pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0204498**
Facility Type	**Non-Municipal**	APS ID	**1021932**
Major / Minor	**Minor**	Authorization ID	**1324250**

Applicant and Facility Information

Applicant Name	**Marion Center School District**	Facility Name	**Rayne Township Elementary School**
Applicant Address	22820 Route 403 Highway N, PO Box 156	Facility Address	2535 US 119
	Marion Center, PA 15759-0156		Home, PA 15747-8801
Applicant Contact	Kenneth Kirkland	Facility Contact	Kenneth Kirkland
Applicant Phone	(724) 397-5551	Facility Phone	(724) 397-5551
Client ID	7896	Site ID	259346
Ch 94 Load Status	Not Overloaded	Municipality	Rayne Township
Connection Status		County	Indiana
Date Application Received	August 11, 2020	EPA Waived?	Yes
Date Application Accepted	August 27, 2020	If No, Reason	

Purpose of Application: Minor Sewage Treatment Facility NPDES Permit Renewal.

Summary of Review

Act 14 – Proof of notification were submitted and received.

There are no open violations for subject client no. 7896 as of 10/25/2021.

This facility is currently submitting eDMR reports.

There has been no change to the discharge or receiving stream since the last permit issuance.

Sludge use and disposal description and location(s): Septage must be pumped and hauled off-site by a septage hauler for land application under a general permit authorized by DEP or disposal at an STP.

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		Jon F. Bucha Jonathan F. Bucha / Civil Engineer General	October 25, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	October 29, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.00676
Latitude	40º 42' 10"	Longitude	-79º 6' 9"
Quad Name	Clymer	Quad Code	1313
Wastewater Description:	Sewage Effluent		
Receiving Waters	Drainage Swale to Unnamed Tributary of Crooked Creek (CWF)	Stream Code	46832 (Unnamed Tributary)
NHD Com ID	123854995	RMI	0.28
Drainage Area	0.01 mi^2	Yield (cfs/mi^2)	0.0366 (USGS# 03036800 '45 – '58)
Q_{7-10} Flow (cfs)	0	Q_{7-10} Basis	Calculated
Elevation (ft)	1290	Slope (ft/ft)	-
Watershed No.	17-E	Chapter 93 Class.	CWF
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	Final	Name	Crooked Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Indiana County Municipal Services – Creekside WTP		
PWS Waters	Crooked Creek	Flow at Intake (cfs)	-
PWS RMI	41.76	Distance from Outfall (mi)	5.5

Changes Since Last Permit Issuance: N/A

Other Comments: This treatment system is capable of meeting effluent requirements.

The subject discharge was in place prior to the TMDL (2000) and there are no applicable WLAs for this facility. JCD

Treatment Facility Summary

Treatment Facility Name: Rayne Township Elementary School

WQM Permit No.	Issuance Date
362S23	September 20, 1962
362S23 A-1	December 9, 1999

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia removal	Extended Aeration	Chlorine	0.00189

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0068	31.2	Not Overloaded	Holding Tank	

Changes Since Last Permit Issuance: None

Other Comments: Treatment consists of a grinder, aeration tank, clarifier, and chlorination.

Compliance History

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Average Monthly	0.00210		0.00180	0.00180	0.00180	0.00195	0.00105	0.00180	0.00190	0.00190	0.00197	0.00200
pH (S.U.) Minimum	7.17		7.50	6.37	7.34	7.29	7.33	7.40	7.44	7.34	7.36	7.22
pH (S.U.) Maximum	7.99		8.05	7.95	8.39	8.54	8.29	8.46	8.25	8.30	8.31	8.10
DO (mg/L) Minimum	6.86		8.10	8.01	8.48	7.29	10.24	11.05	10.30	9.89	9.05	8.02
TRC (mg/L) Average Monthly	0.30		0.23	0.23	0.35	0.30	0.39	0.36	0.32	0.30	0.25	0.44
TRC (mg/L) Instantaneous Maximum	0.74		0.55	0.40	0.91	0.69	0.98	1.01	0.69	0.56	0.67	1.17
CBOD5 (mg/L) Average Monthly	3.2		3.0	3.0	3.2	6.0	5.7	< 3.0	4.7	3.0	< 3.0	3
CBOD5 (mg/L) Instantaneous Maximum	3.4		3.0	3.0	3.4	7.6	6.2	< 3.0	6.4	3.0	< 3.0	3
TSS (mg/L) Average Monthly	8.5		9.0	8.5	13.0	23	27.5	15.5	12.5	18.5	10	17.5
TSS (mg/L) Instantaneous Maximum	9.0		11.0	12.0	14.0	25	34.0	18.0	13.0	19.0	10	20.0
Fecal Coliform (CFU/100 ml) Geometric Mean	133		23	8	1.0	38	50.0	10.0	25	9.0	14	11
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	981		489	11	1.0	1414	2420	43.0	613	16.0	192	11
Total Nitrogen (mg/L) Daily Maximum									96.4			
Ammonia (mg/L) Average Monthly	0.41		0.28	0.34	0.73	2.12	1.95	1.82	0.22	0.56	0.35	0.31
Ammonia (mg/L) Instantaneous Maximum	0.54		0.33	0.37	0.82	3.02	3.14	3.41	0.24	0.58	0.46	0.39
Total Phosphorus (mg/L) Daily Maximum									5.44			

Compliance History

Comments: A review of the past 3 years of eDMR data shows that this facility has had no effluent exceedances in that time period. This treatment system is in good operational condition.

Inspections: An inspection occurred on 11/20/2017, where no violations were noted.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .00676
Latitude 40º 42' 10.00" **Longitude** -79º 6' 9.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: TRC limits will remain at the technology-based limits of 0.5 mg/L average monthly and 1.6 mg/L imax, based on this facility being designed and constructed before the issuance of dry stream guidance, and significant dilution being available at Crooked Creek (WWF).

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	15.0	Average Monthly	WQM 7.0
Ammonia Nitrogen	4.5	Average Monthly	WQM 7.0

Comments: Modeling conditions for this treatment facility is a dry drainage swale leading into an intermittent stream. $CBOD_5$ limit is more stringent than the previous renewal, changing from the technology-based limit of 25 mg/L, to a water quality-based limit of 15 mg/L.

Ammonia Nitrogen has been calculated as $C_0 = C_t * e^{kt} = 3.62 * e^{(0.7)(0.295)} = 4.5$ mg/L. Ammonia Nitrogen limits will be carried over from the previous permit renewal based on current eDMR data, anti-backsliding considerations, and future protection of designated stream uses. Therefore, average monthly ammonia nitrogen limits will be 2.0 mg/L and 3.5 mg/L for summertime and wintertime respectively.

Best Professional Judgment (BPJ) Limitations

Comments: Once per year monitoring for Total Nitrogen, Total Phosphorus, and E. Coli monitoring is based on Ch. 92a.61 and the Departments SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BPNPSM-PMT-033). E. Coli monitoring is a new addition to this permit renewal.

Monitoring frequency for DO, pH, and TRC will remain at 1/weekday due to the school being closed, and not staffed on weekends. Dissolved Oxygen limit will remain at 6 mg/L as specified in the dry stream guidance (Doc # 391-2000-014).

Anti-Backsliding

Anti-Backsliding considerations do not apply since the effluent limitations have not been relaxed from the previous permit renewal.

Proposed Effluent Limitations and Monitoring Requirements

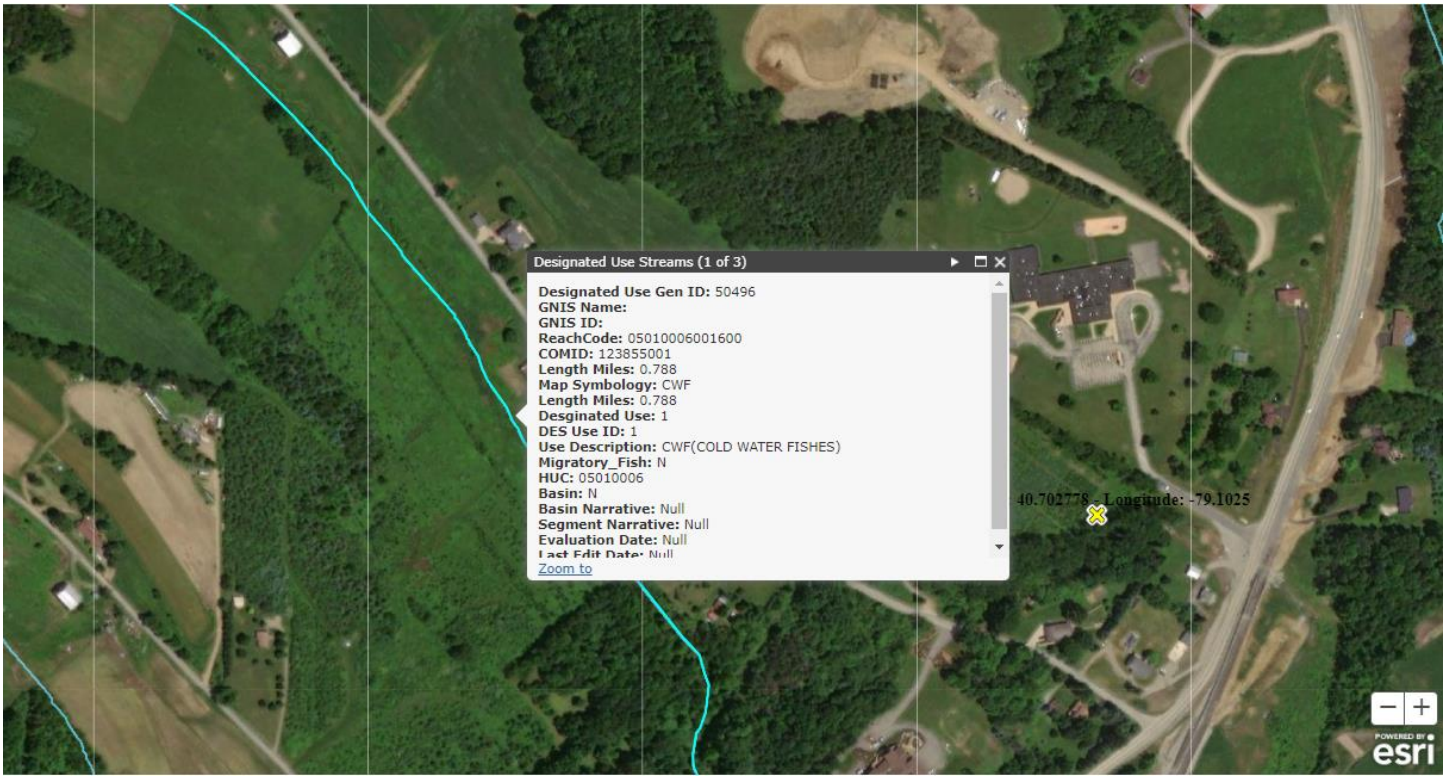
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

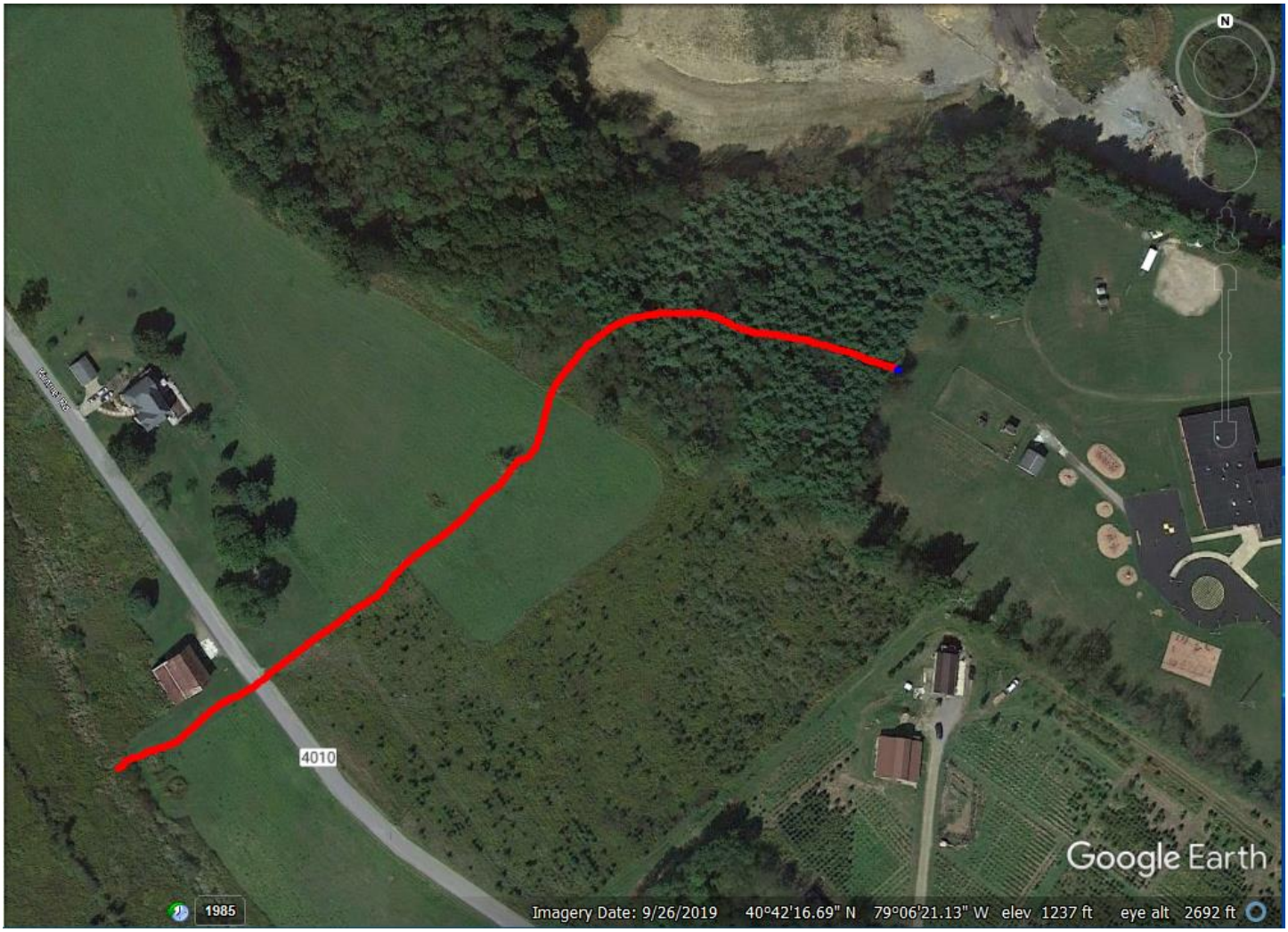
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/weekday	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/weekday	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/weekday	Grab
CBOD5	XXX	XXX	XXX	15.0	XXX	30.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	3.5	XXX	7.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 after disinfection.

Attachment A – eMAP Stream Designation



Attachment B – Streamstats Drainage Area (Discharge Point)



Attachment C – Streamstats Drainage Area (End of Drainage Swale)

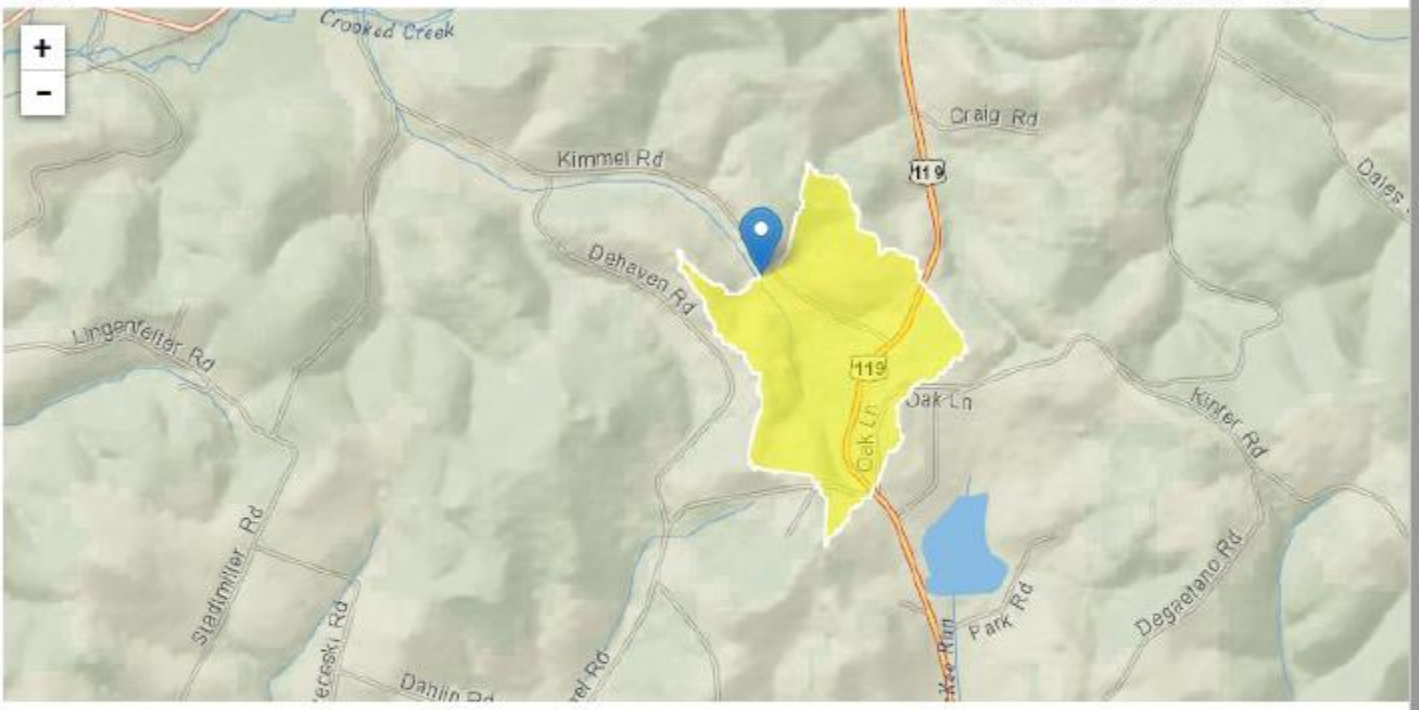
Region ID:	PA
Workspace ID:	PA20211022182758224000
Clicked Point (Latitude, Longitude):	40.70374, -79.10819
Time:	2021-10-22 14:28:21 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0362	squa
ELEV	Mean Basin Elevation	1282	feet

Attachment D – Streamstats Drainage Area (Intermittent Stream Confluence)

Region ID:	PA
Workspace ID:	PA20211022185613652000
Clicked Point (Latitude, Longitude):	40.70369, -79.10845
Time:	2021-10-22 14:56:32 -0400

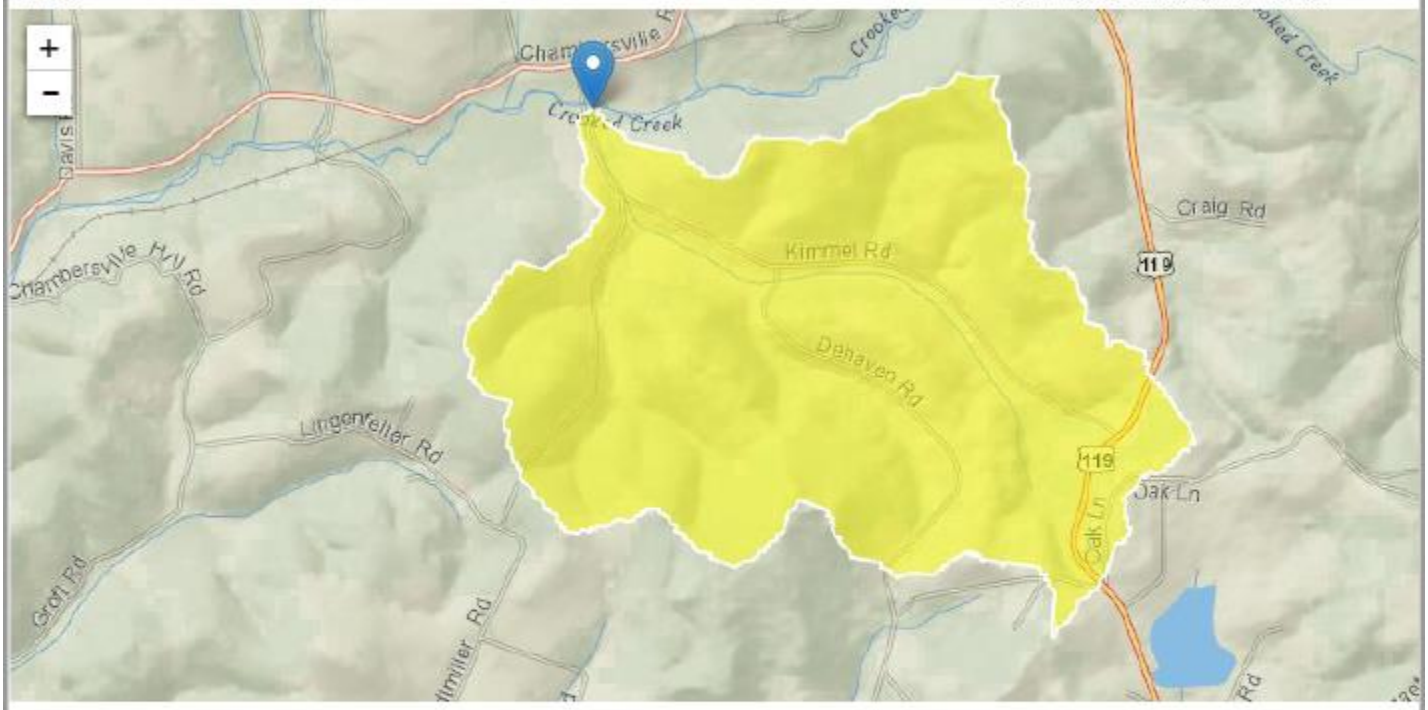


Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.32	squar
ELEV	Mean Basin Elevation	1308	feet

Attachment E – Streamstats Drainage Area (End of Unnamed Trib 46832)

Region ID:	PA
Workspace ID:	PA20211022185951091000
Clicked Point (Latitude, Longitude):	40.71335, -79.12806
Time:	2021-10-22 15:00:10 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.63	squar
ELEV	Mean Basin Elevation	1264	feet

Attachment F – WQM 7.0 Modeling (Drainage Swale Reach)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked 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)
0.280	Rayne Twp Elem	PA0204498	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.280	0.007	20.000	7.500
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
0.584	0.321	1.817	0.058
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.15	1.500	24.15	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.143	26.233	Owens	NA
Reach Travel Time (days)			
0.295			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.030	23.11	23.66	4.19
0.059	22.11	23.18	4.29
0.089	21.15	22.70	4.41
0.118	20.23	22.24	4.54
0.148	19.35	21.78	4.67
0.177	18.52	21.34	4.80
0.207	17.71	20.90	4.93
0.236	16.95	20.47	5.05
0.266	16.21	20.05	5.17
0.295	15.51	19.64	5.29

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
17E	46832	Trib 46832 to Crooked Creek	**0.280**	1290.00	0.01	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	20.00	7.50	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
Rayne Twp Elem	PA0204498	0.0000	0.0000	0.0068	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17E	46832	Trib 46832 to Crooked Creek	**0.001**	1173.00	0.04	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	20.00	7.50	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
17E	46832	Trib 46832 to Crooked 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												
0.280	0.00	0.00	0.00	.0105	0.07942	.321	.58	1.82	0.06	0.295	20.00	7.50
Q1-10 Flow												
0.280	0.00	0.00	0.00	.0105	0.07942	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.280	0.00	0.00	0.00	.0105	0.07942	NA	NA	NA	0.00	0.000	0.00	0.00

WQM 7.0 Modeling Specifications

Parameters	D.O.	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	2		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked Creek

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)		
0.28	Rayne Twp Elem	25	25	25	25	4	4	0	0

Attachment G – WQM 7.0 Modeling (Intermittent Reach)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked 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)
1.570	Rayne Twp Elem	PA0204498	0.000	CBOD5	15.51		
				NH3-N	3.62	7.24	
				Dissolved Oxygen			5.29

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.570	0.007	20.000	7.500
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.306	0.276	8.371	0.035
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.32	1.500	1.71	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.850	24.872	Owens	6
Reach Travel Time (days)			
2.749			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.275	4.84	1.41	8.24
0.550	3.21	1.16	8.24
0.825	2.12	0.96	8.24
1.099	1.41	0.79	8.24
1.374	0.93	0.65	8.24
1.649	0.62	0.54	8.24
1.924	0.41	0.44	8.24
2.199	0.27	0.37	8.24
2.474	0.18	0.30	8.24
2.749	0.12	0.25	8.24

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
17E	46832	Trib 46832 to Crooked Creek	**1.570**	1172.00	0.32	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	20.00	7.50	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
Rayne Twp Elem	PA0204498	0.0000	0.0000	0.0068	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	15.51	0.00	0.00	1.50
Dissolved Oxygen	5.29	8.24	0.00	0.00
NH3-N	19.64	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
17E	46832	Trib 46832 to Crooked Creek	**0.001**	1054.00	1.63	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	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
17E	46832	Trib 46832 to Crooked 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												
1.570	0.01	0.00	0.01	.0105	0.01424	.276	2.31	8.37	0.03	2.749	20.00	7.50
Q1-10 Flow												
1.570	0.01	0.00	0.01	.0105	0.01424	NA	NA	NA	0.03	3.093	20.00	7.50
Q30-10 Flow												
1.570	0.02	0.00	0.02	.0105	0.01424	NA	NA	NA	0.04	2.493	20.00	7.50

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		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17E	46832	Trib 46832 to Crooked 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
1.570	Rayne Twp Elem	5.85	10.05	5.85	10.05	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
1.570	Rayne Twp Elem	1.43	3.62	1.43	3.62	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)		
1.57	Rayne Twp Elem	15.51	15.51	3.62	3.62	5.29	5.29	0	0

Attachment H – Discharge pH

Rayne Twp Elem School							
Rayne Twp, Indiana County							
PA0204498			Discharge pH				
Date	**pH min**	**pH max**		**10^ -pH min**	**10^ -pH max**	**& pH max)**	**-Log (Ave pH)**
Aug-21	7.17	7.99		6.76083E-08	1.0233E-08	3.8921E-08	**7.4**
Sep-20	7.22	8.1		6.0256E-08	7.9433E-09	3.41E-08	**7.5**
Sep-19	7.5	8.6		3.16228E-08	2.5119E-09	1.7067E-08	**7.8**
Aug-19	7.1	8.11		7.94328E-08	7.7625E-09	4.3598E-08	**7.4**
Sep-18	7.19	8.38		6.45654E-08	4.1687E-09	3.4367E-08	**7.5**
Aug-18	7.27	8.32		5.37032E-08	4.7863E-09	2.9245E-08	**7.5**
Sep-17	7.15	8.3		7.07946E-08	5.0119E-09	3.7903E-08	**7.4**
Sep-16	6.38	7.46		4.16869E-07	3.4674E-08	2.2577E-07	**6.6**
Sep-15	7.42	8.46		3.80189E-08	3.4674E-09	2.0743E-08	**7.7**
Aug-15	8.3	8.66		5.01187E-09	2.1878E-09	3.5998E-09	**8.4**
						Median:	7.5