pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083712**
Facility Type	**Industrial**	APS ID	**277930**
Major / Minor	**Minor**	Authorization ID	**1436828**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Bear Valley Franklin County PA Joint Authority**	Facility Name	**Broad Run Water Plant**
Applicant Address	218 School House Road	Facility Address	1338 Bear Valley Road
	Saint Thomas, PA 17252-9646		Ft Loudon, PA 17224
Applicant Contact	Doug Westover	Facility Contact	Doug Westover
Applicant Phone	(717) 369-2828	Facility Phone	(717) 369-2828
Client ID	37850	Site ID	250135
SIC Code	4941	Municipality	Saint Thomas Township
SIC Description	Trans. & Utilities - Water Supply	County	Franklin
Date Application Received	April 21, 2023	EPA Waived?	Yes
Date Application Accepted	June 1, 2023	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

Bear Valley Franklin County PA Joint Authority (Bear Valley) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on October 29, 2018 and became effective on November 1, 2018. The permit expired on October 31, 2023 but the terms and conditions have been extended since that time.

Based on the review, it is recommended that the permit be drafted.

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		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	April 4, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	April 17, 2024
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	April 17, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.05
Latitude	39º 55' 51"	Longitude	-77º 52' 21"
Quad Name	St. Thomas	Quad Code	1923
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Broad Run	Stream Code	57570
NHD Com ID	49472122	RMI	2.4 mi.
Drainage Area	4.39	Yield (cfs/mi^2)	0.0441
Q_{7-10} Flow (cfs)	0.194	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	834	Slope (ft/ft)	
Watershed No.	13-C	Chapter 93 Class.	HQ-CWF, MF
Existing Use	None	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Hagerstown, MD		
PWS Waters	Potomac River	Flow at Intake (cfs)	Unknown
PWS RMI	Unknown	Distance from Outfall (mi)	Unknown

Drainage Area
The discharge is to Broad Run at RMI 2.4 mi. A drainage area upstream of the point of discharge is estimated to be 4.39 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 of 0.241 cfs at the point of discharge; however, the drainage area used in regression equations to calculate this Q7-10 is lower than the minimum drainage area value to be used to calculate the Q7-10 without creating any technical errors. As a result, the entire Broad Run watershed was delineated to estimate the Q7-10 using the following low-flow yield approach:

$$\text{Low Flow Yield} = Q7\text{-}10_{basin} / \text{Drainage Area}_{basin} = 0.297 \text{ cfs} / 6.73 \text{ sq.mi.} = 0.0441 \text{ cfs/sq.mi.}$$
$$Q7\text{-}10_{site} = \text{Low Flow Yield} * \text{Drainage Area}_{site} = 0.0441 \text{ cfs/sq.mi.} * 4.39 \text{ sq.mi.} = 0.193599 = 0.194 \text{ cfs}$$

Broad Run
Broad Run is a tributary of the West Branch Conococheague Creek. Under 25 Pa Code §93.9z, Broad Run is designated High Quality-Cold Water fishes. No existing use(s) has been identified yet by DEP. Broad Run is a Class A Wild Trout Fishery. DEP's latest integrated water quality report prepared in 2024 indicates that the discharge is located in a stream segment listed as attaining use(s).

Water Supply Intake
According to the fact sheet developed in 2018 for the last permit renewal, the nearest downstream water supply intake is Hagerstown, Maryland on the Potomac River. Considering the distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Broad Run Water Plant				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Primary	Sedimentation	No Disinfection	0.050 MGD
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
N/A	N/A	Not Overloaded	N/A	N/A

Bear Valley operates public potable water treatment plant located in St. Thomas Township, Franklin County. The source water is Broad Run surface water (0.650 MGD) and groundwater (0.650 MGD). The water treatment plant currently serves areas of Peters Township, St. Thomas Township and Hamilton Township at a maximum rate of 1.23 MGD. Bear Valley utilizes a membrane filtration process for water treatment. About 0.0350 MGD (maximum) of backwash waste from each of two (2) membrane filtrations is sent to the wastewater tank. Any overflows from this wastewater tank is then discharged into two (2) settling lagoons prior to discharges into Broad Run via Outfall 001 located downstream of the intake. The application indicates that the filtration racks are cleaned with sodium hypochlorite and citric acid. The wastewater (rinse water) is then neutralized and discharged to the lagoons prior to a stream discharge.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	02/22/2023: DEP conducted a routine inspection and no significant issues were identified at the time of inspection.
Other Comments:	The facility has not had effluent violations since the last permit reissuance. A file review indicates that there is currently no open violation associated with this permittee or facility.

