pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

0.Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218944**
Facility Type	**Municipal**	APS ID	**1103233**
Major / Minor	**Minor**	Authorization ID	**1466215**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Franklin Township Sewer Authority Fayette County**	Facility Name	**Franklin Fayette Sewer Authority WWTF**
Applicant Address	PO Box 55 Smock, PA 15480-0055	Facility Address	Hursch & Burma Roads Smock, PA 15480
Applicant Contact	Michael Voytovich	Facility Contact	Same as Applicant
Applicant Phone	(724) 677-2272	Facility Phone	Same as Applicant
Client ID	159043	Site ID	549158
Ch 94 Load Status	Not Overloaded	Municipality	Franklin Township
Connection Status	No Limitations	County	Fayette
Date Application Received	December 26, 2023	EPA Waived?	No
Date Application Accepted	December 26, 2023	If No, Reason	Discharge to TMDL Waters.

Purpose of Application: NPDES Permit Renewal for Discharge of Treated Sewage Effluent.

Summary of Review

Franklin Township Sewer Authority has applied for the renewal of the NPDES Permit PA0218944. The previous permit was issued on May 29, 2019 and will expire on June 30, 2024. The renewal application was received on December 26, 2023, which considered timely.

The design discharge flow rate is 0.1 MGD, and the discharge is to Redstone Creek, which is classified as warm water fisheries (WWF) and located in the State Watershed 19-C.

WQM permit 2601403 was issued on April 12, 2002 and approved the construction of the following facilities: Manual Bar Screen, SBR Tanks, and Ultraviolet Disinfection. The sludge from SBR tanks is pumped to an aerobic digesting tank.

After reviewing the application, DEP sent a deficiency letter on January 23, 2024 for missing information including:

- Application was missing information on Page 1, Sec. 4, and Page 3 of the renewal application to describe the sewage sludge use/disposal.
- No description was included for the treatment plant process over Page 2 of the renewal application.
- Application was missing the full list of the effluent sample results listed on page 6 of the renewal application including the TMDL parameters.

The applicant responded on February 22, 2024 with an updated application document that fulfil DEP's request.

No hydraulic or organic overloads are projected to occur within the next five years per CH94 report for 2023.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Environmental Engineering Specialist	June 27, 2024
X		Mahbuba Iasmin / Mahbuba Iasmin, Ph.D., P.E./ Environmental Engineering Manager	July 5, 2024

Summary of Review

Operations compliance report on January 31, 2024 concluded that the permittee is in general compliance with no open violations.

No industrial users are discharging to this facility per the application.

The application stated that there were no changes to the facility conditions regarding discharge, receiving stream, or treatment technology, also not foreseen for the next five years, thus Act 537 was not needed.

The applicant is currently enrolled in and will continue to use eDMR.

The Act 14-PL 834 Municipal Notification was provided by the December 11, 2023 letters and no comments were received.

Sludge use and disposal description and location(s): Sludge/ biosolids produced for 2022 was 0.81 dry tons and hauled to Clairton Wastewater Treatment Plant. Also, this plant (per application) is not receiving additional sludge from other sources.

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.10
Latitude	39º 59' 52"	Longitude	-79º 47' 14"
Quad Name	New Salem	Quad Code	39079H7
Wastewater Description:	Sewage Effluent		
Receiving Waters	Redstone Creek (WWF)	Stream Code	39931
NHD Com ID	99411876	RMI	8.92
Drainage Area	84.7	Yield (cfs/mi^2)	0.0238
Q_{7-10} Flow (cfs)	2.02	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1265	Slope (ft/ft)	0.001
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Impaired		
Cause(s) of Impairment	METALS		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final, 2008	Name	Redstone Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Newell Muni Auth		
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	50.8	Distance from Outfall (mi)	>12.0

Changes Since Last Permit Issuance:

- Q_{7-10} flow, elevation, drainage area, and low flow yield were all updated to match USGS Stream Stats new data (see Attachment A).
- DEP updated its WQM 7.0 criteria for Ammonia-Nitrogen (NH_3-N) in 2019. Limits and conditions of this permit need to be redeveloped to an adequate level to protect water quality.
- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Franklin Fayette Sewer Authority WWTF

WQM Permit No.	Issuance Date
2601403	April 12, 2002

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.048

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	240	Not Overloaded	Aerobic Digestion	Off Site

Changes Since Last Permit Issuance: None.

Operations Compliance Check Summary Report

Facility: Franklin Fayette Sewer Authority WWTF
NPDES Permit No.: PA0218944
Compliance Review Period: 1/1/19-1/31/24
Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
05/02/2023	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	
05/01/2023	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted	An administrative review of eDMRs from 2/1/20 to 5/1/23 revealed (4) effluent violations which have been noted on the 5/2/23 CEI report.
02/11/2020	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	VIOLATION COMMENT
05/02/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/26/2024	1/31/2022 Fecal Geo Mean 2712 > 2000 No./100 ml 1/31/2022 CBOD Weekly Avg. 63 > 37.5 mg/L 1/31/2022 Fecal I Max 97,000 > 10,000 No./100 ml 1/31/2022 CBOD I Max 63 > 50 mg/L
02/11/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/31/2022	

Open Violations by Client ID:
No open violations for Client ID 159043
Enforcement Summary:

ENF TYPE	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
NOV	05/12/2023	92A.44	Administrative Close Out	02/06/2024
NOV	02/11/2020	92A.44	Administrative Close Out	02/06/2024

Effluent Violation Summary:

MON_PD	PARAMETER	SAMPLE	PERMIT	UNIT	STAT_BASE_CODE	FACILITY_COMMENTS
Jan-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	63	37.5	mg/L	Weekly Average	Didn't know any problems on 1/12/2022 plant was running normal. I found out what had happened when checking plant on the
Jan-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	63	50	mg/L	Instantaneous Maximum	
Jan-22	Fecal Coliform	2712	2000	No./100 ml	Geometric Mean	

Jan-22	Fecal Coliform	97000	10000	No./100 ml	Instantaneous Maximum	20th of January. Had problem fixed-motor failure.

Compliance Status: Facility does not currently have any open violations or pending enforcements.
Completed by: Amanda Illar
Completed date: 1/31/24 (Updated 2/7/24)

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.1
Latitude 39º 59' 52.00" **Longitude** -79º 47' 14.00"
Wastewater Description: Treated 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 (No./100 ml)	Report	IMAX	-	92a.61
D.O. (mg/L)	4.0	Min	-	BPJ
NH_3-N (mg/L)	25	Average Monthly	-	BPJ
	50	IMAX		
Total N (mg/L)	Report	Average Monthly	-	92a.61
Total P (mg/L)	Report	Average Monthly	-	92a.61

Comments: The existing discharge was evaluated using WQM 7.0 to develop $CBOD_5$, NH_3-N, and D.O. parameters.

The Total Suspended Solids (TSS), pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The bases for the proposed technology-based limitations are listed in the above table.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH_3-N (May1-Oct 31)	21.5	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
Dissolved Oxygen	4.0	Minimum	WQM7.0

Comments: WQM 7.0 was used to determine the newly imposed seasonal limits for Ammonia Nitrogen NH_3-N. After applying DEP's regulation (Implementation Guidance of Section 93.7 Ammonia Criteria, 1997); the new limits will be AML of 21.5 mg/L for the warm period and AML of 25.0 mg/L for the cold period.

Per renewal application effluent sampling and eDMR values; the facility can meet the newly imposed Ammonia limits as this plant has achieved lower than the new proposed limits; no compliance schedule is necessary, weekly monitoring shall be required.

For the Carbonaceous Biochemical Oxygen Demand $CBOD_5$, the WQM 7.0 model generated a WQBEL AML of 25 mg/L a year around, which matches the previous permit limits. Weekly monitoring shall be required.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) limit of 4.0 mg/L should be established based on DEP water quality model WQM 7.0 Version 1.1 (Appendix B) and on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as listed in the table under Technology-Based Limitations section (see page 7).

Anti-Backsliding

The previously imposed limits for pH Effluent Limitation of (6.0 Minimum, and 9.0 Maximum SIU), Fecal Coliform AML Geo Mean seasonal limits of (200 & 2000 CFU/100 ml), and TSS AML, Weekly Average, and Ins. Max of (30, 45, and 60 mg/L); will be all unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

Total Maximum Daily Load (TMDL) Considerations

This facility discharges to the Redstone River Watersheds, this Watershed has a Final TMDL and is impaired by metals and abandoned mine drainage is the source for the TMDL impairment. This sanitary sewage discharge is not expected to contribute to the stream metals impairment. The contribution for metals pollution by Aluminum, Iron, and Manganese from a sewage plant of this nature is expected to be insignificant.

No WLAs have been developed for this facility; monitoring requirements for Total Iron, Total Manganese, and Total Aluminum were imposed per the previous permit.

The application's effluent sampling results for TMDL metals showed no in stream water quality criteria exceedance. Therefore, no limits are needed to be imposed and monitoring will continue through this renewal. The permittee will be asked again to show no violations to the water quality criteria for this TMDL through the renewal application effluent sampling.

Total Dissolved Solids (TDS) and its Major Constituents

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems.
Because of actions associated with Triennial Review 13, the Environmental Quality Board has directed DEP to collect additional data if the Bromide is greater than 1 mg/L, and the TDS is greater than 1000 mg/L or the TDS exceeds 20,000 lbs/day. The maximum reported concentration for Bromide is <0.20 mg/L as listed in the updated renewal application dated 2/21/2024. The maximum reported concentration for TDS is 318 mg/L as listed in the updated renewal application dated 2/21/2024.

Therefore, monitoring is not required for TDS, Bromide, Chloride, and Sulfate.

TN and TP Monitoring

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flows > 2,000 gpd require monitoring. Redstone Creek segment within the facility is not impaired for nutrients (per PA eMAP), also, the stringent newly proposed Ammonia limits will help in lowering Total Nitrogen.

Per DEP-SOP No. BCW-PMT-033 revised February 5, 2024, 1/year monitoring for Total Nitrogen and Total Phosphorus will be applied at Outfall 001.

Disinfection

Per DEP SOP BCW-PMT-033 - *Establishing Effluent Limitations for Individual Sewage Permits* Revised, February 5, 2024, permittee can even report (at a minimum) UV transmittance (%), UV dosage (µWs/cm2 or mWs/cm2 or mjoules/cm2) or UV intensity (µW/cm2 or mW/cm2). The previous permit required Ultraviolet Disinfection Light Transmittance be measured in mjoules/cm^2. Since there is no change to current regs and SOPs, the renewal permit will carry over the limit with the same frequency and units.

Part C33 will be added to the renewal permit.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b), quarterly monitoring for *E. Coli* will be imposed at Outfall 001 per DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Mass Loadings

Mass loading limits are applicable for publicly owned treatment works (POTW). Current policy requires average monthly and average weekly mass loading limits be established for $CBOD_5$ and TSS.

Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

Influent Monitoring

Per DEP SOP No. BCW-PMT-033 revised February 5, 2024, for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Monitoring Frequency Considerations

For pH, Dissolved Oxygen (DO) and Ultraviolet (UV) , a monitoring frequency of “1/day” has been imposed. The daily monitoring frequencies are consistent with current policy and Table 6-3 of DEP’s Technical Guidance for the Development and Specification of Effluent Limitations. Daily monitoring is required for these parameters to provide minimum assurance that the facility is being operated properly.

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	Weekly Average	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	20.9	31.3	XXX	25	37.5 Wkly Avg	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	25.0	37.6	XXX	30	45 Wkly Avg	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen (NH3-N) May 1 - Oct 31	17.9	26.5	XXX	21.5	31.75	43	1/week	8-Hr Composite
Ammonia-Nitrogen (NH3-N) Nov 1 - Apr 30	20.9	31.3	XXX	25	37.5	50	1/week	8-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	Weekly Average	Minimum	Average Monthly	Maximum	Instant. Maximum		
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 001

Other Comments: None.

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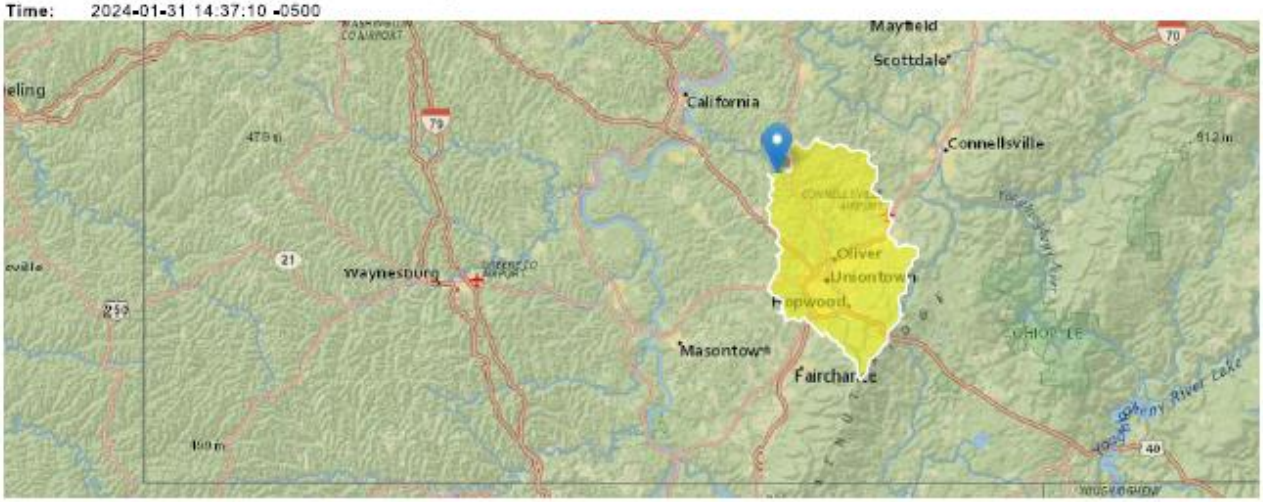
ATTACHMENT A:
USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20240131193647296000
Clicked Point (Latitude, Longitude): 39.99749, -79.78664
Time: 2024-01-31 14:37:10 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	84.7	square miles
ELEV	Mean Basin Elevation	1265	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	84.7	square miles	2.26	1400
ELEV	Mean Basin Elevation	1265	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

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	4.61	ft^3/s	43	43
30 Day 2 Year Low Flow	7.25	ft^3/s	38	38
7 Day 10 Year Low Flow	2.02	ft^3/s	66	66
30 Day 10 Year Low Flow	3.11	ft^3/s	54	54
90 Day 10 Year Low Flow	5.19	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p, (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.19.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT B:
WQM7.0 Model Results (Summer)

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
19C	39931	REDSTONE CREEK	8.920	1265.00	84.70	0.00100	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	0.024	2.02	0.00	0.000	0.000	10.0	0.00	0.00	25.00	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
Franklin WWTF	PA0218944	0.1000	0.1000	0.1000	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	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
19C	39931	REDSTONE CREEK	4.700	1236.00	102.00	0.00100	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	0.025	2.51	0.00	0.000	0.000	10.0	0.00	0.00	25.00	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
Franklin WWTF	PA0218944	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	4.00	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
19C	39931	REDSTONE 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												
8.920	2.02	0.00	2.02	.1547	0.00100	1.426	14.26	10	0.11	2.411	24.64	7.00
Q1-10 Flow												
8.920	1.29	0.00	1.29	.1547	0.00100	NA	NA	NA	0.09	3.028	24.47	7.00
Q30-10 Flow												
8.920	2.75	0.00	2.75	.1547	0.00100	NA	NA	NA	0.13	2.051	24.73	7.00

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		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
8.920	0.100	24.644	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.259	1.426	10.000	0.107
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.64	0.200	1.55	1.001
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.941	1.135	Tsivoglou	5
Reach Travel Time (days)			
2.411			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.241	3.43	1.22	6.46
0.482	3.23	0.96	5.63
0.723	3.04	0.75	5.24
0.964	2.86	0.59	5.13
1.206	2.70	0.46	5.20
1.447	2.54	0.36	5.37
1.688	2.39	0.29	5.60
1.929	2.25	0.22	5.85
2.170	2.12	0.18	6.11
2.411	2.00	0.14	6.35

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE 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
8.920	Franklin WWTF	7.02	50	7.02	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
8.920	Franklin WWTF	1.37	25	1.37	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)		
8.92	Franklin WWTF	25	25	21.76	21.76	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE 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)
8.920	Franklin WWTF	PA0218944	0.100	CBOD5	25		
				NH3-N	21.76	43.52	
				Dissolved Oxygen			4

ATTACHMENT B:
WQM7.0 Model Results (Winter)

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
19C	39931	REDSTONE CREEK	8.920	1265.00	84.70	0.00100	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	0.048	2.02	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Franklin WWTF	PA0218944	0.1000	0.1000	0.1000	0.000	15.00	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	4.00	12.51	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
19C	39931	REDSTONE CREEK	4.700	1236.00	102.00	0.00100	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	0.049	2.51	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Franklin WWTF	PA0218944	0.0000	0.0000	0.0000	0.000	15.00	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	4.00	12.51	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
19C	39931	REDSTONE 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												
8.920	2.02	0.00	2.02	.1547	0.00100	1.426	14.26	10	0.11	2.411	5.71	7.00
Q1-10 Flow												
8.920	1.29	0.00	1.29	.1547	0.00100	NA	NA	NA	0.09	3.028	6.07	7.00
Q30-10 Flow												
8.920	2.75	0.00	2.75	.1547	0.00100	NA	NA	NA	0.13	2.051	5.53	7.00

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		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
8.920	0.100	5.711	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.259	1.426	10.000	0.107
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.64	0.428	1.78	0.233
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
11.905	0.724	Tsivoglou	5
Reach Travel Time (days)			
2.411			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.241	3.45	1.68	11.25
0.482	3.27	1.59	10.89
0.723	3.10	1.50	10.55
0.964	2.94	1.42	10.29
1.206	2.78	1.34	10.11
1.447	2.64	1.27	9.99
1.688	2.50	1.20	9.91
1.929	2.37	1.13	9.87
2.170	2.25	1.07	9.86
2.411	2.13	1.01	9.88

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE 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
8.920	Franklin WWTF	20.59	50	20.59	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
8.920	Franklin WWTF	4.08	25	4.08	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)		
8.92	Franklin WWTF	25	25	25	25	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19C	39931	REDSTONE 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)
8.920	Franklin WWTF	PA0218944	0.100	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4