Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0086908**
Facility Type	**Non-Municipal**	APS ID	**996475**
Major / Minor	**Minor**	Authorization ID	**1473730**

Applicant and Facility Information

Applicant Name	**Mid Creek Retreat & Event Center**	Facility Name	**Middle Creek Retreat & Event Center**
Applicant Address	3230 E. Imperial Highway #208	Facility Address	2047 Pumping Station Road
	Brea, CA 92821		Fairfield, PA 17320-9365
Applicant Contact	Alan Trider	Facility Contact	Jedidiah Fetter
Applicant Phone	(949) 306-2526	Facility Phone	(717) 408-5375
Client ID	368137	Site ID	518029
Ch 94 Load Status	Not Overloaded	Municipality	Freedom Township
Connection Status	No Limitations	County	Adams
Date Application Received	February 21, 2024	EPA Waived?	Yes
Date Application Accepted	February 26, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

On behalf of Mid Creek Retreat & Event Center, Sharrah Design Group Inc. has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit renewal application was received on February 21, 2024. The permit was last reissued on December 09, 2019, authorizing discharge of treated sewage to Middle Creek in watershed 13-D. The permit expired on December 31, 2024.

The Mid Creek Retreat & Event Center located in Freedom Townships, Adams County. This facility is operated from May to October each year, and off from November of the year before to April of the next year. The 12 months DMRs data showed average monthly flow of 0.00445 MGD and maximum flow of 0.0108 MGD; and indicated less than 0.04 MGD. Additionally, the previous permit renewal flow was 0.04 MGD. The renewal permit flow will remain 0.04 MGD instead of the design flow of 0.0745 MGD.

WQM Part II permit No. 0196406 original was issued on May 15, 1997. The WQM Part II Permit No. 0196406 T-1 ownership transfer was issued on 12/9/2019.

Sludge use and disposal description and location(s): N/A because sludge hauling by County Septic Service.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	November 22, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	December 6, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.04
Latitude	39º 45' 44.00"	Longitude	-77º 19' 14.00"
Quad Name	Fairfield	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Middle Creek (CWF)	Stream Code	58687
NHD Com ID	134238400	RMI	4.0 miles
Drainage Area	20.4 mi.^{2}	Yield (cfs/mi^2)	0.082
Q_{7-10} Flow (cfs)	1.67	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	525	Slope (ft/ft)	
Watershed No.	13-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens,		
Source(s) of Impairment	Source Unknown,		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	City of Frederick, MD		
PWS Waters	Monocacy River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 33.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Unnamed Tributary 58687 to Middle Creek at RMI 4.00 miles. A drainage area upstream of the discharge is estimated to be 20.4 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to StreamStats, the discharge point into the stream has a Q_{7-10} of 1.67 cfs and a drainage area of 20.4 mi.^{2}, the resulting low flow yield is 0.082 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

$$Q_{7-10} = 1.67 \text{ cfs}$$
$$\text{Low Flow Yield} = 1.67 \text{ cfs} / 20.4 \text{ mi.}^2 \approx 0.082 \text{ cfs/mi.}^2$$
$$Q_{30-10} = 1.36 * 1.67 \text{ cfs} \approx 2.27 \text{ cfs}$$
$$Q_{1-10} = 0.64 * 1.67 \text{ cfs} \approx 1.07 \text{ cfs}$$

The resulting Q_{7-10} dilution ratio is: $Q_{stream} / Q_{discharge}$ = 1.67 cfs / [0.0745 MGD * (1.55 cfs/MGD)] = 14.5:1.

Public Water Supply
The previous protection report stated that the nearest downstream water supply intake is for the City of Frederick, MD – approximately 33.0 miles downstream of this discharge. eMapPA currently indicates that the PA-MD border is 4.00 river miles downstream of this discharge, with no public water supply withdrawals before that point. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Middle Creek Retreat & Event Center				
WQM Permit No.	**Issuance Date**			
0196406	5/15/1997			
0196406 T-1	12/9/20219			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Ultraviolet	0.04
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0745		Not Overloaded	Anaerobic Digestion	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:

The WWTP train is as follows:

Bar Screen (1) ⇒ Aeration Lagoons (2) ⇒ Settling Tanks (2) ⇒ Ultraviolet Disinfection Unit (1) ⇒ Sludge Holding Tank (1) ⇒ Discharge (Outfall)

Industrial/Commercial Users:

The permit application indicated there is no industrial or commercial contributor to the treatment plant.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on next pages.
Summary of Inspections:	**5/30/23:** Mr. Hoy, DEP WQS, conducted a compliance evaluation inspection. The field test results were within permit limits. Recommendations were to add a light bulb to the pump station alarm & ensure functionality, increase the frequency of duckweed removal, patch the hole in the lagoon liner, create a path to the outfall & mark the outfall location, and use GreenClean Pro only when no discharge from the lagoon is occurring in accordance with manufacturer's guidelines for dosage.
Other Comments:	There were no violations against the permittee or applicant.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from October 1, 2023 to September 30, 2024)

Parameter	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23
Flow (MGD) Weekly Average	0.002253	0.003742	0.00199	0.001531	0.000821	0.01084						0.013091
Flow (MGD) Daily Maximum	0.003172	0.006835	0.003076	0.00518	0.001262	0.02544						0.03517
pH (S.U.) Daily Minimum	7.2	7.4	7.4	7.6	7.6	7.69						7.2
pH (S.U.) Instantaneous Maximum	8.3	8.3	8.4	8.5	8.3	8.5						8.0
DO (mg/L) Daily Minimum	8.1	8.0	7.9	7.1	8.5	8.7						9.7
CBOD5 (mg/L) Average Monthly	< 2.5	< 2.7	3.9	< 4.3	< 4.2	< 4.2						< 3.2
TSS (mg/L) Average Monthly	9.0	3.0	14.0	24.0	8.0	17.0						8.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 6	< 2.0	< 1	< 1	< 1						< 6
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	11	2	< 1	< 1	< 1						11
UV Transmittance (%) Daily Minimum	70	40	50	50	70	100						50
Nitrate-Nitrite (lbs/year) Total Annual										2.24		
Nitrate-Nitrite (mg/L) Annual Average										1.02		
Total Nitrogen (lbs/year) Total Annual										14.33		
Total Nitrogen (mg/L) Annual Average										6.52		
TKN (lbs/year) Total Annual										12.08		
TKN (mg/L) Annual Average										5.5		

