27	5.21	5.01	5.21	5.03	5.36	5.21
TRC (mg/L) Average Monthly	0.38	0.38	0.36	0.39	0.43	0.41	0.36	0.40	0.27	0.31	0.29	0.38
TRC (mg/L) Instantaneous Maximum	0.72	0.54	0.56	0.74	0.56	0.57	0.55	0.59	0.39	0.44	0.41	0.48
CBOD5 (mg/L) Average Monthly	2.58	2.58	6.93	2	2	2	2.51	2	2.45	2.57	2.46	2
TSS (mg/L) Average Monthly	11	11	5	5	5	5.5	16.5	5	5	6	18	5
Fecal Coliform (No./100 ml) Geometric Mean	39.49	248.23	159	29.32	10	292.24	73.95	46.26	105.7	99.34	184.72	169.3
Fecal Coliform (No./100 ml) Instantaneous Maximum	156	395	175	86	10	2755	547	214	130	235	242	214
Total Nitrogen (mg/L) Annual Average					1.31							
Ammonia (mg/L) Average Monthly	0.4	0.4	0.4	0.4	0.4	0.40	0.4	0.40	3.53	0.4	0.4	0.4
Total Phosphorus (mg/L) Annual Average					0.68							

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	.0175
Latitude	41° 33' 40.00"	Longitude	-80° 11' 26.00"
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	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 (No./100 ml)	IMAX	-	§ 92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Water Quality-Based Limitations

CBOD₅, Ammonia, and DO are evaluated using WQM 7.0 (See Attachment 1 and 2). TRC is evaluated using the department's TRC evaluation spreadsheet (See Attachment 3).

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

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	4.0	Daily Min.	WQM 7.0
CBOD ₅	25	Avg. Monthly	WQM 7.0
	50	IMAX	
Ammonia Nitrogen	25	Average Monthly	WQM 7.0
	50	IMAX	
TRC	0.5	Average Monthly	TRC evaluation spreadsheet

Comments: A two-step model was used. The first step was for a dry stream evaluation. The DO simulation end-of-reach data was then used to evaluate the second step perennial stream reach. The second step evaluated perennial stream conditions (See Attachment 1 and Attachment 2).

WQM modeling didn't calculate more stringent average monthly Ammonia Nitrogen limit at perennial conditions. A review of the Discharge Monitoring Reports for the last three years indicates general compliance for Ammonia Nitrogen effluent results less than 25 mg/l 100% of the time. As a result, current monitoring requirements will be retained.

The TRC evaluation spreadsheet didn't calculate more stringent average monthly TRC limit at perennial conditions using the plant design flow, the technology-based limitations established in previous permits are attainable and will be retained.

Anti-Backsliding

No backsliding of limits is being proposed.

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 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 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Outfall Location - eMap with Aerial Imagery

The screenshot displays the Pennsylvania eMapPA web application interface. At the top, there is a header with the Pennsylvania Department of Environmental Protection logo and navigation links for PA State Agencies, Online Services, and state officials. The main map area shows aerial imagery with stream networks overlaid. A legend on the left side categorizes streams into Regulated Facilities and Related Information, Streams and Water Resources, and Water Quality. A popup window titled 'PA Historic Streams (1 of 6)' is open over a specific stream segment, displaying the following details:

