

Application Type

Renewal

Facility Type

Non-Municipal

Major / Minor

Minor

Application No.

PA0084018

APS ID

599851

Authorization ID

1475207

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Applicant and Facility Information

Fishing Creek Estates Homeowners

Applicant Name	Assoc	Facility Name	Fishing Creek Estates STP
Applicant Address	4400 Deer Path Road Suite 2	Facility Address	3501 Hickory Hollow Road
	Harrisburg, PA 17110-3908		Harrisburg, PA 17112
Applicant Contact	David Schirmer	Facility Contact	David Schirmer
Applicant Phone	(717) 580-6605	Facility Phone	(717) 580-6605
Client ID	252612	Site ID	236564
Ch 94 Load Status	Not Overloaded	Municipality	Middle Paxton Township
Connection Status		County	Dauphin
Date Application Received	March 1, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	
Purpose of Application	Renewal of NPDES permit for discharge of treated sewage.		

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated domestic wastewater from Fishing Creek Estates wastewater treatment plant located in Middle Paxton Township, Dauphin County. Fishing Creek Estates Homeowners Association owns and operates the wastewater treatment plant. The treatment is an extended aeration system which has a hydraulic design capacity of 0.026MGD and provides sanitary services for the development in Fishing Creek Estates. The discharge goes to Fishing Creek which is classified for Warm Water Fishes (WWF) and Migratory Fishes (MF). The existing NPDES permit was issued on June 27, 2019, with an effective date of July 1, 2019, and expiration date of June 30, 2024. The applicant submitted permit renewal application to the Department and is currently operating under the terms and conditions in the existing permit pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A

1.1 Sludge use and disposal description and location(s):

Sludge is hold up in a sludge holding tank and hauled out by a licensed hauler periodically

1.2 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*

Approve	Deny	Signatures	Date
X		J. Pascal Kwedza J. Pascal Kwedza, P.E. / Environmental Engineer	February 19, 2025
X		Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	February 21, 2025

Summary of Review

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.

1.3 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.026
Latitude	40° 23' 5.96"	Longitude	-76° 48' 22.66"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Fishing Creek (WWF)	Stream Code	10899
NHD Com ID	56398373	RMI	8.5
Drainage Area	5.80 sq. mi	Yield (cfs/mi ²)	
Q ₇₋₁₀ Flow (cfs)	0.70	Q ₇₋₁₀ Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-C	Chapter 93 Class.	WWF, MF
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)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Veolia Water PA		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	5

Changes Since Last Permit Issuance: None

1.3.1 Water Supply Intake

The nearest downstream water supply intake is approximately 5 miles downstream for Veolia Water PA on the Susquehanna River in Susquehanna Township Dauphin County. No impact is expected from this discharge on the intake.

2.0 Treatment Facility Summary

Treatment Facility Name: Fishing Creek Estates

WQM Permit No.	Issuance Date
2291401	April 18, 1991

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.026
<hr/>				
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.026		Not Overloaded	Aerobic Digestion	

Changes Since Last Permit Issuance: None

2.1 Treatment Facility

The treatment plant is a 0.026 MGD facility with a comminutor, bar screen, an aeration tank, a clarifier, chlorine contact tank and a sludge holding tank. Effluent is disinfected with chlorine tabs and de-chlorinated before continuously discharged to Fishing Creek.

3.0 Existing Effluent Limitations and Monitoring Requirements

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	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	24-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
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

3.1 Compliance History

3.1.1 DMR Data for Outfall 001 (from January 1, 2024 to December 31, 2024)

Parameter	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24
Flow (MGD) Average Monthly	0.0111	0.0125	0.0098	0.0101	0.0118	0.0108	0.0100	0.0131	0.0137	0.0130	0.0113	0.0119
Flow (MGD) Daily Maximum	0.0198	0.0255	0.0148	0.0163	0.0182	0.0166	0.0167	0.0266	0.0380	0.0197	0.0170	0.0222
pH (S.U.) Daily Minimum	6.19	6.85	6.54	6.83	6.41	6.63	7.12	6.98	6.46	6.91	6.87	6.87
pH (S.U.) Daily Maximum	7.78	7.83	7.68	8.27	8.05	7.90	7.83	8.26	8.07	8.22	8.19	8.19
DO (mg/L) Daily Minimum	9.1	5.5	6.5	7.1	6.3	6.5	7.6	7.9	8.7	9.7	8.1	10.1
TRC (mg/L) Average Monthly	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.04	0.04	0.02
TRC (mg/L) Instantaneous Maximum	0.11	0.06	0.09	0.08	0.05	0.08	0.08	0.07	0.14	0.15	0.15	0.08
CBOD5 (mg/L) Average Monthly	5.0	< 2.50	< 2.4	2.9	< 2.70	4.1	< 2.6	3.1	2.8	3.8	3.0	< 3.0
TSS (mg/L) Average Monthly	18.0	16.5	14.0	11.5	12.0	5.5	8.0	5.0	8.5	6.0	8.0	14.0
Fecal Coliform (No./100 ml) Geometric Mean	12	14	3	6	13	6	8	< 1	3	< 2	< 2	3
Fecal Coliform (No./100 ml) Instantaneous Maximum	15	63	5	6	16	11	17	< 1	4	5	4	4
Nitrate-Nitrite (mg/L) Daily Maximum	< 42.40						< 30.40					
Total Nitrogen (mg/L) Daily Maximum	< 42.90						< 30.90					
Ammonia (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10	< 0.10	< 0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.13	< 0.10	< 0.10
TKN (mg/L) Daily Maximum	< 0.50						< 0.50					
Total Phosphorus (mg/L) Daily Maximum	3.30						2.1					