Effluent Data

DMR Data for Outfall 001 (from March 1, 2023 to February 29, 2024)

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Flow (MGD) Average Monthly	0.013	0.013	0.011	0.013	0.011	0.009	0.016	0.011	0.013	0.016	0.013	0.009
Flow (MGD) Daily Maximum	0.020	0.020	0.018	0.021	0.017	0.016	0.031	0.017	0.023	0.020	0.018	0.017
pH (S.U.) Daily Minimum	7.1	6.9	7.0	7.6	7.6	7.2	7.6	7.3	6.8	7.4	7.4	7.5
pH (S.U.) Daily Maximum	8.1	7.9	7.9	8.1	8.2	8.1	8.2	8.2	8.0	7.8	7.6	7.8
TRC (mg/L) Average Monthly	0.03	0.02	0.02	0.04	0.05	0.08	0.08	0.06	0.06	0.11	0.05	0.02
TRC (mg/L) Instantaneous Maximum	0.06	0.02	0.06	0.08	0.14	0.14	0.09	0.09	0.12	0.22	0.09	0.07
TSS (lbs/day) Average Monthly	0.3	0.2	0.28	0.42	0.29	0.39	0.33	0.32	0.54	0.87	0.56	0.75
TSS (lbs/day) Daily Maximum	0.3	0.3	0.38	0.79	0.50	0.4	0.58	0.45	0.73	0.7	0.90	2.55
TSS (mg/L) Average Monthly	2.5	2.5	3.0	3.8	3.2	5.2	2.5	3.5	5.0	6.5	5.2	10.0
TSS (mg/L) Daily Maximum	3.0	3.50	4.5	4.5	3.50	5.50	3.50	4.50	5.50	7.00	6.00	18.0
Total Aluminum (lbs/day) Average Monthly	0.01	0.02	< 0.010	< 0.01	< 0.013	< 0.008	< 0.013	< 0.06	0.015	0.015	0.012	0.05
Total Aluminum (lbs/day) Daily Maximum	0.01	0.03	0.014	< 0.02	0.026	< 0.008	< 0.02	0.014	0.021	0.012	0.017	0.16
Total Aluminum (mg/L) Average Monthly	0.1	0.2	< 0.11	< 0.100	< 0.14	< 0.100	< 0.100	< 0.11	0.142	< 0.11	< 0.11	0.66
Total Aluminum (mg/L) Daily Maximum	0.109	0.24	0.118	< 0.100	0.180	< 0.100	< 0.100	0.119	0.142	0.111	0.111	1.16
Total Iron (lbs/day) Average Monthly	0.02	0.04	< 0.024	0.016	< 0.044	0.025	0.028	< 0.019	0.028	0.027	0.027	< 0.044
Total Iron (lbs/day) Daily Maximum	0.02	0.07	0.028	0.04	0.11	0.03	0.04	0.028	0.039	0.023	0.046	0.14

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Total Iron (mg/L) Average Monthly	0.2	0.4	< 0.26	0.15	< 0.48	0.339	0.21	< 0.21	0.254	< 0.2	< 0.25	< 0.59
Total Iron (mg/L) Daily Maximum	0.229	0.537	0.314	0.236	0.766	0.439	0.217	0.227	0.258	< 0.21	0.309	0.999
Total Manganese (lbs/day) Average Monthly	0.003	0.005	0.003	0.005	0.0084	0.011	0.009	0.0046	0.006	0.012	0.021	0.0046
Total Manganese (lbs/day) Daily Maximum	0.003	0.009	0.005	0.007	0.021	0.011	0.013	0.0065	0.011	0.015	0.051	0.0081
Total Manganese (mg/L) Average Monthly	0.03	0.04	0.0367	0.0424	0.092	0.14	0.069	0.050	0.0554	0.09	0.194	0.061
Total Manganese (mg/L) Daily Maximum	0.0319	0.0696	0.0384	0.0425	0.146	0.159	0.0784	0.0536	0.0760	0.127	0.337	0.0651

Existing Effluent Limits and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the current NPDES permit renewal.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.37	XXX	1.22	1/day	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	2/month	24-Hr Composite
Aluminum, Total	0.79	1.58	XXX	1.9	3.8	5.1	2/month	24-Hr Composite
Iron, Total	Report	Report	XXX	2.0	4.0	5	2/month	24-Hr Composite
Manganese, Total	Report	Report	XXX	1.0	2.0	2.5	2/month	24-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .05
Latitude 39º 55' 51.00" **Longitude** -77º 52' 21.00"
Wastewater Description: IW Process Effluent without ELG

Technology-Based Limitations

DEP's technical guidance no. 362-2183-003 addresses technology-based control requirements along with the following recommended Best Practicable Control Technology Currently Available (BPT) effluent requirements for WTP sludge and filter backwash:

Parameter	Limit (mg/l)	SBC
Suspended Solids	30	Average Monthly
	60	Daily Maximum
Iron, Total	2.0	Average Monthly
	4.0	Daily Maximum
Aluminum, Total	4.0	Average Monthly
	8.0	Daily Maximum
Manganese, Total	1.0	Average Monthly
	2.0	Daily Maximum
Flow	Monitor	Average Monthly
pH	6.0	Minimum
	9.0	Maximum
Total Residual Chlorine	0.5	Average Monthly
	1.0	Daily Maximum

These requirements apply, subject to water quality analysis and/or BPJ.

Water Quality-Based Limitations

Antidegradation Requirements

During the 2006 permit renewal, the facility was expanded to a 0.05 MGD discharge from 0.025 MGD. As a result, effluent limits were developed using the ant-degradation guidance given that the receiving stream was classified high quality-cold water fishery stream. DEP's antidegradation worksheet was used to develop the effluent limit of 2.8 mg/L for Total Aluminum and also indicated that existing effluent limits for other pollutants were adequate. This approach is still adequate as past DMR shows that the discharge rate has been consistently below 0.05 MGD. Based on the 2000 permit fact sheet, it also appears that the discharge occurred prior to the current high quality-cold water fishery special protection water classification.

WQM 7.0

CBOD5 and NH3-N are not pollutants of concern for the water treatment waste as the discharge of these pollutants is not resulting from the water treatment process. Therefore, WQM 7.0 modeling is not necessary and permit requirements for these pollutants are not recommended.

Total Residual Chlorine

Sodium hypochlorite is used before filtrations. DEP's TRC_CALC worksheet showed existing WQBELs of 0.37 mg/L (average monthly) and 1.22 mg/L (IMAX) are still adequate for protection of water quality standards.

Toxics

Total Aluminum, Total Iron, and Total Manganese are existing toxic pollutants of concern and have numerical effluent limits in the permit. These effluent limits as mentioned earlier were either technology-based or water quality-based derived from the antidegradation water quality analysis. DEP's Toxic Management Spreadsheet (TMS) indicated that existing technology-based effluent limits for Total Iron and Total Manganese are still adequate and existing WQBELs for Total Aluminum are still adequate. However, the TMS output recommended a monitoring requirement for Dissolved Iron. As a result, a new routine monitoring requirement for Dissolved Iron will be included in the permit.

Additional Considerations

Flow Monitoring
Flow monitoring will remain in the permit and is required by 40 CFR § 122.44(i)(1)(ii).

Chesapeake Bay TMDL
The DEP's Supplement to Phase II Watershed Implementation Plan (WIP) indicates that monitoring and reporting of TN and TP are necessary for non-significant IW facilities throughout the permit term anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. Based on previous sample results and activities performed at the site, nutrient monitoring was removed from the last permit. The application reports Total Nitrogen of 2.1668 mg/L (TKN of 0.74 mg/L + NO2-NO3 of 0.9268 mg/L) and Total Phosphorus of 0.041 mg/L. Based on the review, nutrient monitoring is still not needed.

Mass Loading Effluent Limitations
DEP's technical guidance no. 362-0400-001 recommends mass loading effluent limits for those pollutants that have water quality based limits and monitoring requirements for those that have technology based concentration limits. Accordingly, mass loading effluent limits based on the flow of 0.05 MGD are recommended for Total Aluminum and mass loading monitoring requirements are recommended for Total Iron, Total Manganese and Total Suspended Solids. This approach is consistent with permit requirements expressed in the existing permit renewal.

Anti-Degradation requirements
The discharge is to Broad Run which is classified as high quality-cold water fishery. The effluent limits for this discharge have been developed to ensure the existing in-stream uses and the level of water quality necessary to protect the existing uses are maintained and protected in accordance with 24 Pa Code §93.4a. No Exceptional Value Waters are impacted by this discharge. Further, portions of Broad Run are classified as Class A Wild Trout Fisheries. No impact is expected because of the anti-degradation analysis previously performed and because all requirements proposed for the upcoming permit term are developed at least as stringent as existing requirements.

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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.37	XXX	1.22	1/day	Grab
TSS	Report	Report	XXX	30.0	60.0	75	2/month	24-Hr Composite
Total Aluminum	0.79	1.58	XXX	1.9	3.8	5.1	2/month	24-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	2/month	24-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	24-Hr Composite
Dissolved Iron	Report	Report	XXX	Report	Report	Report	2/month	24-Hr Composite

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

StreamStats Report

Region ID: PA
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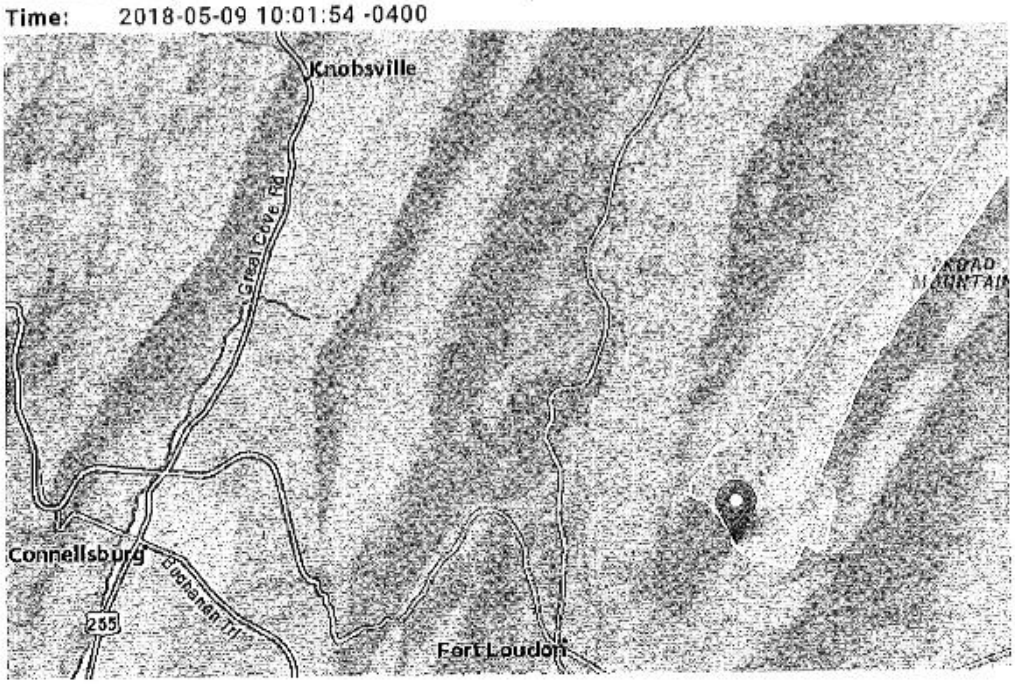

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.39	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.62	miles per square mile
ROCKDEP	Depth to rock	4.8	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.39	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	1.62	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.8	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.506	ft^3/s
30 Day 2 Year Low Flow	0.68	ft^3/s
7 Day 10 Year Low Flow	0.241	ft^3/s
30 Day 10 Year Low Flow	0.318	ft^3/s
90 Day 10 Year Low Flow	0.502	ft^3/s