Total Phosphorus (lbs/year) Total Annual										8.35		
Total Phosphorus (mg/L) Annual Average										3.8		

Existing Effluent Limitations and Monitoring Requirements

Outfall 001,

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Total Annual	Daily Minimum	Annual Average	Maximum	Instant. Maximum		
Flow (MGD)	Report Wkly Avg	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	XXX	XXX	XXX	25.0 Monthly Avg.	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0 Monthly Avg.	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
TKN (lbs/year)	XXX	Report	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Nitrate-Nitrite (lbs/year)	XXX	Report	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen (lbs/year)	XXX	Report	XXX	Report	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs/year)	XXX	Report	XXX	Report	XXX	XXX	1/year	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.04
Latitude 39º 45' 44.00" **Longitude** -77º 19' 14.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

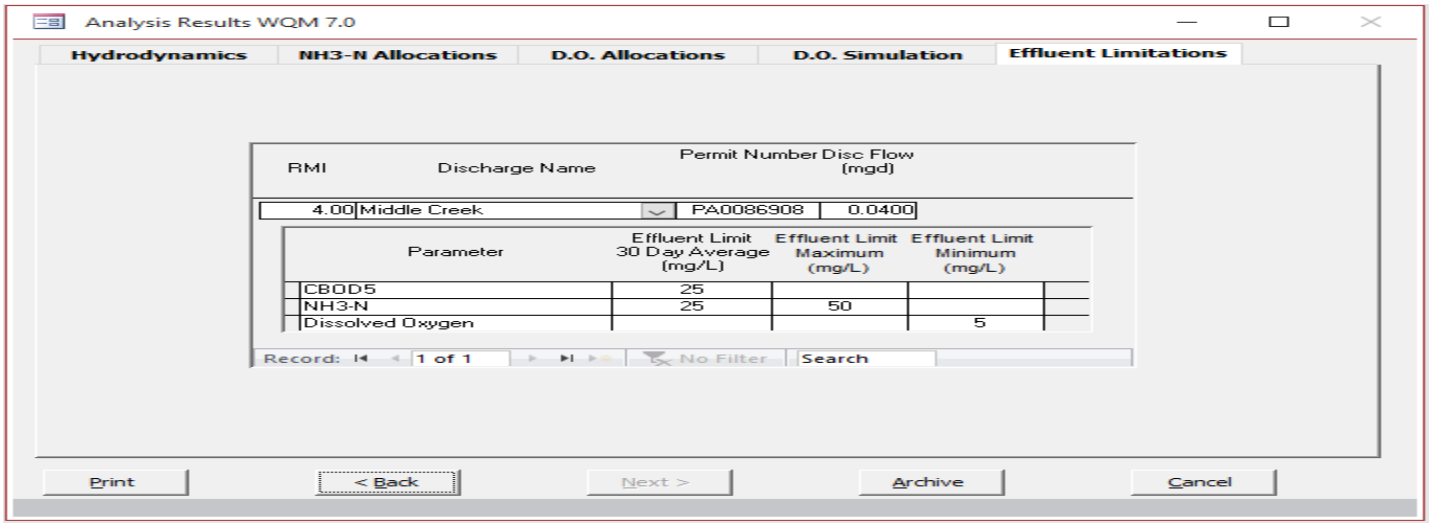
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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 limit is not applicable to this facility.

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were first based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default for CWF)
*	Background NH_3-N	=	0	(Default)



The attached WQM 7.0 modeling (version 1.1) suggested NH_3-N limit of 25.0 mg/L as monthly average and 50.0 mg/L as instantaneous maximum limit is necessary to protect the water quality of the stream which discharges 0.04 MGD. However, the model results will not be applied as the permit limits since the dilution provided by the stream is large (dilution ratio = 14.5:1). In addition, when the model is run with the full design flow of 0.0745 MGD, NH_3-N limits are still not necessary. As per 391-2000-013, since both the toxicity-based and D.O. based ammonia effluent limitations are greater than 15.0 mg/L, no NH_3-N limitations are needed for this facility. This will remain in the proposed permit.

$CBOD_5$:
The attached WQM 7.0 modeling (version 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. A multiplication factor of 2 will be used to calculate Instantaneous Maximum (IMAX) value. These limits are same as the existing limits and will remain in the proposed permit. The limits Minimum monitoring frequency will be 2/month.

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 2.0 revised February 5, 2024, and has been applied to other point source dischargers throughout the state.

Total Suspended Solids (TSS):
The existing limits of 30.0 mg/L average monthly and 60.0 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has generally been achieving concentrations below these limits.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Fecal Coliform:
The recent coliform guidance in 25 PA code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/year for flow of 0.04 MGD will be included in the permit to be consistent with the recommendation from this SOP.

UV:
The UV system daily monitor and report the UV light transmittance (%) will be added in the proposed permit.

Chesapeake Bay Strategy:
The discharge of TN and TP from this facility is consistent with and covered under the Chesapeake Bay TMDL aggregate WLA for non-significant wastewater discharges.

This facility falls in Phase 5 of the Pennsylvania's Chesapeake Bay Tributary Strategy Point Source Implementation Plan. At this time, the Department is not requiring a total maximum annual phosphorus or nitrogen loading cap.

The Supplement to Phase II Watershed Implementation Plan states the following:
"*For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at existing average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.*"

A TN and TP "Monitor & Report" requirement will be necessary since the facility has not yet satisfied the data criteria of the Chesapeake Bay Strategy. However, TN and TP monitoring is already included in the existing permit and will remain in the renewal permit.

303d Listed Streams:
This discharge is located on a stream segment which is tentatively impaired for pathogens due to an unknown source. The tentative impairment was created on September 6, 2012 and a TMDL has not yet been developed for it.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

Best Professional Judgment (BPJ) Limitations

Total Phosphorus
As per the previous protection report, it has been decided that phosphorus limits would not be necessary. Due to the continued low discharge rates (dilution ratio = 14.5:1), phosphorus limits are still not needed. However, a requirement to monitor phosphorus per the Chesapeake Bay Strategy will remain in the proposed permit.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the proposed permit per 40 CFR § 122.44(i)(1)(ii).