3.1.2 Summary of DMRs:

DMRs review for the facility for the last 12 months of operation, presented on the table above in section 3.1.1 indicates permit limits have been met consistently. No effluent violations noted during the period reviewed.

3.1.3 Summary of Inspections:

The facility has been inspected a couple of times during the previous permit cycle. No effluent violations were found during plant inspections. The facility is operated and maintained well.

4.0 Development of Effluent Limitations

Outfall No. 001
Latitude 40° 23' 5.96"
Wastewater Description: Sewage Effluent

Design Flow (MGD) .026
Longitude -76° 48' 22.66"

4.1 Basis for Effluent Limitations

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 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: Weekly average limitations are not applicable to this discharge.

4.3 Water Quality-Based Limitations

4.3.1 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for CBOD₅, NH₃-N and DO in permits. The model simulates mixing and degradation of NH₃-N in the stream and compares calculated instream NH₃-N concentrations to NH₃-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of CBOD₅ and NH₃N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits.

4.3.2 Receiving Stream

The receiving stream is the Furnace Creek. According to 25 PA § 93.9o, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List o and State Watershed 7-C. It has been assigned stream code 10899. According to the Department's *Integrated Water Quality Monitoring and Assessment Report*, this stream is attaining some its designated uses.

4.3.3 Streamflows

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No.

01570500 on Susquehanna River in Harrisburg. The Q_{7-10} and drainage area at the gage is 2610 ft³/s and 24100 mi² respectively. The resulting yields are as follows:

- $Q_{7-10} = (2610 \text{ ft}^3/\text{s}) / 24100 \text{ mi}^2 = 0.10 \text{ ft}^3/\text{s} / \text{mi}^2$
- $Q_{30-10} / Q_{7-10} = 1.17$
- $Q_{1-10} / Q_{7-10} = 0.95$

The drainage area at discharge taken from previous report = 5.8 mi²

The Q_{7-10} at discharge = $5.8 \text{ mi}^2 \times 0.10 \text{ ft}^3/\text{s}/\text{mi}^2 = 0.6 \text{ ft}^3/\text{s}$.

4.3.4 NH₃N Calculations

NH₃N calculations will be 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 instream NH₃N criteria used in the modelling of the stream:

• Discharge pH	= 6.6 (DMR median from Jul. to Sept.)
• Discharge Temperature	= 25 °C (Default)
* Stream pH	= 7.0 (Default)
* Stream Temperature	= 20°C ((Default))
• Background NH ₃ -N	= 0.0 (Default)
• Discharge flow	= 0.026 MGD

4.3.5 CBOD₅ :

The attached results of the WQM 7.0 stream model (attachment B) indicates that, for Fishing Creek Estates discharge of 0.026 MGD, a limitation of 25 mg/l CBOD₅ as a monthly average limit (AML) and 50 mg/l as instantaneous maximum (IMAX) is adequate to protect the water quality of the stream. This limit is consistent with the existing permit and the STP has been complying with this limitation. Therefore, a limit of 25 mg/l AML, and 50 mg/l IMAX is again recommended for this permit cycle.

4.3.6 NH₃-N:

The attached results of the WQM 7.0 stream model (attachment B) also indicates that no limitation on NH₃-N as a monthly average is necessary to protect the aquatic life from toxicity effects. Monitoring of Ammonia required in the existing permit to evaluate treatment plant's performance will be continued for this permit cycle.

4.3.7 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement.

4.3.8 Total Suspended Solids(TSS):

There is no water quality criterion for TSS. A limit of 30 mg/l AML in the existing permit based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) will remain in the permit.

4.3.9 Total Residual Chlorine:

The attached TRC results presented in attachment C utilizes the equations and calculations as presented in the Department's 2003 Implementation Guidance for Residual Chlorine (TRC) (ID # 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The results presented in attachment C indicates that a water quality limit of 0.5 mg/l monthly average and IMAX of 1.6 mg/l would be needed to prevent toxicity concerns. The limitation

recommended is consistent with the existing permit. DMR and inspection reports indicate the facility is meeting the permit requirement.

