Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0205664**
Facility Type	**Non-Municipal**	APS ID	**1107817**
Major / Minor	**Minor**	Authorization ID	**1473840**

Applicant and Facility Information

Applicant Name	**Jones Estates Forest Brook PA LLC**	Facility Name	**Forest Brook MHP STP**
Applicant Address	2310 S Miami Boulevard Suite 238	Facility Address	Big Knob Road
	Durham, NC 27703-4900		Rochester, PA 15074
Applicant Contact	Kellen Buss	Facility Contact	John Foris
Applicant Phone	(419) 357-9091	Facility Phone	412-445-9145
Client ID	370124	Site ID	246201
Ch 94 Load Status		Municipality	New Sewickley Township
Connection Status		County	Beaver
Date Application Received	February 20, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	**Forest Brook MHP STP**

Purpose of Application: Renewal of an NPDES Permit

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0024082. The previous permit was issued on April 1, 2019 and expired on March 31, 2024.

Sewage from this plant is treated with an Aeration Basin, Clarifier, and a Chlorine contact tank.

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

Per WQM7 Modeling data the facility will be given new more restrictive limits for Ammonia-Nitrogen and TRC that eDMR data shows they will be unable to meet. Therefore, a compliance schedule of three years will be given to the facility to meet these more restrictive limits. Part C 103 – Schedule of compliance has also been added to the NPDES permit.

The Notification letters were provided dated February 2, 2024 and no comments were received.

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		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	February 5, 2025
X		 Christopher Kriley, P.E. / Program Manager	February 13, 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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.023
Latitude	40º 42' 42.72"	Longitude	-80º 11' 51.00"
Quad Name	Baden	Quad Code	40080F2
Wastewater Description:	Sewage Effluent		

Receiving Waters	Pine Run (WWF)	Stream Code	36569
NHD Com ID	99678246	RMI	2.59
Drainage Area	0.23	Yield (cfs/mi^2)	0.0057
Q_{7-10} Flow (cfs)	**0.00132**	Q_{7-10} Basis	USGS StreamStat
Elevation (ft)	1162	Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	WWF
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	CENTER TWP WATER AUTH		
PWS Waters	Ohio River (WWF)	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11.14

Changes Since Last Permit Issuance: None

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: Forest Brook MHP STP

WQM Permit No.	Issuance Date
0492405	06/01/1993
0492405 A-1	12/12/2001
0492405 A-2	07/01/2008
0492405 A-3	07/12/2023

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended aeration	Chlorine	.023

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.023				

Changes Since Last Permit Issuance: None

Other Comments: Treatment Process consists of:

- Aeration Basin
- Clarifier
- Chlorine contact tank

Compliance History

Operations Compliance Check Summary Report

Facility: Jones Estates Forest Brook STP

NPDES Permit No.: PA0205664

Compliance Review Period: 1/1/20-1/30/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
12/28/23	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
06/07/2022	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
10/19/2021	Administrative/File Review	PA Dept of Environmental Protection	Administratively Closed
08/19/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC
8173097	12/28/2023	302.202	Operator Certification - Failure to submit annual system fee
958252	06/07/2022	92A.62	NPDES - Failure to pay annual fee

Open Violations by Client ID:

No open violations for Client ID 42718 (former owner) or Client ID 370124 (current owner)

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	ENF FINAL STATUS	ENF CLOSED DATE
NOV	Notice of Violation	12/28/2023	302.202	Comply/Closed	02/21/2024
ADORD	Administrative Order	08/02/2022	92A.62	Comply/Closed	03/29/2023
NOV	Notice of Violation	06/07/2022	92A.62	Comply/Closed	03/29/2023

Effluent Violation Summary

MON_PD	PARAMETER	Reported Value	Permit Limit	UNIT	STAT_BASE_CODE	FACILITY_COMMENTS
Nov-24	Total Residual Chlorine (TRC)	0.10	.03	mg/L	Average Monthly	
Nov-24	Total Residual Chlorine (TRC)	0.12	.11	mg/L	Instantaneous Maximum	
Oct-24	Total Residual Chlorine (TRC)	0.50	.03	mg/L	Average Monthly	DECHLOR FEEDER clogged from moisture creature powder to buildup build up
Oct-24	Total Residual Chlorine (TRC)	0.70	.11	mg/L	Instantaneous Maximum	DECHLOR FEEDER clogged from moisture creature powder to buildup build up
Sep-24	Total Residual Chlorine (TRC)	0.10	.03	mg/L	Average Monthly	
Aug-24	Total Residual Chlorine (TRC)	0.52	.03	mg/L	Average Monthly	
Aug-24	Total Residual Chlorine (TRC)	0.79	.11	mg/L	Instantaneous Maximum	
Jun-24	Ammonia-Nitrogen	32.25	2.0	mg/L	Average Monthly	
Jun-24	Ammonia-Nitrogen	60.80	4.0	mg/L	Instantaneous Maximum	
Jun-24	Total Residual Chlorine (TRC)	0.511	.03	mg/L	Average Monthly	
Jun-24	Total Residual Chlorine (TRC)	0.61	.11	mg/L	Instantaneous Maximum	
May-24	Ammonia-Nitrogen	14.35	2.0	mg/L	Average Monthly	
May-24	Ammonia-Nitrogen	14.70	4.0	mg/L	Instantaneous Maximum	
Mar-24	Ammonia-Nitrogen	13.15	5.0	mg/L	Average Monthly	
Mar-24	Ammonia-Nitrogen	14.50	10.0	mg/L	Instantaneous Maximum	
Jan-24	Ammonia-Nitrogen	11.9	10.0	mg/L	Instantaneous Maximum	
Jan-24	Ammonia-Nitrogen	6.85	5.0	mg/L	Average Monthly	
Dec-23	Ammonia-Nitrogen	26.3	5.0	mg/L	Average Monthly	
Dec-23	Ammonia-Nitrogen	27.4	10.0	mg/L	Instantaneous Maximum	
Nov-23	Ammonia-Nitrogen	28.1	5.0	mg/L	Average Monthly	
Nov-23	Ammonia-Nitrogen	37.8	10.0	mg/L	Instantaneous Maximum	
Oct-23	Dissolved Oxygen	4.3	5.0	mg/L	Daily Minimum	

Aug-23	Ammonia-Nitrogen	13.7	2.0	mg/L	Average Monthly	Scheduled a hauling until we catch up to the proper solids level
Aug-23	Ammonia-Nitrogen	19.5	4.0	mg/L	Instantaneous Maximum	
Jun-23	Ammonia-Nitrogen	11.0	4.0	mg/L	Instantaneous Maximum	Looking into repairs with owner
Jun-23	Ammonia-Nitrogen	7.85	2.0	mg/L	Average Monthly	Looking into repairs with owner
Aug-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	42.5	25	mg/L	Average Monthly	Accidental spill of Dechlor caused a false high of the CBOD test. I revived Chemical handling with site personal and as evidenced by the second reading of the month of <2.0 mg/L. Performance has be stabilized.
Aug-22	Carbonaceous Biochemical Oxygen Demand (CBOD5)	83.0	50	mg/L	Instantaneous Maximum	Accidental spill of Dechlor caused a false high of the CBOD test. I revived Chemical handling with site personal and as evidenced by the second reading of the month of <2.0 mg/L. Performance has be stabilized.
Apr-22	Total Suspended Solids	36.5	30	mg/L	Average Monthly	Wasting procedures have been updated to properly maintain sludge blanket levels.

Compliance Status: No open violations or pending enforcements at this time. Inspection to be scheduled to follow up on effluent exceedances that have occurred since the last Compliance Evaluation Inspection.

Completed by: Amanda Illar

Completed date: 2/3/25

Compliance History

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	0.023	0.023	0.0201	0.023	0.0228	0.0155	0.009	0.0023		0.009	0.009	0.009
pH (S.U.) Daily Minimum	6.99	7.04	6.85	7.00	6.91	6.81	7.08	7.12		7.11	7.22	7.16
pH (S.U.) Daily Maximum	8.49	7.79	7.16	7.00	7.21	7.1	7.2	7.21		7.46	7.56	8.07
DO (mg/L) Daily Minimum	5.01	5.01	5.0	5.0	5.01	5.07	5.0	5.01		5.67	5.10	6.9
TRC (mg/L) Average Monthly	0.03	0.10	0.50	0.10	0.52	0.024	0.511	0.03	0.08	0.018	0.10	0.10
TRC (mg/L) Instantaneous Maximum	0.09	0.12	0.70	0.11	0.79	0.08	0.61	0.11	0.12	0.06	0.11	0.10
CBOD5 (mg/L) Average Monthly	2.0	3.75	2.55	< 2	2.9	3.05	19.85	7.75		15.2	18.6	4.2
CBOD5 (mg/L) Instantaneous Maximum	2.0	5.5	3.1	< 2	3	4.1	26.3	13.5		18.7	35.2	6.2
TSS (mg/L) Average Monthly	5.0	5.5	< 5.0	5.0	5.5	6.5	18.5	8.5		6.5	13.5	9.5
TSS (mg/L) Instantaneous Maximum	5.0	6.0	< 5.0	5.0	6.0	8.0	32.0	11.0		8.0	22.0	14.0
Fecal Coliform (No./100 ml) Geometric Mean	1.41	1.0	< 1	< 1.0	1.41	1.0	8.37	10.95		1.0	1.0	42.85
Fecal Coliform (No./100 ml) Instantaneous Maximum	2.0	1.0	< 1	< 1.0	2	1.0	70	60		1	1.0	51
Ammonia (mg/L) Average Monthly	0.45	0.55	0.45	0.3	1.35	0.8	32.25	14.35		13.15	4.7	6.85
Ammonia (mg/L) Instantaneous Maximum	0.70	6.0	0.80	0.3	1.6	1.3	60.80	14.70		14.50	9.30	11.9

Compliance History

Effluent Violations for Outfall 001, from: February 1, 2024 To: December 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	09/30/24	Avg Mo	0.10	mg/L	.03	mg/L
TRC	11/30/24	Avg Mo	0.10	mg/L	.03	mg/L
TRC	06/30/24	Avg Mo	0.511	mg/L	.03	mg/L
TRC	10/31/24	Avg Mo	0.50	mg/L	.03	mg/L
TRC	11/30/24	Avg Mo	0.10	mg/L	.03	mg/L
TRC	08/31/24	Avg Mo	0.52	mg/L	.03	mg/L
TRC	06/30/24	IMAX	0.61	mg/L	.11	mg/L
TRC	11/30/24	IMAX	0.12	mg/L	.11	mg/L
TRC	10/31/24	IMAX	0.70	mg/L	.11	mg/L
TRC	08/31/24	IMAX	0.79	mg/L	.11	mg/L
TRC	11/30/24	IMAX	0.12	mg/L	.11	mg/L
Ammonia	06/30/24	Avg Mo	32.25	mg/L	2.0	mg/L
Ammonia	05/31/24	Avg Mo	14.35	mg/L	2.0	mg/L
Ammonia	03/31/24	Avg Mo	13.15	mg/L	5.0	mg/L
Ammonia	05/31/24	IMAX	14.70	mg/L	4.0	mg/L
Ammonia	03/31/24	IMAX	14.50	mg/L	10.0	mg/L
Ammonia	06/30/24	IMAX	60.80	mg/L	4.0	mg/L

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .02293
Latitude 40º 42' 42.72" **Longitude** -80º 11' 51.00"
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)

Water Quality-Based Limitations

The discharge was evaluated using WQM7.0 to determine the $CBOD_5$, ammonia nitrogen, and dissolved oxygen parameters. The model results show more restrictive limits for Ammonia-Nitrogen.

The limits for CBOD5, and DO will not change.

TRC was calculated using the TRC Spreadsheet. The spreadsheet shows more restrictive limits for TRC.

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	25 50	Average Monthly IMAX	WQM7.0
Dissolved Oxygen	5	Minimum	WQM7.0
Ammonia-Nitrogen Nov 1 - Apr 30	2.82 5.64	Average Monthly IMAX	WQM7.0
Ammonia-Nitrogen May 1 - Oct 31	1.95 3.9	Average Monthly IMAX	WQM7.0
TRC	0.014 0.046	Average Monthly IMAX	TRC Spreadsheet

Per eDMR data the facility will not be able to meet the new more restrictive limits for Ammonia-Nitrogen and TRC. Therefore, a compliance schedule of three years will be given to the facility to meet these more restrictive limits. Section C 103 – Schedule of compliance, will also be added to the NPDES permit.

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.

The facility is not seeking to revise the previously permitted effluent limits.

Additional Considerations

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 of 0.002 - 0.05 MGD.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

An annual sampling frequency for total phosphorus and total nitrogen will again be imposed per 25 PA Code §92a.61.

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 Three Years After Permit Effective 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	0.03	XXX	0.11	1/day	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	5.0	XXX	10.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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: End of Interim Period 1 through Three Years After Permit Effective 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	0.01	XXX	0.04	1/day	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	2.82	XXX	5.64	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.95	XXX	3.9	2/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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)	0.023	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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Attachment 1
TRC Calculations

TRC_CALC (1)

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.00132	= Q stream (cfs)	0.5	= CV Daily
0.023	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.031	1.3.2.iii	WLA cfc =	0.023
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.011	5.1d	LTA_cfc =	0.013

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.014	AFC
		INST MAX LIMIT (mg/l) =	0.046	

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)

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Attachment 2
Upstream USGS StreamStat Data

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StreamStats Report

Region ID: PA
Workspace ID: PA20250122160848943000
Clicked Point (Latitude, Longitude): 40.71183, -80.19749
Time: 2025-01-22 11:09:11 -0500

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.23	square miles
ELEV	Mean Basin Elevation	1162	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	0.23	square miles	2.26	1400
ELEV	Mean Basin Elevation	1162	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00512	ft^3/s
30 Day 2 Year Low Flow	0.0106	ft^3/s
7 Day 10 Year Low Flow	0.00132	ft^3/s

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Attachment 3
Downstream USGS StreamStat Data

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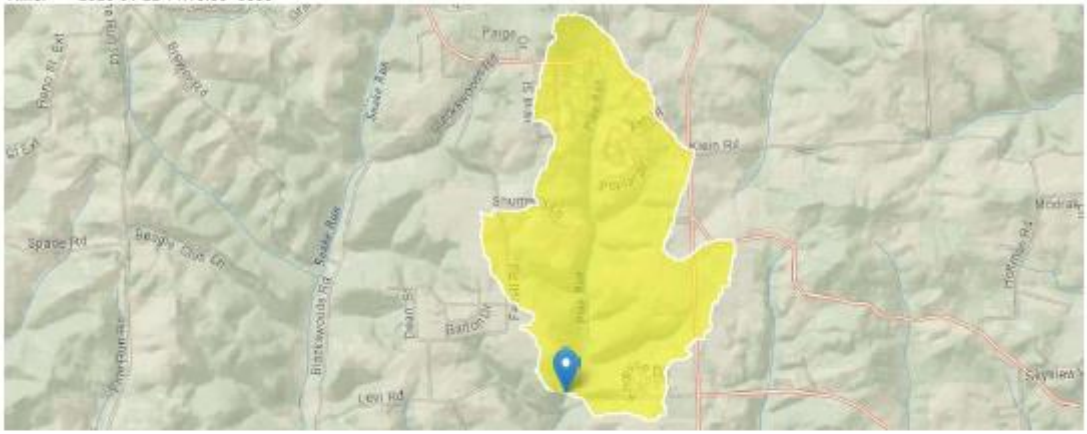
StreamStats Report

Region ID: PA
Workspace ID: PA20250122161517112000
Clicked Point (Latitude, Longitude): 40.69818, -80.19939
Time: 2025-01-22 11:15:50 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.02	square miles
ELEV	Mean Basin Elevation	1123	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	1.02	square miles	2.26	1400
ELEV	Mean Basin Elevation	1123	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0272	ft^3/s
30 Day 2 Year Low Flow	0.0522	ft^3/s
7 Day 10 Year Low Flow	0.00811	ft^3/s
30 Day 10 Year Low Flow	0.0172	ft^3/s

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Attachment 4
Summer WQM7 Modeling

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
20G	36569	PINE RUN	**2.590**	1162.00	0.23	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	0.005	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
Forest Brook	PA0205664	0.0230	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
20G	36569	PINE RUN

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												
2.590	0.00	0.00	0.00	.0356	0.00739	.309	2.53	8.2	0.05	1.293	20.18	7.00
Q1-10 Flow												
2.590	0.00	0.00	0.00	.0356	0.00739	NA	NA	NA	0.05	1.303	20.12	7.00
Q30-10 Flow												
2.590	0.00	0.00	0.00	.0356	0.00739	NA	NA	NA	0.05	1.284	20.24	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

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
2.590	Forest Brook	16.6	16.99	16.6	16.99	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
2.590	Forest Brook	1.86	1.95	1.86	1.95	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)		
2.59	Forest Brook	25	25	1.95	1.95	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.590	0.023	20.179	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.531	0.309	8.203	0.047
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.18	1.486	1.88	0.710
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.116	24.827	Owens	5
Reach Travel Time (days)			
1.293			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.129	19.92	1.72	6.92
0.259	16.41	1.57	7.33
0.388	13.52	1.43	7.63
0.517	11.14	1.30	7.88
0.647	9.17	1.19	8.08
0.776	7.56	1.09	8.22
0.905	6.23	0.99	8.22
1.035	5.13	0.90	8.22
1.164	4.23	0.82	8.22
1.293	3.48	0.75	8.22

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

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)
2.590	Forest Brook	PA0205664	0.023	CBOD5	25		
				NH3-N	1.95	3.9	
				Dissolved Oxygen			5

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Attachment 5
Winter WQM7 Modeling

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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
20G	36569	PINE RUN	**2.590**	1162.00	0.23	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	0.010	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
Forest Brook	PA0205664	0.0230	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
20G	36569	PINE RUN

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												
2.590	0.00	0.00	0.00	.0356	0.00739	.309	2.53	8.2	0.05	1.293	14.64	7.00
Q1-10 Flow												
2.590	0.00	0.00	0.00	.0356	0.00739	NA	NA	NA	0.05	1.303	14.77	7.00
Q30-10 Flow												
2.590	0.00	0.00	0.00	.0356	0.00739	NA	NA	NA	0.05	1.284	14.52	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

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
2.590	Forest Brook	24.1	24.68	24.1	24.68	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
2.590	Forest Brook	2.69	2.82	2.69	2.82	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)		
2.59	Forest Brook	25	25	2.82	2.82	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.590	0.023	14.642	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.531	0.309	8.203	0.047
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.18	1.490	2.72	0.463
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.269	21.772	Owens	5
Reach Travel Time (days)			
1.293			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.129	20.80	2.56	8.01
0.259	17.89	2.41	8.41
0.388	15.39	2.27	8.65
0.517	13.24	2.14	8.84
0.647	11.38	2.02	9.01
0.776	9.79	1.90	9.16
0.905	8.42	1.79	9.16
1.035	7.25	1.68	9.16
1.164	6.23	1.59	9.16
1.293	5.36	1.49	9.16

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36569	PINE RUN

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)
2.590	Forest Brook	PA0205664	0.023	CBOD5	25		
				NH3-N	2.82	5.64	
				Dissolved Oxygen			5