Anti-Backsliding
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as existing permit requirements in accordance with 40 CFR §122.44(l)(1).

WQM 7.0 Data:

The following data were used in the attached computer model (WQM 7.0) of the stream:

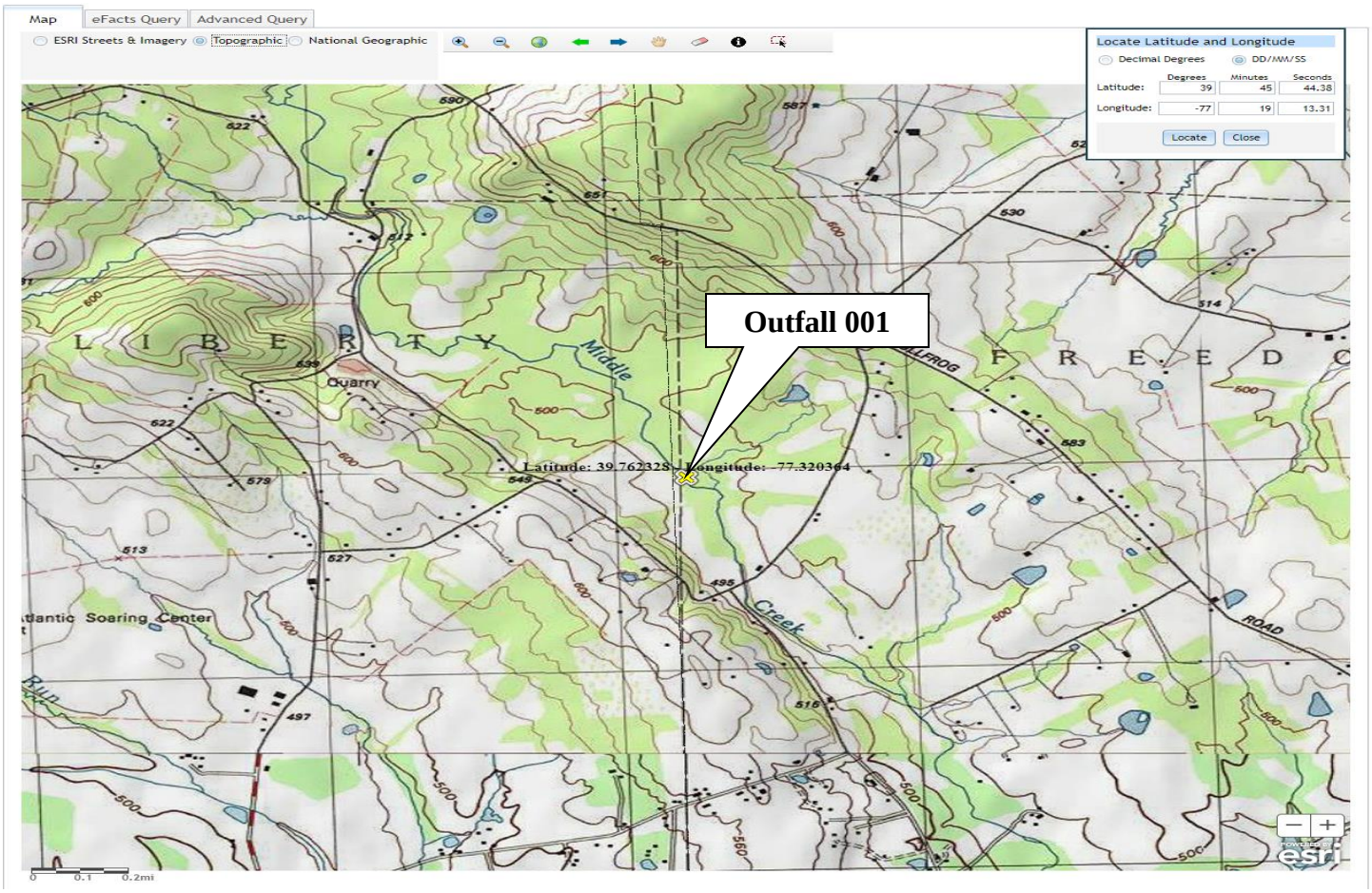
• Discharge pH	7.0	(Default)
• Discharge Temperature	20°C	(Default per 391-2000-013)
• Stream pH	7.0	(Default per 391-2000-007)
• Stream Temperature	20°C	(Default per 391-2000-013)

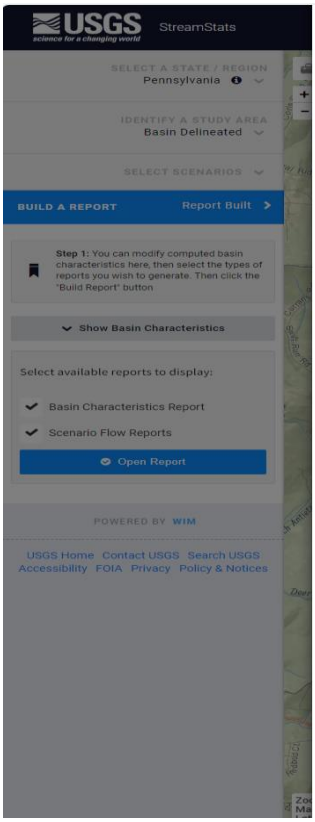
Node 1: Outfall 001 on Middle Creek (58687)

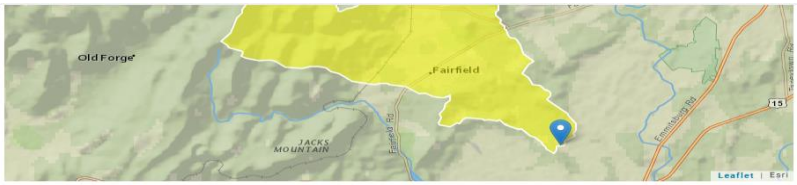
Elevation:	485 ft (USGS National Map Viewer)
Drainage Area:	20.4 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	4.00 (PA DEP eMapPA)
Low Flow Yield:	0.082 $cfs/mi.^2$
Discharge Flow:	0.040 MGD