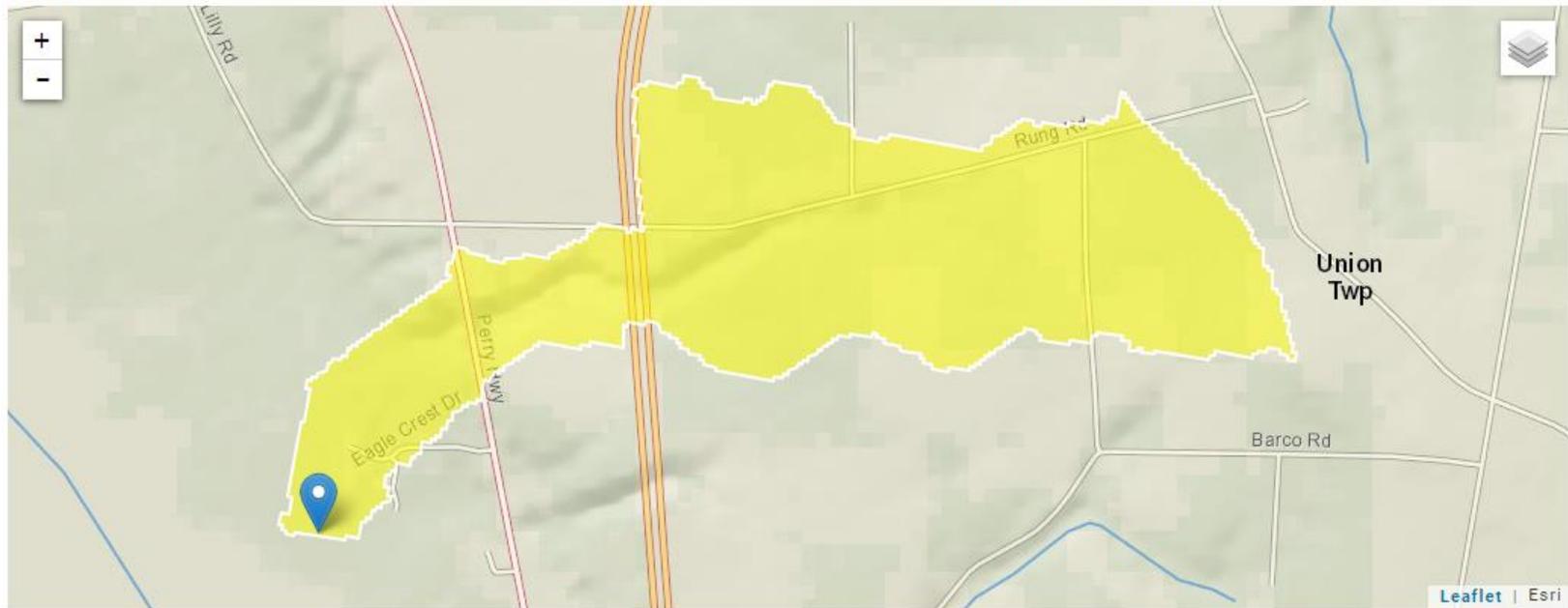
- Name: Trib 52279 To Conneaut Outlet
- Net Streams: 110223
- Shed: 16D
- Named: 0
- Rec No: 110223
- Seg ID: 52279_0_1.6387
- Seg ID Old: 52279_0_1.6387
- From Node: 24823
- To Node: 25215
- Down River Mile: 0
- Up River Mile: 1.638651
- WRDS: 52279
- Strahler: 1

The popup also includes a 'Zoom to' link. The map interface includes a toolbar with navigation tools and a 'Locate Latitude and Longitude' dialog box in the top right corner. The bottom of the map shows a scale bar from 0 to 0.4 miles and a source attribution for the imagery and ESRI Streets data.

Dry Reach - Drainage Area Location – StreamStats with Aerial Imagery

StreamStats Report

Region ID: PA
Workspace ID: PA20240703145219982000
Clicked Point (Latitude, Longitude): 41.56109, -80.19117
Time: 2024-07-03 10:52:44 -0400



