pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0092550**
Facility Type	**Municipal**	APS ID	**1060832**
Major / Minor	**Minor**	Authorization ID	**1391770**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Bradys Bend Township Water & Sewer Authority**	Facility Name	**Bradys Bend Water & Sewer Authority**
Applicant Address	697 State Route 68 East Brady, PA 16028-2817	Facility Address	1081 State Route 68 East Brady, PA 16028
Applicant Contact	Robin Marree, Manager (lmarree@yahoo.com)	Facility Contact	Robin Marree, Manager (lmarree@yahoo.com)
Applicant Phone	(412) 627-4573	Facility Phone	(412) 627-4573
Client ID	67517	Site ID	253604
Ch 94 Load Status	Not Overloaded	Municipality	Bradys Bend Township
Connection Status	No Limitations	County	Armstrong
Date Application Received	April 11, 2022	EPA Waived?	Yes
Date Application Accepted	April 12, 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 Permittee 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 are no open violations in efacts associated with the subject Client ID (67517) as of 2/16/2024.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	2/16/2024
X		 *Vacant* / Environmental Engineer Manager	Okay to Draft JCD 2/20/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.05
Latitude	40º 59' 54.00"	Longitude	-79º 37' 20.00"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Sugar Creek (WWF)	Stream Code	49035
NHD Com ID	123857675	RMI	1.2
Drainage Area	17.1	Yield (cfs/mi^2)	0.065
Q_{7-10} Flow (cfs)	1.11	Q_{7-10} Basis	calculated
Elevation (ft)	894	Slope (ft/ft)	0.000786
Watershed No.	17-C	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired*		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage (AMD)		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	Templeton Water Company, Inc.		
PWS Waters	Allegheny River	Flow at Intake (cfs)	1,768
PWS RMI	54.8	Distance from Outfall (mi)	17.0

* - The receiving stream is impaired by Aluminum, Iron, and Manganese from Acid Mine Drainage (AMD). Per the SOP, monitoring for those parameters will be added with this renewal.

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 0.05 MGD of treated sewage from an existing Publicly Owned Treatment Works (POTW) in Bradys Bend Township Armstrong County.

Treatment permitted under WQM Permit 0380403 A-1 consists of the following: An equalization tank, a comminutor, 2 aeration tanks, 2 holding tanks, 2 clarifiers, tablet chlorine disinfection with a contact tank, and a sodium sulfite tablet feeder for dechlorination.

1. Streamflow:

Redbank Creek at St. Charles, PA - Streamgage No. 03032500 (1920-2008)

Drainage Area:	528	sq. mi.	(USGS StreamStats)
Q_{7-10}:	34.4	cfs	(USGS StreamStats)
Yieldrate:	0.065	cfsm	(Calculated)

Sugar Creek at Outfall 001:

Yieldrate:	0.065	cfsm	(Calculated above)
Drainage Area:	17.1	sq. mi.	(USGS StreamStats)
% of stream allocated:	100%	Basis:	No nearby discharges
Q_{7-10}:	1.11	cfs	(Calculated)

2. Wasteflow:

Maximum discharge: 0.05 MGD = 0.077 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, since this is an existing discharge, 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 for this facility.

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), which 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.

The mass loading limits were incorrectly set in the last permit and were reduced slightly to the correct values with this renewal.

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

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:	7.2	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:	20˚C	(default value used for CWF 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 would govern, they will be used. The calculated limits are less restrictive than in the previous permit. Based on eDMR data, the more restrictive limits are attainable so they will be retained with this renewal.

The mass loading limits were incorrectly set in the last permit and were reduced slightly to the correct values with this renewal.

h. $CBOD_5$

Median discharge pH to be used: 7.2 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: 20˚C (default value used for CWF 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). The limits are the same as the previous permit and will be retained.

The mass loading limits were incorrectly set in the last permit and were reduced slightly to the correct values with this renewal.

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. This limit is the same as the previous permit and will be retained.

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), which 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 technology-based TRC limits above were calculated using the Department's TRC_Calc Spreadsheet (see Attachment 2). The limits are the same as the previous NPDES Permit and will be retained.

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), which will be retained.

4. Industrial/Commercial users:

Business Name	Business Type	Average Flow (gpd)
Daman Industries	Machine Shop	no data
no data	Car Wash	no data
no data	Bar/Restaurant	no data
no data	Bar/Restaurant	no data
no data	Bar/Restaurant	no data
no data	Church	no data
no data	Church	no data
no data	Service Station	no data

5. Reasonable Potential Analysis for Receiving Stream:

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

6. 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).

Nearest Downstream potable water supply (PWS): Templeton Water Company, Inc.
Distance downstream from the point of discharge: 17.0 miles (approximate)

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

7. Flow Information:

This facility receives 100% of flow from the Bradys Bend Township. All the sewers are separate sewers.

8. 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.

9. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

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

Compliance History

DMR Data for Outfall 001 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Average Monthly	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.04	0.02	0.04
pH (S.U.) Minimum	7.2	7.0	7.0	7.1	7.2	7.2	7.1	7.1	7.1	7.2	7.1	7.2
pH (S.U.) Maximum	7.3	7.3	7.4	7.3	7.4	7.4	7.3	7.2	7.3	7.3	7.2	7.2
DO (mg/L) Minimum	4.1	4.1	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
TRC (mg/L) Average Monthly	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRC (mg/L) Instantaneous Maximum	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
CBOD5 (lbs/day) Average Monthly	0.50	0.37	0.25	0.25	0.37	0.25	0.37	0.50	0.75	1.0	0.75	0.01
CBOD5 (mg/L) Average Monthly	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
CBOD5 (mg/L) Instantaneous Maximum	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	9.3	10.6	8.7	7.0	4.6	2.9	13.5	7.7	6.6	11.2	8.01	7.2
BOD5 (mg/L) Raw Sewage Influent Average Monthly	56.0	84.1	105.1	84.3	37.3	34.8	96.1	46.2	29.9	42.2	32.05	23.5
TSS (lbs/day) Average Monthly	0.50	0.37	0.25	0.25	0.37	0.25	0.37	0.50	0.75	0.87	0.75	0.01
TSS (lbs/day) Raw Sewage Influent Average Monthly	5.0	9.2	10.9	5.2	4.0	3.2	15.5	8.8	6.8	10.5	6.9	10.6
TSS (mg/L) Average Monthly	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	30.0	74.5	131.0	63.5	36.0	38.5	126	53.0	27	39.0	28.0	35.0
TSS (mg/L) Instantaneous Maximum	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Fecal Coliform (No./100 ml) Geometric Mean	1	1	0.01	1	0.1	1	1	1	0.01	0.01	0.01	0.01
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	1	0.01	4	1	1	1	1	0.01	0.01	0.01	0.01
Ammonia (lbs/day) Average Monthly	0.01	0.01	0.20	0.27	0.03	1.8	0.40	0.04	0.10	0.02	0.25	0.05
Ammonia (mg/L) Average Monthly	0.10	0.10	2.4	0.32	0.26	2.9	2.7	0.25	0.6	0.10	0.10	0.13
Ammonia (mg/L) Instantaneous Maximum	0.10	0.10	4.8	0.55	0.43	3.4	4.3	0.40	1.1	0.10	0.10	0.16

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	XXX	XXX	XXX	XXX	XXX	2/month	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	10.0	XXX	XXX	25.0	XXX	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	12.0	XXX	XXX	30.0	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/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	10.0	XXX	XXX	25.0	XXX	50	2/month	Grab
Ammonia May 1 - Oct 31	6.4	XXX	XXX	16.0	XXX	32	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 Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

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 Total Residual Chlorine (TRC) limits are technology-based on Chapter 92a.47. The limits for $CBOD_5$, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, Total Nitrogen, Total Phosphorus, Total Aluminum, Total Iron, and Total Manganese is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7.

Attachment 1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17C	49035	SUGAR 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)
1.200	Bradys Bend	PA0092550	0.050	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17C	49035	SUGAR CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.200	0.050	20.325	7.011
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
16.585	0.541	30.665	0.133
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.50	0.548	1.63	0.718
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.967	14.221	Tsivoglou	6
Reach Travel Time (days)			
0.553			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.055	3.39	1.56	8.19
0.111	3.29	1.50	8.19
0.166	3.19	1.44	8.19
0.221	3.09	1.39	8.19
0.277	3.00	1.33	8.19
0.332	2.91	1.28	8.19
0.387	2.82	1.23	8.19
0.443	2.73	1.18	8.19
0.498	2.65	1.14	8.19
0.553	2.57	1.09	8.19

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		

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
17C	49035	SUGAR CREEK	**1.200**	894.00	17.10	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	0.065	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
Bradys Bend	PA0092550	0.0500	0.0000	0.0000	0.000	25.00	7.20

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	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
17C	49035	SUGAR CREEK	**0.000**	823.00	17.50	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	0.065	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
		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
17C	49035	SUGAR 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												
1.200	1.11	0.00	1.11	.0773	0.01121	.541	16.59	30.66	0.13	0.553	20.33	7.01
Q1-10 Flow												
1.200	0.71	0.00	0.71	.0773	0.01121	NA	NA	NA	0.11	0.696	20.49	7.02
Q30-10 Flow												
1.200	1.51	0.00	1.51	.0773	0.01121	NA	NA	NA	0.16	0.470	20.24	7.01

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17C	49035	SUGAR 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
1.200	Bradys Bend	15.87	50	15.87	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
1.200	Bradys Bend	1.85	25	1.85	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)		
1.20	Bradys Bend	25	25	25	25	4	4	0	0

Attachment 2

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1.11	= Q stream (cfs)	0.5	= CV Daily
0.05	= 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 = 4.597	1.3.2.iii	WLA cfc = 4.474
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.713	5.1d	LTA_cfc = 2.601

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)**