4.3.10 Toxics

A reasonable potential (RP) analysis was done for pollutants in the discharge. The discharge consists entirely of domestic wastewater with no pollutants of concern that need further analysis.

4.3.11 Chesapeake Bay Strategy:

The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized based on their delivered TN and TP loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets if approved by DEP. Phase 4 (0.2 - 0.4mgd) and Phase 5(below 0.2mgd) are required to monitor and report TN series and TP during permit renewal. Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. This facility is, classified as a phase 5, and has been monitoring and will continue monitoring Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, Total Nitrogen and Total Phosphorus semi-annually throughout the next permit cycle to collect data

4.3.12 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E. coli. As a result, DEP is including monitoring requirements for E. Coli in new and renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows \geq 1 MGD, 1/quarter for design flows \geq 0.05 and $<$ 1 MGD and 1/year for design flows of 0.002 and $<$ 0.05 MGD. Your discharge of 0.02 MGD requires 1/year monitoring as included in the permit.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Stormwater:

No storm water outfall is associated with this facility

5.3 Anti-Degradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.4 Class A Wild Trout Fisheries

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

5.5 303d Listed Streams:

The discharge is not located on a 303d listed stream segment.

5.6 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional

effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.7 Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 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	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	24-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
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

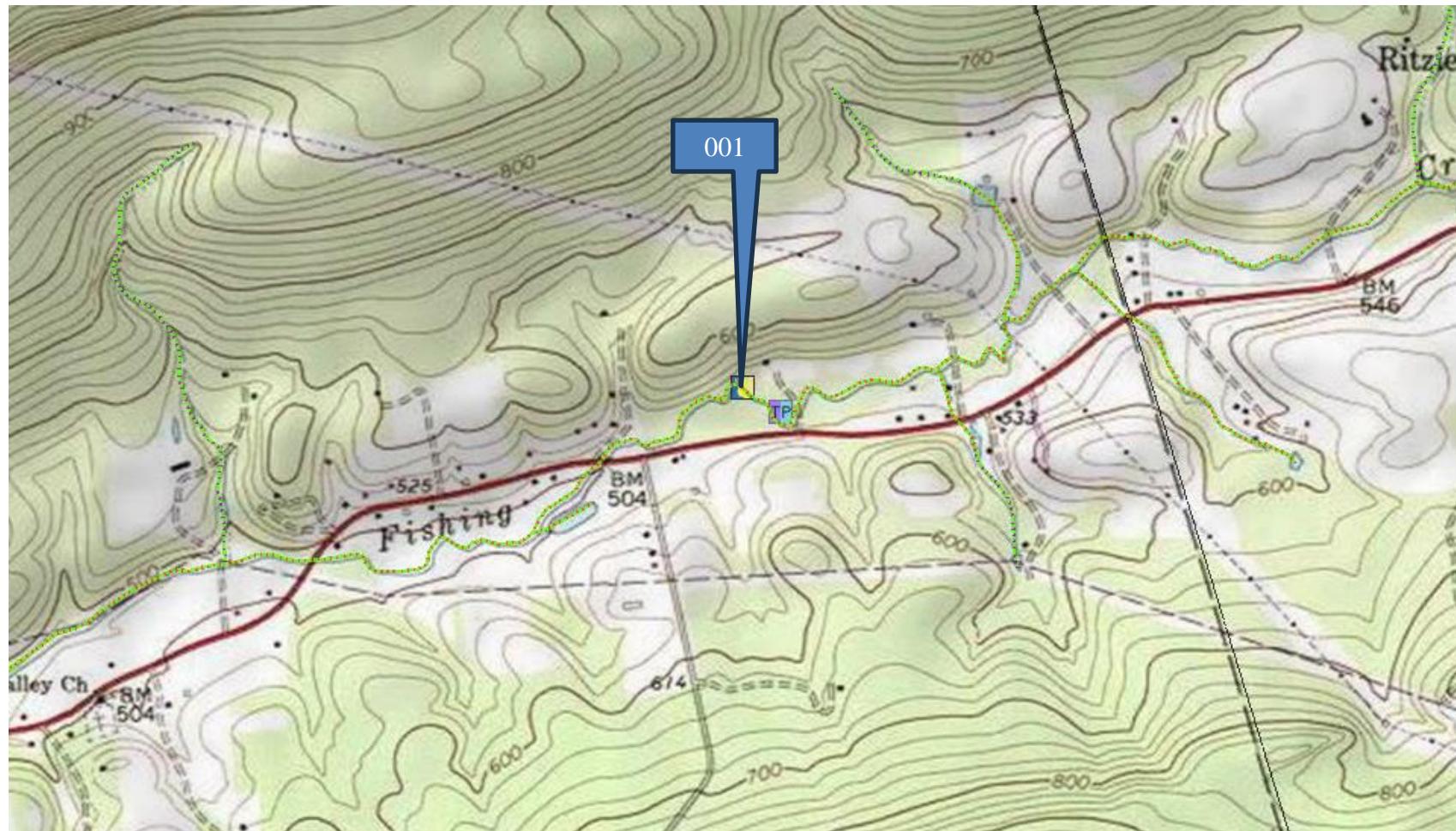
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	24-Hr Composite

Compliance Sampling Location: Outfall 001

7.0 Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B)
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment █)
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment C)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment █)
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input checked="" type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input checked="" type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input checked="" type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input checked="" type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free-Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: Establishing effluent limitation for individual sewage permit.
<input checked="" type="checkbox"/>	Other: WIP 3 and Supplement.

8. Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name					
		07C	10899	FISHING 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)
8,500	Fishing Cr Ests	PA0084018	0.026	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			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
07C	10899	FISHING CREEK	8.500	504.00	5.80	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
	(cfsm)	(cfs)	(cfs)									
Q7-10	0.100	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
Fishing Cr Ests	PA0084018	0.0260	0.0260	0.0260	0.000	25.00	6.60
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		5.00	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
07C	10899	FISHING CREEK	6.500	500.00	6.80	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	pH	Stream Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	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

<u>SWP Basin</u>			<u>Stream Code</u>			<u>Stream Name</u>						
07C			10899			FISHING CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
8.500	0.58	0.00	0.58	.0402	0.00038	.515	13.65	26.5	0.09	1.386	20.32	6.96
Q1-10 Flow												
8.500	0.55	0.00	0.55	.0402	0.00038	NA	NA	NA	0.09	1.424	20.34	6.96
Q30-10 Flow												
8.500	0.68	0.00	0.68	.0402	0.00038	NA	NA	NA	0.10	1.276	20.28	6.96

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.95	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.17	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
07C	10899	FISHING 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
	8.500 Fishing Cr Ests	16.89	50	16.89	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
	8.500 Fishing Cr Ests	1.88	25	1.88	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
	8.50 Fishing Cr Ests	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
07C	10899	FISHING CREEK		
<u>RMI</u>		<u>Total Discharge Flow (mgd)</u>		<u>Analysis Temperature (°C)</u>
8.500		0.026		20.324
<u>Reach Width (ft)</u>		<u>Reach Depth (ft)</u>		<u>Reach WDRatio</u>
13.653		0.515		26.498
<u>Reach CBOD5 (mg/L)</u>		<u>Reach Kc (1/days)</u>		<u>Reach NH3-N (mg/L)</u>
3.49		0.373		1.62
<u>Reach DO (mg/L)</u>		<u>Reach Kr (1/days)</u>		<u>Kr Equation</u>
8.033		14.652		Owens
<u>Reach Travel Time (days)</u>		<u>Subreach Results</u>		
1.386		TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)
				D.O. (mg/L)
		0.139	3.31	1.47
		0.277	3.14	1.33
		0.416	2.98	1.20
		0.555	2.83	1.09
		0.693	2.69	0.99
		0.832	2.55	0.89
		0.970	2.42	0.81
		1.109	2.30	0.73
		1.248	2.18	0.66
		1.386	2.07	0.60
				8.19

C. TRC Calculations Results

TRC EVALUATION							
Input appropriate values in A3:A9 and D3:D9							
AFC Calculations				CFC Calculations			
0.6	= Q stream (cfs)	0.5	= CV Daily	0.026	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor	0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)	0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	= Decay Coefficient (K)				
Source	Reference	AFC Calculations		Reference	CFC Calculations		
TRC	1.3.2.iii	WLA_afc = 4.778		1.3.2.iii	WLA_cfc = 4.650		
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581		
PENTOXSD TRG	5.1b	LTA_afc = 1.780		5.1d	LTA_cfc = 2.703		
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		$\text{EXP}((0.5*\text{LN}(cvh^2+1))-2.326*\text{LN}(cvh^2+1)^0.5)$					
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		$\text{EXP}((0.5*\text{LN}(cvd^2/no_samples+1))-2.326*\text{LN}(cvd^2/no_samples+1)^0.5)$					
LTA_cfc		wla_cfc*LTAMULT_cfc					
AML MULT		$\text{EXP}(2.326*\text{LN}((cvd^2/no_samples+1)^0.5)-0.5*\text{LN}(cvd^2/no_samples+1))$					
AVG MON LIMIT		MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)					
INST MAX LIMIT		$1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$					