pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0222429**
Facility Type	**Non-Municipal**	APS ID	**1099810**
Major / Minor	**Minor**	Authorization ID	**1459846**

Applicant and Facility Information

Applicant Name	**Pilot Travel Center LLC**	Facility Name	**Pilot Travel Center 081**
Applicant Address	5508 Lonas Drive	Facility Address	2010 New Castle Road
	Knoxville, TN 37909-3221		Portersville, PA 16051-1206
Applicant Contact	Joey Cupp	Facility Contact	
Applicant Phone	(865) 474-2826	Facility Phone	
Applicant Email	joeycupp@pilottravelcenters.com		
Client ID	135750	Site ID	464877
Ch 94 Load Status	Not Overloaded	Municipality	Muddycreek Township
Connection Status	No Limitations	County	Butler
Date Application Received	September 29, 2023	EPA Waived?	Yes
Date Application Accepted	May 1, 2024	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit for an Existing Discharge of 0.05

Summary of Review

This is a renewal Sewage Individual NPDES Permit for an Existing Discharge of 0.05 MGD from a non-municipal minor sewage facility. This facility is a truck stop/ travel center with retail sales of gasoline and diesel fuels. Inside operations consist of a convenience store, showers, restrooms, and a Subway restaurant. The existing treatment process consists of Sewage Pump station, Equalization Tank, Aeration Tank, Clarification, Chlor/ Dechlor and Sludge Digestion.

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 Four (4) open violations in WMS for the subject Client ID (135750) as of May 9, 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	May 9, 2024
X		Jason Roessing, P.E. Jason Roessing / Environmental Engineer Manager	May 28, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.05
Latitude	40º 57' 50.43"	Longitude	-80º 8' 16.03"
Quad Name	Portersville	Quad Code	40080H2
Wastewater Description:	Sewage Effluent		
Receiving Waters	Muddy Creek (WWF)	Stream Code	34081
NHD Com ID	126216816	RMI	3.74
Drainage Area	53 square miles	Yield (cfs/mi^2)	0.037
Q_{7-10} Flow (cfs)	1.961	Q_{7-10} Basis	Stream Gage # 03106300, Muddy Creek near Portersville, Pa
Elevation (ft)	1150	Slope (ft/ft)	---
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use	---	Existing Use Qualifier	---
Exceptions to Use	---	Exceptions to Criteria	---
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	---		
Source(s) of Impairment	---		
TMDL Status	---	Name	---

Background/Ambient Data		Data Source
pH (SU)	8.0	5/20/88 sample taken approx. 4,400 feet, below the proposed discharge
Temperature (°F)	77	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company - Ellwood City		
PWS Waters	Beaver River	Flow at Intake (cfs)	292.5
PWS RMI	13.0	Distance from Outfall (mi)	---

Changes Since Last Permit Issuance: None.

Other Comments: None.

Treatment Facility Summary				
Treatment Facility Name: Pilot Travel Center 081				
WQM Permit No.	**Issuance Date**			
1097410 A-2	July 3, 2013			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary with Ammonia Reduction	Extended Aeration	Chlorine with Dechlorination	0.05
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.05	84.1	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None.

Other Comments: None.

Compliance History

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.007	0.006	0.007	0.008	0.007	0.007	0.008	0.010	0.009	0.002	0.008	0.002
pH (S.U.) Instantaneous Minimum	6.98	6.14	6.65	7.05	6.53	6.15	6.90	6.55	6.86	6.84	6.90	6.05
pH (S.U.) Instantaneous Maximum	7.32	7.63	7.89	7.35	7.73	7.25	7.28	7.19	7.97	7.29	7.38	7.20
DO (mg/L) Instantaneous Minimum	5.01	6.55	6.70	7.20	5.10	5.10	6.10	5.30	5.88	6.02	5.20	6.29
TRC (mg/L) Average Monthly	0.04	0.03	0.04	0.04	0.04	0.06	0.05	0.03	0.07	0.03	0.03	0.03
TRC (mg/L) Instantaneous Maximum	0.10	0.10	0.10	0.10	0.10	0.2	0.10	0.10	0.20	0.10	0.10	0.04
CBOD5 (mg/L) Average Monthly	4.0	4.0	3.0	3.0	3.0	3.00	3.0	7.0	3.0	3.0	3.0	4.0
TSS (mg/L) Average Monthly	10	11.00	16	17	11.0	8.0	19.0	16.0	6.0	4.0	4.0	3.0
Fecal Coliform (No./100 ml) Geometric Mean	3.0	1.0	5.0	10	2.0	39.42	2.0	1.0	17	2.0	1.0	5.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	7.0	1.0	21	96	2.0	1554	3.0	1.0	48	2.0	1.0	19.0
Total Nitrogen (mg/L) Average Quarterly	2.80			1.75			1.62			2.31		
Ammonia (mg/L) Average Monthly	0.14	0.10	0.23	0.27	0.10	0.10	0.10	0.11	0.14	0.16	0.10	0.18
Total Phosphorus (mg/L) Average Quarterly	6.74			7.55			7.71			7.58		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .05
Latitude 40º 57' 50.43" **Longitude** -80º 8' 16.03"
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

Approximately 1 mile downstream, the Cooper Lake Campground (PA0239674) discharges 0.0275 MGD (design flow). Based on the previous fact sheet, an interaction happened when both discharges modeled together. As a result, the 0.05 MGD discharge from the Pilot Travel Center and the 0.0275 MGD discharge from the Copper Lake Campground have been modeled together as part of this renewal.

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

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
CBOD5	25	Average Monthly	WQM 7.0
	50	IMAX	
Ammonia Nitrogen (May 1 – Oct 31)	15.59	Average Monthly	WQM 7.0
	31.18	IMAX	
Ammonia Nitrogen (Nov 1 - Apr 30)	Report	Average Monthly	
TRC	0.5	Average Monthly	TRC evaluation spreadsheet

Comments: WQM 7.0 didn't calculate more stringent average monthly limits for Ammonia-Nitrogen. The calculated limits are equal to the limits established in the previous permit (15.59 mg/L rounded down to 15 mg/L). The current limits are attainable and 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 limits established in the previous permit are attainable and will be retained.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen effluent limit of a minimum of 4.0 mg/L, and monitoring for total nitrogen, total phosphorus and raw sewage influent monitoring for $CBOD_5$ and TSS are placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Anti-Backsliding

No backsliding of limits is being proposed.

Proposed Effluent Limitations and Monitoring Requirements

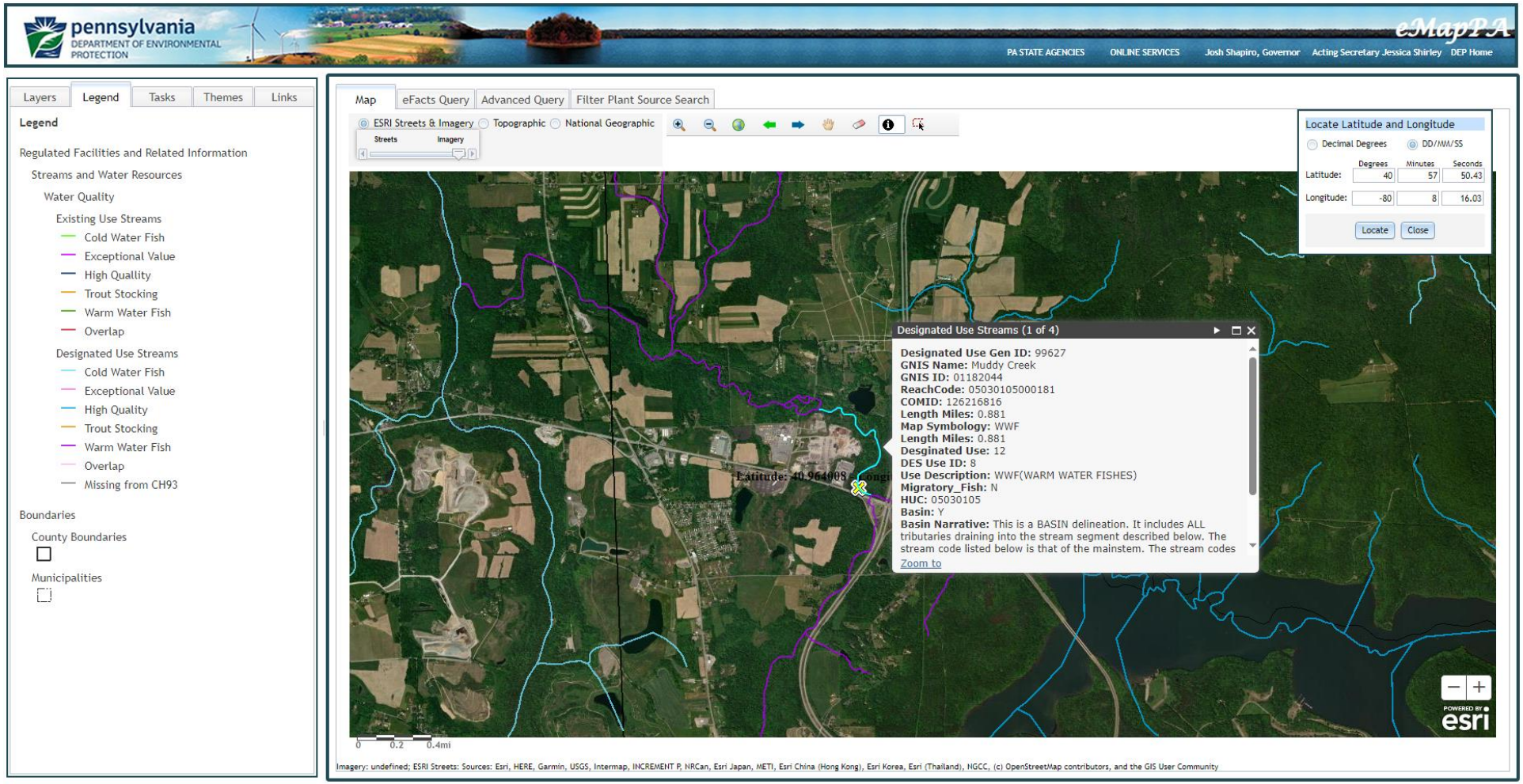
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). 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	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	3/week	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	3/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	3/week	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	20.0	XXX	40	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	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/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	15.0	XXX	30	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location: Outfall 001, after disinfection.

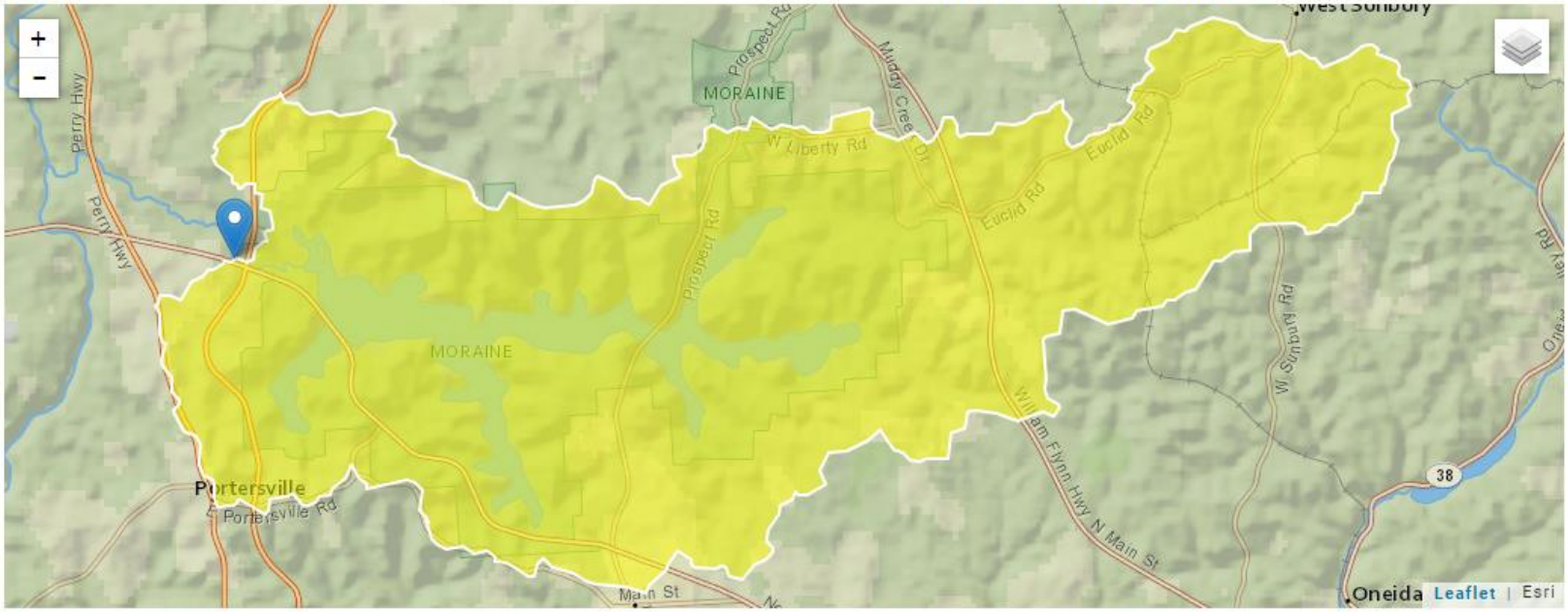
Outfall Location - eMap with Aerial Imagery



Drainage Area Location at Outfall 001 – StreamStats with Aerial Imagery

StreamStats Report

Region ID:	PA
Workspace ID:	PA20240501130034807000
Clicked Point (Latitude, Longitude):	40.96402, -80.13777
Time:	2024-05-01 09:00:57 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	53	square miles

Attachment 1

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	PA0222429	0.050	CBOD5	25		
				NH3-N	15.59	31.18	
				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	PA0239674	0.027	CBOD5	25		
				NH3-N	19.08	38.16	
				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	0.51	6.90
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	24.714	7.836
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
24.823	0.618	40.178	0.137
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.80	0.209	0.82	1.006
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.799	10.504	Tsivoglou	5
Reach Travel Time (days)			
1.288			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.129	2.71	0.72	7.54
0.258	2.62	0.63	7.54
0.386	2.54	0.56	7.54
0.515	2.45	0.49	7.54
0.644	2.37	0.43	7.54
0.773	2.29	0.38	7.54
0.902	2.22	0.33	7.54
1.030	2.14	0.29	7.54
1.159	2.07	0.26	7.54
1.288	2.01	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	PA0222429	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	0.037	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
Cooper Lake	PA0239674	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

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	**0.010**	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	4.06	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	15.59	2	24
2.890	Cooper Lake	.57	25	.68	19.08	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	15.59	15.59	4	4	0	0
2.89	Cooper Lake	25	25	19.08	19.08	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	1.98	0.00	1.98	.1199	0.00723	.618	24.82	40.18	0.14	1.288	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	0.00723	NA	NA	NA	0.11	1.625	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	2.69	0.00	2.69	.1199	0.00723	NA	NA	NA	0.16	1.094	24.79	7.87

Attachment 2

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1.961	= 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 =	8.106	1.3.2.iii	WLA cfc =	7.896
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	3.021	5.1d	LTA_cfc =	4.590

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)**