Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0028711**
Facility Type	**Municipal**	APS ID	**1080292**
Major / Minor	**Major**	Authorization ID	**1425878**

Applicant and Facility Information

Applicant Name	**Peters Township Sanitary Authority**	Facility Name	**Brush Run WPCP**
Applicant Address	111 Bell Drive	Facility Address	111 West Valley Brook Road
	McMurray, PA 15317-3415		McMurry, PA 15317
Applicant Contact	Enoch E. Jenkins	Facility Contact	Mark A. Chucuddy
Applicant Phone	(724) 941-6709	Facility Phone	(724) 941-6700
Client ID	71364	Site ID	246406
Ch 94 Load Status	Not Overloaded	Municipality	Peters Township
Connection Status	No Limitations	County	Washington
Date Application Received	January 27, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

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

Summary of Review

The Peters Township Sanitary Authority (PTSA) owns and operates the Brush Run WPCP. NPDES Permit No. PA0028711 authorizes the discharge of treated sewage to Brush run, which is currently classified as a WWF, located in State Watershed No. 20-F. The permit was effective on August 1, 2018, and expired on July 31, 2023.

WQM Permit No. 6369406 A-9, issued March 11, 2022, approves the Brush Run WPCP Rerating Study, which approves an annual average design flow of 2.3 MGD and a hydraulic design capacity of 3.6 MGD.

The WPCP consists of a multi-stage activated sludge design with facilities for screening, grit removal, primary settling, two stage aeration and clarification, phosphorus removal, UV disinfection, sludge digestion and a belt filter press.

Stormwater Outfalls 010, 011, 012, and 013 are again permitted for the discharge of un-contaminated stormwater runoff from areas in and around the WPCP. These outfalls are subject to the Department's current requirements applicable to stormwater outfalls, Part C.V.

Application data indicates that there are no industrial/commercial users in the PTSA collection system.

Changes since last permit draft include:

- Interim and Final Total Copper WQBEL
- Monthly E. Coli Monitoring
- Annual PFOA, PFOS, PFBS, and HFPO-DA Monitoring
- Addition of Part C.III, Water Quality Based Effluent Limitations (WQBELs)

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Project Manager	March 21, 2025
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	March 21, 2025

Summary of Review

- Revised Part C.IV, Whole Effluent Toxicity (updates made to the dilution series and TIWC)

Sludge use and disposal description and location(s): The Applicant indicates that dewatered sludge from this facility is hauled to either Arden Landfill (Permit No. 100172) or Imperial Landfill (Permit No. 100620). Application data indicates that this facility does not accept hauled in waste.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.3
Latitude	40º 17' 32.27"	Longitude	-80º 06' 22.34"
Quad Name	Bridgeville	Quad Code	1605
Wastewater Description:	Sewage Effluent		
Receiving Waters	Brush Run (WWF)	Stream Code	36873
NHD Com ID	99691622	RMI	0.966
Drainage Area	10.0	Yield (cfs/mi^2)	0.0135
Q_{7-10} Flow (cfs)	0.135	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	894	Slope (ft/ft)	0.00753
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	NONE	Exceptions to Criteria	NONE
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, SILTATION, TURBIDITY		
Source(s) of Impairment	HABITAT MODIFICATION - OTHER THAN HYDROMODIFICATION		
TMDL Status	Final, Final, Final	Name	Brush Run, Chartiers Creek, Chartiers Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)	325	Application Topographic and Discharge Information
Other:		

Nearest Downstream Public Water Supply Intake		West View Municipal Authority – Neville Island	
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	976.1	Distance from Outfall (mi)	Approximately 25

Changes Since Last Permit Issuance: N/A

Other Comments:

- The discharge is to Brush Run, which has a final TMDL, and is impaired for nutrients, sediment & turbidity. The Department will again impose a limit of 2 mg/L for Total Phosphorus per Chapter 96.5(c). A monitoring requirement for Total Nitrogen has also been added to the permit per Chapter 92.a.61. The monitoring requirements for these parameters will be 1/week, 24-Hr composite samples. This sewage discharger is not expected to contribute to the stream impairment for sediment and turbidity.

- The discharge is to Brush Run which flows into Chartiers Creek Watershed that has a Final TMDL and is impaired by PCB and Chlordane. No WLAs have been developed for this sewage discharge and they are not expected to contribute to the stream impairment for these pollutants.

- The discharge is to Brush Run which flows into the Chartiers Creek Watershed that has a Final TMDL and is impaired by metals and pH. This sewage discharge is not expected to contribute to 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 are 0.067 mg/L,

0.024 mg/L, and 0.019 mg/L, which are below the criteria-based concentration values. No additional monitoring requirements for these pollutants will be placed on this facility at this time, and these pollutants will be re-evaluated during the next permit renewal cycle. Please note that the receiving stream, Brush Run, is not impaired by metals or pH.

Treatment Facility Summary

Treatment Facility Name: Brush Run WPCP

WQM Permit No.	Issuance Date
6369406	See File
6369406 A-1	04/19/1992
6369406 A-7	01/14/2020
6369406 A-8	04/27/2020
6369406 A-9	03/11/2022
6369406 A-10	08/01/2023

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia & Phosphorus Removal	Activated Sludge	Ultraviolet	2.3

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
3.6	3956	Not Overloaded	Belt Filtration	Landfill

Changes Since Last Permit Issuance: WQM 6369406 A-10 was issued for modifications to the Plant Water System.

Other Comments: N/A

Compliance History

An Operations Compliance Check Report has been requested and will be attached to the Fact Sheet Addendum.

There are four Open Violations by Client ID, but only one is related to this facility (SSOs).

Compliance History

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.983	1.000	0.922	0.805	0.830	0.839	0.822	0.890	1.330	2.449	1.488	1.115
Flow (MGD) Daily Maximum	2.236	1.340	1.702	1.005	1.185	1.348	1.322	1.116	3.886	9.425	3.904	1.803
pH (S.U.) Instantaneous Minimum	6.5	6.6	6.7	6.7	6.7	6.9	6.7	6.9	6.8	6.9	6.8	6.7
pH (S.U.) Instantaneous Maximum	7.1	7.3	7.1	7.2	7.3	7.3	7.2	7.1	7.2	7.3	7.4	7.5
DO (mg/L) Instantaneous Minimum	6.3	6.3	5.9	6.6	6.0	5.9	6.0	6.2	6.4	6.0	6.6	5.7
CBOD5 (lbs/day) Average Monthly	47.4	49.2	31.7	25.4	32.1	31.0	36.9	55.0	46.8	42.3	56.7	30.5
CBOD5 (lbs/day) Weekly Average	56.7	58.6	34.1	29.9	37.4	37.2	44.5	69.6	56.7	82.9	95.9	35.8
CBOD5 (mg/L) Average Monthly	6.0	6.0	4.4	3.8	4.9	4.6	5.2	7.1	5.2	2.9	< 3.9	3.5
CBOD5 (mg/L) Weekly Average	7.1	7.0	4.5	4.0	5.7	5.1	6.1	8.3	6.2	3.1	< 5.5	3.9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	2919	3110	2920	2372	2386	2998	3163	3815	3119	3182	2713	2521
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	3436	3434	3332	2566	2568	3784	3762	4256	3408	4363	3367	2874
BOD5 (mg/L) Raw Sewage Influent Average Monthly	369	383	405	357	364	445	447	497	353	247	216	295
BOD5 (mg/L) Raw Sewage Influent Weekly Average	438	451	461	401	387	518	518	535	377	318	255	344
TSS (lbs/day) Average Monthly	36.5	50.7	28.7	23.9	40.2	15.9	16.9	23.0	38.5	59.4	84.9	34.6

TSS (lbs/day) Raw Sewage Influent Average Monthly	2049	1975	2139	2026	1881	1654	1717	14759	2318	2415	2306	1865
TSS (lbs/day) Raw Sewage Influent Weekly Average	2134	2174	2609	2457	2047	1900	2306	52856	2665	2715	2659	2211
TSS (lbs/day) Weekly Average	46.5	89.3	39.8	30.1	56.2	23.6	24.3	37.8	79.4	173.4	132.1	51.2
TSS (mg/L) Average Monthly	5.0	5.9	4.0	3.6	6.1	2.4	2.3	3.0	4.1	3.2	6.0	4.0
TSS (mg/L) Raw Sewage Influent Average Monthly	260	244	300	305	287	248	241	1959	263	193	190	220
TSS (mg/L) Raw Sewage Influent Weekly Average	258	288	392	384	308	270	304	7038	340	226	262	282
TSS (mg/L) Weekly Average	6.0	9.0	5.5	4.5	8.5	3.5	3.3	5.0	7.5	6.5	8.5	6.5
Fecal Coliform (No./100 ml) Geometric Mean	< 6	< 25	7	63	< 15	36	31	41	40	< 4	16	63
Fecal Coliform (No./100 ml) Instantaneous Maximum	57	57	76	260	210	103	280	93	330	51	52	280
UV Transmittance (%) Instantaneous Minimum	55.2	55.3	56.3	58.2	54.0	62.3	58.2	57.1	48.2	51.3	60.0	67.7
Total Nitrogen (lbs/day) Average Monthly	146.4	186.2	208.4	189.9	199.2	154.7	225.6	204.2	312.0	181.8	225.81	162.42
Total Nitrogen (mg/L) Average Monthly	18.6	23.5	29.0	28.4	30.8	22.9	30.6	27.5	35.0	14.9	17.8	19.2
Total Nitrogen (mg/L) Instantaneous Maximum	26.7	27.7	30.5	31.5	36.2	24.9	34.6	29.9	53.3	20.7	22.1	24.4
Ammonia (lbs/day) Average Monthly	< 1.4	2.2	2.3	2.0	2.9	2.3	2.9	3.5	< 3.6	< 2.0	< 1.2	< 1.0
Ammonia (mg/L) Average Monthly	< 0.2	0.3	0.3	0.3	0.4	0.3	0.4	0.5	< 0.4	< 0.1	< 0.1	< 0.1
Total Phosphorus (lbs/day) Average Monthly	8.1	4.9	5.5	5.8	6.5	7.5	8.8	8.9	8.5	6.2	12.4	8.12

Total Phosphorus (mg/L) Average Monthly	1.0	0.6	0.8	0.9	0.9	1.1	1.2	1.2	1.0	0.6	0.9	1.0

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.3
Latitude 40º 17' 32.27" **Longitude** -80º 06' 22.34"
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 discharge was evaluated using WQM 7.0 Version 1.1 (Attachments 2 & 3) to evaluate $CBOD_5$, Ammonia-Nitrogen, and Dissolved Oxygen. The above technology based effluent limitations are appropriate for $CBOD_5$ (Nov 1 – Apr 30), TSS, pH, and Fecal Coliform.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" (Attachment 4 - TMS Version 1.4) determined the following parameters were candidates for monitoring and/or limitations: Total Boron, Total Copper, Free Cyanide, and Total Zinc.

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen May 1 – Oct 31	1.9	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen Nov 1 – Apr 30	3.0	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	5.0	Minimum	WQM 7.0 Version 1.1
Total Copper (ug/L)	15.9	Average Monthly	TMS Version 1.4

Comments: Due to anti-backsliding, the previously permitted seasonal WQBEL for CBOD5 (May 1 – Oct 31) of 20 mg/L will be re-imposed.

The TMS Model recommended Monitoring be established for Total Boron, Free Cyanide, and Total Zinc, as the discharge concentration of these pollutants are greater than 10% (25% for Free Cyanide) of the governing WQBELs (no RP).

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.

The facility is not seeking to revise the previously permitted effluent limits.

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS consistent with an EPA memorandum that provides guidance to states for addressing PFAS discharges. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.G of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-033 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

The Authority's application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be established consistent with Section II.G of SOP BCW-PMT-033 and under the authority of 25 Pa. Code § 92a.61(b).

As stated in Section II.G.3 of SOP BCW-PMT-0332, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results), then the monitoring may be discontinued. Footnote (3) has been added to Part A of the NPDES Permit, which further discusses monitoring and reporting requirements.

Additional Considerations

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 (Document No. 386-0400-001).

Mass loading limits will be established for $CBOD_5$, TSS, NH_3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for $CBOD_5$, TSS, NH_3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for $CBOD_5$ and TSS (Section IV, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits).

For POTWs with design flows greater than 2,000 GPD and for non-municipal sewage facilities that service municipalities or portions thereof, the application manager will establish influent BOD_5 and TSS monitoring in the permit using the same frequency and sample type as is used for other effluent parameters (Section IV.E.8, SOP No BCW-PWT-002, New and Reissuance Sewage Individual NPDES Permit Applications).

Sewage dischargers will include monitoring, at a minimum, for E. Coli, in new and reissued permits, with a monitoring frequency of 1/month for design flows >= 1 MGD per 25 Pa. Code § 92a.061, and Section I.A, Note 12, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but the limits table(s) in Part A will generally contain, at a minimum, routine monitoring of UV transmittance (%), UV dosage (µWs/cm2 or mWs/cm2 or mjoules/cm2) or UV intensity (µW/cm2 or mW/cm2) at the same monitoring frequency that would be used for TRC per Section I.A, Note 4, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☒ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 95%, 90%, 45%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 90%.

Summary of Four Most Recent Test Results

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
06/25/2019	PASS	PASS	PASS	PASS
06/22/2020	PASS	PASS	PASS	PASS
06/21/2021	PASS	PASS	PASS	PASS
06/21/2022	PASS	PASS	PASS	PASS

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments: N/A

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.3 MGD x 1.547) / ((0.135 cfs x 1) + (2.3 MGD x 1.547))] x 100 = **96.34%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** **(YES - Acute Tests Required OR NO - Chronic Tests Required)**

Type of Test for Permit Renewal: **Chronic Tests**

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = 96.34/ 0.3 = 100**%**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.3 MGD x 1.547) / ((0.135 cfs x 1) + (2.3 MGD x 1.547))] x 100 = **96%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 96%, 72%, 48%, and 24%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A

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 End of 24th Month.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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: Beginning of 25th Month through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper (ug/L)	0.3	0.48 Daily Max	XXX	15.9	24.8 Daily Max	39.7	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	475.0	765.0	XXX	25.0	40.0 Wkly Avg	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	380.0	575.0	XXX	20.0	30.0 Wkly Avg	40	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report Wkly Avg	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report Wkly Avg	XXX	2/week	24-Hr Composite
TSS	575.0	860.0	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	Report	XXX	XXX	Report	XXX	Report	1/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	57.5	XXX	XXX	3.0	XXX	6.1	2/week	24-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	Daily Maximum	Instant. Maximum		
Ammonia- Nitrogen May 1 - Oct 31	36.4	XXX	XXX	1.9	XXX	3.9	2/week	24-Hr Composite
Total Phosphorus	38.3	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Total Boron (ug/L)	Report	Report Daily Max	XXX	Report	Report	XXX	1/month	24-Hr Composite
Free Cyanide (ug/L)	Report	Report Daily Max	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Zinc (ug/L)	Report	Report Daily Max	XXX	Report	Report	XXX	1/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFBS	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment 1 – USGS StreamStats Report

StreamStats Report - PA0028711

Region ID: PA
Workspace ID: PA20221026122948771000
Clicked Point (Latitude, Longitude): 40.29241, -80.10660
Time: 2022-10-26 08:30:09 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	10	square miles
ELEV	Mean Basin Elevation	1115	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	10	square miles	2.26	1400
ELEV	Mean Basin Elevation	1115	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	0.364	ft^3/s	43	43
30 Day 2 Year Low Flow	0.628	ft^3/s	38	38
7 Day 10 Year Low Flow	0.135	ft^3/s	66	66
30 Day 10 Year Low Flow	0.241	ft^3/s	54	54
90 Day 10 Year Low Flow	0.434	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: 4.11.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment 2 – WQM 7.0 Version 1.1 – Summer 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
20F	36873	BRUSH RUN	**0.966**	894.00	10.00	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	0.014	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
Brush Run WPCP	0028711	2.3000	2.3000	2.3000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.38	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
20F	36873	BRUSH RUN	**0.010**	856.00	10.40	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	0.014	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	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
20F	36873	BRUSH RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.966	0.14	0.00	0.14	3.5581	0.00753	.613	22.13	36.11	0.27	0.215	20.18	7.00
Q1-10 Flow												
0.966	0.09	0.00	0.09	3.5581	0.00753	NA	NA	NA	0.27	0.216	20.12	7.00
Q30-10 Flow												
0.966	0.18	0.00	0.18	3.5581	0.00753	NA	NA	NA	0.27	0.213	20.25	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
20F	36873	BRUSH RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.966	Brush Run WPC	16.6	17	16.6	17	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.966	Brush Run WPC	1.86	1.95	1.86	1.95	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.97	Brush Run WPCP	25	25	1.95	1.95	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36873	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.966	2.300	20.183	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.134	0.613	36.110	0.272
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.16	1.495	1.88	0.710
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.124	19.556	Tsivoglou	5
Reach Travel Time (days)			
0.215			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.021	23.39	1.85	5.45
0.043	22.65	1.83	5.69
0.064	21.92	1.80	5.89
0.086	21.23	1.77	6.04
0.107	20.55	1.74	6.17
0.129	19.90	1.72	6.29
0.150	19.26	1.69	6.39
0.172	18.65	1.67	6.48
0.193	18.06	1.64	6.57
0.215	17.48	1.62	6.65

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36873	BRUSH RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.966	Brush Run WPCP	0028711	2.300	CBOD5	25		
				NH3-N	1.95	3.9	
				Dissolved Oxygen			5

Attachment 3 – WQM 7.0 Version 1.1 – Winter 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
20F	36873	BRUSH RUN	**0.966**	894.00	10.00	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	0.027	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
Brush Run WPCP	0028711	2.3000	2.3000	2.3000	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	3.00	12.80	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
20F	36873	BRUSH RUN	**0.010**	856.00	10.40	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	0.027	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	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
20F	36873	BRUSH RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.966	0.27	0.00	0.27	3.5581	0.00753	.616	22.38	36.33	0.28	0.210	14.29	7.00
Q1-10 Flow												
0.966	0.17	0.00	0.17	3.5581	0.00753	NA	NA	NA	0.27	0.213	14.54	7.00
Q30-10 Flow												
0.966	0.37	0.00	0.37	3.5581	0.00753	NA	NA	NA	0.28	0.207	14.06	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
20F	36873	BRUSH RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.966	Brush Run WPC	24.1	25.27	24.1	25.27	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.966	Brush Run WPC	2.77	3.05	2.77	3.05	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.97	Brush Run WPCP	25	25	3.05	3.05	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36873	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.966	2.300	14.295	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.379	0.616	36.335	0.278
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.38	1.490	2.84	0.451
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.550	17.353	Tsivoglou	5
Reach Travel Time (days)			
0.210			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.021	22.82	2.81	6.19
0.042	22.28	2.78	6.65
0.063	21.75	2.76	6.98
0.084	21.23	2.73	7.23
0.105	20.72	2.71	7.42
0.126	20.23	2.68	7.57
0.147	19.75	2.65	7.69
0.168	19.28	2.63	7.79
0.189	18.82	2.60	7.87
0.210	18.37	2.58	7.94

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36873	BRUSH RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.966	Brush Run WPCP	0028711	2.300	CBOD5	25		
				NH3-N	3.05	6.1	
				Dissolved Oxygen			5

Attachment 4 – TMS Version 1.4

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Brush Run WPCP** NPDES Permit No.: **PA0028711** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated 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
2.3	173	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
Group 1	Total Dissolved Solids (PWS)	mg/L		452									
	Chloride (PWS)	mg/L		75.6									
	Bromide	mg/L		3.9									
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		67									
	Total Antimony	µg/L		0.46									
	Total Arsenic	µg/L	<	0.5									
	Total Barium	µg/L		18									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L		240									
	Total Cadmium	µg/L	<	0.16									
	Total Chromium (III)	µg/L		0.53									
	Hexavalent Chromium	µg/L	<	0.014									
	Total Cobalt	µg/L	<	0.83									
	Total Copper	µg/L		12									
	Free Cyanide	µg/L		1.3									
	Total Cyanide	µg/L		2.5									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		24									
	Total Lead	µg/L	<	0.33									
	Total Manganese	µg/L		19									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		5.8									
	Total Phenols (Phenolics) (PWS)	µg/L		7									
	Total Selenium	µg/L	<	0.66									
	Total Silver	µg/L	<	0.33									
	Total Thallium	µg/L	<	0.16									
	Total Zinc	µg/L		63									
	Total Molybdenum	µg/L		1.5									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L											
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.12									
	Bromoform	µg/L	<	0.37									

Group 3	Carbon Tetrachloride	µg/L	<	0.23										
	Chlorobenzene	µg/L	<	0.25										
	Chlorodibromomethane	µg/L	<	0.25										
	Chloroethane	µg/L	<	0.47										
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1										
	Chloroform	µg/L	<	0.52										
	Dichlorobromomethane	µg/L	<	0.18										
	1,1-Dichloroethane	µg/L	<	0.05										
	1,2-Dichloroethane	µg/L	<	0.12										
	1,1-Dichloroethylene	µg/L	<	0.13										
	1,2-Dichloropropane	µg/L	<	0.26										
	1,3-Dichloropropylene	µg/L	<	0.47										
	1,4-Dioxane	µg/L	<	0.34										
	Ethylbenzene	µg/L	<	0.2										
	Methyl Bromide	µg/L	<	0.42										
	Methyl Chloride	µg/L		0.55										
	Methylene Chloride	µg/L	<	0.14										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38										
	Tetrachloroethylene	µg/L	<	0.27										
	Toluene	µg/L	<	0.24										
	1,2-trans-Dichloroethylene	µg/L	<	0.08										
	1,1,1-Trichloroethane	µg/L	<	0.12										
	1,1,2-Trichloroethane	µg/L	<	0.13										
	Trichloroethylene	µg/L	<	0.29										
	Vinyl Chloride	µg/L	<	0.33										
Group 4	2-Chlorophenol	µg/L	<	0.38										
	2,4-Dichlorophenol	µg/L	<	0.43										
	2,4-Dimethylphenol	µg/L	<	0.46										
	4,6-Dinitro-o-Cresol	µg/L	<	1.2										
	2,4-Dinitrophenol	µg/L	<	2.8										
	2-Nitrophenol	µg/L	<	0.38										
	4-Nitrophenol	µg/L	<	1.3										
	p-Chloro-m-Cresol	µg/L	<	0.38										
	Pentachlorophenol	µg/L	<	1.7										
	Phenol	µg/L	<	0.25										
	2,4,6-Trichlorophenol	µg/L	<	0.46										
Group 5	Acenaphthene	µg/L	<	0.39										
	Acenaphthylene	µg/L	<	0.38										
	Anthracene	µg/L	<	0.39										
	Benzidine	µg/L	<	2.5										
	Benzo(a)Anthracene	µg/L	<	0.4										
	Benzo(a)Pyrene	µg/L	<	0.35										
	3,4-Benzofluoranthene	µg/L	<	0.39										
	Benzo(ghi)Perylene	µg/L	<	0.41										
	Benzo(k)Fluoranthene	µg/L	<	0.38										
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.43										
	Bis(2-Chloroethyl)Ether	µg/L	<	0.37										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.43										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.79										
	4-Bromophenyl Phenyl Ether	µg/L	<	0.44										
	Butyl Benzyl Phthalate	µg/L	<	0.57										
	2-Chloronaphthalene	µg/L	<	0.39										
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.39										
	Chrysene	µg/L	<	0.41										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.42										
	1,2-Dichlorobenzene	µg/L	<	0.37										
	1,3-Dichlorobenzene	µg/L	<	0.43										
	1,4-Dichlorobenzene	µg/L	<	0.43										
	3,3-Dichlorobenzidine	µg/L	<	1										
	Diethyl Phthalate	µg/L	<	0.55										
	Dimethyl Phthalate	µg/L	<	0.41										
	Di-n-Butyl Phthalate	µg/L	<	0.87										
	2,4-Dinitrotoluene	µg/L	<	0.44										

	2,6-Dinitrotoluene	µg/L	<	0.4										
	Di-n-Octyl Phthalate	µg/L	<	0.86										
	1,2-Diphenylhydrazine	µg/L	<	0.37										
	Fluoranthene	µg/L	<	0.42										
	Fluorene	µg/L	<	0.37										
	Hexachlorobenzene	µg/L	<	0.42										
	Hexachlorobutadiene	µg/L	<	0.48										
	Hexachlorocyclopentadiene	µg/L	<	0.72										
	Hexachloroethane	µg/L	<	0.36										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.39										
	Isophorone	µg/L	<	0.42										
	Naphthalene	µg/L	<	0.39										
	Nitrobenzene	µg/L	<	0.51										
	n-Nitrosodimethylamine	µg/L	<	1.1										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.41										
	n-Nitrosodiphenylamine	µg/L	<	0.48										
	Phenanthrene	µg/L	<	0.38										
	Pyrene	µg/L	<	0.41										
	1,2,4-Trichlorobenzene	µg/L	<	0.41										
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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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Brush Run WPCP, NPDES Permit No. PA0028711, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Brush 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	036873	0.966	894	10	0.00753		Yes
End of Reach 1	036873	0.01	856	10.4	0.00753		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	0.966	0.0135			10							325	7		
End of Reach 1	0.01	0.0135			10										

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	0.966														
End of Reach 1	0.01														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Brush Run WPCP, NPDES Permit No. PA0028711, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.966	0.14		0.14	3.558	0.008	0.613	6.13	10.	0.272	0.215	0.002
0.01	0.14		0.14					10.000			

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.966	1.29		1.29	3.558	0.008	0.691	6.13	8.871	0.317	0.184	0.073
0.01	1.336		1.34								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 178.56 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	
Total Aluminum	0	0		0	750	750	778	
Total Antimony	0	0		0	1,100	1,100	1,142	
Total Arsenic	0	0		0	340	340	353	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,797	
Total Boron	0	0		0	8,100	8,100	8,407	
Total Cadmium	0	0		0	3.537	3.85	3.99	Chem Translator of 0.92 applied
Total Chromium (III)	0	0		0	916.006	2,899	3,009	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	98.6	
Total Copper	0	0		0	23.206	24.2	25.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	22.8	
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	120.662	171	177	Chem Translator of 0.707 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.71	Chem Translator of 0.85 applied
Total Nickel	0	0		0	764.657	766	795	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	8.719	10.3	10.6	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	67.5	
Total Zinc	0	0		0	191.507	196	203	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.11	
Acrylonitrile	0	0		0	650	650	675	
Benzene	0	0		0	640	640	664	
Bromoform	0	0		0	1,800	1,800	1,868	
Carbon Tetrachloride	0	0		0	2,800	2,800	2,906	
Chlorobenzene	0	0		0	1,200	1,200	1,246	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	18,683	
Chloroform	0	0		0	1,900	1,900	1,972	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	15,569	
1,1-Dichloroethylene	0	0		0	7,500	7,500	7,785	
1,2-Dichloropropane	0	0		0	11,000	11,000	11,417	
1,3-Dichloropropylene	0	0		0	310	310	322	
Ethylbenzene	0	0		0	2,900	2,900	3,010	
Methyl Bromide	0	0		0	550	550	571	
Methyl Chloride	0	0		0	28,000	28,000	29,062	
Methylene Chloride	0	0		0	12,000	12,000	12,455	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,038	
Tetrachloroethylene	0	0		0	700	700	727	
Toluene	0	0		0	1,700	1,700	1,765	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,058	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,114	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,529	
Trichloroethylene	0	0		0	2,300	2,300	2,387	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	581	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,765	
2,4-Dimethylphenol	0	0		0	660	660	685	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	83.0	
2,4-Dinitrophenol	0	0		0	660	660	685	
2-Nitrophenol	0	0		0	8,000	8,000	8,304	
4-Nitrophenol	0	0		0	2,300	2,300	2,387	
p-Chloro-m-Cresol	0	0		0	160	160	166	
Pentachlorophenol	0	0		0	8.723	8.72	9.05	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	477	
Acenaphthene	0	0		0	83	83.0	86.1	

Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	311	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.52	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	31,138	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,671	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	280	
Butyl Benzyl Phthalate	0	0		0	140	140	145	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	851	
1,3-Dichlorobenzene	0	0		0	350	350	363	
1,4-Dichlorobenzene	0	0		0	730	730	758	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,152	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,595	
Di-n-Butyl Phthalate	0	0		0	110	110	114	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,661	
2,6-Dinitrotoluene	0	0		0	990	990	1,028	
1,2-Diphenylhydrazine	0	0		0	15	15.0	15.6	
Fluoranthene	0	0		0	200	200	208	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	10.4	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.19	
Hexachloroethane	0	0		0	60	60.0	62.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	10,379	
Naphthalene	0	0		0	140	140	145	
Nitrobenzene	0	0		0	4,000	4,000	4,152	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	17,645	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	311	
Phenanthrene	0	0		0	5	5.0	5.19	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	135	

☑ ***CFC*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 178.56 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	

Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	228	
Total Arsenic	0	0		0	150	150	156	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,256	
Total Boron	0	0		0	1,600	1,600	1,661	
Total Cadmium	0	0		0	0.368	0.42	0.43	Chem Translator of 0.885 applied
Total Chromium (III)	0	0		0	119.154	139	144	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.7	
Total Copper	0	0		0	14.698	15.3	15.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	5.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,557	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.702	6.66	6.91	Chem Translator of 0.707 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.94	Chem Translator of 0.85 applied
Total Nickel	0	0		0	84.930	85.2	88.4	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	5.18	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	13.5	
Total Zinc	0	0		0	193.073	196	203	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.11	
Acrylonitrile	0	0		0	130	130	135	
Benzene	0	0		0	130	130	135	
Bromoform	0	0		0	370	370	384	
Carbon Tetrachloride	0	0		0	560	560	581	
Chlorobenzene	0	0		0	240	240	249	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,633	
Chloroform	0	0		0	390	390	405	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,218	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,557	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,283	
1,3-Dichloropropylene	0	0		0	61	61.0	63.3	
Ethylbenzene	0	0		0	580	580	602	
Methyl Bromide	0	0		0	110	110	114	
Methyl Chloride	0	0		0	5,500	5,500	5,709	
Methylene Chloride	0	0		0	2,400	2,400	2,491	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	218	
Tetrachloroethylene	0	0		0	140	140	145	
Toluene	0	0		0	330	330	343	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,453	
1,1,1-Trichloroethane	0	0		0	610	610	633	

1,1,2-Trichloroethane	0	0		0	680	680	706	
Trichloroethylene	0	0		0	450	450	467	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	114	
2,4-Dichlorophenol	0	0		0	340	340	353	
2,4-Dimethylphenol	0	0		0	130	130	135	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	16.6	
2,4-Dinitrophenol	0	0		0	130	130	135	
2-Nitrophenol	0	0		0	1,600	1,600	1,661	
4-Nitrophenol	0	0		0	470	470	488	
p-Chloro-m-Cresol	0	0		0	500	500	519	
Pentachlorophenol	0	0		0	6.693	6.69	6.95	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	94.5	
Acenaphthene	0	0		0	17	17.0	17.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	61.2	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.1	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	6,228	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	945	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	56.0	
Butyl Benzyl Phthalate	0	0		0	35	35.0	36.3	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	166	
1,3-Dichlorobenzene	0	0		0	69	69.0	71.6	
1,4-Dichlorobenzene	0	0		0	150	150	156	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	830	
Dimethyl Phthalate	0	0		0	500	500	519	
Di-n-Butyl Phthalate	0	0		0	21	21.0	21.8	
2,4-Dinitrotoluene	0	0		0	320	320	332	
2,6-Dinitrotoluene	0	0		0	200	200	208	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.11	
Fluoranthene	0	0		0	40	40.0	41.5	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.08	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.04	
Hexachloroethane	0	0		0	12	12.0	12.5	

Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,180	
Naphthalene	0	0		0	43	43.0	44.6	
Nitrobenzene	0	0		0	810	810	841	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,529	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	61.2	
Phenanthrene	0	0		0	1	1.0	1.04	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	27.0	

☑ ***THH*** CCT (min): 0.002 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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.81	
Total Arsenic	0	0		0	10	10.0	10.4	
Total Barium	0	0		0	2,400	2,400	2,491	
Total Boron	0	0		0	3,100	3,100	3,218	
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	
Free Cyanide	0	0		0	4	4.0	4.15	
Dissolved Iron	0	0		0	300	300	311	
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	1,038	
Total Mercury	0	0		0	0.050	0.05	0.052	
Total Nickel	0	0		0	610	610	633	
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	0.25	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.11	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	104	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	5.92	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	34.3	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	70.6	
Methyl Bromide	0	0		0	100	100.0	104	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	59.2	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	104	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	10,379	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	31.1	
2,4-Dichlorophenol	0	0		0	10	10.0	10.4	
2,4-Dimethylphenol	0	0		0	100	100.0	104	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.08	
2,4-Dinitrophenol	0	0		0	10	10.0	10.4	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	4,152	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	72.7	
Anthracene	0	0		0	300	300	311	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	208	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.1	
2-Chloronaphthalene	0	0		0	800	800	830	
Chrysene	0	0		0	N/A	N/A	N/A	

Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,038	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.27	
1,4-Dichlorobenzene	0	0		0	300	300	311	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	623	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,076	
Di-n-Butyl Phthalate	0	0		0	20	20.0	20.8	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	20.8	
Fluorene	0	0		0	50	50.0	51.9	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	4.15	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	35.3	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	10.4	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	20.8	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.073	

☑ ***CRL*** CCT (min): 0.073 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	
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	
Free Cyanide	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	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.082	
Benzene	0	0		0	0.58	0.58	0.79	
Bromoform	0	0		0	7	7.0	9.54	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.55	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.09	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1.29	
1,2-Dichloroethane	0	0		0	9.9	9.9	13.5	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.23	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.37	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	27.3	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.27	
Tetrachloroethylene	0	0		0	10	10.0	13.6	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	0.75	
Trichloroethylene	0	0		0	0.6	0.6	0.82	
Vinyl Chloride	0	0		0	0.02	0.02	0.027	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	

Pentachlorophenol	0	0		0	0.030	0.03	0.041	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.04	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.001	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0001	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.001	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.014	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.041	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.44	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.16	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0001	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.068	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.068	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.068	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.041	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.014	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.14	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.001	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.007	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	4.5	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Boron	Report	Report	Report	Report	Report	µg/L	1,661	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.3	0.48	15.9	24.8	39.7	µg/L	15.9	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	4.15	THH	Discharge Conc > 25% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	196	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
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	5.81	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,491	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.43	µg/L	Discharge Conc < TQL
Total Chromium (III)	144	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	10.8	µg/L	Discharge Conc < TQL
Total Cobalt	19.7	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	311	µg/L	Discharge Conc < TQL
Total Iron	1,557	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	6.91	µg/L	Discharge Conc < TQL
Total Manganese	1,038	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.052	µg/L	Discharge Conc < TQL
Total Nickel	88.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	5.18	µg/L	Discharge Conc < TQL
Total Silver	10.3	µg/L	Discharge Conc < TQL
Total Thallium	0.25	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.082	µg/L	Discharge Conc < TQL

Benzene	0.79	µg/L	Discharge Conc < TQL
Bromoform	9.54	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.55	µg/L	Discharge Conc < TQL
Chlorobenzene	104	µg/L	Discharge Conc < TQL
Chlorodibromomethane	1.09	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,633	µg/L	Discharge Conc < TQL
Chloroform	5.92	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1.29	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	13.5	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	34.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.23	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.37	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	70.6	µg/L	Discharge Conc < TQL
Methyl Bromide	104	µg/L	Discharge Conc < TQL
Methyl Chloride	5,709	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	27.3	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.27	µg/L	Discharge Conc < TQL
Tetrachloroethylene	13.6	µg/L	Discharge Conc < TQL
Toluene	59.2	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	104	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	633	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.75	µg/L	Discharge Conc < TQL
Trichloroethylene	0.82	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.027	µg/L	Discharge Conc < TQL
2-Chlorophenol	31.1	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	10.4	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	104	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.08	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	10.4	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,661	µg/L	Discharge Conc < TQL
4-Nitrophenol	488	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.041	µg/L	Discharge Conc < TQL
Phenol	4,152	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2.04	µg/L	Discharge Conc < TQL
Acenaphthene	17.6	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	311	µg/L	Discharge Conc < TQL
Benzidine	0.0001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.001	µg/L	Discharge Conc < TQL

Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.014	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.041	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	208	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.44	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	56.0	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.1	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	830	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.16	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	166	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	7.27	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	156	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.068	µg/L	Discharge Conc < TQL
Diethyl Phthalate	623	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	519	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	20.8	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.068	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.068	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.041	µg/L	Discharge Conc < TQL
Fluoranthene	20.8	µg/L	Discharge Conc < TQL
Fluorene	51.9	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.014	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.04	µg/L	Discharge Conc < TQL
Hexachloroethane	0.14	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.001	µg/L	Discharge Conc < TQL
Isophorone	35.3	µg/L	Discharge Conc < TQL
Naphthalene	44.6	µg/L	Discharge Conc < TQL
Nitrobenzene	10.4	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.007	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	4.5	µg/L	Discharge Conc < TQL
Phenanthrene	1.04	µg/L	Discharge Conc < TQL
Pyrene	20.8	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.073	µg/L	Discharge Conc < TQL

Attachment 5 – DEP WET Analysis Spreadsheet

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.9
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Brush Run WPCP

Permit No.: PA0028711

Replicate No.	Test Completion Date 6/25/2019 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 6/22/2020 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	0	1
7	1	1
8	1	1
9	1	0
10	1	1
11		
12		
13		
14		
15		
Mean	0.900	0.900
Std Dev.	0.316	0.316
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 6/21/2021 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 6/21/2022 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.9
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Brush Run WPCP

Permit No.: PA0028711

Test Completion Date: 6/25/2019

Replicate No.	Control	TIWC
1	21	26
2	21	23
3	11	21
4	21	28
5	24	23
6	25	25
7	22	26
8	22	16
9	13	25
10	12	21
11		
12		
13		
14		
15		
Mean	19.200	23.400
Std Dev.	5.160	3.438
# Replicates	10	10

T-Test Result	5.4979
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 6/22/2020

Replicate No.	Control	TIWC
1	27	41
2	30	42
3	29	36
4	36	28
5	16	40
6	2	34
7	35	38
8	25	36
9	30	20
10	32	43
11		
12		
13		
14		
15		
Mean	26.200	35.800
Std Dev.	10.196	7.099
# Replicates	10	10

T-Test Result	4.8945
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 6/21/2021

Replicate No.	Control	TIWC
1	44	46
2	39	46
3	47	46
4	47	45
5	48	48
6	43	55
7	47	49
8	47	43
9	49	46
10	41	51
11		
12		
13		
14		
15		
Mean	45.200	47.500
Std Dev.	3.293	3.440
# Replicates	10	10

T-Test Result	10.1557
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

Test Completion Date: 6/21/2022

Replicate No.	Control	TIWC
1	43	32
2	43	39
3	46	41
4	37	50
5	35	42
6	31	27
7	36	44
8	44	50
9	31	43
10	44	41
11		
12		
13		
14		
15		
Mean	39.000	40.900
Std Dev.	5.657	7.125
# Replicates	10	10

T-Test Result	4.4426
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.9
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Brush Run WPCP

Permit No.: PA0028711

Replicate No.	Test Completion Date: 6/25/2019 Control	TIWC
1	9	10
2	7	9
3	9	10
4	9	7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	8.500	9.000
Std Dev.	1.000	1.414
# Replicates	4	4
T-Test Result	3.4174	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 6/23/2020 Control	TIWC
1	10	10
2	9	10
3	8	9
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.250	9.750
Std Dev.	0.957	0.500
# Replicates	4	4
T-Test Result	5.8363	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 6/22/2021 Control	TIWC
1	9	10
2	9	10
3	9	9
4	9	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.000	9.750
Std Dev.	0.000	0.500
# Replicates	4	4
T-Test Result	10.6643	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 6/21/2022 Control	TIWC
1	10	10
2	10	9
3	10	10
4	5	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	8.750	9.750
Std Dev.	2.500	0.500
# Replicates	4	4
T-Test Result	3.4559	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.9
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Brush Run WPCP

Permit No.

PA0028711

Replicate No.	Test Completion Date 6/25/2019 Control	TIWC
1	0.344	0.401
2	0.342	0.329
3	0.389	0.528
4	0.288	0.316
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.341	0.394
Std Dev.	0.041	0.097
# Replicates	4	4

T-Test Result	2.7054
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	**PASS**

Replicate No.	Test Completion Date 6/23/2020 Control	TIWC
1	0.962	0.846
2	0.82	0.861
3	0.709	0.722
4	0.932	0.84
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.856	0.817
Std Dev.	0.115	0.064
# Replicates	4	4

T-Test Result	3.2585
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Replicate No.	Test Completion Date 6/22/2021 Control	TIWC
1	0.695	0.675
2	0.739	0.699
3	0.742	0.689
4	0.718	0.803
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.724	0.717
Std Dev.	0.022	0.059
# Replicates	4	4

T-Test Result	5.7251
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	**PASS**

Replicate No.	Test Completion Date 6/21/2022 Control	TIWC
1	0.394	0.565
2	0.367	0.548
3	0.532	0.648
4	0.218	0.637
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.378	0.600
Std Dev.	0.129	0.050
# Replicates	4	4

T-Test Result	5.8089
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

WET Summary and Evaluation

Facility Name	Brush Run WPCP
Permit No.	PA0028711
Design Flow (MGD)	2.3
Q_{7-10} Flow (cfs)	0.135
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/25/19	6/22/20	6/21/21	6/21/22
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/25/19	6/22/20	6/21/21	6/21/22
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/25/19	6/23/20	6/22/21	6/21/22
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/25/19	6/23/20	6/22/21	6/21/22
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**96** % Effluent
Dilution Series	**24, 48, 72, 96, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	