pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0042561**
Facility Type	**Municipal**	APS ID	**1068764**
Major / Minor	**Minor**	Authorization ID	**1405456**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Upper Stonycreek Joint Municipal Authority**	Facility Name	**Upper Stonycreek STP**
Applicant Address	PO Box 24	Facility Address	Myers Street
	Hooversville, PA 15936-0024		Hooversville, PA 15936
Applicant Contact	John Toth	Facility Contact	
Applicant Phone	(814) 242-8588	Facility Phone	
Client ID	67100	Site ID	249484
Ch 94 Load Status		Municipality	Shade Township
Connection Status		County	Somerset
Date Application Received	August 4, 2022	EPA Waived?	Yes
Date Application Accepted	August 5, 2022	If No, Reason	

Purpose of Application: Renewal application to discharge treated sewage

Summary of Review

This review is in response to a renewal application received on August 4, 2022. Additional information was received on July 1, 2024. Upper Stonycreek Joint Municipal Authority owns a sewage treatment plant in Shade Township, Somerset County. Sewage from Stoystown Borough, Hooversville Borough, Shade Township and Quemahoning Township is collected and treated with grit removal, comminution, aerated lagoons, ammonia bio-tower, bio-tower clarifier, and chlorine disinfection before discharging to the Stonycreek River through outfall 001.

Sludge use and disposal description and location(s): The plant does not dewater any sludge. The plant does not landfill any sludge. The plant has never removed sludge since 2003 and has no plans to remove sludge in the future.

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.

Approve	Deny	Signatures	Date
X		James Vanek James Vanek, P.E. / Environmental Engineer	August 8, 2024
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 12, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.656
Latitude	40º 9' 29.49"	Longitude	-78º 55' 6.07"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Stonycreek River (TSF)	Stream Code	45084
NHD Com ID	123719559	RMI	22.0
Drainage Area	136 mi^2	Yield (cfs/mi^2)	0.035
Q_{7-10} Flow (cfs)	4.76	Q_{7-10} Basis	Previous fact sheet
Elevation (ft)	1640	Slope (ft/ft)	0.035
Watershed No.	18-E	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, TOTAL DISSOLVED SOLIDS (TDS)		
Source(s) of Impairment	ACID MINE DRAINAGE		
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		Blairsville MA	
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary				
Treatment Facility Name: Upper Stonycreek JMA				
WQM Permit No.	**Issuance Date**			
5672401	4/9/1999			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Lagoon	Chlorine	0.346
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.656	918	Not overloaded	None	None

Changes Since Last Permit Issuance:

Other Comments: This plant never removes solids

Compliance History

Effluent Violations for Outfall 001, from: May 1, 2023 To: March 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	03/31/24	Wkly Avg	219.1	lbs/day	208.0	lbs/day

Other Comments: This plant never removes solids

Operations Compliance Check Summary Report

Facility: Upper Stonycreek Joint Municipal Authority
NPDES Permit No.: PA0042561
Compliance Review Period: 6/2019 – 6/2024

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	CREATION DATE
2953538	10/03/2019	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	11/04/2019

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID
866970	10/03/2019	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	11/04/2019	2953538

Open Violations by Client ID:

No open violations for Client ID 67100

Enforcement Summary:

ENF ID	ENF TYPE	ENF CREATION DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
380439	NOV	11/04/2019	92A.41(A)5	Administrative Close Out	04/13/2021

DMR Violation Summary:

START	END	PARAMETER	SAMPLE	PERMIT	UNIT OF MEASURE	STATISTICAL BASE CODE
03/01/2024	03/31/2024	Carbonaceous Biochemical Oxygen Demand (CBOD5)	219.1	208.0	lbs/day	Weekly Average

Compliance Status:

In compliance
Completed by: John Murphy
Completed date: 6/4/2024

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .656
Latitude 40º 9' 29.00" **Longitude** -78º 55' 9.00"
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)
	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Total Suspended Solids	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

Water quality analysis was performed using the TRC Spreadsheet and WQM7.0. Modeling showed no need for water quality based effluent limits. The outputs from these models are attached to this report.

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

Parameter	Limit (mg/l)	SBC	Model
NH_3N	9.45	Average Monthly	WQM 7.0
Total Residual Chlorine	0.42	Average Monthly	TRC Spreadsheet

A review of the DMR's shows that the plant is currently achieving the above water quality-based effluent limits. The water quality-based effluent limits will be imposed upon permit issuance.

Best Professional Judgment (BPJ) Limitations

Dissolved oxygen will be limited at 4.0 mg/l as an instantaneous minimum.

Anti-Backsliding

Anti-backsliding was not utilized for this permit renewal.

Kiski – Conemaugh TMDL

This discharge is within the Kiskiminetas – Conemaugh Rivers watershed. This watershed has a total maximum daily load requirement for pollutants present in acid mine drainage. The parameters are aluminum, total iron and manganese. The official TMDL for the Kiski watershed does not give an allocation to any sewage discharges. The contribution for metals from a sewage plant is expected to be less than water quality criteria and therefore not contributing to stream impairment. Quarterly monitoring is imposed for plants rated larger than 0.499 mgd. Monitoring for aluminum, iron and manganese is required to ensure there are no impacts on the quality of the receiving stream.

Industrial/Commercial Contributors

The applicant stated that the plant does not have any industrial or commercial customers.

E. Coli

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021] and under the authority of 25 Pa. Code § 92a.61(b), a quarterly reporting requirement for *E. coli* will be added to Outfall 001. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a) and the monitoring will be used to determine if *E. coli* concentrations require additional controls.

Mass Loadings

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5 and TSS, and average weekly mass loading limits be established for CBOD5 and TSS.

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

Total Nitrogen and Total Phosphorus

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 annual monitoring for Total Nitrogen and Total Phosphorus in new and reissued permits.

Monitoring Frequency Considerations

For pH, Dissolved Oxygen (DO) and Total Residual Chlorine (TRC), a monitoring frequency of 1/day has been imposed. The daily monitoring frequencies are consistent with current policy and Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

Influent Monitoring

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.

Industrial Contributors

The applicant reported that the system has no commercial or industrial contributors.

Solids Disposal

The applicant has stated that the plant has not wasted sludge since it was constructed in 2001. The most recent inspection report stated that sludge hasn't been removed from the lagoons since 2003. The applicant submitted three years of hauled in municipal wastes reports. During the years 2021-2023, the sewage plant received an average of 221,000 gallons per year of septage and/or sludge/MLSS from other sewage plants. However, this plant does not waste sludge, the plant has no solids processing equipment, and does not even have a landfill listed to eventually receive generated sludges from this plant.

The following condition has been in Part C of the permit:

The permittee shall manage and properly dispose of sewage sludge produced by the system by balancing the amount of solids maintained within the lagoon. The permittee shall monitor sludge blanket depth in all lagoons by taking measurements on an annual basis. A sampling grid shall be established for each lagoon in a manner that will measure deposition throughout the lagoon. The permittee shall develop a detailed plan and schedule for removal of excess sewage sludge when the sludge blanket volume exceeds twenty (20%) of the lagoon volume or 18 inches in depth, or at a lesser accumulated volume or depth if sludge accumulation is causing or contributing to effluent violations. The plan shall be implemented as needed and made available to DEP upon request.

Since the applicant has never complied with the above condition and because the sewage plant does not digest, dewater, and dispose of solids, this plant will no longer be permitted to accept hauled in municipal wastes or septage. This is stipulated in Part C.II.D. of the permit.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Measured
TRC	XXX	XXX	XXX	0.42	XXX	1.37	1/day	Grab
CBOD5	136.9	208.0	XXX	25	38	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
TSS	164.2	246.3	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	9.45	XXX	18.9	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	8-Hr Composite
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	8-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location: outfall 001

Other Comments: This plant does not remove solids

WQM Output Warm Months

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
18E	45084	STONYCREEK RIVER	**22.000**	1640.00	136.00	0.00370	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	0.035	0.00	0.00	0.000	0.000	66.0	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
USJMA	PA0042561	0.6560	0.6560	0.6560	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	0.10	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
18E	45084	STONYCREEK RIVER	**21.000**	1620.50	150.00	0.00370	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	0.035	0.00	0.00	0.000	0.000	66.0	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 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	85.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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												
22.000	4.76	0.00	4.76	1.0148	0.00370	.742	41.95	56.56	0.19	0.329	25.00	7.00
Q1-10 Flow												
22.000	3.05	0.00	3.05	1.0148	0.00370	NA	NA	NA	0.15	0.401	25.00	7.00
Q30-10 Flow												
22.000	6.47	0.00	6.47	1.0148	0.00370	NA	NA	NA	0.21	0.285	25.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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
22.000	USJMA	11.07	44.01	11.07	44.01	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
22.000	USJMA	1.37	9.45	1.37	9.45	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)		
22.00	USJMA	25	25	9.45	9.45	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.000	0.656	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
41.948	0.742	56.563	0.186
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.04	0.990	1.74	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.322	7.348	Tsivoglou	6
Reach Travel Time (days)			
0.329			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.033	5.80	1.68	6.99
0.066	5.57	1.63	6.75
0.099	5.34	1.57	6.58
0.132	5.13	1.52	6.47
0.165	4.92	1.47	6.40
0.198	4.72	1.42	6.36
0.230	4.53	1.38	6.35
0.263	4.35	1.33	6.36
0.296	4.18	1.29	6.38
0.329	4.01	1.24	6.41

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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)
22.000	USJMA	PA0042561	0.656	CBOD5	25		
				NH3-N	9.45	18.9	
				Dissolved Oxygen			3

WQM Output Cold Months

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
18E	45084	STONYCREEK RIVER	**22.000**	1640.00	136.00	0.00370	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	0.070	0.00	0.00	0.000	0.000	66.0	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
USJMA	PA0042561	0.6560	0.6560	0.6560	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.10	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
18E	45084	STONYCREEK RIVER	**21.000**	1620.50	150.00	0.00370	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	0.070	0.00	0.00	0.000	0.000	66.0	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 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	85.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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												
22.000	9.52	0.00	9.52	1.0148	0.00370	.789	51.37	65.12	0.26	0.235	6.44	7.00
Q1-10 Flow												
22.000	6.09	0.00	6.09	1.0148	0.00370	NA	NA	NA	0.21	0.293	7.14	7.00
Q30-10 Flow												
22.000	12.95	0.00	12.95	1.0148	0.00370	NA	NA	NA	0.30	0.201	6.09	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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
22.000	USJMA	24.1	50	24.1	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
22.000	USJMA	4.36	25	4.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
22.00	USJMA	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.000	0.656	6.445	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
51.373	0.789	65.117	0.260
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.22	0.822	2.50	0.247
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.738	4.759	Tsivoglou	6
Reach Travel Time (days)			
0.235			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.024	4.17	2.48	8.09
0.047	4.13	2.47	8.24
0.071	4.09	2.46	8.24
0.094	4.04	2.44	8.24
0.118	4.00	2.43	8.24
0.141	3.96	2.41	8.24
0.165	3.92	2.40	8.24
0.188	3.88	2.39	8.24
0.212	3.84	2.37	8.24
0.235	3.80	2.36	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45084	STONYCREEK RIVER

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)
22.000	USJMA	PA0042561	0.656	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC Spreadsheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

4.76	= **Q stream (cfs)**	**0.5**	= **CV Daily**
0.656	= **Q discharge (MGD)**	**0.5**	= **CV Hourly**
30	= **no. samples**	**0.6**	= **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 = 0.917	**1.3.2.iii**	WLA cfc = 1.470
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 0.342	**5.1d**	LTA_cfc = 0.854

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.420	AFC
		INST MAX LIMIT (mg/l) = 1.375	

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)**