pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0044431**
Facility Type	**Non-Municipal**	APS ID	**1072591**
Major / Minor	**Minor**	Authorization ID	**1412431**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Fairfield Manor Inc.**	Facility Name	**Fairfield Manor MHP STP**
Applicant Address	PO Box 17039	Facility Address	100 Mccoy Drive
	Pittsburgh, PA 15235-0039		Bolivar, PA 15923
Applicant Contact	Antonio Acierno	Facility Contact	
Applicant Phone	(724) 594-0333	Facility Phone	
Client ID	79797	Site ID	249513
Ch 94 Load Status	Not Overloaded	Municipality	Fairfield Township
Connection Status		County	Westmoreland
Date Application Received	June 21, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of existing NPDES permit for treated sewage.

Summary of Review

The applicant has applied for renewal of NPDES Permit No. PA0044431. The previous permit was issued in 2012 and expired in 2017.

There are two open violations for this facility related to operation without a valid NPDES Permit. These violations have been resolved with the submittal and processing of this NPDES renewal. There is also one open admin order. Enforcement status will be determined prior to final issuance of this NPDES Permit renewal.

Sewage to this facility is treated in an extended aeration facility consisting of an aeration tank, clarifier, chlorine contact chamber, and dechlorination chamber. Waste sludge is directed to an aerated sludge holding tank. The existing facility was approved for rehabilitation under WQM Amendment A-1, which approved construction for a new package plant. During file review, the A-2 amendment was not found. Letter Amendment A-3 approved the construction of a dechlorination tank.

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

The Act 14-PL 834 Municipal Notification was provided by the June 15, 2022 Letter provided to Westmoreland County and the September 16, 2022 Letter provided to Fairfield Township. No comments were received.

Sludge use and disposal description and location: Top Septic Services hauls waste sludge from the facility for ultimate disposal at a regional wastewater treatment facility.

Approve	Deny	Signatures	Date
x		John Price Jack Price / Environmental Engineering Specialist	July 21, 2023
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	July 24, 2023

Summary of Review

Below is a summary of changes made to this permit:

- The name of the receiving waters was corrected. The facility discharges to UNT Loves Hollow.
- The location of the discharge was revised according to aerial photography and application data.
- Monitoring frequency for flow was revised to weekly monitoring to reflect the monitoring requirements in Table 6-3 of the DEP Permit Writing Manual.
- Stricter TRC limits were imposed.
- Monitoring for E. Coli was imposed.
- Monitoring for Total Magnesium, Total Aluminum, and Total Iron was imposed.

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)	.03
Latitude	40º 18' 26"	Longitude	-79º 08' 52"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Loves Hollow	Stream Code	44865
NHD Com ID	123725646	RMI	0.82
Drainage Area	0.36 mi^2	Yield (cfs/mi^2)	0.04056
Q_{7-10} Flow (cfs)	0.0146	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1301	Slope (ft/ft)	0.0225
Watershed No.	18-D	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake	Buffalo TWP Mun Auth Freeport PWS (5030019)		
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	38 Linear Miles

Changes Since Last Permit Issuance:

- The location of the discharge was adjusted to match where the facility is located (Longitude/Latitude) according to aerial photographs (application topographic map and Google Earth).
- The name of the receiving waters was updated to match the actual point of discharge. The previous permit listed an incorrect stream name (sourced from eMaps).
- The drainage areas for the upstream and downstream RMI locations were determined using USGS StreamStats as reported in Attachment #1.

Other Comments: N/A

Kiskiminetas-Conemaugh River Watershed TMDL

A TMDL for the Kiskiminetas-Conemaugh River Watershed – of which Love's Hollow is a part – was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment, and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The Fairfield Manor MHP STP was not assigned wasteload allocations for aluminum, iron and manganese by the Kiskiminetas-Conemaugh River Watershed TMDL (Appendix G) and is listed as a Negligible Discharge Facility (Appendix C).

The previous permit did not impose or require effluent sampling for Total Aluminum, Total Iron, and Total Manganese, nor did the application contain effluent sampling data. Under 25 PA Code § 92a.61(b) Effluent concentrations of these pollutants will be reported at least once per year. The yearly sampling data will be used to determine if there is reasonable potential to cause or contribute to water quality excursions and will be re-evaluated in the next permit cycle.

Treatment Facility Summary

Treatment Facility Name: Fairfield Manor Inc. MHP

This is an Existing Facility. The original facility was built and owned by Fairfield Township in 1976 and transferred to Fairfield Manor Inc. in 1982. The facility was replaced with a new package plant in 1994 to address the state of disrepair of the facility at that time. The facility was last modified in the letter modification 6576412 A-3 in 1998. This modification was a letter mod that added a dechlorination tank.

The current extended aeration system consists of:

- One 30,000-gallon aeration tank.
- One final clarifier with a surface area of 78.5 SF.
- One 1,000-gallon chlorine contact chamber.
- One 540-gallon dechlorination tank.
- One aerated sludge holding tank.

There is an inoperative sand filter on site that was bypassed as part of the A-1 permitting decision.

WQM Permit No.	Issuance Date
6576412	August 24, 1976
6576412 T-1	April 9, 1982
6576412 A-1	August 19, 1994
6576412 A-3	December 21, 1998

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary treatment with ammonia reduction	Extended Aeration\Clarification	Chlorination/ Dechlorination	0.0074 (year 2021)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.03		Not Overloaded	Aerated Sludge Holding Tank	Other Regional WWTP

Changes Since Last Permit Issuance: No changes to the facility have been made since the last NPDES Permit.

Other Comments: N/A

Facility: Fairfield Manor MHP STP
NPDES Permit No.: PA0044431
Compliance Review Period: 07/2018 – 07/2023
Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3395584	06/20/2022	Follow-up Inspection	PA Dept of Environmental Protection	Violation(s) Noted
3270299	10/21/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
3185660	05/04/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
2945703	08/15/2019	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2789822	10/04/2018	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID	INSPECTED DATE	INSP TYPE
92A.75(A)	NPDES - Failure to submit NPDES renewal application at least 180 days prior to expiration or later approved date		3395584	06/20/2022	Follow-up Inspection
92A.1(B)	NPDES - Discharge of pollutants from a point source into surface waters without an NPDES permit		3395584	06/20/2022	Follow-up Inspection
CSL611	CSL - Failure to comply with terms and conditions of a WQM permit	07/13/2022	3270299	10/21/2021	Administrative/File Review
92A.26	NPDES - Failure by an applicant or permittee to submit the required application or NOI fee	05/04/2021	3185660	05/04/2021	Administrative/File Review
92A.32(B)	NPDES - Failure to submit a timely application for "No Exposure Certification"	10/17/2019	2945703	08/15/2019	Compliance Evaluation
92A.61(G)	NPDES - Failure to use a format or process required by DEP for self-monitoring results	10/12/2022	2789822	10/04/2018	Administrative/File Review

Open Violations by Client ID:

CLIENT ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION
79797	3395584	962388	06/20/2022	NPDES - Failure to submit NPDES renewal application at least 180 days prior to expiration or later approved date

79797	3395584	962389	06/20/2022	NPDES - Discharge of pollutants from a point source into surface waters without an NPDES permit

Enforcement Summary:

ENF ID	ENF TYPE	ENF TYPE DESC	EXECUTED DATE	ENF FINALSTATUS	ENF CLOSED DATE	ENF CREATED BY
398356	ADORD	Administrative Order	10/21/2021			JEFFREY, KOHUT
379788	FLNOV	Field Notice of Violation	10/17/2019	Administrative Close Out	04/08/2021	KRISTIN, GEARHART
374417	ADORD	Administrative Order	05/01/2019	Comply/Closed	10/12/2022	KRYSTAL, BLOOM
368255	NOV	Notice of Violation	10/04/2018	Comply/Closed	10/12/2022	KRYSTAL, BLOOM

DMR Violation Summary:
No DMR data found
Compliance Status:
To be determined
Completed by: John Murphy
Completed date: 7/14/2023

Other Comments: The Compliance Status of the facility will be determined prior to the issuance of the final permit. At that time a fact sheet addendum will be issued with the compliance status determination.

Compliance History

DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	0.012	0.012	0.010	0.011	0.012	0.005	0.010	0.013				
pH (S.U.) Minimum	7.9	8.0	7.6	8.0	8.0	8.1	7.8	8.1				
pH (S.U.) Maximum	8.0	8.1	8.2	8.1	8.1	8.1	8.4	1.8				
DO (mg/L) Minimum	8.1	8.3	8.2	9.5	9.6	10.1	6.1	8.7				
TRC (mg/L) Average Monthly	0.15	0.19	0.13	0.12	0.13	0.07	0.13	0.14				
TRC (mg/L) Instantaneous Maximum	0.29	0.33	0.31	0.22	0.31	0.28	0.33	0.29				
CBOD5 (mg/L) Average Monthly	4.0	4.0	6.0	3.0	3.0	4.0	5.0	3.0				
CBOD5 (mg/L) Instantaneous Maximum	5.0	4.0	9.0	5.0	4.0	5.0	5.0	4.0				
TSS (mg/L) Average Monthly	7.0	< 3.0	4.0	3.0	7.0	10.0	18.0	17.0				
TSS (mg/L) Instantaneous Maximum	8.0	< 3.0	4.0	5.0	9.0	15.0	23.0	18.0				
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	1.0	330.0	< 1.0	< 3.0	< 4.0	< 2.5	< 3.0				
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1.0	< 1.0	665.0	3.0	< 3.0	5.0	< 3.0	< 3.0				
Ammonia (mg/L) Average Monthly	0.1	0.1	0.8	0.1	0.1	0.1	0.1	0.1				
Ammonia (mg/L) Instantaneous Maximum	0.1	0.1	1.5	0.1	0.1	0.1	0.1	0.1				

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .03
Latitude 40º 18' 26.00" **Longitude** -79º 08' 52.00"
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: The proposed discharge was evaluated using WQM 7.0 to evaluate $CBOD_5$, ammonia Nitrogen, and Dissolved Oxygen Parameters. The modeling results show technology based effluent limitations for $CBOD_5$ are appropriate.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (May 1 to Oct 31)	2.45	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (Nov 1 to Apr 30)	6.51	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	6 (min)	Average Monthly	WQM 7.0 Version 1.1
Total Residual Chlorine	0.05	Average Monthly	TRC_CALC

Comments: DMR data indicates the applicant will be able to comply with the revised Dissolved Oxygen limit.

DMR data shows the applicant will have to make revisions to the operation of the facility to achieve the revised TRC limit listed above; please note this facility has a permitted dechlorination unit in operation. The applicant is given one year to come into compliance with the final effluent limit. The TRC_CALC model output is available in Attachment #4.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation

addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

Due to antibacksliding, the previously imposed average monthly ammonia nitrogen limits (2.0 mg/L Summer and 4.5 mg/L Winter) will be reimposed rather than the limits developed through WQM 7.0 v. 1.1, model data in Attachments #2 and #3. This facility is not seeking to revise previously established effluent limits and the facility is currently in compliance with these existing limits.

Additional Considerations

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). A 1/year monitoring requirement for Total N and Total Phosphorus has been added to the permit. *Section I.A, Note 7 & 8, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9* and *25 PA Code 92a.61(b)*.

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/year for design flows between 0.002 and 0.05 MGD. *Note 12 SOP-Establishing Effluent Limitations for Individual Sewage Permits Final November 9, 2012, Revised March 24, 2021, Version 1.9.* and *25 PA Code 92a.61(b).*

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers. *Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (Document No. 362-0400-001).*

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 End of 12th Month.

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		
TRC	XXX	XXX	XXX	0.2	XXX	0.5	1/day	Grab

Compliance Sampling Location: Outfall 001

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: Beginning of 13th Month 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		
TRC	XXX	XXX	XXX	0.05	XXX	0.17	1/day	Grab

Compliance Sampling Location: Outfall 001

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.

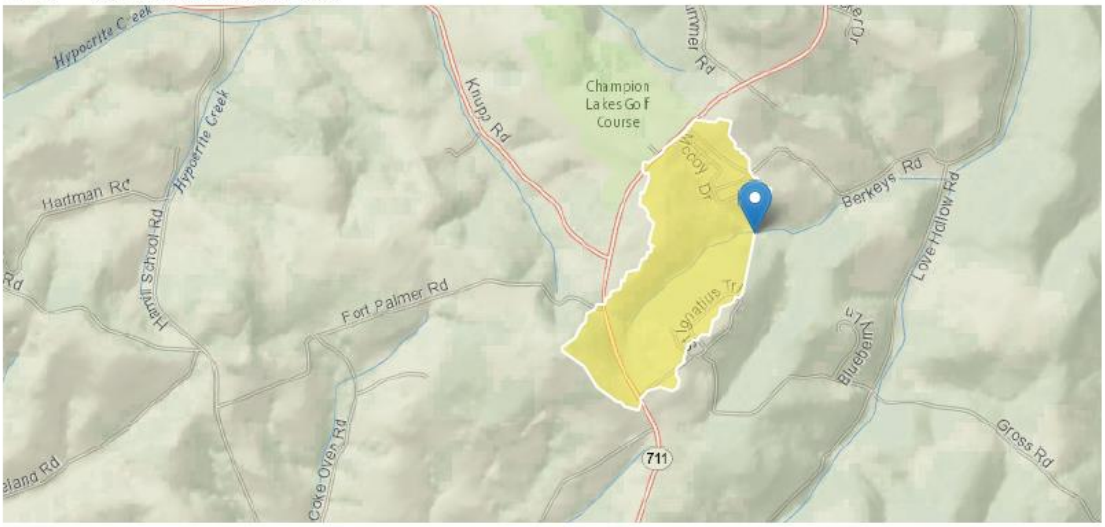
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.03	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Total Aluminum	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001

Attachment #1 – USGS StreamStats Report

Upstream StreamStats Report

Region ID: PA
Workspace ID: PA20230627164934538000
Clicked Point (Latitude, Longitude): 40.30714, -79.14778
Time: 2023-06-27 12:49:59 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.36	square miles
ELEV	Mean Basin Elevation	1459	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.36	square miles	2.33	1720
ELEV	Mean Basin Elevation	1459	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0375	ft^3/s
30 Day 2 Year Low Flow	0.0577	ft^3/s
7 Day 10 Year Low Flow	0.0146	ft^3/s
30 Day 10 Year Low Flow	0.0218	ft^3/s
90 Day 10 Year Low Flow	0.033	ft^3/s

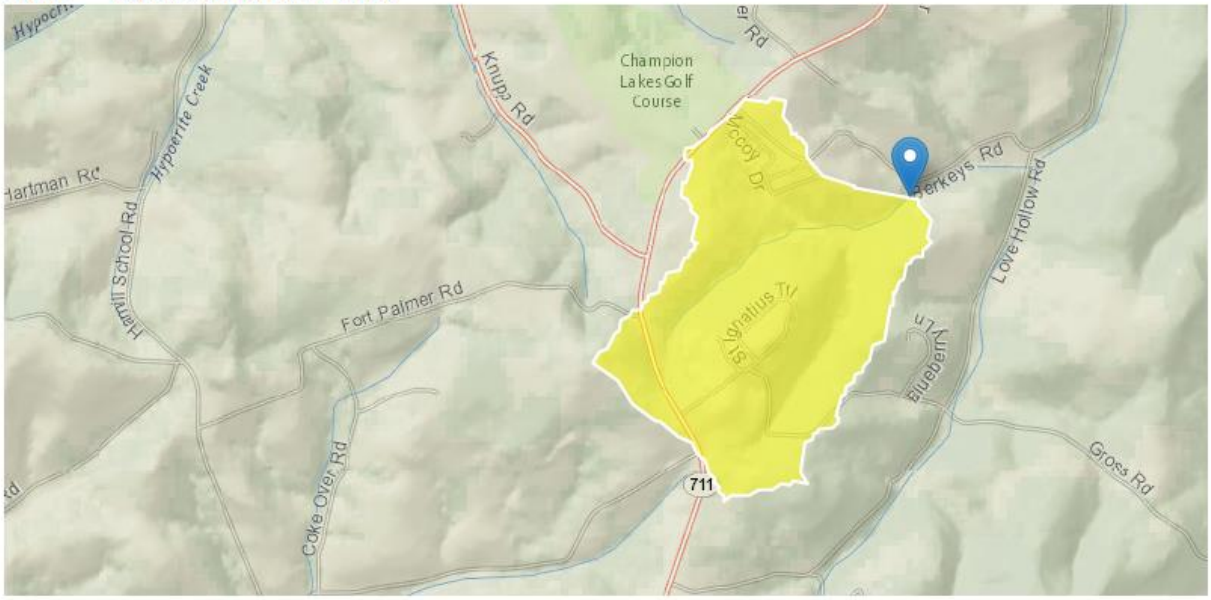
Low-Flow Statistics Citations

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: 4.16.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Downstream StreamStats Report

Region ID: PA
Workspace ID: PA20230627171502545000
Clicked Point (Latitude, Longitude): 40.30851, -79.14212
Time: 2023-06-27 13:15:22 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.68	square miles
ELEV	Mean Basin Elevation	1451	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.68	square miles	2.33	1720
ELEV	Mean Basin Elevation	1451	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0714	ft^3/s
30 Day 2 Year Low Flow	0.109	ft^3/s
7 Day 10 Year Low Flow	0.0288	ft^3/s
30 Day 10 Year Low Flow	0.0425	ft^3/s
90 Day 10 Year Low Flow	0.0638	ft^3/s

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: 4.16.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment # 2 – WQM 7.0 Version 1.1 – Warmer Period

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
18D	44865	Trib 44865 to "Loves Hollow"	**0.820**	1301.00	0.36	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	0.041	0.00	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
FF Manor MHP	PA0044431	0.0000	0.0300	0.0300	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
18D	44865	Trib 44865 to "Loves Hollow"	**0.440**	1256.00	0.68	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	0.041	0.00	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
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.820	0.01	0.00	0.01	.0464	0.02243	.313	3.13	10	0.06	0.373	21.20	7.00
Q1-10 Flow												
0.820	0.01	0.00	0.01	.0464	0.02243	NA	NA	NA	0.06	0.393	20.84	7.00
Q30-10 Flow												
0.820	0.02	0.00	0.02	.0464	0.02243	NA	NA	NA	0.07	0.356	21.50	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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

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
0.820	FF Manor MHP	15.64	18.78	15.64	18.78	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
0.820	FF Manor MHP	1.71	2.45	1.71	2.45	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)		
0.82	FF Manor MHP	25	25	2.45	2.45	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.820	0.030	21.197	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.131	0.313	10.000	0.062
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
19.50	1.450	1.86	0.768
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.537	28.928	Owens	6
Reach Travel Time (days)			
0.373			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.037	18.41	1.81	7.00
0.075	17.39	1.76	7.22
0.112	16.42	1.71	7.35
0.149	15.51	1.66	7.44
0.187	14.65	1.61	7.53
0.224	13.83	1.57	7.60
0.261	13.06	1.52	7.67
0.299	12.34	1.48	7.74
0.336	11.65	1.44	7.80
0.373	11.01	1.40	7.86

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.820	FF Manor MHP	PA0044431	0.000	CBOD5	25		
				NH3-N	2.45	4.9	
				Dissolved Oxygen			6

Attachment # 3 – WQM 7.0 Version 1.1 – Colder Period

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
18D	44865	Trib 44865 to "Loves Hollow"	**0.820**	1301.00	0.36	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	0.081	0.00	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
FF Manor MHP	PA0044431	0.0000	0.0300	0.0300	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
18D	44865	Trib 44865 to "Loves Hollow"	**0.440**	1256.00	0.68	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	0.081	0.00	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
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.820	0.03	0.00	0.03	.0464	0.02243	.328	3.28	10	0.07	0.331	11.14	7.00
Q1-10 Flow												
0.820	0.02	0.00	0.02	.0464	0.02243	NA	NA	NA	0.06	0.360	12.13	7.00
Q30-10 Flow												
0.820	0.04	0.00	0.04	.0464	0.02243	NA	NA	NA	0.08	0.308	10.39	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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

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
0.820	FF Manor MHP	24.1	33.81	24.1	33.81	1	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
0.820	FF Manor MHP	3.51	6.51	3.51	6.51	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)		
0.82	FF Manor MHP	25	25	6.51	6.51	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.820	0.030	11.138	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.283	0.328	10.000	0.070
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.12	1.416	3.99	0.354
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.287	28.732	Owens	6
Reach Travel Time (days)			
0.331			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.033	15.62	3.95	8.94
0.066	15.14	3.90	9.59
0.099	14.68	3.86	9.86
0.132	14.23	3.81	9.88
0.165	13.79	3.77	9.88
0.199	13.37	3.72	9.88
0.232	12.96	3.68	9.88
0.265	12.56	3.64	9.88
0.298	12.17	3.59	9.88
0.331	11.80	3.55	9.88

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44865	Trib 44865 to "Loves Hollow"

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.820	FF Manor MHP	PA0044431	0.000	CBOD5	25		
				NH3-N	6.51	13.02	
				Dissolved Oxygen			4

Attachment # 4 – TRC CALC Results

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0146	= Q stream (cfs)	0.5	= CV Daily
0.03	= 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 = 0.119	1.3.2.iii	WLA cfc = 0.109
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.044	5.1d	LTA_cfc = 0.063

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.055	AFC
		INST MAX LIMIT (mg/l) = 0.179	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**