Low-Flow Statistics Citations

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

StreamStats Report

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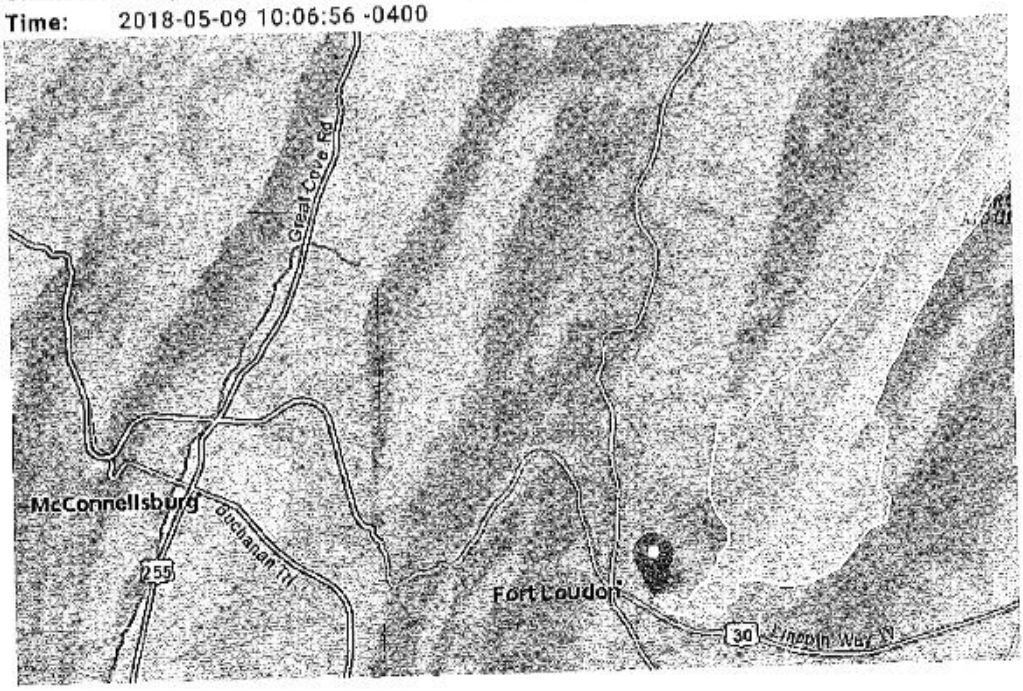

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.73	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.92	miles per square mile
ROCKDEP	Depth to rock	4.6	feet
CARBON	Percentage of area of carbonate rock	1	percent

Low-Flow Statistics Parameters (Low Flow Region 2)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.73	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	1.92	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.6	feet	3.32	5.65
CARBON	Percent Carbonate	1	percent	0	99

Low-Flow Statistics Flow Report (Low Flow Region 2)

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	0.65	ft^3/s	38	38
30 Day 2 Year Low Flow	0.889	ft^3/s	33	33
7 Day 10 Year Low Flow	0.297	ft^3/s	51	51
30 Day 10 Year Low Flow	0.402	ft^3/s	46	46
90 Day 10 Year Low Flow	0.642	ft^3/s	36	36

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/)

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.194	**= Qstream (cfs)**		**0.5**	**=CV Daily**	
5	0.05	**= Qdischarge (MGD)**		**0.5**	**=CV Hourly**	
6	30	**= no. samples**		**1**	**=AFC_Partial Mix Factor**	
7	0.3	**= Chlorine Demand of Stream**		**1**	**=CFC_Partial Mix Factor**	
8	0	**= Chlorine Demand of Discharge**		**15**	**=AFC_Criteria Compliance Time (min)**	
9	**0.5**	**= BAT/BPJ Value**		**720**	**=CFC_Criteria Compliance Time (min)**	
	0	**= % Factor of Safety (FOS)**			**=Decay Coefficient (K)**	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	**1.3.2.iii**	WLA afc = 0.819		**1.3.2.ii**	WLA cfc = 0.791
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 0.305		**5.1d**	LTA_cfc = 0.460
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.376		AFC	
18			INST MAX LIMIT (mg/l) = 1.229			

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Broad Run Water Plant** NPDES Permit No.: **PA0083712** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water Treatment Plant Waste**

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
0.05	179	7.5						

					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		278									
	Chloride (PWS)	mg/L		15.2									
	Bromide	mg/L		0.036									
	Sulfate (PWS)	mg/L		0.847									
	Fluoride (PWS)	mg/L		0.24									
Group 2	Total Aluminum	µg/L		214									
	Total Antimony	µg/L	<	0.348									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		70.6									
	Total Beryllium	µg/L	<	0.68									
	Total Boron	µg/L	<	56.5									
	Total Cadmium	µg/L	<	0.123									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L	<	0.000019									
	Total Cobalt	µg/L		0.268									
	Total Copper	µg/L		3.63									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		240									
	Total Iron	µg/L		310									
	Total Lead	µg/L		0.23									
	Total Manganese	µg/L		359									
	Total Mercury	µg/L	<	0.104									
	Total Nickel	µg/L		2.18									
	Total Phenols (Phenolics) (PWS)	µg/L	<	4									
	Total Selenium	µg/L	<	1.67									
	Total Silver	µg/L	<	0.27									
	Total Thallium	µg/L	<	0.068									
	Total Zinc	µg/L	<	5									
	Total Molybdenum	µg/L		0.43									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										

Group 3	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
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Stream / Surface Water Information

Broad Run Water Plant, NPDES Permit No. PA0083712, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Broad 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	057570	2.4	834	4.39			Yes
End of Reach 1	057570	0	589	6.73			Yes

Q_{7-10}

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	2.4	0.1	0.241									100	7		
End of Reach 1	0	0.1	0.294												

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	2.4														
End of Reach 1	0														

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Model Results

Broad Run Water Plant, NPDES Permit No. PA0083712, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.366 PMF: 1 Analysis Hardness (mg/l): 119.19 Analysis pH: 7.08

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	3,087	
Total Antimony	0	0		0	1,100	1,100	4,527	
Total Arsenic	0	0		0	340	340	1,399	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	86,430	
Total Boron	0	0		0	8,100	8,100	33,337	
Total Cadmium	0	0		0	2.389	2.55	10.5	Chem Translator of 0.937 applied
Total Chromium (III)	0	0		0	657.884	2,082	8,569	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	67.1	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	391	
Total Copper	0	0		0	15.857	16.5	68.0	Chem Translator of 0.96 applied
Dissolved Iron	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	78.145	102	420	Chem Translator of 0.765 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.78	Chem Translator of 0.85 applied
Total Nickel	0	0		0	543.223	544	2,240	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	4.351	5.12	21.1	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	268	
Total Zinc	0	0		0	135.978	139	572	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 1.366 PMF: 1 Analysis Hardness (mg/l): 119.19 Analysis pH: 7.08

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	905	
Total Arsenic	0	0		0	150	150	617	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	16,874	
Total Boron	0	0		0	1,600	1,600	6,585	
Total Cadmium	0	0		0	0.278	0.31	1.27	Chem Translator of 0.902 applied
Total Chromium (III)	0	0		0	85.577	99.5	410	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	42.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	78.2	
Total Copper	0	0		0	10.406	10.8	44.6	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	6,174	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.045	3.98	16.4	Chem Translator of 0.765 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3.73	Chem Translator of 0.85 applied
Total Nickel	0	0		0	60.335	60.5	249	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	20.5	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	53.5	
Total Zinc	0	0		0	137.090	139	572	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 1.366 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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	23.0	
Total Arsenic	0	0		0	10	10.0	41.2	
Total Barium	0	0		0	2,400	2,400	9,878	
Total Boron	0	0		0	3,100	3,100	12,759	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	1,235	

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	4,116	
Total Mercury	0	0		0	0.050	0.05	0.21	
Total Nickel	0	0		0	610	610	2,511	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.99	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.616 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	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 Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	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*						
Model Results	Pollutants	AML	MDL	AML	MDL	4/4/2024	Units	Governing	WQBEL	Comments

Pollutants	(lbs/day)	(lbs/day)	AML	MDL	MAX	Units	WQBEL	Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,979	AFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	1,235	THH	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
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	9,878	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	6,585	µg/L	Discharge Conc < TQL
Total Cadmium	1.27	µg/L	Discharge Conc < TQL
Total Chromium (III)	410	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	42.8	µg/L	Discharge Conc < TQL
Total Cobalt	78.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	43.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Iron	6,174	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	16.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	4,116	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.21	µg/L	Discharge Conc < TQL
Total Nickel	249	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	20.5	µg/L	Discharge Conc < TQL
Total Silver	13.5	µg/L	Discharge Conc < TQL
Total Thallium	0.99	µg/L	Discharge Conc < TQL
Total Zinc	367	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS