pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0253472**
Facility Type	**Municipal**	APS ID	**1055921**
Major / Minor	**Minor**	Authorization ID	**1383663**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Hanover Township Sewer Authority**	Facility Name	**Bavington STP**
Applicant Address	533 Bavington Road	Facility Address	533 Bavington Road
	Burgettstown, PA 15021-2734		Burgettstown, PA 15021
Applicant Contact	Mr. Greg Call	Facility Contact	Patty Garrett
Applicant Phone	(724) 899-5055	Facility Phone	(724) 899-5055
Client ID	160306	Site ID	684366
Ch 94 Load Status	Not Overloaded	Municipality	Hanover Township
Connection Status	No Limitations	County	Washington
Date Application Received	January 21, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Application for renewal of an NPDES permit for the discharge of treated Sewage.

Summary of Review

The applicant has applied for a renewal of an existing NPDES Permit No. PA, which was previously issued by the Department on July 24, 2017. That permit expired on July 31, 2022.

WQM Permit No. 6307403 authorized the construction of the plant to treat an annual average design flow of 0.18 MGD. The existing treatment process consists of screening/grit removal, two SBR tanks, and UV disinfection. The design organic capacity is 396 lbs/day.

The receiving stream, Raccoon Creek, is currently classified as a WWF and is located in State Watershed No. 20-D.

The applicant has complied with Act 14 Notifications and no comments were received. The application states that the STP receives no IW wastewater contributions and does not receive hauled-in wastes.

Sludge use and disposal description and location(s): Sludge from the Bavington STP is hauled to the New Castle SA WWTP for processing.

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

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Environmental Engineering Specialist	August 23, 2022
X		Christopher Kriley, P.E. / Program Manager	August 23, 2022

Summary of Review
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)	.18
Latitude	40º 25' 24.00"	Longitude	-80º 22' 08.00"
Quad Name	Clinton	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Raccoon Creek (WWF)	Stream Code	33564
NHD Com ID	99688434	RMI	33.7
Drainage Area	44.30	Yield (cfs/mi^2)	0.020
Q_{7-10} Flow (cfs)	0.866	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	920.00	Slope (ft/ft)	0.00322
Watershed No.	20-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, PH		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Raccoon Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Midland Borough Municipal Authority		
PWS Waters	Ohio River	Flow at Intake (cfs)	5,880
PWS RMI		Distance from Outfall (mi)	39.68

Changes Since Last Permit Issuance: None

Other Comments: The discharge is to Raccoon Creek, which has a Final TMDL and is impaired by metals & pH. This sewage discharge is not expected to contribute to the stream impairment for which abandoned mine drainage is source of such impairment. No WLAs have been developed for this sewage discharge and they are not expected to contribute to the stream impairment for these pollutants. Application data states that maximum concentration values for total aluminum, total iron, and total manganese is 0.017 mg/L, 0.06 mg/L, and 0.006 mg/L, which is below their criteria based concentration values. These pollutants were analyzed using the TMS and no WQBELs or monitoring requirements for these pollutants will be placed on this facility at this time.

Treatment Facility Summary

Treatment Facility Name: Bavington STP

WQM Permit No.	Issuance Date
6307403	12/17/2008

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia Reduction	SBRs	Ultraviolet	0.025 (2020)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.18	396	Not Overloaded	Sludge Holding Tank	Hauled to New Castle SA WWTP

Changes Since Last Permit Issuance: None

Other Comments: N/A

Compliance History

Operaions Compliance Check Summary Report

Facility: Bavington STP

NPDES Permit No.: PA0253472

Compliance Review Period: 3/2017 – 3/2022

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3212665	06/30/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

No violations

Open Violations by Client ID:

No open violations for client 160306

Enforcement Summary:

No enforcements

DMR Violation Summary:

No DMR exceedances

Compliance Status: In compliance

Completed by: John Murphy

Completed date: 3/21/2022

Compliance History

DMR Data for Outfall 001 (from July 1, 2021 to June 30, 2022)

Parameter	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21
Flow (MGD) Average Monthly	0.0232	0.0277	0.023	0.0231	0.0269	0.0216	0.0188	0.0267	0.03	0.0368	0.0363	0.0176
Flow (MGD) Daily Maximum	0.03	0.1114	0.0525	0.0305	0.087	0.049	0.037	0.0374	0.0463	0.0833	0.0806	0.0435
pH (S.U.) Minimum	7.54	7.34	7.42	7.42	7.32	7.45	7.46	7.44	7.35	7.45	7.4	7.53
pH (S.U.) Maximum	7.76	7.76	7.67	7.61	7.78	7.65	7.69	7.72	7.75	7.72	7.76	7.83
DO (mg/L) Minimum	7.65	7.87	7.42	8.78	8.28	9.87	7.57	7.97	7.67	7.53	6.65	6.38
CBOD5 (lbs/day) Average Monthly	< 0.7	< 0.5	< 0.7	< 0.6	< 0.4	< 0.5	< 0.5	< 0.6	< 0.7	< 0.9	< 0.9	< 0.3
CBOD5 (lbs/day) Weekly Average	1.1	< 0.6	< 1.0	< 0.8	< 0.7	< 0.7	0.6	< 0.7	< 0.9	< 1.2	< 1.0	< 0.4
CBOD5 (mg/L) Average Monthly	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	5.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	15	19	38	17	16	< 16	19	13	15	25	30	< 12.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	23	28	61	21	22	28	38	17	22	44	48	19
BOD5 (mg/L) Raw Sewage Influent Average Monthly	93.9	122.6	200.9	93.5	119	< 115.9	116.29	49	60.6	78.8	105.6	< 118.3
TSS (lbs/day) Average Monthly	< 0.5	< 0.6	< 0.7	< 0.6	0.6	< 0.5	0.7	< 1.1	< 0.9	< 0.9	< 1.0	< 0.7
TSS (lbs/day) Raw Sewage Influent Average Monthly	19	18	20	19	12	13	25	10	10	26	24	10

TSS (lbs/day) Raw Sewage Influent Daily Maximum	24	38	39	33	19	31	51	16	17	49	50	18
TSS (lbs/day) Weekly Average	0.6	1.0	< 1.0	0.8	1.2	< 0.7	1.3	2.1	1.2	1.5	1.0	1.2
TSS (mg/L) Average Monthly	< 3.0	< 4.0	< 3.0	< 3.0	4.0	< 3.0	5.0	< 6.0	< 4.0	< 3.0	< 3.0	< 6.0
TSS (mg/L) Raw Sewage Influent Average Monthly	111	104	92	105	100	99	150	49	38	83	84	95
TSS (mg/L) Weekly Average	3.0	6.0	4.0	4.0	5.0	< 3.0	9.0	10.0	5.0	4.0	3.0	11.0
Fecal Coliform (No./100 ml) Geometric Mean	< 2.0	< 4.0	< 1.0	< 2.0	< 2.0	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	4.0	< 1.0	1.0	6.0	6.0	22	6.0	16.0	19	8.0	9.0	1.0
UV Transmittance (%) Average Monthly	4.9	5.1	3.8	4.6	4.1	4.5	4.2	5.3	5.9	8.1	4.7	5.4
Total Nitrogen (mg/L) Daily Maximum							20.3					
Ammonia (mg/L) Average Monthly	0.1	0.1	0.1	0.18	0.15	< 0.16	0.19	0.17	0.22	0.2	0.3	0.2
Ammonia (mg/L) Weekly Average	< 1.0	< 1.0	0.15	0.23	0.17	0.24	0.22	0.19	0.37	< 1.0	< 1.0	< 1.0
Total Phosphorus (mg/L) Daily Maximum							3.27					

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.18
Latitude 40º 25' 24.00" **Longitude** -80º 22' 08.00"
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 above Technology-Based Limitations are imposed for CBOD5 (Nov 1 – April 30), TSS, pH, and Fecal Coliform.

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (TMS Version 1.3) was conducted.

The following limitations were determined through water quality modeling for the facility (Attachment # 2, 3, and 4):

Parameter	Limit (mg/l)	SBC	Model
CBOD5 May 1 – Oct 31	20.0	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen Nov 1 - Apr 30	20.7	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen May 1 - Oct 31	6.9	Average Monthly	WQM 7.0 Version 1.1

Comments: DMR data above confirms that the applicant should not have any trouble complying with the revised CBOD5 and ammonia-nitrogen limits, which are based upon updated StreamStats data and WQM 7.0 Version 1.1 model.

The TMS recommended monitoring for total copper and total zinc because the discharge concentration is greater than 10% of the WQBEL.

Best Professional Judgment (BPJ) Limitations

Comments: A Dissolved Oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment.

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

Ultraviolet (UV) disinfection is used, and therefore, Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV Transmittance will be at the same monitoring frequency that is used for TRC.

For pH, Dissolved Oxygen (DO) and UV Transmittance, a monitoring frequency of 1/day has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required.

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for facilities with a design flows >=0.05 and < 1.0 MGD per Chapter 92.a.61.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/quarter monitoring requirement for Total N & Total P has been added to the permit per Chapter 92.a.61.

Mass loading limits are applicable for publicly owned treatment works (POTWs). 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).

For POTWs with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (362-0400-001).

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), 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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	37.0	57.0	XXX	25.0	38.0	50	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	30.0	45.0	XXX	20.0	30.0	40	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	45.0	65.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	31.0	XXX	XXX	20.7	XXX	41.4	1/week	8-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	10.3	XXX	XXX	6.9	XXX	13.9	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Total Zinc	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

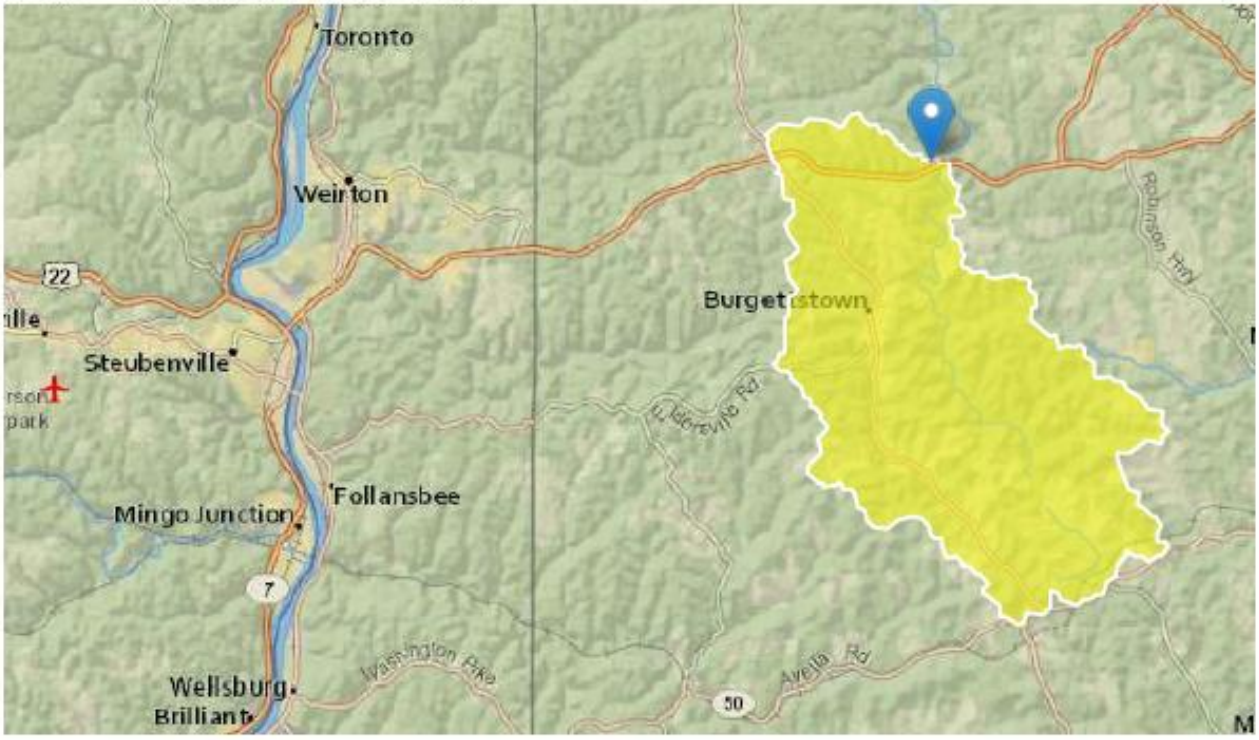
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment #1 – USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20220318185013528000
Clicked Point (Latitude, Longitude): 40.42490, -80.36900
Time: 2022-03-18 14:50:33 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	44.3	square miles
ELEV	Mean Basin Elevation	1162	feet

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	44.3	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1162	feet	1050	2580

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

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.05	ft^3/s	43	43
30 Day 2 Year Low Flow	3.31	ft^3/s	38	38
7 Day 10 Year Low Flow	0.866	ft^3/s	66	66
30 Day 10 Year Low Flow	1.39	ft^3/s	54	54
90 Day 10 Year Low Flow	2.35	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Attachment #2 – WQM 7.0 Version 1.1 – Warmer Period

Input Data WQM 7.0

	SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
	20D	33564	RACCOON CREEK	**33.700**	920.00	44.30	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	0.020	0.00	0.00	0.000	0.000	0.0	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
Bavington STP	PA0253472	0.1800	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	18.00	0.00	0.00	0.60

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
20D	33564	RACCOON CREEK	**32.700**	903.00	61.10	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	0.020	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
33.700	0.87	0.00	0.87	.2785	0.00322	.57	21.16	37.11	0.09	0.644	23.78	7.00
Q1-10 Flow												
33.700	0.55	0.00	0.55	.2785	0.00322	NA	NA	NA	0.08	0.770	23.33	7.00
Q30-10 Flow												
33.700	1.18	0.00	1.18	.2785	0.00322	NA	NA	NA	0.11	0.563	24.04	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
20D	33564	RACCOON CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
33.700	Bavington STP	12.72	36	12.72	36	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
33.700	Bavington STP	1.45	7.6	1.45	7.6	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)		
33.70	Bavington STP	20.01	20.01	6.99	6.99	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
33.700	0.180	23.784	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
21.157	0.570	37.105	0.095
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.38	0.802	1.70	0.803
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.211	2.903	Tsivoglou	5
Reach Travel Time (days)			
0.644			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.064	6.00	1.61	6.56
0.129	5.65	1.53	6.08
0.193	5.31	1.46	5.72
0.258	4.99	1.38	5.46
0.322	4.70	1.31	5.29
0.386	4.42	1.25	5.19
0.451	4.15	1.18	5.14
0.515	3.90	1.12	5.14
0.580	3.67	1.07	5.17
0.644	3.45	1.01	5.22

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
33.700	Bavington STP	PA0253472	0.180	CBOD5	20.01		
				NH3-N	6.99	13.98	
				Dissolved Oxygen			4

Attachment # 3 – WQM 7.0 Version 1.1 – Colder Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20D	33564	RACCOON CREEK	**33.700**	920.00	44.30	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	0.039	0.00	0.00	0.000	0.000	0.0	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
Bavington STP	PA0253472	0.1800	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	20.70	0.00	0.00	0.60

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
20D	33564	RACCOON CREEK	**32.700**	903.00	61.10	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	0.039	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
33.700	1.73	0.00	1.73	.2785	0.00322	.611	25.31	41.43	0.13	0.470	6.38	7.00
Q1-10 Flow												
33.700	1.11	0.00	1.11	.2785	0.00322	NA	NA	NA	0.11	0.578	7.01	7.00
Q30-10 Flow												
33.700	2.36	0.00	2.36	.2785	0.00322	NA	NA	NA	0.15	0.404	6.06	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
20D	33564	RACCOON CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
33.700	Bavington STP	24.1	41.4	24.1	41.4	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
33.700	Bavington STP	4.36	20.7	4.36	20.7	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)		
33.70	Bavington STP	25	25	20.7	20.7	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
33.700	0.180	6.385	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
25.306	0.611	41.433	0.130
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.19	0.936	2.87	0.210
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
11.331	3.979	Tsivoglou	5
Reach Travel Time (days)			
0.470			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.047	5.06	2.84	11.06
0.094	4.95	2.81	11.06
0.141	4.83	2.78	11.04
0.188	4.72	2.76	10.99
0.235	4.61	2.73	10.95
0.282	4.50	2.70	10.92
0.329	4.40	2.68	10.90
0.376	4.30	2.65	10.88
0.423	4.20	2.62	10.88
0.470	4.10	2.60	10.88

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
33.700	Bavington STP	PA0253472	0.180	CBOD5	25		
				NH3-N	20.7	41.4	
				Dissolved Oxygen			4

Attachment # 4 – TMS Version 1.3

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Bavington STP** NPDES Permit No.: **PA0253472** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage Effluent - Minor 0.18 MGD**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.18	214.5	7	1	1				

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		554									
	Chloride (PWS)	mg/L		80.3									
	Bromide	mg/L	<	0.1									
	Sulfate (PWS)	mg/L		133									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		17									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		22.7									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		60									
	Total Lead	µg/L		0.07									
	Total Manganese	µg/L		6									
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		48									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Bavington STP, NPDES Permit No. PA0253472, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Raccoon Creek**

No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	033564	33.7	920	44.3	0.00322		Yes
End of Reach 1	033564	32.7	903	61.1	0.00322		Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	33.7	0.01955				21.16	0.57	0.09				100	7		
End of Reach 1	32.7	0.01955													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	33.7														
End of Reach 1	32.7														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Bavington STP, NPDES Permit No. PA0253472, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 14.390 PMF: 1 Analysis Hardness (mg/l): 127.86 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	3,083	
Total Copper	0	0		0	16.941	17.6	72.5	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	84.305	112	459	Chem Translator of 0.755 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	144.306	148	606	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 14.390 PMF: 1 Analysis Hardness (mg/l): 127.86 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	11.048	11.5	47.3	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	6,165	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.285	4.35	17.9	Chem Translator of 0.755 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	145.486	148	606	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 14.390 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	4,110	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 7.112 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	µg/L	46.5	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	389	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable

Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	1,976	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	6,165	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	17.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	4,110	µg/L	Discharge Conc ≤ 10% WQBEL