pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0022276**
Facility Type	**Non-Municipal**	APS ID	**1104062**
Major / Minor	**Minor**	Authorization ID	**1467894**

Applicant and Facility Information

Applicant Name	**Southmoreland School District**	Facility Name	**Southmoreland School District STP**
Applicant Address	2351 Route 981	Facility Address	2348 Route 981
	Alverton, PA 15612		Alverton, PA 15612
Applicant Contact	Calvin Trader	Facility Contact	Same as Applicant
Applicant Phone	(724) 887-2035	Facility Phone	Same as Applicant
Client ID	64098	Site ID	251037
Ch 94 Load Status	Not Overloaded	Municipality	East Huntingdon Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	January 9, 2024	EPA Waived?	Yes
Date Application Accepted	January 16, 2024	If No, Reason	

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

Summary of Review

The Southmoreland School District has applied for a renewal of the NPDES Permit PA0022276, which was last issued on November 15, 2017 and it expired on November 30, 2022, the renewal permit was submitted to the Department on January 9, 2024 which considered late.

WQM Part II Permit No. 6503407 was issued by the Department on March 16, 2004 authorized the construction of this facility, the STP is an extended aeration process consisting of flow equalization, aeration, final clarification, aerobic digestion, and Ultra-Violet disinfection unit.

The receiving stream is the Unnamed Tributary to Stauffer Run, which is classified as a Warm Water Fishery (WWF) per CH93 and located in the State watershed 19-D.

Point of First Use

When using the application's Outfall coordinates on PA eMAP, the mapping tool indicates that the receiving waters is Tributary 37931 to Stauffer Run, which is differ from the previous permit and factsheet were listing the receiving water as Tributary 37927 to Stauffer Run.
Based on the new information provided above, DEP performed a Point of First Use (POFU) assessment on August 13, 2024 to evaluate the new outfall location and determine the point of first use within the receiving water. During the site visit, Outfall 001 was not discharging, it seems that the discharge is to an earth ditch (Undocumented ditch to UNT 37931 to Staffer Run). The earth ditch appears to convey the effluent discharge to UNT 37931 to Staffer Run (see appendix A). Per the POFU report, the UNT 37931 to Staffer Run had at least two taxa found in it from a survey done on 07/08/2004 (see Figures 3 &4), and that makes UNT 37931 to Stauffer Run the point of first aquatic life use.

Approve	Deny	Signatures	Date
X		Hazim Aldalli Hazim Aldalli / Environmental Engineering Specialist	December 19, 2024
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	December 20, 2024

Summary of Review

During the survey, the treatment facility Operator stated that the main pump, the blower, and the UV lamps were all replaced during 2024 School Spring holiday. Also, the sludge was hauled by a private contractor a day before DEP visit.

Operations compliance report on May 21, 2024 concluded that the facility generally is in compliance.

The Act – 14 PL 834 Municipal Notifications were provided by the December 12, 2023 letters and no comments were received.

Renewal permit issuance is recommended.

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)	0.021
Latitude	40º 8' 6.00"	Longitude	-79º 35' 29.00"
Quad Name	Mount Pleasant	Quad Code	40079B5
Wastewater Description:	Sewage Effluent		

Receiving Waters	Tributary 37931 to Stauffer Run	Stream Code	37931
NHD Com ID	69914593	RMI	0.27
Drainage Area	0.94	Yield (cfs/mi^2)	0.00807
Q_{7-10} Flow (cfs)	**0.00759**	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1195	Slope (ft/ft)	0.02
Watershed No.	19-D	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	Name	Stauffer Run

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

Nearest Downstream Public Water Supply Intake	WEST CNTY MUNI AUTH-MCKEESPORT		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.36	Distance from Outfall (mi)	>40.0

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 Appendix B).

- 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: Southmoreland School District STP				
WQM Permit No.	**Issuance Date**			
6503407	March 16, 2004			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary Treatment with Ammonia Removal	Extended Aeration	UV Disinfection	0.00444
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.021	55.97	Not Overloaded	Aerobic Digestion	None.

Changes Since Last Permit Issuance: None.

Other Comments: None.

Compliance History

Operations Compliance Check Summary Report

Facility: SOUTHMORELAND SCH DIST STP
NPDES Permit No.: PA0022276
Compliance Review Period: 5/1/19-5/16/24
Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
12/28/2023	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
02/22/2022	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	
02/21/2022	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted	An administrative file review from 1/1/19 to 2/21/22 revealed (9) effluent violations that have been notated on the 2/22/2022 CEI report.
12/20/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	VIOLATION COMMENT
12/28/2023	302.202	Operator Certification - Failure to submit annual system fee	01/10/2024	Received 2023 Chapter 302 Fees
02/22/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit	07/19/2022	
02/22/2022	252.4(A)	NPDES - Failure to utilize an accredited environmental laboratory for testing or analysis of environmental samples	07/19/2022	
12/20/2021	302.202	Operator Certification - Failure to submit annual system fee	01/10/2022	

Open Violations by Client ID:
No open violations for Client ID 64098
Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
NOV	Notice of Violation	12/28/2023	302.202	Comply/Closed	01/10/2024
NOV	Notice of Violation	03/27/2022	92A.44, 252.4(A)	Administrative Close Out	05/21/2024
NOV	Notice of Violation	12/20/2021	302.202	Comply/Closed	01/10/2022

Effluent Violation Summary:

Mon Pd	OUT FALL	PARAMETER	SAMPLE	PERMIT	UNIT	STAT_BASE_CODE	FACILITY_COMMENTS
Feb-24	1	Flow	0.05647	0.021	MGD	Average Monthly	
Aug-23	1	Fecal Coliform	1724	1000	No./100 ml	Instantaneous Maximum	Ultraviolet Disinfection System UV Lamp Connector Became corroded and shorter out rendering UV Lamp inoperable. Replaced UV Lamp Connector and found Disinfection Unit to be operating properly.
Oct-21	1	Total Suspended Solids	35	30	mg/L	Average Monthly	EQ Tank Pump Float was malfunctioning allowing EQ Pumps to run for longer period of time causing excess flow in Aeration Tanks causing higher solids in Effluent. Repositioned float to correct issue.
Aug-21	1	Fecal Coliform	2440	1000	No./100 ml	Instantaneous Maximum	UV Bulb & Socket Shorted out causing the socket & bulb to become faulty. Replaced UV Bulb, Quartz Sleeve, & Bulb Sockets.
May-21	1	Total Suspended Solids	39	30	mg/L	Average Monthly	Blower timers were changed to allow for more settling of solids & polymer was added to aeration bays to assist in solids settling.
Apr-21	1	Total Suspended Solids	33	30	mg/L	Average Monthly	Return Pump Clogged allowing accumulation of solids in clarifier prior to NPDES Sampling. Unclogged Pump & Line & found system to be operating properly.
Nov-20	1	Total Suspended Solids	46	30	mg/L	Average Monthly	Due to Covid-19 related school closure lack of influent plant flow causing high TSS. Had additional sludge hauled and cleaned tanks & lines.
Aug-20	1	Total Suspended Solids	35	30	mg/L	Average Monthly	Low flow due to no students or personnel in the school district. Cleaned and flushed lines. Cleaned all the tanks. Due to Covid 19.
Nov-19	1	Carbonaceous Biochemical Oxygen Demand (CBOD5)	26	25	mg/L	Average Monthly	A series occurred
Jun-19	1	Ammonia-Nitrogen	15.3	13	mg/L	Instantaneous Maximum	ENSURING ADEQUATE DO, ADJUSTING RETURN SLUDGE RATE AND ADDING SODA ASH. CLEANED PIPING.
Jun-19	1	Ammonia-Nitrogen	9.18	6.5	mg/L	Average Monthly	ENSURED ADEQUATE DO. ADJUSTING RETURN SLUDGE RATE AND ADDING SODA ASH. CLEANED PIPING

Compliance Status: Facility is generally in compliance with no open violations or pending enforcements.
Completed by: Amanda Illar
Completed date: 5/21/24

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.021
Latitude 40º 8' 6.00" **Longitude** -79º 35' 29.00"
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 existing discharge was evaluated using WQM 7.0 for $CBOD_5$, Ammonia Nitrogen and Dissolved Oxygen. The Total Suspended Solids, 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.