+ Collapse All

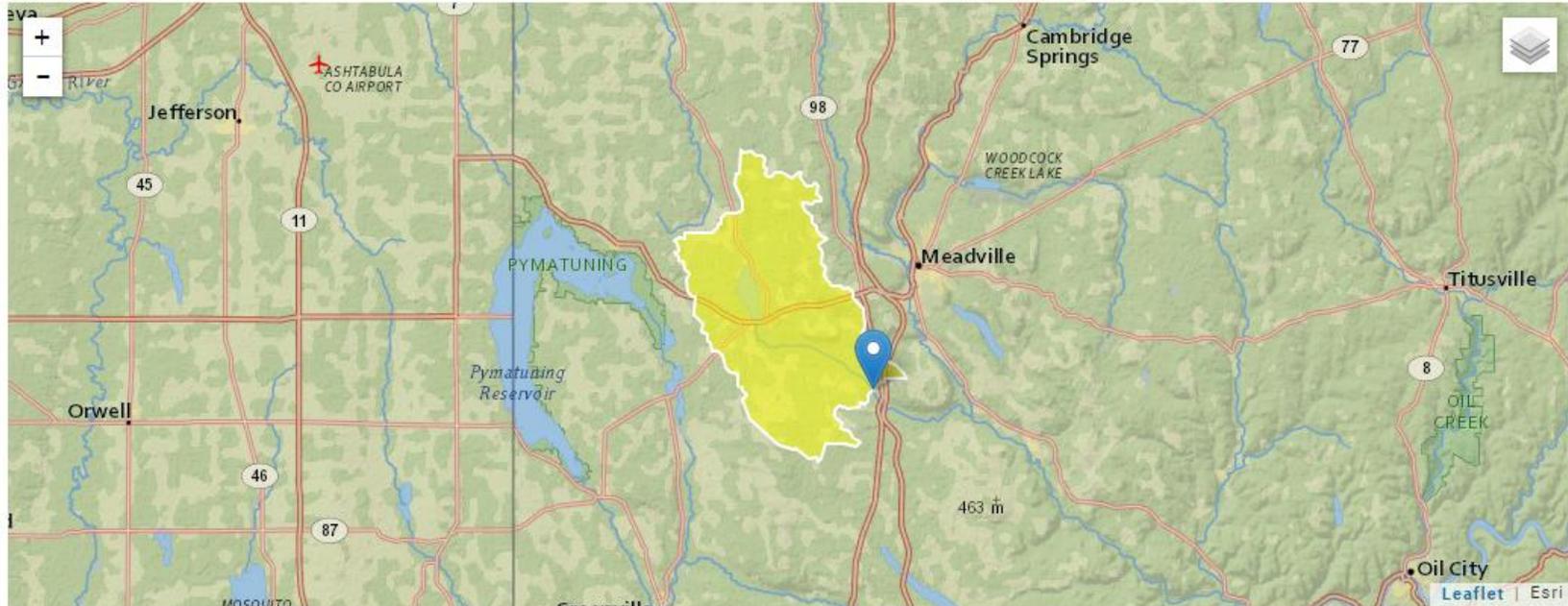
> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.41	square miles

Perennial Reach - Drainage Area Location – StreamStats with Aerial Imagery

StreamStats Report

Region ID: PA
Workspace ID: PA20240626151822581000
Clicked Point (Latitude, Longitude): 41.55683, -80.19355
Time: 2024-06-26 11:18:43 -0400



➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	76.7	square miles

Attachment 1

Dry Reach Modeling

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
16D		52279	Trib 52279 to 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)
0.240	Eagle Crest MHP	PA0221945	0.018	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
16D	52279	Trib 52279 to Conneaut Outlet		
<hr/>				
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>
0.240	0.018	20.000		7.600
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>
2.838	0.293	9.672		0.033
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>
24.63	1.500	24.63		0.700
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>
4.063	21.323	Owens		2
<u>Reach Travel Time (days)</u>				
0.426				
	<u>Subreach Results</u>			
	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>
	(days)	(mg/L)	(mg/L)	(mg/L)
	0.043	23.10	23.90	3.44
	0.085	21.67	23.20	3.35
	0.128	20.33	22.52	3.46
	0.170	19.07	21.86	3.64
	0.213	17.89	21.22	3.85
	0.256	16.78	20.59	4.07
	0.298	15.75	19.99	4.27
	0.341	14.77	19.40	4.47
	0.383	13.86	18.83	4.67
	0.426	13.00	18.28	4.85

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	2		

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	52279	Trib 52279 to Conneaut Outlet	0.240	1063.00	0.41	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.60	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
Eagle Crest MHP	PA0221945	0.0175	0.0000	0.0000	0.000	20.00	7.60

Parameter Data				
Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	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
16D	52279	Trib 52279 to Conneaut Outlet	0.010	1059.00	0.52	0.00000	0.00	<input checked="" type="checkbox"/>

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		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.60	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 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
16D	52279	Trib 52279 to Conneaut Outlet

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.24	Eagle Crest MHP	25	25	25	25	4	4	0	0

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
16D		52279				Trib 52279 to 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												
0.240	0.00	0.00	0.00	.0271	0.00329	.293	2.84	9.67	0.03	0.426	20.00	7.60
Q1-10 Flow												
0.240	0.00	0.00	0.00	.0271	0.00329	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.240	0.00	0.00	0.00	.0271	0.00329	NA	NA	NA	0.00	0.000	0.00	0.00

Perennial Reach Modeling

For CBOD5 and DO, the resulting limits are the same as the inputs from the Dry Stream model therefore secondary limits are sufficient.

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
16D		52232		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)
7.060	Eagle Crest MHP	PA0221945	0.018	CBOD5	13		
				NH3-N	18.28	36.56	
				Dissolved Oxygen			4.85

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
16D	52232	CONNEAUT OUTLET			
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
7.060	0.018	24.975		7.002	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
44.309	0.788	56.246		0.155	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
2.06	0.030	0.09		1.027	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.527	0.234	Tsivoglou		5	
<u>Reach Travel Time (days)</u>					
0.530					
	<u>Subreach Results</u>				
	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>	
	(days)	(mg/L)	(mg/L)	(mg/L)	
	0.053	2.05	0.09	7.51	
	0.106	2.05	0.08	7.49	
	0.159	2.04	0.08	7.48	
	0.212	2.04	0.07	7.46	
	0.265	2.03	0.07	7.45	
	0.318	2.03	0.07	7.44	
	0.371	2.03	0.06	7.43	
	0.424	2.02	0.06	7.42	
	0.477	2.02	0.06	7.41	
	0.530	2.01	0.05	7.40	
<hr/>					

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

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	52232	CONNEAUT OUTLET	7.060	1059.00	76.70	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfs)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.070	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Eagle Crest MHP	PA0221945	0.0175	0.0000	0.0000	0.000	20.00	7.60

Parameter Data				
Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	13.00	2.00	0.00	1.50
Dissolved Oxygen	4.85	7.54	0.00	0.00
NH3-N	18.28	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
16D	52232	CONNEAUT OUTLET	5.720	1058.00	81.50	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.070	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
16D	52232	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
7.060	Eagle Crest MHP	11.08	36.56	11.08	36.56	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
7.060	Eagle Crest MHP	1.37	18.28	1.37	18.28	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
7.06	Eagle Crest MHP	13	13	18.28	18.28	4.85	4.85	0	0

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
16D		52232				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												
7.060	5.37	0.00	5.37	.0271	0.00014	.788	44.31	56.25	0.15	0.530	24.97	7.00
Q1-10 Flow												
7.060	3.44	0.00	3.44	.0271	0.00014	NA	NA	NA	0.12	0.679	24.96	7.00
Q30-10 Flow												
7.060	7.30	0.00	7.30	.0271	0.00014	NA	NA	NA	0.18	0.446	24.98	7.00

TRC EVALUATION					
Input appropriate values in A3:A9 and D3:D9					
5.36	= Q stream (cfs)			0.5	= CV Daily
0.0175	= 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)			0	= Decay Coefficient (K)
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.iii	WLA_afc = 63.177		1.3.2.iii	WLA_cfc = 61.585
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 23.541		5.1d	LTA_cfc = 35.803
Source	Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML_MULT = 1.231			
PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.500		BAT/BPJ	
		INST_MAX_LIMIT (mg/l) = 1.635			
WLA_afc	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc}) \dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$				
LTA_afc	wla_afc * LTAMULT_afc				
WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc}) \dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$				
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1)^{0.5})$				
LTA_cfc	wla_cfc * LTAMULT_cfc				
AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$				
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)				