Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0239674**
Facility Type	**Non-Municipal**	APS ID	**1099685**
Major / Minor	**Minor**	Authorization ID	**1459661**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Cooper Lake Farms, Inc.**	Facility Name	**Coopers Lake Campground**
Applicant Address	205 Currie Road	Facility Address	Currie Road
	Slippery Rock, PA 16057-4527		Slippery Rock, PA 16057
Applicant Contact	James Brezel (james@cooperslake.com)	Facility Contact	James Brezel (james@cooperslake.com)
Applicant Phone	(724) 421-4683	Facility Phone	(724) 421-4683
Client ID	243144	Site ID	450378
Ch 94 Load Status	Not Overloaded	Municipality	Worth Township
Connection Status	No Limitations	County	Butler
Date Application Received	September 29, 2023	EPA Waived?	Yes
Date Application Accepted	October 26, 2023	If No, Reason	-
Purpose of Application	Renewal of an existing NPDES Permit for an existing discharge of treated sanitary wastewater from a campground.		

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 continue to protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:
- A. Stormwater into sewers
- B. Right of way
- C. Solids handling
- D. Public Sewe58rage Availability
- E. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:
- II. Solids Management

There is 1 open violation in efacts associated with the subject Client ID (243144) as of 11/20/2024 (see Attachment 1).

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	11/20/2024
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	12/3/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0275
Latitude	40º 58' 16.00"	Longitude	-80º 08' 32.00"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		

Receiving Waters	Muddy Creek (WWF)	Stream Code	34081
NHD Com ID	126223743	RMI	2.89
Drainage Area	53.5	Yield (cfs/mi^2)	0.034
Q_{7-10} Flow (cfs)	1.8	Q_{7-10} Basis	calculated
Elevation (ft)	1154	Slope (ft/ft)	0.00573
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Not Assessed		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	PA American Water Company - Ellwood City		
PWS Waters	Slippery Rock Creek	Flow at Intake (cfs)	53.1
PWS RMI	0.1	Distance from Outfall (mi)	14.6

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 0.0275 MGD of treated sewage from an existing campground in Worth Township, Butler County.

Treatment under Water Quality Management Permit No. 1006401 consists of: A comminutor with bypass bar screen, a 6,126 gallon aerated flow equalization tank with two submersible pumps, an 18,476 gallon tank utilizing a Bio-Wheel for integrated fixed film/activated sludge treatment, a 5,365 gallon clarifier, chlorine disinfection with a 1,041 gallon contact tank, and a 1,400 gallon effluent pumping station. Sludge is stored in a 10,472 gallon aerobic sludge digestion tank.

1. Streamflow:

Muddy Creek near Portersville, PA (USGS gage no. 03106300):

Drainage Area:	51.2	sq. mi.	
Q_{7-10}:	1.75	cfs	
Yieldrate:	0.034	cfsm	(calculated)

Muddy Creek @ Outfall 001:

Yieldrate:	0.034	cfsm	(calculated above)
Drainage Area:	53.0	sq. mi.	(from StreamStats)
% of stream allocated:	100%	Basis:	no nearby discharges
Q_{7-10}:	1.8	cfs	(calculated)

Due to the stream splitting in half near the Outfall, the flow used for WQ Modeling and the TRC_Spreadsheet was divided in half. This is the same procedure used during previous renewals.

2. Wasteflow:

Maximum discharge: 0.0275 MGD = 0.0425 cfs

Runoff flow period: 24 hours Basis: Runoff flow due to flow equalization

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

c. Fecal Coliform

05/01 - 09/30:	200 No./100ml	(monthly average)
	1,000 No./100ml	(instantaneous maximum)
10/01 - 04/30:	2,000 No./100ml	(monthly average)
	10,000 No./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/year.

Basis: Application of Chapter 92a.61 as recommended by the SOP for flows between 0.002 MGD and 0.05 MGD.

e. Total Phosphorus

Chapter 96.5 does not apply. However, 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:	7.5	Standard Units (S.U.)
		Basis: Average pH value from DMR summary
Discharge temperature:	25°C	(Default value used for modeling purposes)
Median stream pH to be used:	8.0	Standard Units (S.U.)
		Basis: 5/20/88 sample taken approx. 4,400 feet, below the proposed discharge - see the Lake Arthur Estates WQPR
Stream Temperature:	25˚C	(Default value used for WWF modeling purposes)
Background NH_3-N concentration:	0.1	mg/l
		Basis: Default value used for modeling purposes
Calculated NH_3-N Summer limits:	19.0	mg/l (monthly average)
	38.0	mg/l (instantaneous maximum)
Calculated NH_3-N Winter limits:	25.0	mg/l (monthly average)
	50.0	mg/l (instantaneous maximum)

Result: As done in the previous renewal, since the Pilot Travel Center 081 (PA0222429) discharges 0.05 MGD (design flow) 1 mile upstream, its discharge was modeled along with the Coopers Lake Campground discharge.

In addition, since the campground discharges at a point on Muddy Creek where the creek splits in half, the LFY was also reduced by half in the model.

WQ modeling resulted in the summer limits above (see Attachment 2), which are less restrictive than the previous NPDES Permit. Since the current limits are attainable, they will be retained. The winter limits are calculated as three times the summer limits, but since the technology-based limits are more protective, they will be used.

h. $CBOD_5$

Median discharge pH to be used: 7.5 Standard Units (S.U.)

Basis: Average pH value from DMR summary

Discharge temperature: 25°C (Default value used for modeling purposes)

Median stream pH to be used: 8.0 Standard Units (S.U.)

Basis: 5/20/88 sample taken approx. 4,400 feet, below the proposed discharge - see the Lake Arthur Estates WQPR

Stream Temperature: 25˚C (Default value used for WWF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value used for modeling purposes

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

Result: As done in the previous renewal, since the Pilot Travel Center 081 (PA0222429) discharges 0.05 MGD (design flow) 1 mile upstream, its discharge was modeled along with the Coopers Lake Campground discharge.

In addition, since the campground discharges at a point on Muddy Creek where the creek splits in half, the LFY was reduced by half in the model.

WQ modeling resulted in the limits above (see Attachment 2), which are the same as in the previous NPDES Permit and will be retained.

i. Dissolved Oxygen (DO)

A Dissolved Oxygen technology-based minimum of 4.0 mg/l was recommended by the WQ Model (see Attachment 2) 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.

j. 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 are technology-based using the TRC_Calc Spreadsheet (see Attachment 3).

In addition, since the campground discharges at a point on Muddy Creek where the creek splits in half, the steam flow (Q) was reduced by half in the spreadsheet.

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. 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 - Ellwood City
Distance downstream from the point of discharge: 14.6 miles (approximate)

6. 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.

7. Attachment List:

Attachment 1 - WMS 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, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly												0.001
pH (S.U.) Instantaneous Minimum												7.5
pH (S.U.) Instantaneous Maximum												7.6
DO (mg/L) Instantaneous Minimum												4.2
TRC (mg/L) Average Monthly												0.5
TRC (mg/L) Instantaneous Maximum												0.7
CBOD5 (mg/L) Average Monthly												< 3.0
TSS (mg/L) Average Monthly												15.5
Fecal Coliform (No./100 ml) Geometric Mean												< 13
Fecal Coliform (No./100 ml) Instantaneous Maximum												170
Total Nitrogen (mg/L) Annual Average									37.5			
Ammonia (mg/L) Average Monthly												10.3
Total Phosphorus (mg/L) Annual Average									1.5			

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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
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	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	12.0	XXX	24	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	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.48. The limits for $CBOD_5$, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

Attachment 1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

WATER MANAGEMENT SYSTEM
OPEN VIOLATIONS BY CLIENT

Client ID: 243144
Client: All

Open Violations: 1

CLIENT ID	CLIENT	PF ID	FACILITY	PF KIND	PF STATUS	INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID
243144	COOPER LAKE FARMS INC	476886	COOPERS LAKE CAMPGROUND	Transient NonCommunity	Active	Safe Drinking Water	5100487	3838475

VIOLATION ID	INSPECTION CATEGORY	VIOLATION DATE	VIOLATION CODE	VIOLATION	PF INSPECTOR	INSP REGION
8202253	PF	09/26/2024	D2A	FAILURE TO REVISE AND RESUBMIT A MONITORING PLAN FOR THE TOTAL COLIFORM RULE	COWAN,RODGER	NWRO

Attachment 2

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	34081	MUDDY 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)
3.740	Pilot Trvl 081	PA0222429x	0.050	CBOD5	25		
				NH3-N	15.55	31.1	
				Dissolved Oxygen			4

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)
2.890	Cooper Lake	PA0239674x	0.027	CBOD5	25		
				NH3-N	19.02	38.04	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	34081	MUDDY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.740	0.050	24.810	7.842
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
27.052	0.628	43.075	0.120
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.87	0.375	0.69	1.014
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.406	2.278	Tsivoglou	5
Reach Travel Time (days)			
0.433			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.043	2.82	0.66	7.29
0.087	2.76	0.63	7.19
0.130	2.70	0.60	7.11
0.173	2.65	0.58	7.04
0.216	2.60	0.55	6.98
0.260	2.54	0.53	6.94
0.303	2.49	0.50	6.91
0.346	2.44	0.48	6.88
0.390	2.39	0.46	6.86
0.433	2.35	0.44	6.85

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.890	0.077	24.713	7.836
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
24.803	0.618	40.165	0.136
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.81	0.209	0.82	1.006
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.798	10.443	Tsivoglou	5
Reach Travel Time (days)			
1.295			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.130	2.71	0.72	7.54
0.259	2.62	0.63	7.54
0.389	2.54	0.55	7.54
0.518	2.45	0.49	7.54
0.648	2.37	0.43	7.54
0.777	2.29	0.38	7.54
0.907	2.22	0.33	7.54
1.036	2.14	0.29	7.54
1.166	2.07	0.25	7.54
1.295	2.00	0.22	7.54

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
20C	34081	MUDDY CREEK	**3.740**	1150.00	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	0.037	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	8.00	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
Pilot Trvl 081	PA0222429x	0.0500	0.0000	0.0000	0.000	20.00	6.90

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	0.10	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
20C	34081	MUDDY CREEK	**2.890**	1142.00	53.40	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	0.019	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	8.00	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
Cooper Lake	PA0239674x	0.0275	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	2.00	0.00	1.50
Dissolved Oxygen	4.00	7.54	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

The LFY was split in half since the discharge only flows to half of the stream at Outfall 001.

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
20C	34081	MUDDY CREEK	**0.000**	1032.00	58.30	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	0.037	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	8.00	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

SWP Basin	Stream Code	Stream Name
20C	34081	MUDDY 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
3.740	Pilot Trvl 081	3.98	50	3.98	50	0	0
2.890	Cooper Lake	2.72	50	4.07	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
3.740	Pilot Trvl 081	.67	20.43	.67	15.55	2	24
2.890	Cooper Lake	.57	25	.68	19.02	2	24

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)		
3.74	Pilot Trvl 081	25	25	15.55	15.55	4	4	0	0
2.89	Cooper Lake	25	25	19.02	19.02	4	4	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20C	34081	MUDDY 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												
3.740	1.96	0.00	1.96	.0773	0.00178	.628	27.05	43.08	0.12	0.433	24.81	7.84
2.890	1.97	0.00	1.97	.1199	0.00721	.618	24.8	40.16	0.14	1.295	24.71	7.84
Q1-10 Flow												
3.740	1.26	0.00	1.26	.0773	0.00178	NA	NA	NA	0.09	0.549	24.71	7.78
2.890	1.26	0.00	1.26	.1199	0.00721	NA	NA	NA	0.11	1.634	24.57	7.77
Q30-10 Flow												
3.740	2.67	0.00	2.67	.0773	0.00178	NA	NA	NA	0.14	0.367	24.86	7.88
2.890	2.68	0.00	2.68	.1199	0.00721	NA	NA	NA	0.16	1.100	24.79	7.87

Attachment 3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.9	= Q stream (cfs) *	0.5	= CV Daily
0.0275	= 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 = 6.768	1.3.2.iii	WLA cfc = 6.590
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.522	5.1d	LTA_cfc = 3.831

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)**

* - The stream flow was split in half since the discharge only flows to half of the stream at Outfall 001.