Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0093475**
Facility Type	**Municipal**	APS ID	**1091942**
Major / Minor	**Minor**	Authorization ID	**1445759**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Findlay Township Municipal Authority**	Facility Name	**Potato Garden Run STP**
Applicant Address	1271 Route 30 PO Box 409	Facility Address	Strauss Road Potato Garden Run Road
	Clinton, PA 15026-1537		Findlay Twp., PA 15026
Applicant Contact	Jason Orsini	Facility Contact	
Applicant Phone	(724) 695-3108	Facility Phone	
Client ID	233044	Site ID	462179
Ch 94 Load Status	Not Overloaded	Municipality	Findlay Township
Connection Status	No Limitations	County	Allegheny
Date Application Received	June 29, 2023	EPA Waived?	Yes
Date Application Accepted	July 3, 2023	If No, Reason	

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

Summary of Review

The applicant has applied for renewal of NPDES Permit No. PA0093475. The previous permit was effective from January 2019 to December 2023.

There are no open violations for this facility.

Treatment at this facility consists of a ¼-inch auger screen and grinder, primary clarification, two parallel trickling filters, solid contact aeration, secondary clarification, and ultraviolet disinfection. Soda ash is added prior to primary clarification for pH control. There is a sludge holding tank with aerobic digestion. There is also a dewatering centrifuge for sludge.

Sludge use and disposal description and location(s): Sludge is hauled to the Republic Services Landfill by Republic Services.

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		John Price Jack Price / Environmental Engineering Specialist	August 27, 2024
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 30, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.5
Latitude	40º 28' 14.50"	Longitude	-80º 19' 37.00"
Quad Name	Clinton	Quad Code	40080D3
Wastewater Description:	Sewage Effluent		
Receiving Waters	Potato Garden Run (WWF)	Stream Code	33756
NHD Com ID	99686290	RMI	2.71
Drainage Area	7.16 mi^2	Yield (cfs/mi^2)	0.0126
Q_{7-10} Flow (cfs)	0.0907	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	944	Slope (ft/ft)	0.0051
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, METALS		
Source(s) of Impairment	ACID MINE DRAINAGE, ACID MINE DRAINAGE		
TMDL Status	Final, Final	Name	Potato Garden Run, Raccoon Creek Watershed
Background/Ambient Data		Data Source	
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Midland Boro Muni Auth (5040038)		
PWS Waters	Ohio River	Flow at Intake (cfs)	5,880 (Army Corps of Eng.)
PWS RMI	4.81	Distance from Outfall (mi)	12.5 Linear Miles

Changes Since Last Permit Issuance: There are several changes that resulted from re-modelling the discharge. For details, please see the development of effluent limits. A summary of these changes is as follows:

These changes resulted from an updated WQM 7.0 Model:

- Average monthly Summer Ammonia Nitrogen concentration limit was reduced from 2.5 mg/L to 2.0 mg/L
- Average monthly Summer Ammonia Nitrogen mass limit was reduced from 10.43 lbs/day to 8.0 lbs/day.
- Average monthly Winter Ammonia Nitrogen concentration limit was reduced from 7.5 mg/L to 4.0 mg/L
- Average monthly Winter Ammonia Nitrogen mass limit was reduced from 31.28 lbs/day to 16.0 lbs/day.
- Average monthly Summer $CBOD_5$ concentration limit was reduced from 20.0 mg/L to 19.0 mg/L.
- Average monthly Summer $CBOD_5$ mass limit was reduced from 83.40 lbs/day to 79.0 lbs/day.

This change is to correct the effluent limit rounding to the requirements of the Permit Writer's Manual:

- Weekly Winter $CBOD_5$ concentration limit was reduced from 38.0 mg/L to 37.0 mg/L. The calculation of the weekly limit is 1.5 times the monthly limit of 25 for a weekly limit of 37.5. This quantity must be rounded down to the nearest whole number according to the Permit Writers Manual Chapter 5 C.2. for a magnitude between 10.0 and 60.0

This change is required by the SOP for Development of Sewage Effluent Limits

- Quarterly *E. Coli* effluent monitoring is now added.

