pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Amendment, Major**	Application No.	**PA0028711 A-1**
Facility Type	**Municipal**	APS ID	**1062291**
Major / Minor	**Major**	Authorization ID	**1394495**

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
	McMurry, PA 15317-3415		McMurray, PA 15317
Applicant Contact	Mr. Enoch E. Jenkins	Facility Contact	Mr. Mark Chucuddy
Applicant Phone	(724) 941-6709	Facility Phone	(724) 941-6709
Client ID	71364	Site ID	246406
Ch 94 Load Status	Not Overloaded	Municipality	Peters Township
Connection Status	No Limitations	County	Washington
Date Application Received	April 26, 2022	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

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

Summary of Review

The Peters Township Sanitary Authority (PTSA) operates and maintains the Brush Run WPCP. NPDES Permit No. PA0028711authorizes 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 will expire on July 31, 2023.

WQM Permit No. 6369406 A-1 was issued on April 19, 1992 authorizing plant expansion to treat an average design flow of 2.0 MGD.

During this NPDES Permit cycle the WQM Permit has been amended three times for the following:

- WQM Permit No 6369406 A-7, issued January 14, 2020, approved the installation of a UV disinfection system, a chemical coagulant feed pump system for phosphorus removal.
- WQM Permit No. 6369406 A-8, issued April 27, 2020, approved the installation of a 16” effluent bypass pipe, which will only be utilized during planned cleaning of the effluent channel.
- 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.

A Final TRE Report was submitted to the Department on May 31, 2019. That Report concluded that the WPCP removes Dichlorobromomethane & Chloroform adequately through final clarification, but when chlorine is added for disinfection the

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Environmental Engineering Specialist	November 30, 2022
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	December 1, 2022

Summary of Review

Dichlorobromomethane & Chloroform concentrations increase in the final effluent. Therefore, PTSA removed the chlorine disinfection system (WQM No. 639406 A-7) and installed a UV disinfection system, which has been in operation since July of 2021.

The purpose of this NPDES Permit Amendment is to modify the permitted annual average design flow from 2.0 MGD to 2.3 MGD, modify the hydraulic design capacity from 2.0 MGD to 3.6 MGD, removal of effluent limits for TRC, Dichlorobromomethane, and Chloroform, and the inclusion of UV light transmittance monitoring.

The following changes has been made to the Authority's existing NPDES Permit, as issued on July 24, 2018:

- Part A.I.A, Mass and Concentration based effluent limitations have changed due to the WPCP's approved Rerating Study. Please note that Department Models (WQM 7.0 & TMS) have been rerun to reflect updated Ammonia-Nitrogen Criteria and Q7/10 stream flow (StreamStats).
- Part A.I.A, TRC effluent limitations have been removed and UV light transmittance monitoring (%) has been added to the permit.
- Part A.I.A, Mass and Concentration based effluent limitations for Dichlorobromomethane & Chloroform have been removed from the permit, as there is no longer reasonable potential to exceed water quality criteria, which is further discussed in the Development of Effluent Limitation section of the Fact Sheet.
- Part A.I.A, Monitoring for Bromide has been removed from the permit, as Monitoring is not recommended by the TMS Model Results, which is further discussed in the Development of Effluent Limitation section of the Fact Sheet.
- Part A, Supplemental Information Item (1) and (2) has been updated based upon the WPCP Rerating Study. The hydraulic design capacity, for Chapter 94 purposes, is 3.6 MGD and effluent limitations for Outfall 001 were determined using an effluent discharge rate of 2.3 MGD. No changes occurred to the organic design capacity and it remains at 3,956 lbs. BOD5 per day.
- Part A.III.D has been updated to reflect revised Annual Fee information per 25 Pa. Code § 92a.62.
- Part C.I.D, Chlorine Minimization, has been removed from the permit, as this condition is only applicable to facilities using chlorine for disinfection.
- Part C.III, Toxics Reduction Evaluation (TRE), has been removed from the permit, as the Final TRE Report has been submitted to the Department and the condition is no longer applicable.
- Part C.IV, Whole Effluent Toxicity (WET), has been changed to reflect updates to the dilution series and TIWC, as previous values were based upon a design flow of 2.0 MGD vs. 2.3 MGD.
- Part C.V, TRC Effluent Limitations Below QL, has been removed, as TRC is no longer used for disinfection.
- Part C.VII, Schedule of Compliance for Total Phosphorus, has been removed, as the dates are no longer applicable, and the facility is currently in compliance with TP effluent limitations.