Stream water to wastewater discharge ratio = 0.00759/0.03249= 0.2336; the stream is effluent dominated. The stream flow ($Q_{7\text{-}10}$) to wastewater flow (design flow) ratio is less than 3:1. Therefore, PADEP's dry stream guidance will be considered to evaluate applicable effluent limitations and/or monitoring requirements. Per SOP- *Establishing Effluent Limitations for Individual Sewage Permits*, for existing discharges, apply the more stringent treatment requirements in DEP's *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers* (391-2000-014). the STP receiving stream (Tributary 37931 to Stauffer Run) is impaired (see page 3); therefore, Advanced Treatment Requirements stated under DEP's SOP "*Establishing Effluent Limitations for Individual Sewage Permits* Revised, February 5, 2024" Part I.C.1 &3 is applicable. Accordingly, Part C.I.F condition has been added to the permit.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling, output files attached (see Appendix C&D):

Parameter	Limit (mg/l)	SBC	Model
CBOD5 (May1-Oct 31)	25	Average Monthly	WQM7.0
CBOD5 (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH3-N (May1-Oct 31)	2.3	Average Monthly	WQM7.0
NH3-N (Nov 1- Apr 30)	4.4	Average Monthly	WQM7.0
Dissolved Oxygen	5	Minimum	WQM7.0

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) WQBEL of 5.0 mg/L should be maintained based on DEP water quality model WQM 7.0 version 1.10 (Appendix B) and based on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as listed in the table under Technology-Based Limitations section.

WQM 7.0 was used to generate a warm period seasonal limits for Ammonia-Nitrogen NH_3-N AML of 2.3 mg/L, Weekly Average of 3.4 mg/L, and Ins. Max of 4.6 mg/L, also the model generated cold period seasonal limits of AML 4.4 mg/L, Weekly Average of 6.6 mg/L, and Ins. Max of 8.8 mg/L. The new WQBELs are more stringent than the previous permit limits for Ammonia Nitrogen.
Checking on the application effluent sampling and the eDMRs, the facility can meet the newly imposed WQBELs for Ammonia-Nitrogen as the plant has achieved effluent sampling results of NH_3-N lower than this limit; no compliance schedule is necessary. Weekly monitoring will be required.

WQM 7.0 generated $CBOD_5$ WQBEL year around limits of AML 25.0 mg/L, Weekly Average of 37.0 mg/L, and Ins. Max of 50.0 mg/L, the new seasonal limits are less stringent than the advanced treatment requirements of AML 10 mg/L, and Ins. Max of 20 mg/.

Total Suspended Solids AML of 10 mg/L, and Ins. Max of 20 mg/l will be imposed for this renewal.

Anti-Backsliding

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

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. The receiving stream is not impaired with nutrients (per PA eMAP), and since the renewal application's effluent sampling and DMRs showed no water criteria limit violations, no limits are needed to be imposed or frequency increments per DEP-SOP No. BCW-PMT-033 Part I.C.1 &3 revised February 5, 2024, Annual 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. 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) yearly monitoring for *E. Coli* will be imposed at Outfall (001) to determine if *E. Coli* will be a pollutant of concern, which is consistent with DEP SOP No. BCW-PMT-033 revised March 24, 2021.

Stauffer Run TMDL

The discharge is to the Stauffer Run Watershed that has a Final TMDL, and the segment ID 37931 is impaired by metals. This facility of a treated sanitary sewage discharge is not expected to contribute to the stream impairment for which abandoned mine drainage is the source of such impairment. A 1/year monitor and report requirement for Iron, Manganese, and Aluminum is already established in the previous permit to verify that the sewage discharge is not contributing to the impairment.

Influent Monitoring

Per DEP SOP No. BCW-PMT-033 revised March 24, 2021, 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.

Mass Loadings

Mass loading limits are applicable for Publicly Owned Treatment Works (POTW). Current policy requires average monthly mass loading limits be established for $CBOD_5$, TSS, and NH_3-N 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).

Monitoring Frequency Considerations

Pursuant to 25 Pa. code § 92a.12 and 92a.61 effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory standards, and monitoring requirements as summarized in the table in the following page.

Monitoring frequencies and sample types are established pursuant to DEPs “Technical Guidance for the Development and Specification of Effluent Limitations, and Other Permit Conditions in NPDES Permits”, and per DEP SOP - Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033 Revised, February 5, 2024.

The imposed monitoring frequencies are consistent with current policy and the Table 6-3 of DEP’s Technical Guidance mentioned above.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.021	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	5/week	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	5/week	Grab
CBOD5	XXX	XXX	XXX	10	XXX	20	2/month	Grab
TSS	XXX	XXX	XXX	10	XXX	20	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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	5/week	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	4.4	XXX	8.8	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2.3	XXX	4.6	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
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.

Appendix A – Point of First Use Survey

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MEMO

TO Hazim Aldalli
Environmental Engineering Specialist
Clean Water Program

FROM Richard Spear
Aquatic Biologist Supervisor
Clean Water Program

DATE August 27, 2024

RE Point of First Use Survey
Unnamed and Undocumented Ditch to UNT 37931 to Stauffer Run
State Water Plan: 19D
Hydrologic Unit Code: 0502006
Stream Code: N/A
East Huntington Township, Westmorleand County, PA

INTRODUCTION

On August 13, 2024, at the request of Hazim Aldalli of the PA DEP Clean Water Program, a Point of First Surface Water Use (POFU) Survey was attempted in the vicinity of an Unnamed and Undocumented Ditch near Sewickley Creek (Figure 1). This is the Southmoreland School District property at 2351 State Route 981 Alverton, PA 15612. The sampling location was at latitude 40.133955 and the longitude was -79.591726 (Figure 1). I went with my intern Jolijn Battaglia, and Hazim Aldalli of the DEP, and we meet Calvin the plant operator at the site.

SAMPLING METHODOLOGY

The POFU is the location at which a body of water can support aquatic life as defined in 25 Pennsylvania Code §93. Guidance for determining the POFU is in the Department's guidance document #391-2000-014, Policy and Procedures for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (revised April 12, 2008). Specifically, Appendix B of the guidance document provides additional guidance when making a POFU determination.

We were unable to collect aquatic macroinvertebrate samples on the Unnamed and Undocumented Ditch to UNT 37931 to Stauffer Run. The streambed had no flowing water in it and was dry (Figure 2). If the sampling was performed, it would have been in accordance with the Department's Qualitative Benthic Macroinvertebrate Data Collection Protocol, found in the Water Quality Monitoring Protocols for Streams and Rivers 2021 (Monitoring Book), which can be found by accessing the following website:

https://files.dep.state.pa.us/Water/Drinking Water and Facility Regulation/WaterQualityPortalFiles/Technical Documentation/MONITORING_BOOK.pdf

RESULTS, DISCUSSION, AND CONCLUSIONS

The objective of this study was to examine aquatic life in the Unnamed and Undocumented Ditch to UNT 37931to Stauffer Run (Figure 2) to determine if and where the stream is capable of supporting an aquatic life use as defined in 25 Pennsylvania Code §93.9q, where water quality standards must be met. The Unnamed and Undocumented Ditch is a conveyance to UNT 37931 to Stauffer Run. UNT 37931 to Stauffer Run has an aquatic life use. At least two taxa were found in UNT 37931 to Stauffer Run from a survey done on 07/08/2004 (Figures 3 &4), and that makes UNT 37931 to Stauffer Run the point of first aquatic life use.

cc: Stream File – Unnamed and Undocumented to UNT 37931 to Stauffer Run
Stacey Greenwald – SWRO, Environmental Group Manager
Christopher Kriley – SWRO, Environmental Program Manager
Mahbuba Iasmin - SWRO, Environmental Group Manager
Erika Arnold – CO, Environmental Group Manager

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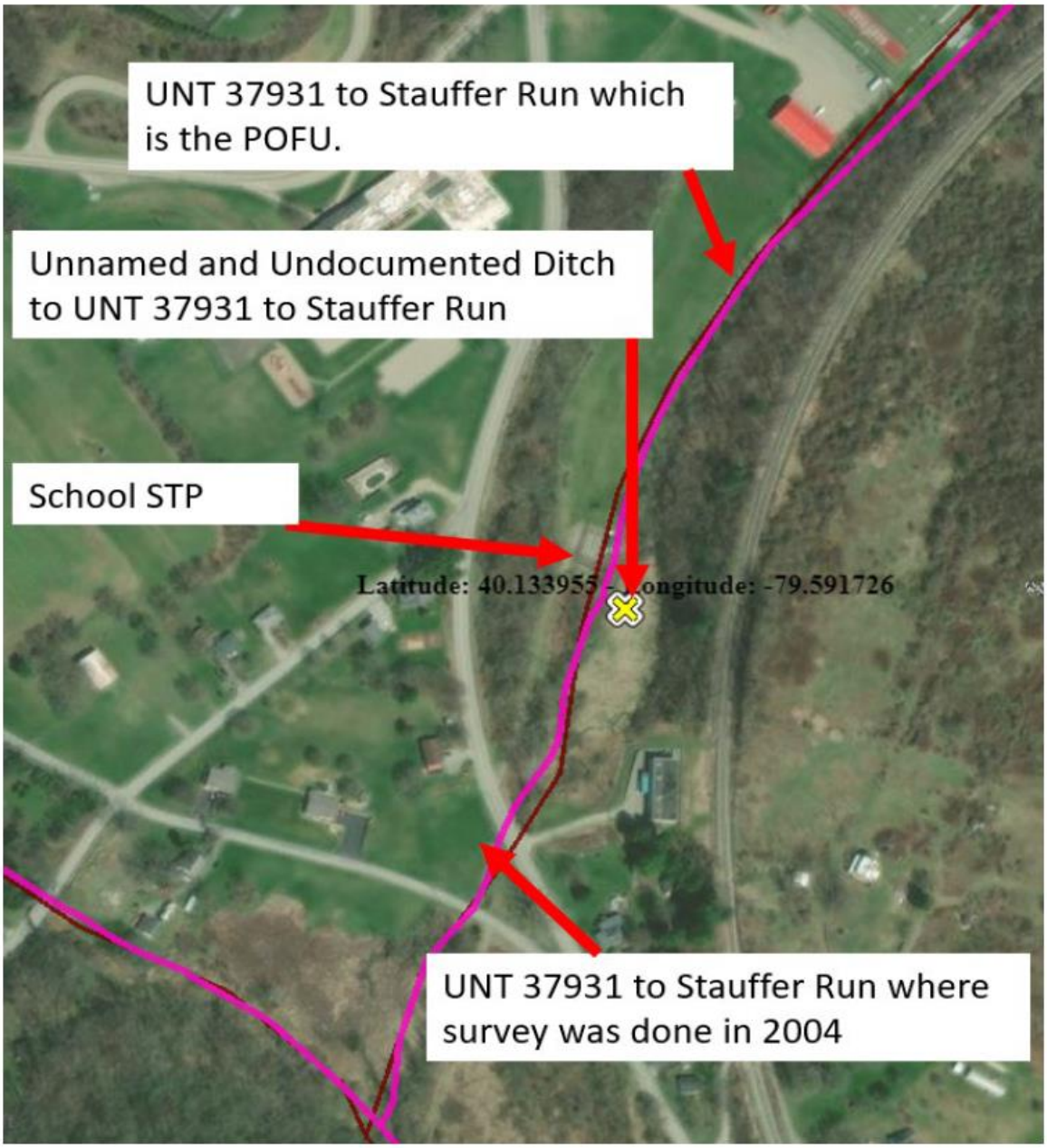

Figure 1. Map of Unnamed and Undocumented Ditch to UNT 37931 to Stauffer Run

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Figure 2. Discharge point on Unnamed and Undocumented Ditch UNT 37931 to Stauffer Run

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Pennsylvania Department of Environmental Protection - Statewide Surface Waters Assessment Protocol (SSWAP)

Benthic macroinvertebrate sample summary

Station ID 20040708-1400-ALF

Stream Name Stauffer Run (Unamed Trib 69914593 To) **Stream Code** 37931 **Strahler** 1

Survey ID 53769 **Sample Method** Kick Screen: Statewide Surface Water Assessment Program

Collection Date **Collection Time** **Latitude** 40.13207356 **Longitude** -79.5929954

HUC8 05020006 Youghiogheny

Station Location Comments

Rt. 981 South into Alverton, bear left onto SR 3089
Mt. Pleasant Quad

Biology / Physical Habitat Comments

Land Use Comments

Mixed land use

Impairment Status Comments

AMD in HW iron ppt

Taxa List

Taxa Name	Abundance Category	Abundance Range	PTV	FFG
Baetidae	Rare	<3	6	CG
Macrominae	Rare	<3	5	
Sialidae	Rare	<3	6	PR
Hydropsychidae	Present	3-9	5	FC
Chironomidae(other)	Present	3-9	6	
Chironomidae (red)	Present	3-9	7	
Tabanidae	Rare	<3	6	PI
Simullidae	Rare	<3	6	FC
Turbellaria	Present	3-9	9	
Cambaridae	Common	10-24	6	CG

SSWAP metrics and IBI

	Raw Metric Value	Standardized Metric Value
Total Richness	10	45.5
EPT Richness (PTV 0 - 4)	0	0.0
Beck's Index (version 3)	0	0.0
Hilsenhoff Biotic Index	6.30	50.0
Shannon Diversity	1.95	74.0
	SSWAP IBI	**33.9**

report generated Monday, August 5, 2024 Page 1 of 2

Figure 3. Macroinvertebrate Data on Unnamed and Undocumented Ditch UNT 37931 to Stauffer Run Page 1

Pennsylvania Department of Environmental Protection - Statewide Surface Waters Assessment Protocol (SSWAP)

Benthic macroinvertebrate sample summary

Station ID 20040708-1400-ALF

Stream Name Stauffer Run (Unamed Trib 69914593 To) **Stream Code** 37931 **Strahler** 1

Survey ID 53769 **Sample Method** Kick Screen: Statewide Surface Water Assessment Program

Collection Date **Collection Time** **Latitude** 40.13207356 **Longitude** -79.5929954

HUC8 05020006 Youghiogheny

1. Abundance obviously low		Y
2. Seven or fewer families		N
3. Three or fewer mayfly individuals (exclude Baetidae, Caenidae, Siphlonuridae)		Y
4. Stoneflies collectively present	N	
5. Mayflies and caddisflies collectively abundant (exclude Baetidae, Caenidae, Siphlonuridae, Hydropsychidae, Polycentropidae)	N	
6. Jul - Sep: at least four EPT families with tolerance value of 4 or less Nov - May: at least six EPT families with tolerance value of 4 or less	N	
7. Four or more families with tolerance value of 3 or less	N	
8. Six or more families with tolerance value of 4 or less	N	
9. Dominant family with tolerance value of 4 or less	N	
10. Dominant family with tolerance value greater than 5 (criteria 7 and 8 negate this criterion)		Y
11. Seven or more families with tolerance value of 6 or more (criteria 7 and 8 negate this criterion)		Y
12. Sample dominated by families with a mean tolerance value of 5 or less	N	
13. Sample dominated by families with a mean tolerance value of 6 or more		Y
14. Embeddedness (or substrate character for pool/glide) + sediment deposition = 24 or less (20 or less for warmwater, low gradient streams)		N
15. Condition of banks + bank vegetation = 24 or less (20 or less for warmwater, low gradient streams)		Y
16. Total habitat score 140 or less for forested, coldwater, high gradient streams (120 or less for warmwater, low gradient streams)		N
17a. Special conditions (attaining)	N	
17b. Special conditions (impaired)		N
17c. Special conditons description		

Not impaired N **Biology impaired** Y **Habitat impaired** N **Insufficient data** N

Rock pick influenced assessment N **Impact is localized** N **Re-evaluate designated use** N

Physical Habitat Assessment **Pool/Glide Assessment** N

Instream Cover	10	Substrate / Cover	0	Frequency of Riffles	13	Contition of Banks	14
Epifaunal Substrate	12	Velocity/Depth Regimes	14	Channel Sinuosity	13	Bank Vegetation	15
Embeddedness	12	Pool Variability	0	Channel Flow Status	14	Disruptive Pressure	14
Pool Substrate	0	Sediment Deposition	13	Channel Alteration	14	Riparian Zone	12

Instream Score 47 **Riparian Score** 41 **Total Score** 157

Field Measurements **Lab samples**

Temperature (°C)	21.35	Dissolved Oxygen (mg/L)	6.18	Flow (CFS)	
pH	7.62	Alkalinity (mg/L as CaCO3)		Conductivity	821

Use Assessment Status for Stream Reach **Designated Use** WWF **Existing Use**

Aquatic Life Impaired (20040708-1400-ALF)
Abandoned Mine Drainage - Metals
Fe

Fish Consumption

Potable Water Supply

Recreation

TMDL Information (If any)

Stauffer Run (Finalized): AMD - Metals, AMD - pH

Begin Date 1/10/2009 **Meeting Date** 1/22/2009 **Draft Date** **End Date** **Final Date** 4/9/2009

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Figure 4. Macroinvertebrate Data on Unnamed and Undocumented Ditch UNT 37931 to Stauffer Run Page 2

Appendix B – StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20240524142627876000
Clicked Point (Latitude, Longitude): 40.13602, -79.59050
Time: 2024-05-24 10:26:55 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.94	square miles
ELEV	Mean Basin Elevation	1195	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	0.94	square miles	2.26	1400
ELEV	Mean Basin Elevation	1195	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	0.0261	ft^3/s
30 Day 2 Year Low Flow	0.0504	ft^3/s
7 Day 10 Year Low Flow	0.00759	ft^3/s
30 Day 10 Year Low Flow	0.0163	ft^3/s

Statistic	Value	Unit
90 Day 10 Year Low Flow	0.0335	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: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Appendix C – WQM 7.0 Modeling – Summer Conditions

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
19D	37931	Trib 37931 to Stauffer Run	0.270	1195.00	0.94	0.00200	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	0.008	0.01	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
Southmore STP	PA0022276	0.0210	0.0210	0.0210	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
19D	37931	Trib 37931 to Stauffer Run	0.100	1165.00	5.04	0.00200	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	0.012	0.06	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
Southmore STP	PA0022276	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
19D	37931	Trib 37931 to Stauffer 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												
0.270	0.01	0.00	0.01	.0325	0.00200	.351	3.51	10	0.03	0.319	20.95	7.00
Q1-10 Flow												
0.270	0.00	0.00	0.00	.0325	0.00200	NA	NA	NA	0.03	0.332	20.65	7.00
Q30-10 Flow												
0.270	0.01	0.00	0.01	.0325	0.00200	NA	NA	NA	0.03	0.307	21.21	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
19D	37931	Trib 37931 to Stauffer Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.270	0.021	20.947	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.507	0.351	10.000	0.033
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
20.64	1.465	1.88	0.753
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.614	15.547	Owens	5
Reach Travel Time (days)			
0.319			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.032	19.66	1.83	5.62
0.064	18.73	1.79	5.68
0.096	17.83	1.75	5.77
0.128	16.98	1.70	5.88
0.159	16.18	1.66	6.00
0.191	15.41	1.62	6.12
0.223	14.67	1.59	6.24
0.255	13.97	1.55	6.36
0.287	13.31	1.51	6.47
0.319	12.68	1.48	6.58

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37931	Trib 37931 to Stauffer 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
0.270	Southmore STP	9.23	10.61	9.23	10.61	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
0.270	Southmore STP	1.76	2.32	1.76	2.32	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)		
0.27	Southmore STP	25	25	2.32	2.32	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37931	Trib 37931 to Stauffer 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)
0.270	Southmore STP	PA0022276	0.021	CBOD5	25		
				NH3-N	2.32	4.64	
				Dissolved Oxygen			5

Appendix D – WQM 7.0 Modeling – Winter Conditions

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
19D	37931	Trib 37931 to Stauffer Run	0.270	1195.00	0.94	0.00200	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	0.016	0.01	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
Southmore STP	PA0022276	0.0210	0.0210	0.0210	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
19D	37931	Trib 37931 to Stauffer Run	0.100	1165.00	5.04	0.00200	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	0.023	0.06	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
Southmore STP	PA0022276	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
19D	37931	Trib 37931 to Stauffer 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												
0.270	0.01	0.00	0.01	.0325	0.00200	.351	3.51	10	0.03	0.319	13.11	7.00
Q1-10 Flow												
0.270	0.00	0.00	0.00	.0325	0.00200	NA	NA	NA	0.03	0.332	13.70	7.00
Q30-10 Flow												
0.270	0.01	0.00	0.01	.0325	0.00200	NA	NA	NA	0.03	0.307	12.59	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
19D	37931	Trib 37931 to Stauffer Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.270	0.021	13.106	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.507	0.351	10.000	0.033
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
20.64	1.467	3.57	0.412
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.612	12.909	Owens	5
Reach Travel Time (days)			
0.319			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.032	19.95	3.52	6.24
0.064	19.28	3.47	6.69
0.096	18.64	3.43	7.02
0.128	18.01	3.38	7.26
0.159	17.41	3.34	7.45
0.191	16.83	3.30	7.61
0.223	16.26	3.25	7.73
0.255	15.72	3.21	7.84
0.287	15.19	3.17	7.94
0.319	14.68	3.13	8.03

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37931	Trib 37931 to Stauffer 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
0.270	Southmore STP	15.47	17.78	15.47	17.78	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
0.270	Southmore STP	3.34	4.4	3.34	4.4	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)		
0.27	Southmore STP	25	25	4.4	4.4	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37931	Trib 37931 to Stauffer 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)
0.270	Southmore STP	PA0022276	0.021	CBOD5	25		
				NH3-N	4.4	8.8	
				Dissolved Oxygen			4