Operations Compliance Check Summary Report

Facility: Potato Garden Run STP
NPDES Permit No.: PA0093475
Compliance Review Period: 07/01/2019-07/01/2024
Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
09/18/2023	Compliance Evaluation	County Health Dept	Violation(s) Noted
05/11/2022	Compliance Evaluation	County Health Dept	Violation(s) Noted
09/29/2021	Routine/Partial Inspection	County Health Dept	No Violations Noted
06/10/2021	Compliance Evaluation	County Health Dept	Violation(s) Noted
02/13/2020	Routine/Partial Inspection	County Health Dept	No Violations Noted
07/10/2019	Compliance Evaluation	County Health Dept	Violation(s) Noted

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
09/18/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	09/26/2023
05/11/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/5/2023
06/10/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/12/2021
07/10/2019	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/28/2021

Open Violations by Client ID:
No open violations for Client ID 233044

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
NOV	Notice of Violation	09/26/2023	92A.44		Administrative Close Out	09/26/2023
CACP	Consent Assessment of Civil Penalty	10/06/2021	92A.44	$5,000.00	Comply/Closed	10/12/2021

Compliance Status: Facility does not currently have any open violations or pending enforcements.

Compliance History

DMR Data for Outfall 001 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Flow (MGD) Average Monthly	0.3312	0.3521	0.4057	0.3428	0.3120	0.3770	0.2707	0.2346	0.2363	0.2588	0.3142	0.317
Flow (MGD) Daily Maximum	0.4095	0.5920	0.9807	0.5210	0.5132	0.6205	0.4318	0.3882	0.3304	0.3376	0.3938	0.4127
pH (S.U.) Instantaneous Minimum	7.57	7.61	7.73	7.40	7.09	7.11	6.78	7.15	7.25	7.61	7.50	7.76
pH (S.U.) Instantaneous Maximum	8.04	8.20	8.14	8.04	7.83	7.73	7.64	7.74	7.68	7.85	8.01	8.12
DO (mg/L) Instantaneous Minimum	6.16	6.45	8.23	7.50	7.34	7.28	7.21	7.07	6.35	5.93	5.52	6.29
CBOD5 (lbs/day) Average Monthly	18.49	15.95	18.61	14.58	20.49	21.87	16.13	15.62	9.76	6.75	35.20	9.49
CBOD5 (lbs/day) Weekly Average	20.66	55.57	26.75	18.17	30.56	34.61	30.54	22.61	12.78	10.35	124.39	15.85
CBOD5 (mg/L) Average Monthly	6.03	5.48	4.89	4.62	6.89	6.26	5.26	6.02	4.44	3.20	12.00	3.60
CBOD5 (mg/L) Weekly Average	7.15	8.13	5.79	5.70	8.97	7.12	8.48	7.94	5.93	5.20	41.20	6.27
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	438	424	525	446	464	491	628	668	364	307	385	316
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	568	552	674	477	580	635	1232	1380	580	430	596	402
BOD5 (mg/L) Raw Sewage Influent Average Monthly	143	142	144	146	169	144	205	270	166	142	138	118
TSS (lbs/day) Average Monthly	15.39	15.44	21.89	16.42	15.39	21.83	16.72	12.85	12.76	11.26	18.35	16.79
TSS (lbs/day) Raw Sewage Influent Average Monthly	513	560	628	629	592	679	730	530	658	622	353	327
TSS (lbs/day) Raw Sewage Influent Daily Maximum	740	1193	1080	866	741	897	1498	768	836	1019	609	432