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	
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		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, SILTATION, TURBIDITY		
Source(s) of Impairment	HABITAT MODIFICATION - OTHER THAN HYDROMODIFICATION, 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)		
Other:		

Nearest Downstream Public Water Supply Intake	West View Municipal Authority		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	976	Distance from Outfall (mi)	25.161

Changes Since Last Permit Issuance: Design Flow increased from 2.0 MGD to 2.3 MGD.

Other Comments: N/A

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

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia and Phosphorus Removal	Activated Sludge with Solids Removal	UV Disinfection	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: WPCP was rerated (Avg Annual Design Flow was increased to 2.3 MGD, Hydraulic Capacity was increased to 3.6 MGD), a chemical coagulant feed pump system for phosphorus removal was installed, and a UV disinfection system was installed.

Other Comments: N/A

Compliance History

DMR Data for Outfall 001 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD) Average Monthly	0.940	0.887	0.916	1.020	1.641	1.761	1.553	2.670	1.588	1.533	0.968	1.099
Flow (MGD) Daily Maximum	1.763	1.139	1.477	2.495	6.190	3.886	2.611	7.560	6.479	3.970	1.217	4.404
pH (S.U.) Instantaneous Minimum	7.0	6.9	6.9	6.9	6.8	7.0	7.0	6.9	6.9	6.8	6.8	7.2
pH (S.U.) Instantaneous Maximum	7.2	7.4	7.4	7.4	7.5	7.7	7.3	7.5	7.3	7.7	7.4	7.7
DO (mg/L) Instantaneous Minimum	5.9	6.2	5.1	6.0	5.6	6.0	6.6	5.8	5.6	5.5	5.3	5.0
TRC (mg/L) Average Monthly	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
TRC (mg/L) Instantaneous Maximum	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
CBOD5 (lbs/day) Average Monthly	57.4	65.2	65.6	55.1	74.8	91.1	87.3	89.2	81.0	122.6	71.9	76.1
CBOD5 (lbs/day) Weekly Average	65.7	80.0	66.9	70.3	120.3	129.5	100.1	140.6	119.3	287.0	74.8	83.6
CBOD5 (mg/L) Average Monthly	6.8	8.7	9.1	6.7	6.3	5.0	6.5	5.9	6.2	9.0	9.0	10.4
CBOD5 (mg/L) Weekly Average	8.0	10.9	9.5	8.6	7.1	6.7	7.5	6.6	7.0	12.4	8.8	12.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	2443	2301	2237	2640	2589	3615	2837	2852	2921	2983	2579	2451
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	4220	2720	2757	2973	3409	6369	3912	3649	4068	6324	3294	2855
BOD5 (mg/L) Raw Sewage Influent Average Monthly	296	314	310	319	231	196	216	208	237	260	325	339