Node 2: Just before confluence with UNT 58691

Elevation:	458 ft (USGS National Map Viewer)
Drainage Area:	22 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	1.59 (PA DEP eMapPA)
Low Flow Yield:	0.082 $cfs/mi.^2$
Discharge Flow:	0.000 MGD







Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	17.01	percent
DRNAREA	Area that drains to a point on a stream	20.4	square miles
PRECIP	Mean Annual Precipitation	42	inches
ROCKDEP	Depth to rock	5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.28	miles per square mile

Low-Flow Statistics

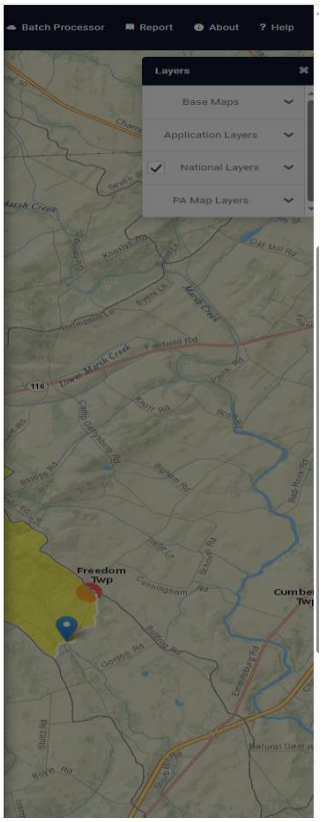
Low-Flow Statistics Parameters [Low Flow Region 2]

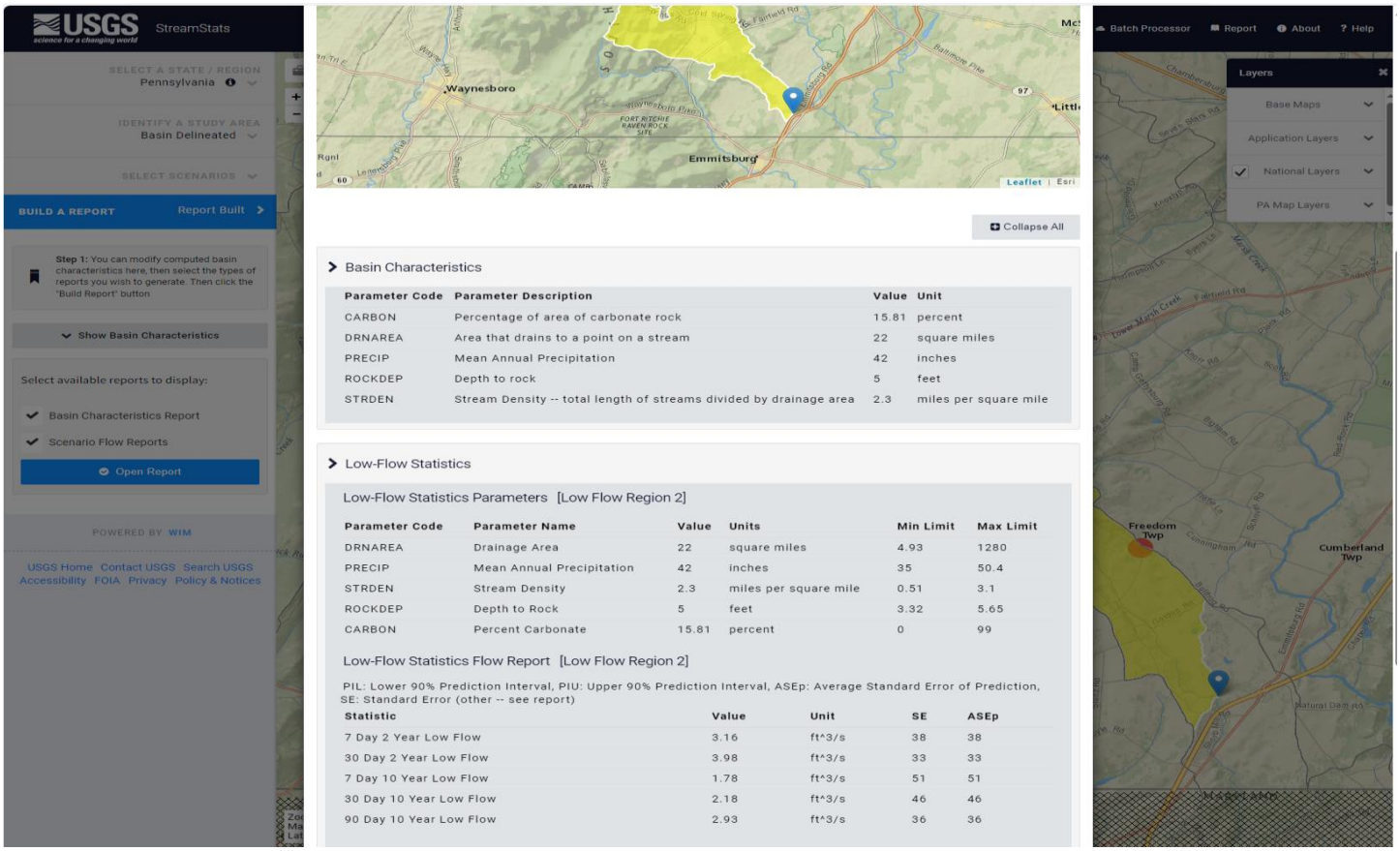
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	20.4	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	42	inches	35	50.4
STRDEN	Stream Density	2.28	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5	feet	3.32	5.65
CARBON	Percent Carbonate	17.01	percent	0	99

Low-Flow Statistics Flow Report [Low Flow Region 2]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.97	ft^3/s	38	38
30 Day 2 Year Low Flow	3.74	ft^3/s	33	33
7 Day 10 Year Low Flow	1.67	ft^3/s	51	51
30 Day 10 Year Low Flow	2.05	ft^3/s	46	46
90 Day 10 Year Low Flow	2.75	ft^3/s	36	36