TSS (lbs/day) Weekly Average	17.08	19.00	40.90	18.77	21.40	39.96	20.82	14.24	16.14	13.64	24.27	22.17
TSS (mg/L) Average Monthly	5.00	5.20	5.25	5.25	5.25	6.00	5.75	5.00	5.75	5.00	6.60	6.25
TSS (mg/L) Raw Sewage Influent Average Monthly	168	189	156	210	212	200	236	209	299	303	127	122
TSS (mg/L) Weekly Average	5.00	6.00	6.0	6.00	21.40	9.00	8.00	5.00	7.00	5.00	9.00	8.00
Fecal Coliform (No./100 ml) Geometric Mean	4.16	3.050	1.49	1.68	1.31	1.37	1.18	19.53	28.55	2.05	21.15	10.22
Fecal Coliform (No./100 ml) Instantaneous Maximum	20	4	5	4	3	5	2	792	154	3	236	39
UV Transmittance (%) Instantaneous Minimum	68.51	71.94	75.79	74.93	61.11	66.76	68.11	60.30	58.01	58.85	52.07	50.10
UV Transmittance (%) Average Monthly	89.58	81.06	87.22	88.8	82.15	85.66	77.34	68.27	68.15	67.97	61.89	64.96
Total Nitrogen (mg/L) Daily Maximum	13.1			15.6			19.2			15.3		
Ammonia-Nitrogen (lbs/day) Average Monthly	1.83	0.32	5.39	0.91	4.15	5.94	1.32	2.35	1.69	0.37	0.46	0.44
Ammonia-Nitrogen (mg/L) Average Monthly	0.57	0.11	0.73	0.29	1.42	1.73	0.48	0.93	0.78	0.17	0.17	0.17
Total Phosphorus (mg/L) Daily Maximum	2.6			3.0			3.1			2.5		
Total Aluminum (mg/L) Daily Maximum	0.046			0.032			0.026			0.082		
Total Iron (mg/L) Daily Maximum	0.106			0.0469			0.0313			0.0589		
Total Manganese (mg/L) Daily Maximum	0.032			0.012			0.008			0.008		

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2022 To: August 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	08/31/23	Wkly Avg	41.20	mg/L	30.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.50
Latitude 40º 28' 14.50" **Longitude** -80º 19' 37.00"
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)
(Nov 1 to Apr 30)	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
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)
Total Nitrogen (mg/L)	Report	Average Monthly	-	92a.61
Total Phosphorus (mg/L)	Report	Average Monthly	-	92a.61
E.Coli (No./100 mL)	Report	IMAX	-	92a.61

Comments: The proposed discharge was evaluated using WQM 7.0 to evaluate CBOD5, Ammonia Nitrogen, and Dissolved Oxygen Parameters. The modeling results show technology based effluent limitations for CBOD5 (November 1st to April 30th) are more stringent, therefore the TBELs will be used for winter months.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (May 1 to Oct 31)	2.11	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (Nov 1 to Apr 30)	4.4	Average Monthly	WQM 7.0 Version 1.1
CBOD5 (May 1 to Oct 31)	19.0	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	5 (min)	Average Monthly	WQM 7.0 Version 1.1

Comments: DMR Data shows that the applicant will be able to comply with the new more stringent ammonia nitrogen and summer $CBOD_5$. While in the past, the facility has had violations related to ammonia concentration, the violation was closed out after corrective actions to fix blower equipment. Since the corrective action, the plant effluent has returned to normal.

The WQM Model was run for both winter and summer condition. The WQM results for summer $CBOD_5$ are more stringent than the TBEL of 25.0, therefore the summer CBOD5 limit is 19.0 mg/L.

Disinfection

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

Total Nitrogen (TN) and Total Phosphorus (TP) Monitoring

Nutrient monitoring is required by the SOP for Effluent Limitations for Individual Sewage Permits. Monitoring is included 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). Monitoring requirements are consistent with the previous permit.

Mass Loadings

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5, TSS, and NH_3-N and average weekly mass loading limits be established for CBOD5 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).

Influent Monitoring

For POTWs with design flows greater than 2,000 GPD, influent BOD5 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. BOD5 and TSS influent loads will once again be reported for monthly average and daily maximum values in lbs/day and monthly average concentrations in mg/l.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Anti-Backsliding

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

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

There is no justified request to backslide on Total Iron, Total Aluminum, and Total Manganese monitoring. Monitoring for these parameters will be continued. There is more information about metals monitoring in the TMDL section below.

TMDLs

Raccoon Creek Watershed and Potato Garden Run Watershed TMDL

The discharge is to Potato Garden Run which flows into the Racoon Creek Watershed. Both the Potato Garden Run and Raccoon Creek Watersheds have a Final TMDL and are impaired by metals and pH. No WLAs have been developed for this sewage discharge. To determine if reasonable potential to contribute to impairment exists, a quarterly reporting requirement for Iron, Aluminum, and Manganese was incorporated into the previous permit cycle. Effluent sampling data was input into TMS, with TMS recommending continued monitoring for Aluminum. The Potato Garden Run watershed is still impaired, therefore the quarterly monitoring for Total Manganese and Total Iron will also continue.

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	Average Monthly	Weekly Average	Maximum	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	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	100.0	155.0	25.0	37.0	XXX	50.0	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	75.0	115.0	19.0	28.0	XXX	38.0	1/week	8-Hr Composite
BOD5 Intake	Report	Report Daily Max	Report	XXX	XXX	XXX	1/week	8-Hr Composite
TSS Intake	Report	Report Daily Max	Report	XXX	XXX	XXX	1/week	8-Hr Composite
TSS	1250.0	185.0	30.0	45.0	XXX	60	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 Inst Min	Report Avg Mo	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	16.0	XXX	4.0	XXX	XXX	8.5	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	Average Monthly	Weekly Average	Maximum	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	8.0	XXX	2.0	XXX	XXX	4.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Iron, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Manganese, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite

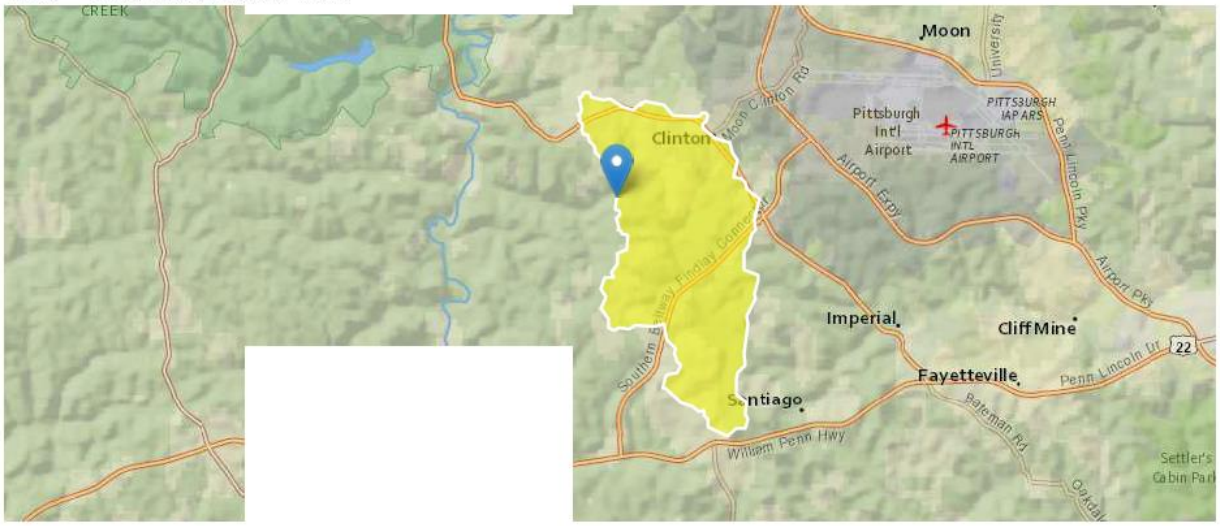
Compliance Sampling Location: Outfall 001

Pennsylvania
Department of
Environmental Protection

Attachment #1 – USGS StreamStats Report – Upstream

StreamStats Report

Region ID: PA
Workspace ID: PA20230808140423565000
Clicked Point (Latitude, Longitude): 40.47695, -80.32069
Time: 2023-08-08 10:04:43 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.16	square miles
ELEV	Mean Basin Elevation	1146	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	7.16	square miles	2.26	1400
ELEV	Mean Basin Elevation	1146	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	0.255	ft^3/s	43	43
30 Day 2 Year Low Flow	0.447	ft^3/s	38	38
7 Day 10 Year Low Flow	0.0907	ft^3/s	66	66

Statistic	Value	Unit	SE	ASEp
30 Day 10 Year Low Flow	0.167	ft^3/s	54	54
90 Day 10 Year Low Flow	0.307	ft^3/s	41	41

Low-Flow Statistics Citations

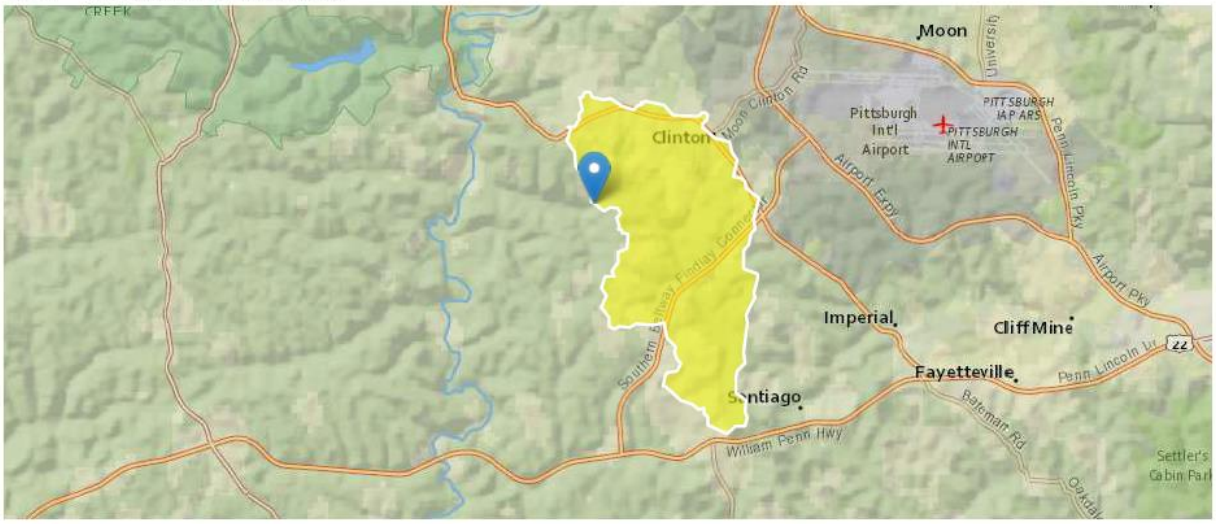
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment #2 – USGS StreamStats Report – Downstream

StreamStats Report

Region ID: PA
Workspace ID: PA20230808142735365000
Clicked Point (Latitude, Longitude): 40.47544, -80.32691
Time: 2023-08-08 10:27:55 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.57	square miles
ELEV	Mean Basin Elevation	1142	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	7.57	square miles	2.26	1400
ELEV	Mean Basin Elevation	1142	feet	1050	2580

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

PII: Prediction Interval-Lower, Plu: 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	0.27	ft^3/s	43	43
30 Day 2 Year Low Flow	0.473	ft^3/s	38	38
7 Day 10 Year Low Flow	0.097	ft^3/s	66	66

Statistic	Value	Unit	SE	ASEp
30 Day 10 Year Low Flow	0.178	ft^3/s	54	54
90 Day 10 Year Low Flow	0.325	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: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment #3 - WQM 7.0 Version 1.1 – Summer

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	33756	POTATO GARDEN RUN	**2.710**	944.00	7.16	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	0.013	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
PGR STP	PA0093475	0.0000	0.5000	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

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	33756	POTATO GARDEN RUN	**2.330**	926.00	7.57	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	0.013	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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 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		

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
2.710	0.09	0.00	0.09	.7735	0.00897	.81	8.1	10	0.13	0.176	20.52	7.00
Q1-10 Flow												
2.710	0.06	0.00	0.06	.7735	0.00897	NA	NA	NA	0.13	0.180	20.35	7.00
Q30-10 Flow												
2.710	0.12	0.00	0.12	.7735	0.00897	NA	NA	NA	0.13	0.173	20.68	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.710	PGR STP	9.43	10.14	9.43	10.14	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.710	PGR STP	1.82	2.11	1.82	2.11	1	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
2.71	PGR STP	19.17	19.17	2.11	2.11	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.710	0.500	20.522	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.097	0.810	10.000	0.132
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.37	1.135	1.89	0.729
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.338	8.351	Owens	5
Reach Travel Time (days)			
0.176			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.018	17.02	1.87	5.26
0.035	16.68	1.84	5.19
0.053	16.34	1.82	5.15
0.070	16.01	1.80	5.13
0.088	15.68	1.78	5.12
0.106	15.37	1.75	5.12
0.123	15.05	1.73	5.13
0.141	14.75	1.71	5.15
0.159	14.45	1.69	5.18
0.176	14.16	1.66	5.21

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
2.710	PGR STP	PA0093475	0.000	CBOD5	19.17		
				NH3-N	2.11	4.22	
				Dissolved Oxygen			5

Attachment #4 - WQM 7.0 Version 1.1 – Winter

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	33756	POTATO GARDEN RUN	**2.710**	944.00	7.16	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	0.025	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
PGR STP	PA0093475	0.0000	0.5000	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

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	33756	POTATO GARDEN RUN	**2.330**	926.00	7.57	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	0.025	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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 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		

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
2.710	0.18	0.00	0.18	.7735	0.00897	.828	8.28	10	0.14	0.167	13.10	7.00
Q1-10 Flow												
2.710	0.12	0.00	0.12	.7735	0.00897	NA	NA	NA	0.13	0.173	13.70	7.00
Q30-10 Flow												
2.710	0.25	0.00	0.25	.7735	0.00897	NA	NA	NA	0.14	0.161	12.58	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.710	PGR STP	15.47	17.79	15.47	17.79	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.710	PGR 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)		
2.71	PGR STP	25	25	4.4	4.4	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.710	0.500	13.102	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.277	0.828	10.000	0.139
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
20.64	1.470	3.57	0.412
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.615	6.981	Owens	5
Reach Travel Time (days)			
0.167			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	20.27	3.54	5.53
0.033	19.91	3.52	5.47
0.050	19.56	3.49	5.42
0.067	19.21	3.47	5.39
0.083	18.87	3.45	5.37
0.100	18.54	3.42	5.36
0.117	18.21	3.40	5.36
0.133	17.89	3.38	5.37
0.150	17.57	3.35	5.39
0.167	17.26	3.33	5.41

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33756	POTATO GARDEN RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
2.710	PGR STP	PA0093475	0.000	CBOD5	25		
				NH3-N	4.4	8.8	
				Dissolved Oxygen			4

Attachment #5 - TMS Report

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Potato Garden Run NPDES Permit No.: PA0093475 Outfall No.: 001

Evaluation Type: Custom / Additives Wastewater Description: Treated Sewage Effluent

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
0.5	100	7.7						

				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
Total Aluminum	mg/L		0.079									
Total Iron	mg/L		0.092									
Total Manganese	mg/L		0.029									

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Potato Garden Run, NPDES Permit No. PA0093475, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Potato Garden Run**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	033756	2.71	944	7.16			Yes
End of Reach 1	033756	2.33	926	7.57			Yes

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

Location	RMI	LFY (cfs/mi^2)*	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	2.71	0.01267										100	7		
End of Reach 1	2.33	0.01281													

Q_h

Location	RMI	LFY (cfs/mi^2)	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	2.71														
End of Reach 1	2.33														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Potato Garden Run, NPDES Permit No. PA0093475, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.079 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.55

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 Aluminum	0	0		0	750	750	838	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 0.079 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.55

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,676	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 0.079 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,117	

☑ ***CRL*** CCT (min): 1.351 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 Aluminum	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	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 Aluminum	Report	Report	Report	Report	Report	mg/L	0.75	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 Iron	1,676	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,117	µg/L	Discharge Conc ≤ 10% WQBEL