TSS (lbs/day) Average Monthly	38.4	34.0	43.7	49.3	100.3	112.7	70.9	111.8	100.9	135.1	87.1	55.9
TSS (lbs/day) Raw Sewage Influent Average Monthly	1947	1701	1575	1969	2007	2389	1778	1682	1861	2476	2084	1673
TSS (lbs/day) Raw Sewage Influent Daily Maximum	3941	2421	2066	2614	2766	5555	2952	2493	2791	7814	2464	1810
TSS (lbs/day) Weekly Average	48.3	44.9	64.0	60.8	285.8	271.7	97.8	223.9	161.9	228.4	138.4	73.9
TSS (mg/L) Average Monthly	4.8	4.6	6.0	6.0	6.9	5.5	5.3	6.8	7.5	11.6	11.1	7.6
TSS (mg/L) Raw Sewage Influent Average Monthly	232	232	219	236	177	136	138	129	156	197	263	232
TSS (mg/L) Weekly Average	6.0	5.5	8.5	8.5	14.0	10.0	7.0	9.5	9.5	16.0	17.5	10.5
Fecal Coliform (No./100 ml) Geometric Mean	< 22	65	54	31	< 71	20	< 27	< 18	< 15	< 31	40	67
Fecal Coliform (No./100 ml) Instantaneous Maximum	210	420	250	93	700	47	83	91	49	280	560	155
Total Nitrogen (lbs/day) Average Monthly	105.94	85.64	104.1	126.78	129.4	186.49	125.66	139.2	150.33	155.27	163.4	153
Total Nitrogen (mg/L) Average Monthly	14.3	11.8	14.8	16.3	11.7	10.6	10.3	10.1	11.8	13.6	20.3	21.0
Total Nitrogen (mg/L) Instantaneous Maximum	19.6	12.6	23.3	24.2	15.5	14.8	14.7	14.0	14.5	17.4	25.6	27.3
Ammonia (lbs/day) Average Monthly	< 0.9	1.3	1.6	< 1.1	2.0	< 1.8	2.7	< 4.2	< 1.7	< 3.0	2.8	< 2.0
Ammonia (mg/L) Average Monthly	< 0.1	0.2	0.2	< 0.1	0.2	< 0.1	0.2	< 0.3	< 0.1	< 0.3	0.4	< 0.3
Ammonia (mg/L) Instantaneous Maximum	0.3	0.3	0.3	< 0.2	0.2	0.1	0.4	0.8	0.2	0.9	0.6	0.5
Total Phosphorus (lbs/day) Average Monthly	8.99	11.78	8.62	16.87	14.95	13.94	11.5	7.86	7.99	11.86	11.3	11.46

Total Phosphorus (mg/L) Average Monthly	1.0	1.5	1.2	2.3	1.4	0.7	1.0	0.6	0.7	1.2	1.4	1.6
Total Phosphorus (mg/L) Instantaneous Maximum	2.1	2.6	3.5	4.6	3.1	1.9	1.7	1.3	1.0	2.5	1.8	3.1
Bromide (lbs/day) Average Monthly	15.69	13.17	10.5	13.61	18.71	25.45	17.65	24.14	17.7	11.64	8.2	7.24
Bromide (mg/L) Average Monthly	1.8	1.7	1.5	1.7	1.7	1.5	1.4	1.7	1.4	1.0	1.0	1.0
Bromide (mg/L) Daily Maximum	2.0	2.3	1.7	1.8	2.2	1.6	1.5	1.9	1.9	1.2	1.1	1.0
Dichlorobromo-methane (lbs/day) Average Monthly	0.00131	0.00128	< 0.00133	0.00153	0.00241	0.00281	< 0.00253	< 0.00182	0.00140	0.00237	< 0.00140	< 0.00188
Dichlorobromo-methane (mg/L) Average Monthly	0.00018	< 0.00018	< 0.00018	< 0.00018	< 0.00018	0.00034	< 0.00018	< 0.00018	< 0.00018	< 0.00018	< 0.00018	< 0.00026
Dichlorobromo-methane (mg/L) Daily Maximum	0.00018	< 0.00018	< 0.00018	< 0.00018	< 0.00018	0.00050	< 0.00018	< 0.00018	< 0.00018	< 0.00018	< 0.00018	0.00034
Chloroform (lbs/day) Average Monthly	0.00288	0.00312	0.00244	0.00351	0.00837	0.01038	0.01132	0.01676	0.00484	0.00502	0.00382	0.00526
Chloroform (mg/L) Average Monthly	0.00040	0.00044	0.00033	0.00042	0.00066	0.00082	0.00078	0.00126	0.00061	0.00053	0.00048	0.00075
Chloroform (mg/L) Daily Maximum	0.00047	0.00061	0.00040	0.00045	0.00094	0.00110	0.00120	0.00340	0.00073	0.00072	0.00057	0.00089

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2021 To: September 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Phosphorus	06/30/22	Avg Mo	2.3	mg/L	2.0	mg/L
Total Phosphorus	06/30/22	IMAX	4.6	mg/L	4.0	mg/L

Other Comments: There are Three Open Violations by Client ID.

CLIENT	FACILITY	PROGRAM SPECIFIC ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
PETERS TWP SANI AUTH WASHINGTON CNTY	DONALDSONS CROSSRDS STP	PA0028703	05/04/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit
PETERS TWP SANI AUTH WASHINGTON CNTY	BRUSH RUN WPCP	PA0028711	08/08/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit
PETERS TWP SANI AUTH WASHINGTON CNTY	BRUSH RUN WPCP	PA0028711	08/08/2022	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)

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 above Technology-Based Limitations are imposed for TSS, pH, and Fecal Coliform.

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (Attachment 4 - TMS Version1.3) was conducted

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

Parameter	Limit (mg/l)	SBC	Model
CBOD5 May 1 – Oct 31	20.0	Average Monthly	WQM 7.0 Version 1.1
CBOD5 Nov 1 – Apr 30	25.0	Average Monthly	WQM 7.0 Version 1.1
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

Comments: The TMS Model Results did not recommend WQBELs or Monitoring be established for Bromide, Chloroform, or Dichlorobromomethane.

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 exceptions to the anti-backsliding regulations are stated in 40 CFR 122.44(l)(2)(i) as, *"A permit…may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if –*

- *(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation;*
- *(B) (i) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or*
  (ii) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section;
- *(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;"*
- *(D) The permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or*
- *(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification). Subparagraph (B) shall not apply to any revised waste load allocations or any alternative grounds for translating water quality standards into effluent limitations, except where the cumulative effect of such revised allocations results in a decrease in the amount of pollutants discharged into the concerned waters, and such revised allocations are not the result of a discharger eliminating or substantially reducing its discharge of pollutants due to complying with the requirements of this chapter or for reasons otherwise unrelated to water quality.*

The facility is seeking to revise the previously permitted WQBEL for Chloroform, or Dichlorobromomethane that are claimed to be byproducts of chlorine disinfection. The applicant has made material and substantial alterations to the permitted facility operation after permit issuance, July 24, 2018, consisting of replacing TRC with UV disinfection, installation of a chemical coagulant feed pump system for phosphorus removal, an increase to the Avg Annual Design Flow & Hydraulic Capacity, and completion of a Final TRE Report. Per applicability of 40 CFR 122.44(l)(2)(i)(A) and 40 CFR 122.44(l)(2)(i)(B)(i) as stated above and Department's current SOPs, the WQBELs of the requested parameters were re-evaluated.

Current Department SOPs allow for application managers to reevaluate existing WQBELs for toxic pollutants that are in effect as of the expiration date of a permit, July 31, 2023, for which a renewal application has been submitted, or in this case amendment application (Section II.A, SOP for Clean Water Program, Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, Final January 10, 2019, Revised May 20, 2021, Version 1.5).

Department Modeling was also updated to reflect revised Q7/10 stream flow based upon USGS StreamStats data.

The TMS Model was run and RP was not demonstrated for the pollutants discussed above.

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. 362-0400-001).

For POTWs, mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for CBOD5 and TSS (Section IV, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9)

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 BOD5 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 for Clean Water Program, New and Reissuance Sewage Individual NPDES Permit Applications, Final November 9, 2012, Revised February 3, 2022, Version 2.0).

Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but 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 (Section I.A, Note 4, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9).

TMDLs:

The discharge is to Brush Run, which has a final TMDL for the stream segment above the WPCPs outfall, and is impaired for nutrients, sediment, and turbidity. The Department's Biologist confirmed that all of Brush run is impaired for nutrients, on July 31, 2017. Based on available application data and the impairment status, the Department will 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. 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 the stream impairment for which abandoned mine drainage is source of such impairment. No WLAs have been developed for this sewage discharge and they are not expected to contribute to the stream impairment for these pollutants. Application data for iron, manganese, and aluminum were below criteria, No RP. Please note that the receiving stream, Brush Run, is not impaired by metals or pH.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	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	715.0	XXX	25.0	37.5	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	380.0	575.0	XXX	20.0	30.0	40	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
TSS	575.0	860.0	XXX	30.0	45.0	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
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 Nov 1 - Apr 30	57.5	XXX	XXX	3.0	XXX	6.1	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	36.4	XXX	XXX	1.9	XXX	3.9	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	Weekly Average	Instant. Maximum		
Total Phosphorus	38.3	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite

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 – Warmer Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
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	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Brush Run WPCP	0028711	2.3000	2.3000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	2.00	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	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

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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	4	16.6	4	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
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	20	20	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)**
19.34	1.493	1.88	0.710
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.119	19.472	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	18.73	1.85	5.63
0.043	18.13	1.83	5.99
0.064	17.55	1.80	6.25
0.086	17.00	1.77	6.45
0.107	16.46	1.74	6.60
0.129	15.93	1.72	6.73
0.150	15.43	1.69	6.83
0.172	14.94	1.67	6.92
0.193	14.46	1.64	7.00
0.215	14.00	1.62	7.07

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	20		
				NH3-N	1.95	3.9	
				Dissolved Oxygen			5

Attachment 3 – WQM 7.0 Version 1.1 – Colder Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
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	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Brush Run WPCP	0028711	2.3000	2.3000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	12.51	0.00	0.00
NH3-N	4.50	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	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	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	9	24.1	9	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)**
5.530	19.867	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	6.36
0.042	22.28	2.78	6.92
0.063	21.75	2.76	7.31
0.084	21.23	2.73	7.58
0.105	20.72	2.71	7.78
0.126	20.23	2.68	7.92
0.147	19.75	2.65	8.03
0.168	19.28	2.63	8.12
0.189	18.82	2.60	8.19
0.210	18.37	2.58	8.26

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 1.3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

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

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage Effluent**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
2.3	200	7						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	Stream Conc	0.5 if left blank: Daily CV	Hourly CV	0 if left blank: Strea m CV	Fate Coeff	FOS	1 if left blank: Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L		25.45									
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L		1.0137013			0.378						
	Dichlorobromomethane	µg/L		0.22595			0.1553						
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

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			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	0.966	0.0135										295	7		
End of Reach 1	0.01	0.0135													

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 1.3, March 2021

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	22.133	36.109	0.272	0.215	0.022
0.01	0.14		0.14								

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	22.133	32.032	0.317	0.184	0.955
0.01	1.336		1.34								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.022 PMF: 1 Analysis Hardness (mg/l): 203.47 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
Chloroform	0	0		0	1,900	1,900	1,972	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 0.022 PMF: 1 Analysis Hardness (mg/l): 203.47 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
Chloroform	0	0		0	390	390	405	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 0.022 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	Stream	Trib Conc	Fate	WQC	WQ Obj	WLA (µg/L)	Comments

Pollutants	Conc (µg/L)	CV	(µg/L)	Coef	(µg/L)	(µg/L)	WLA (µg/L)	Comments
Chloroform	0	0		0	5.7	5.7	5.92	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.955 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
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1.29	

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

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***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
Bromide	N/A	N/A	No WQS
Chloroform	5.92	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1.29	µg/L	Discharge Conc ≤ 25% WQBEL

Attachment 5 – TOXCON Output

Facility:	Peters Township Sanitary Authority Brush Run WPCP												
NPDES #:	PA0028711												
Outfall No:	001												
n (Samples/Month):	4												
Reviewer/Permit Engineer:													
Parameter Name	Chloroform	DCBM											
Units	µg/L	µg/L											
Detection Limit	0.15	0.18											
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*												
7/12/2021	0.9	ND											
7/13/2021	0.82	ND											
7/20/2021	0.84	ND											
7/21/2021	0.73	ND											
7/27/2021	0.55	ND											
7/28/2021	0.52	ND											
8/3/2021	0.61	ND											
8/4/2021	0.48	ND											
8/10/2021	0.53	ND											
8/11/2021	0.6	ND											
8/18/2021	0.44	ND											
8/25/2021	0.45	ND											
9/1/2021	0.6	ND											
9/8/2021	0.63	ND											
9/15/2021	0.62	ND											
9/21/2021	0.67	ND											
9/29/2021	0.56	ND											
10/6/2021	0.66	ND											
10/13/2021	0.77	ND											
10/20/2021	0.89	0.34											
10/27/2021	0.67	0.27											
11/3/2021	0.41	ND											
11/10/2021	0.42	ND											
11/17/2021	0.52	ND											
11/23/2021	0.57	ND											
12/2/2021	0.7	ND											
12/8/2021	0.72	ND											
12/15/2021	0.6	ND											
12/22/2021	0.46	ND											
12/29/2021	ND	ND											
5-Jan	0.46	ND											
12-Jan	0.62	ND											
19-Jan	0.73	ND											
26-Jan	0.63	ND											
2-Feb	0.5	ND											
9-Feb	0.58	ND											
16-Feb	3.4	ND											
23-Feb	0.56	ND											
3-Mar	0.72	ND											
9-Mar	0.6	ND											
16-Mar	0.69	ND											
23-Mar	1.2	ND											
30-Mar	0.71	ND											

1 4/12/2022

	Reviewer/Permit Engineer:
Facility:	Peters Township Sanitary Authority Brush Run WPCP
NPDES #:	PA0028711
Outfall No:	001
n (Samples/Month):	4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Chloroform (µg/L)	Delta-Lognormal	0.3779899	1.0137013
DCBM (µg/L)	Delta-Lognormal	0.1553195	0.2259500

	Facility:	Peters Township Sanitary Authority Brush Run WPCP											
	NPDES #:	PA0028711											
	Outfall No:	001											
	n (Samples/Month):	4											
Parameter Name	Chloroform	DCBM											
Number of Samples	43	43											
Samples Nondetected	1	41											
LOGNORMAL													
Log MEAN	NA	NA											
Log VAR													
(LTA) [E(x)]													
Variance [V(x)]													
CV (raw)													
CV (n)													
Monthly Avg. (99%, n-day)													
DELTA-LOGNORMAL													
Delta-Log MEAN	-0.4430955	-1.1980715											
Delta-Log VAR	0.1194470	0.0285706											
(LTA) [E(x)]	0.6692508	0.1559087											
Variance [V(x)]	0.0039930	0.0000238											
CV (raw)	0.3776899	0.1553195											
Delta-Log VAR (n)	0.0350958	0.0052812											
A, Table E-2, TSD	0.0357191	0.1511778											
B, Table E-2, TSD	0.0000000	-3.3690659											
C, Table E-2, TSD	0.0000001	8.0133184											
Delta-Log MEAN (n)	-0.4191441	-1.1441757											
phi (Φ)	0.9897619	0.7850000											
Z'	2.3100000	0.7800000											
Monthly Avg. (99%, n-day)	1.0137013	0.2259500											
NORMAL													
MEAN	NA	NA											
VAR													
(LTA) [E(x)]													
Variance [V(x)]													
CV (raw)													
CV (n)													
Monthly Avg. (99%, n-day)													