USGS StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Waynesboro
Emmitsburg
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code Parameter Description Value Unit
CARBON Percentage of area of carbonate rock 15.81 percent
DRNAREA Area that drains to a point on a stream 22 square miles
PRECIP Mean Annual Precipitation 42 inches
ROCKDEP Depth to rock 5 feet
STRDEN Stream Density -- total length of streams divided by drainage area 2.3 miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code Parameter Name Value Units Min Limit Max Limit
DRNAREA Drainage Area 22 square miles 4.93 1280
PRECIP Mean Annual Precipitation 42 inches 35 50.4
STRDEN Stream Density 2.3 miles per square mile 0.51 3.1
ROCKDEP Depth to Rock 5 feet 3.32 5.65
CARBON Percent Carbonate 15.81 percent 0 99
Low-Flow Statistics Flow Report [Low Flow Region 2]
PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic Value Unit SE ASEp
7 Day 2 Year Low Flow 3.16 ft^3/s 38 38
30 Day 2 Year Low Flow 3.98 ft^3/s 33 33
7 Day 10 Year Low Flow 1.78 ft^3/s 51 51
30 Day 10 Year Low Flow 2.18 ft^3/s 46 46
90 Day 10 Year Low Flow 2.93 ft^3/s 36 36
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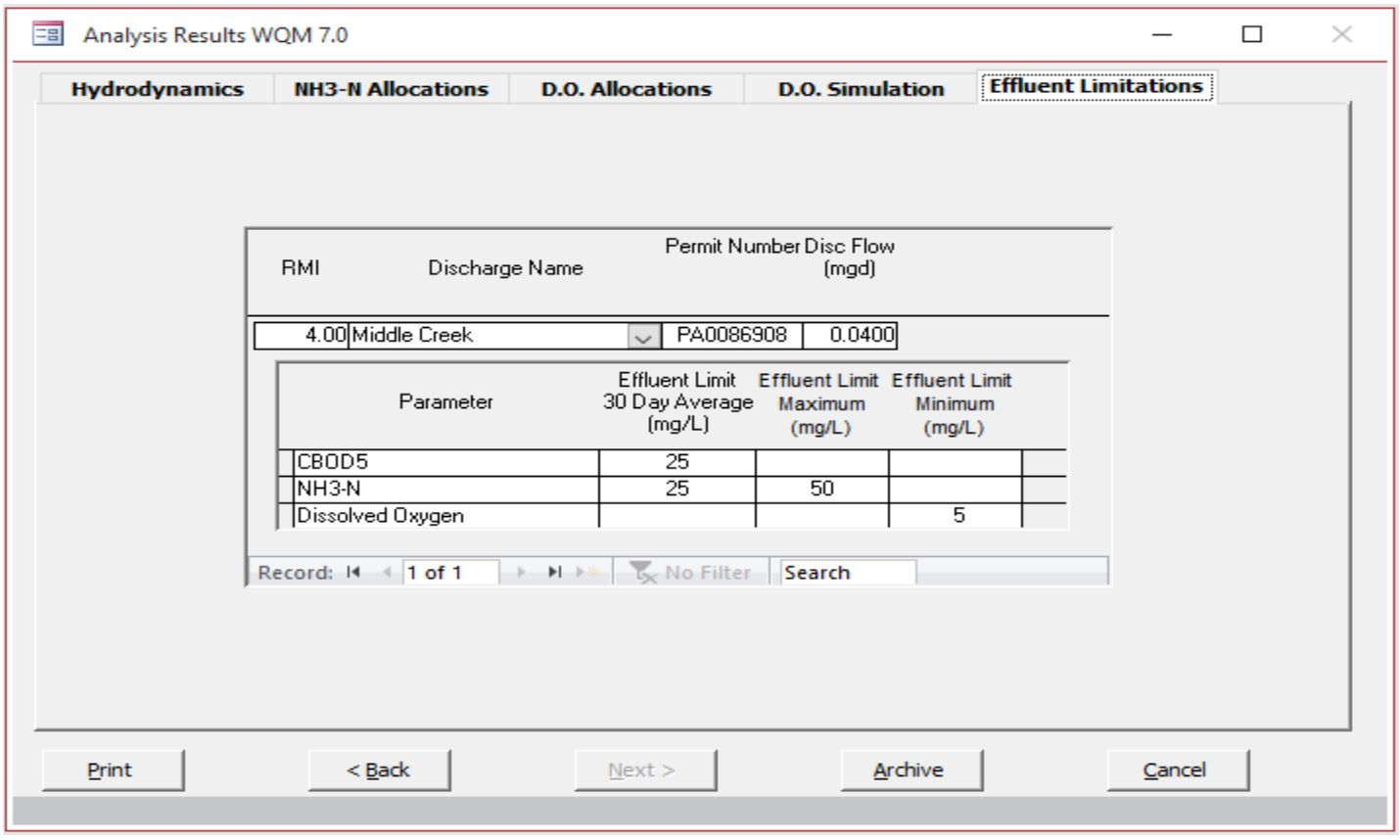
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Freedom Twp
Cumberland Twp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Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
4.00
Middle Creek
PA0086908
0.0400
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
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NH3-N 25 50
Dissolved Oxygen 5
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No Filter
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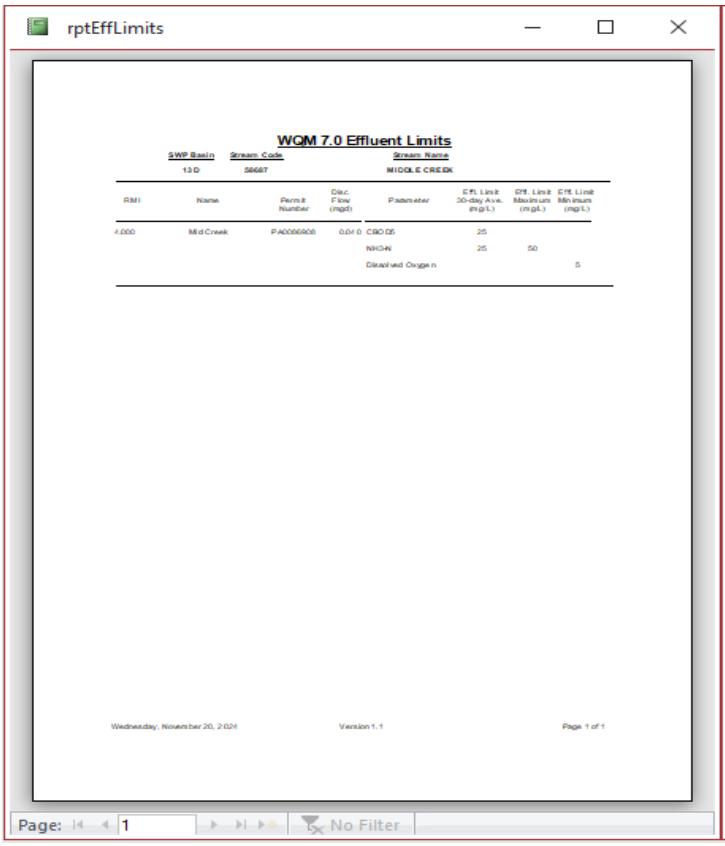
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WQM 7.0 Effluent Limits
SWP Basin
13D
Stream Code
56687
Stream Name
MIDDLE CREEK
RMI
Name
Permit Number
Disc Flow (mgd)
Parameter
Effl. Limit 30-day Ave. (mg/L)
Effl. Limit Maximum (mg/L)
Effl. Limit Minimum (mg/L)
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Mid Creek
PA0086908
0.040
CBOD5
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NH3-N
25
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Dissolved Oxygen
5
Wednesday, November 20, 2024
Version 1.1
Page 1 of 1
Page: 1
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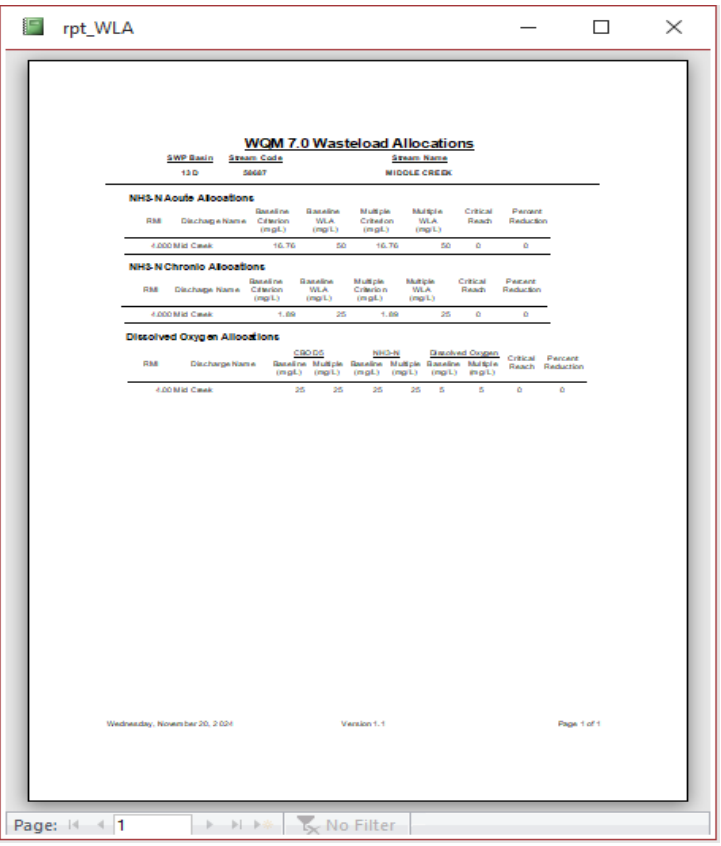
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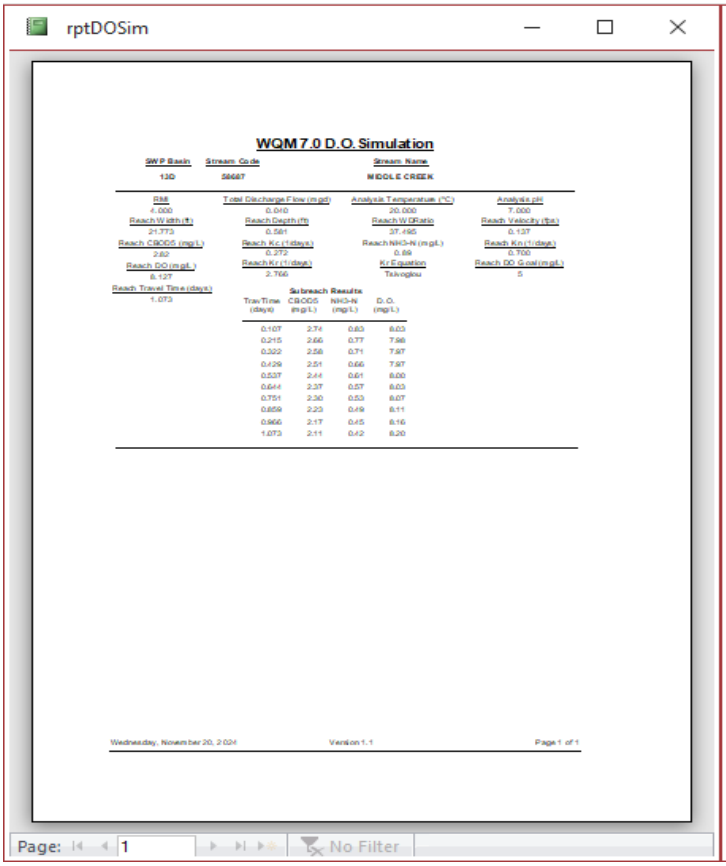
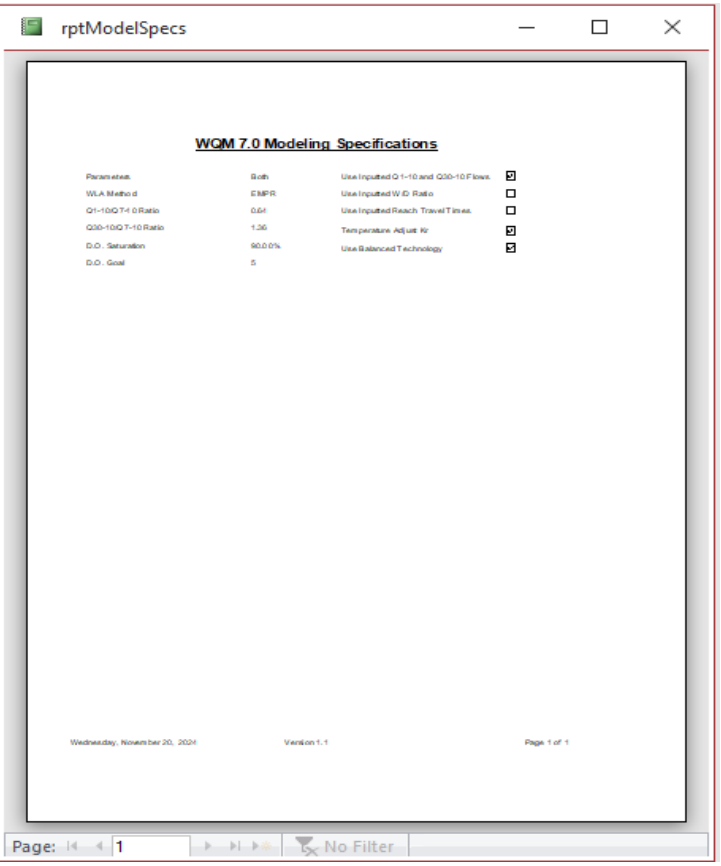
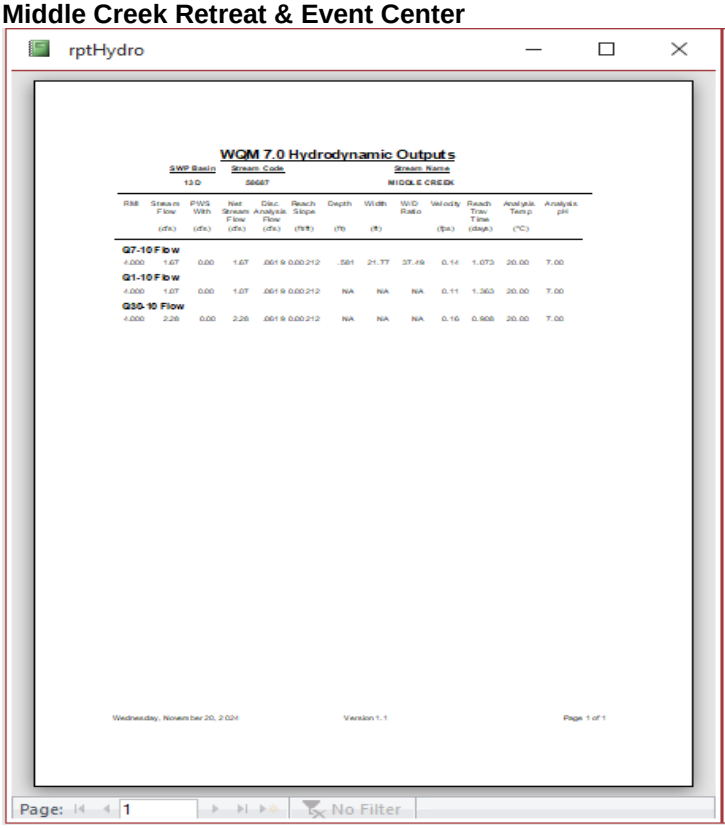
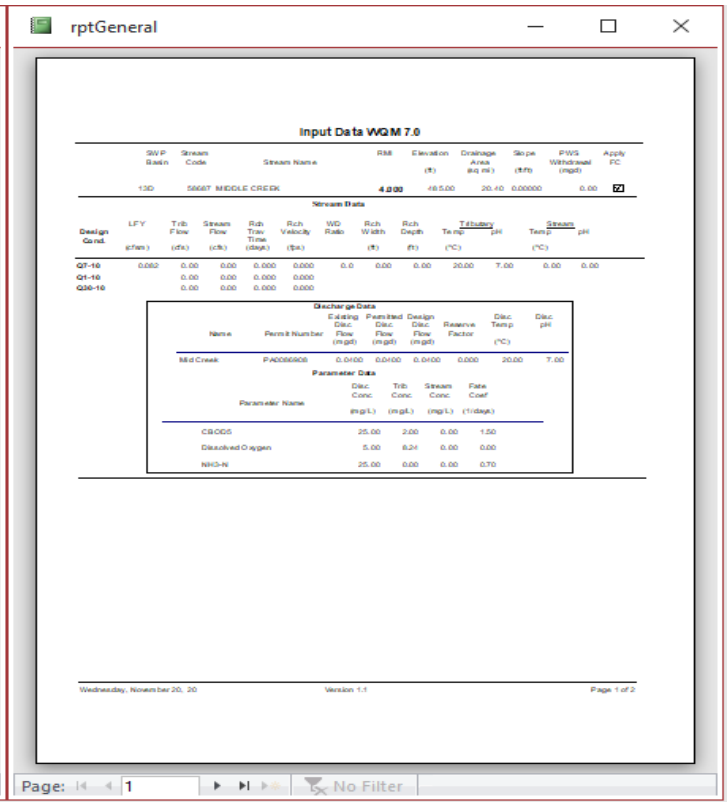
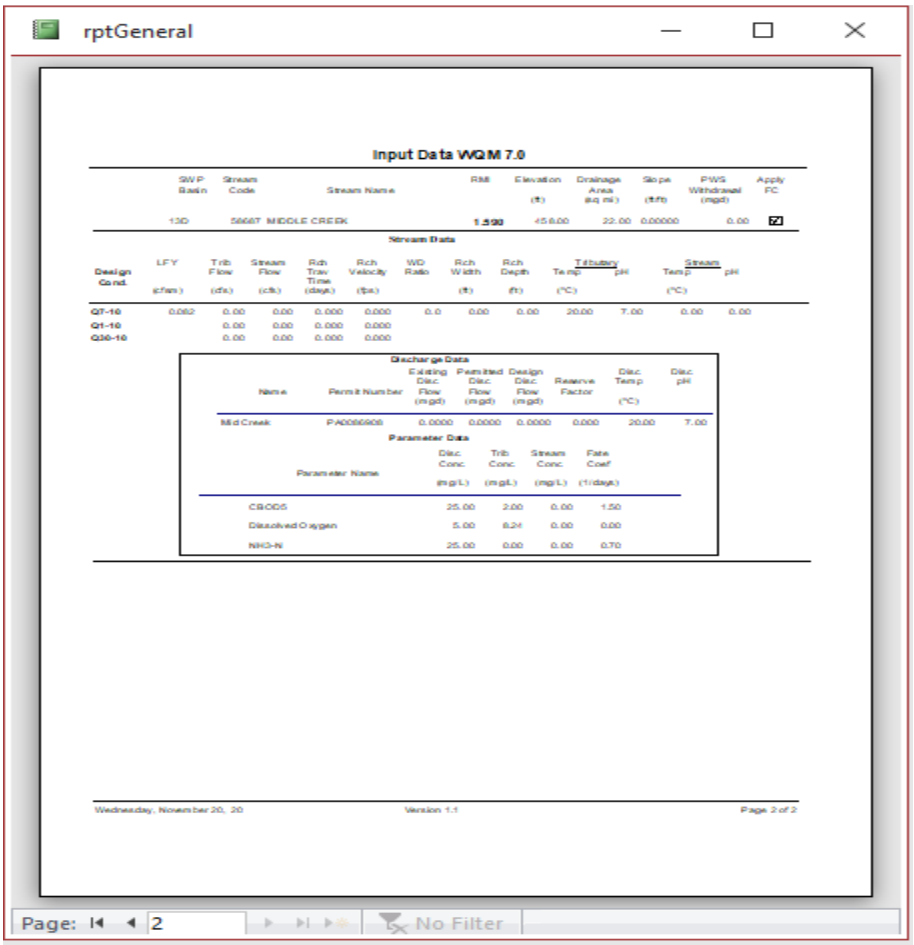
WQM 7.0 Wasteload Allocations
SWP Basin
13D
Stream Code
56687
Stream Name
MIDDLE CREEK
NH3-N Acute Allocations
RMI
Discharge Name
Baseline Criterion (mg/L)
Baseline WLA (mg/L)
Multiple Criterion (mg/L)
Multiple WLA (mg/L)
Critical Reach
Percent Reduction
4.000 Mid Creek
16.76
50
16.76
50
0
0
NH3-N Chronic Allocations
RMI
Discharge Name
Baseline Criterion (mg/L)
Baseline WLA (mg/L)
Multiple Criterion (mg/L)
Multiple WLA (mg/L)
Critical Reach
Percent Reduction
4.000 Mid Creek
1.89
25
1.89
25
0
0
Dissolved Oxygen Allocations
CBOD5
NH3-N
Dissolved Oxygen
RMI
Discharge Name
Baseline (mg/L)
Multiple (mg/L)
Baseline (mg/L)
Multiple (mg/L)
Baseline (mg/L)
Multiple (mg/L)
Critical Reach
Percent Reduction
4.000 Mid Creek
25
25
25
25
5
5
0
0
Wednesday, November 20, 2024
Version 1.1
Page 1 of 1
Page: 1
No Filter


