pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0090140**
Facility Type	**Municipal**	APS ID	**1055047**
Major / Minor	**Minor**	Authorization ID	**1382139**

Applicant and Facility Information

Applicant Name	**Clymer Borough Municipal Authority**	Facility Name	**Clymer Borough Municipal Authority**
Applicant Address	470 Adams Street	Facility Address	1675 Franklin Street
	Clymer, PA 15728-1156		Clymer, PA 15728-1052
Applicant Contact	John Gromley, STP Operator (cbma1@comcast.net)	Facility Contact	John Gromley, STP Operator (cbma1@comcast.net)
Applicant Phone	(724) 254-9884	Facility Phone	(724) 254-9884
Client ID	36870	Site ID	254640
Ch 94 Load Status	Not Overloaded	Municipality	Clymer Borough
Connection Status	No Limitations	County	Indiana
Date Application Received	January 20, 2022	EPA Waived?	Yes
Date Application Accepted	January 21, 2022	If No, Reason	-
Purpose of Application	Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater from a municipal sewer system.		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit is not required at this time.

The applicant should be able to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

A. Stormwater into Sewers
B. Right of Way
C. Solids Handling
D. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

II. Solids Management

There is 1 open violation in efacts associated with the subject Client ID (36870) as of 10/19/2023 (see Attachment 1).*10/27/2023 CWY*

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	10/19/2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. / Environmental Engineer Manager	10/27/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.24
Latitude	40º 39' 30.00"	Longitude	-79º 01' 30.00"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Two Lick Creek (TSF)	Stream Code	44073
NHD Com ID	123716962	RMI	21.5
Drainage Area	53	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	5.3	Q_{7-10} Basis	calculated
Elevation (ft)	1194	Slope (ft/ft)	0.00140
Watershed No.	18-D	Chapter 93 Class.	TSF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired*		
Cause(s) of Impairment	Metals and pH		
Source(s) of Impairment	Acid Mine Drainage (AMD)		
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	PA American Water Company - Indiana District		
PWS Waters	Two Lick Creek	Flow at Intake (cfs)	7.9
PWS RMI	13.5	Distance from Outfall (mi)	8.0

* - The receiving stream is impaired, and there is a TMDL for Aluminum, Iron, Manganese, and pH in the Kiskiminetas-Conemaugh River Watershed. Per the SOP, monitoring for those parameters will be included with this renewal, as was done in the previous permit.

Sludge use and disposal description and location(s): All sludge is disposed of at an approved landfill.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.24 MGD of treated sewage from a municipal STP in Clymer Borough, Indiana County.

Treatment permitted under WQM Permit 3274405 A-3 consists of the following: A comminutor, a bypass bar screen, two 120,200 gallon aeration tanks, two 20,000 gallon settling tanks, ultraviolet (UV) light disinfection with a contact tank, chlorine gas disinfection with two 3,840 gallon chlorine contact tanks, a 5,000 gallon aerobic sludge holding tank, and four covered sludge drying beds (1244 total sq. ft.)

1. Streamflow:

Yellow Creek near Homer City, PA - USGS Gage No. 03042280 (1973-2008):

Q_{7-10}:	6.0	cfs	(USGS StreamStats)
Drainage Area:	57.4	sq. mi.	(USGS StreamStats)
Yieldrate:	0.1	cfsm	(Calculated)

Two Lick Creek at Outfall 001:

Yieldrate:	0.1	cfsm	(Calculated above)
Drainage Area:	53	sq. mi.	(USGS StreamStats)
% of stream allocated:	100%	Basis:	No nearby discharges
Q_{7-10}:	5.3	cfs	(Calculated)

2. Wasteflow:

Maximum discharge: 0.24 MGD = 0.37 cfs

Runoff flow period: 24 hours Basis: Runoff flow for municipal STPs

The calculated stream flow (Q7-10) is greater than 3 times the permitted discharge flow. In accordance with the SOP, the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, were not evaluated with this renewal.

Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, E. Coli, Total Phosphorus, Total Nitrogen, NH_3-N, $CBOD_5$, Dissolved Oxygen, and Disinfection.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits.

The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), and will be retained.

b. Total Suspended Solids

Limits are 30.0 mg/l as a monthly average and 60.0 as an instantaneous maximum.

Basis: Application of Chapter 92a47 technology-based limits.

c. Fecal Coliform

05/01 - 09/30:	200/100ml	(monthly average geometric mean)
	1,000/100ml	(instantaneous maximum)
10/01 - 04/30:	2,000/100ml	(monthly average geometric mean)
	10,000/100ml	(instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. E. Coli

Monitoring was added for E. Coli at a frequency of 1/quarter.

Basis: Application of Chapter 92a.61 as recommended by the SOP for flows greater than 0.05 MGD and less than 1.0 MGD.

e. Phosphorus

Chapter 96.5 does not apply. Therefore, the previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61.

f. Total Nitrogen

The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61.

g. Ammonia-Nitrogen (NH_3-N)

Median discharge pH to be used:	7.1	Standard Units (S.U.)
	Basis:	eDMR data from previous 12 months
Discharge temperature:	25°C	(default value used in the absence of data)
Median stream pH to be used:	7.0	Standard Units (S.U.)
	Basis:	default value used in the absence of data
Stream Temperature:	25˚C	(default value used for TSF modeling)
Background NH_3-N concentration:	0.0	mg/l
	Basis:	Default value
Calculated NH_3-N Summer limits:	25.0	mg/l (monthly average)
	50.0	mg/l (instantaneous maximum)
Calculated NH_3-N Winter limits:	25.0	mg/l (monthly average)
	50.0	mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer NH3-N limits above (see Attachment 1). The winter limits are calculated as three times the summer limits, but since the technology-based limits are more restrictive, they will be used. The calculated limits are less restrictive than the previous permit. Per eDMR data, the more restrictive limits are attainable so they will be retained.

h. $CBOD_5$

Median discharge pH to be used: 7.1 Standard Units (S.U.)

Basis: eDMR data from previous 12 months

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 25˚C (default value used for TSF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

Calculated $CBOD_5$ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated CBOD5 limits above (see Attachment 1). These limits are the same as the previous permit and will be retained.

i. Influent Total Suspended Solids and BOD_5

Monitoring for these two parameters will be retained as recommended in the SOP for POTWs, as authorized under Chapter 92a.61.

j. Dissolved Oxygen (DO)

The technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61. The previous limit was calculated as 4.0 mg/l, but 3.0 mg/l was put in the permit. Per eDMR data, the 4.0 mg/l limit is attainable so it will be set with this renewal.

The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), and will be retained.

k. Disinfection

☒ Ultraviolet (UV) light monitoring

☒ Total Residual Chlorine (TRC) limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The TRC limits above were calculated using the Department's TRC Calculation Spreadsheet (see Attachment 3). The limits are the same as the previous permit and will be retained.

In addition, UV disinfection is used at this facility, so UV Intensity monitoring will be added with this renewal.

The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), and will be retained.

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 using the Department's Toxics Management Spreadsheet since no sampling other than sewage-related parameters was performed for this facility with the renewal application.

5. Reasonable Potential for Downstream Public Water Supply (PWS):

The Department's Toxics Management Spreadsheet does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). Since no relevant sampling was provided, mass-balance calculations were not performed.

Nearest Downstream potable water supply (PWS): PA American Water Company - Indiana District
Distance downstream from the point of discharge: 8.0 miles (approximate)

Result: No limits or monitoring are necessary as significant dilution is available.

6. Flow Information:

This facility receives flow from the Clymer Borough, and from the Cherryhill, Green, East Mahoning, and Rayne Townships in Indiana County.

All the sewers are separate sewers.

7. Anti-Backsliding:

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

8. Attachment List:

Attachment 1 - Open Violations by Client
Attachment 2 - WQ Modeling Printouts
Attachment 3 - TRC_Calc Spreadsheet

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from September 1, 2022 to August 31, 2023)

Parameter	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22
Flow (MGD) Average Monthly	0.220	0.184	0.149	0.158	0.169	0.176	0.310	0.470	0.201	0.206	0.155	0.246
Flow (MGD) Daily Maximum	0.422	0.400	0.190	0.218	0.285	0.363	0.416	0.683	0.240	0.254	0.165	0.360
pH (S.U.) Minimum	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.8	7.0	6.8	6.8	7.0
pH (S.U.) Maximum	7.2	7.2	7.3	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2
DO (mg/L) Minimum	6.0	6.0	5.8	5.8	5.9	5.7	5.7	5.5	5.9	6.0	5.3	5.3
TRC (mg/L) Average Monthly	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TRC (mg/L) Instantaneous Maximum	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2
CBOD5 (lbs/day) Average Monthly	14.0	< 4.3	10.2	4.0	5.0	4.5	7.4	8.36	5.0	< 5.2	< 3.9	< 7.2
CBOD5 (lbs/day) Weekly Average	14.50	4.9	4.8	4.3	4.3	4.1	7.5	8.98	6.0	< 6.4	< 4.1	15.3
CBOD5 (mg/L) Average Monthly	3.98	< 3.1	< 7.98	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.5
CBOD5 (mg/L) Weekly Average	7.9	3.2	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	5.1
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	149	107	151	137	127	< 70.5	269	301	172	165	136	142
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	172	175	255	212	181	125	470	518	241	367	182	205
BOD5 (mg/L) Raw Sewage Influent Average Monthly	98	76	115	105	110	< 53.0	110	109	103	102	105	84
TSS (lbs/day) Average Monthly	6.5	6.1	6.0	7.2	5.6	5.4	12.3	8.4	6.7	5.8	3.9	10.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	228	211	112	200	215	160	199	197	196	143	143	98
TSS (lbs/day) Raw Sewage Influent Daily Maximum	363	383	182	261	258	243	219	265	279	215	125	132

TSS (lbs/day) Weekly Average	15.6	20.0	7.9	10.5	5.8	7.4	17.5	11.98	12.0	8.5	6.9	21.0
TSS (mg/L) Average Monthly	3.8	4.0	3.8	5.0	4.0	4.0	5.0	3.0	4.0	3.4	3.0	5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	141	147	89	156	149	117	81	72	117	83	97	48
TSS (mg/L) Weekly Average	5.0	6.0	5.0	8.0	4.0	5.0	7.0	4.0	6.0	4.0	5.0	7.0
Fecal Coliform (No./100 ml) Geometric Mean	< 10.3	< 1.0	< 3.1	< 1	< 19.8	< 1.0	< 2.89	< 1.0	< 0.1	< 1.0	< 2.2	< 6.1
Fecal Coliform (No./100 ml) Instantaneous Maximum	48.0	3.0	87.0	< 1	2420	< 1.0	14	< 1.0	< 0.1	< 1.0	22	< 354
Total Nitrogen (mg/L) Daily Maximum									16.2			
Ammonia (lbs/day) Average Monthly	0.75	5.6	7.6	3.8							1.2	1.8
Ammonia (lbs/day) Weekly Average	5.5	14.2	11.1	7.1							2.8	5.0
Ammonia (mg/L) Average Monthly	0.44	< 3.65	6.1	2.91	< 4.0	12.3	< 0.73	< 0.39	< 0.8	0.96	0.96	< 0.77
Ammonia (mg/L) Weekly Average	1.75	9.39	8.7	5.46							2.02	1.68
Total Phosphorus (mg/L) Daily Maximum									1.94			
Total Aluminum (mg/L) Average Monthly			< 0.10			< 0.10			< 0.10			< 0.10
Total Iron (mg/L) Average Monthly			0.12			0.06			0.06			0.05
Total Manganese (mg/L) Average Monthly			0.14			< 0.02			< 0.02			< 0.02

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
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	50.0	75.0	XXX	25.0	37.5	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	60.0	90.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Intensity (µw/cm²)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/day	Metered
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia Nov 1 - Apr 30	42.0	63.0	XXX	21.0	31.5	42.0	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	14.0	21.0	XXX	7.0	10.5	14	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Total Iron	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Total Manganese	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location: at Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for Total Residual Chlorine (TRC) are technology-based on Chapter 92a.47. Monitoring for UV Intensity is based on Chapter 92a.61. The limits for $CBOD_5$, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for influent BOD_5 and influent TSS is based on Chapter 92a.61. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for Aluminum, Iron, and Manganese is based on Chapter 92a.61.

Attachment 1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

WATER MANAGEMENT SYSTEM
OPEN VIOLATIONS BY CLIENT

Client ID: **36870**
Client: **All**

Open Violations: **1**

CLIENT ID	CLIENT	PF ID	FACILITY	PF KIND	PF STATUS	INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID
36870	CLYMER BORO MUNI AUTH	265982	CLYMER BORO MUNI AUTH	Community	Active	Safe Drinking Water	5320009	2883833

VIOLATION ID	INSPECTION CATEGORY	VIOLATION DATE	VIOLATION CODE	VIOLATION	PF INSPECTOR	INSP REGION
850181	PF	05/22/2019	C3B	FAILURE OF A PUBLIC WATER SYSTEM TO PROVIDE THE LEVEL OF TREATMENT APPROVED IN ITS PERMIT	RUSSELL,PAMELA	NWRO

Attachment 2

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44073	TWO LICK 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)
21.500	Clymer	PA0090140	0.240	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44073	TWO LICK CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
21.500	0.240	25.000	7.006
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
38.245	0.711	53.815	0.209
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.51	0.530	1.64	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.308	3.141	Tsivoglou	5
Reach Travel Time (days)			
0.513			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.051	3.39	1.55	6.95
0.103	3.27	1.47	6.67
0.154	3.16	1.40	6.45
0.205	3.06	1.33	6.29
0.256	2.96	1.26	6.17
0.308	2.86	1.19	6.09
0.359	2.76	1.13	6.04
0.410	2.67	1.07	6.01
0.461	2.58	1.02	6.01
0.513	2.49	0.97	6.02

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		

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
18D	44073	TWO LICK CREEK	**21.500**	1194.00	53.00	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	0.100	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
Clymer	PA0090140	0.2400	0.0000	0.0000	0.000	25.00	7.10

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	7.54	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
18D	44073	TWO LICK CREEK	**19.750**	1181.00	55.50	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	0.100	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18D	44073	TWO LICK CREEK

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												
21.500	5.30	0.00	5.30	.3713	0.00141	.711	38.25	53.82	0.21	0.513	25.00	7.01
Q1-10 Flow												
21.500	3.39	0.00	3.39	.3713	0.00141	NA	NA	NA	0.17	0.645	25.00	7.01
Q30-10 Flow												
21.500	7.21	0.00	7.21	.3713	0.00141	NA	NA	NA	0.25	0.436	25.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44073	TWO LICK CREEK

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
21.500	Clymer	10.99	50	10.99	50	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
21.500	Clymer	1.36	25	1.36	25	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)		
21.50	Clymer	25	25	25	25	4	4	0	0

Attachment 3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

5.3	= Q stream (cfs)	0.5	= CV Daily
0.24	= 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 = 4.573	1.3.2.iii	WLA cfc = 4.451
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.704	5.1d	LTA_cfc = 2.587

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*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)**