rptDOSim
WQM 7.0 D.O. Simulation
SWP Basin
13D
Stream Code
56687
Stream Name
MIDDLE CREEK
RMI
4.000
Reach Width (ft)
24.773
Reach CBOD5 (mg/L)
2.82
Reach DO (mg/L)
6.127
Reach Travel Time (days)
1.073
Total Discharge Flow (mgd)
0.040
Reach Depth (ft)
0.561
Reach Kc (1/days)
0.272
Reach Kr (1/days)
2.766
Analysis Temperature (°C)
20.000
Reach W/D Ratio
37.495
Reach NH3-N (mg/L)
0.89
Kr Equation
Tsivoglou
Analysis pH
7.000
Reach Velocity (fps)
0.137
Reach Kn (1/days)
0.700
Reach DO Goal (mg/L)
5
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.107 2.74 0.83 8.03
0.215 2.66 0.77 7.98
0.322 2.58 0.71 7.97
0.429 2.51 0.66 7.97
0.537 2.44 0.61 8.00
0.644 2.37 0.57 8.03
0.751 2.30 0.53 8.07
0.859 2.23 0.49 8.11
0.966 2.17 0.45 8.16
1.073 2.11 0.42 8.20
Wednesday, November 20, 2024
Version 1.1
Page 1 of 1
Page: 1
No Filter


rptModelSpecs
WQM 7.0 Modeling Specifications
Parameters
Both
WLA Method
EMPR
Q1-10/Q7-10 Ratio
0.64
Q30-10/Q7-10 Ratio
1.36
D.O. Saturation
90.00%
D.O. Goal
5
Use Inputted Q1-10 and Q30-10 Flows
Use Inputted W/D Ratio
Use Inputted Reach Travel Times
Temperature Adjust Kr
Use Balanced Technology
Wednesday, November 20, 2024
Version 1.1
Page 1 of 1
Page: 1
No Filter


rptHydro
WQM 7.0 Hydrodynamic Outputs
SWP Basin
13D
Stream Code
56667
Stream Name
MIDDLE 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
4.000 1.67 0.00 1.67 .0619 0.00212 .581 21.77 37.49 0.14 1.073 20.00 7.00
Q1-10 Flow
4.000 1.07 0.00 1.07 .0619 0.00212 NA NA NA 0.11 1.363 20.00 7.00
Q30-10 Flow
4.000 2.26 0.00 2.26 .0619 0.00212 NA NA NA 0.16 0.908 20.00 7.00
Wednesday, November 20, 2024
Version 1.1
Page 1 of 1
Page: 1
No Filter


rptGeneral
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
13D 56667 MIDDLE CREEK 4.000 465.00 20.40 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 0.062 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
Mid Creek PA0086908 0.0100 0.0100 0.0100 0.000 20.00 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 5.00 8.24 0.00 0.00
NH3-N 25.00 0.00 0.00 0.70
Wednesday, November 20, 20
Version 1.1
Page 1 of 2


rptGeneral
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
13D 56667 MIDDLE CREEK 1.590 456.00 22.00 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 0.062 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
Mid Creek PA0086908 0.0000 0.0000 0.0000 0.000 20.00 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 5.00 8.24 0.00 0.00
NH3-N 25.00 0.00 0.00 0.70
Wednesday, November 20, 20
Version 1.1
Page 2 of 2
Page: 2
No Filter

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	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report Wkly Avg	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	XXX	XXX	XXX	25.0	XXX	50.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
TKN (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: BCW-PMT-033
☐	Other: