pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083593**
Facility Type	**Municipal**	APS ID	**275175**
Major / Minor	**Major**	Authorization ID	**1316441**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Silver Spring Township Sewer Authority**	Facility Name	**Silver Spring Township WWTP**
Applicant Address	5 Willow Mill Park Road Suite 3	Facility Address	60 Milfording Road
	Mechanicsburg, PA 17050-8238		Mechanicsburg, PA 17050
Applicant Contact	James Stevens	Facility Contact	James Stevens
Applicant Phone	(717) 591-1370	Facility Phone	(717) 591-1370
Client ID	51400	Site ID	451896
Ch 94 Load Status	Not Overloaded	Municipality	Silver Spring Township
Connection Status	No Limitations	County	Cumberland
Date Application Received	May 12, 2020	EPA Waived?	No
Date Application Accepted	June 17, 2020	If No, Reason	Major Facility, Significant CB Discharge
Purpose of Application	NPDES Renewal		

Summary of Review

Silver Spring Township Sewer Authority (SSTSA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on October 6, 2015 and became effective on November 1, 2015. The permit expired on October 31, 2020.

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

Sludge use and disposal description and location(s): Sludge is processed onsite and then disposed at a landfill.

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

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	March 31, 2021
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
X		/s/ Maria D. Bebenek, P.E. / Program Manager	April 8, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.2
Latitude	40° 15' 16"	Longitude	77° 0' 30"
Quad Name	Wertzville	Quad Code	1629
Wastewater Description:	Treated sewage		
Receiving Waters	Conodoguinet Creek	Stream Code	10194
NHD Com ID	56404001	RMI	15.84
Drainage Area	468 sq.mi.	Yield (cfs/mi^2)	0.143
Q_{7-10} Flow (cfs)	67.3	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-B	Chapter 93 Class.	WWF, MF
Existing Use	WWF, MF	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment		
Source(s) of Impairment	Unknown		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Steelton Borough		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	3,204
PWS RMI	68.98	Distance from Outfall (mi)	19.4

Drainage Area
The discharge is to Conodoguinet Creek at RM 15.84. A drainage area upstream of the discharge point is estimated to be 468 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 flow of 67.3 cfs at the discharge point. This is slightly different from the Q7-10 used in the last permit renewal which is 69 cfs. The low flow yield is 67.3 cfs / 468 sq.mi = 0.143 cfs/sq.mi.

Conodoguinet Creek
25 Pa Code §93.9o lists Conodoguinet Creek from PA997 at Roxbury to Mouth as warm water and migratory fishes. No special protection water is impacted by this discharge. DEP's latest integrated water quality report finalized in 2020 indicates that the receiving stream is impaired for organic enrichment as a result of unknown source. A TMDL was developed in December 2000 to address nutrient and sediment impairments identified within the Conodoguinet Creek basin. However, this TMDL mainly identified agriculture, construction and urban runoff/storm sewers as the sources of these impairments. The TMDL covered subwatersheds, not the main stem. The integrated water quality identified organic enrichment impairment under Category 5 which requires a TMDL.

Public Water Supply Intake
The fact sheet developed for the last permit renewal indicates that the nearest downstream intake is Steelton Borough on Susquehanna River, approximately 19.4 miles downstream of the discharge. Given the distance, the discharge is not expected to affect the water supply.

Treatment Facility Summary				
Treatment Facility Name: Silver Spring Township STP				
WQM Permit No.	**Issuance Date**			
2189419	03/02/2017			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Total Nitrogen Reduction	Sequencing Batch Reactor	Ultraviolet	1.2
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
1.5	4003	Not Overloaded	Aerobic Digestion	Landfill

SSTSA owns and operates a sanitary wastewater treatment plant located at 60 Millfordning Road, Mechanicsburg PA 17050, serving the Silver Spring Township only. All sewer systems are 100% separated. The facility utilizes a Sequencing Batch Reactor (SBR) activated sludge treatment process consisting of screening, SBRs (3), post equalization tank, tertiary disc filters, UV disinfection, post aeration unit, and outfall structure. Alum is used for phosphorous removal.

Sludge is processed through an aerobic digestor and centrifuge. Solids will then be hauled and disposed at Cumberland County Landfill.

The facility accepts wastewater generated from a number of industrial/commercial users. All of these users according to the application are generating wastewater from car wash operations.

In addition to Outfall 001, the facility currently utilizes two (2) outfalls collecting stormwater drained from the site.

Compliance History	
Summary of DMRs:	A summary of past 12-month data is presented on the next page.
Summary of Inspections:	03/10/2021: Mike Benham, DEP Water Quality Specialist, conducted a routine inspection. No violation was identified at the time of inspection, except for the SSO that occurred on 1/22/2021 that was not reported as non-compliance. 01/26/2021: Mike Benham conducted an incident inspection to follow up on a SSO reported through the 24-hour emergency hotline on 1/22/2021. Appropriate measures were taken. 05/18/2020: Mike Benham conducted an incident inspection to follow up on a SSO reported through the 24-hour emergency hotline on 05/15/2020. Appropriate measures were taken. 09/25/2019: Mike Benham conducted an incident inspection to follow up on a SSO reported through the 24-hour emergency hotline on 09/25/2019. Appropriate measures were taken. 07/18/2019: Mike Benham conducted a routine inspection and noted that the facility was clean and appeared to be well maintained. No violation was noted at the time of inspection.
Other Comments:	A notice of violation (NOV) letter was sent on October 7, 2019 for an unpermitted discharge of sewage occurred in September 2019. DEP's database shows that there is no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.658	0.686	0.659	0.658	0.653	0.656	0.654	0.653	0.646	0.641	0.671	0.653
Flow (MGD) Daily Maximum	0.726	0.910	0.731	0.731	0.710	0.700	0.707	0.714	0.852	0.781	0.734	0.753
pH (S.U.) Minimum	7.6	7.6	7.6	7.6	7.7	7.3	7.2	7.1	7.1	7.1	7.6	7.6
pH (S.U.) Instantaneous Maximum	7.8	7.8	7.8	7.8	7.9	7.8	7.4	7.4	7.3	7.7	7.8	7.7
DO (mg/L) Minimum	8.9	7.6	6.9	7.2	6.9	6.5	6.4	6.8	6.9	7.4	8.6	8.5
CBOD5 (lbs/day) Average Monthly	17.2	< 16.1	< 15.8	< 15.7	14.9	< 15.4	15.5	16.8	14.5	14.8	14.6	14.7
CBOD5 (lbs/day) Weekly Average	20.4	18.5	16.8	< 17.0	19.2	< 16.8	17.5	20.5	16.8	15.8	16.4	16.5
CBOD5 (mg/L) Average Monthly	3.2	< 2.9	< 2.9	< 2.9	2.8	< 2.8	< 5	3.1	2.8	2.8	2.7	2.8
CBOD5 (mg/L) Weekly Average	3.8	3.2	3.1	3.0	3.5	< 3.0	< 5	3.8	3.3	3.1	3.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1770	1798	1763	1788	2011	1852	1759	1706	1777	1786	1740	1936
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	1922	2007	1950	2194	2886	2102	1988	1935	1907	2293	2220	2240
BOD5 (mg/L) Raw Sewage Influent Average Monthly	327	328	321	328	373	336	325	316	343	337	324	368
TSS (lbs/day) Average Monthly	< 27.2	< 26.9	< 27.4	< 25.9	< 26.9	< 27.6	< 27.1	< 27.0	< 25.9	< 8.2	< 26.9	< 26.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	1864	1854	1985	2172	1978	1980	1998	1720	1888	2233	2006	1925
TSS (lbs/day) Raw Sewage Influent Daily Maximum	2302	2663	2624	4471	2416	2047	3037	1847	2105	4846	2702	2183
TSS (lbs/day) Weekly Average	< 27.5	< 29.4	27.6	< 27.8	< 27.8	< 27.9	< 28.4	< 27.6	< 26.3	< 11.4	< 27.5	< 27.2

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
TSS (mg/L) Average Monthly	< 5.0	< 4.9	< 5.0	< 5.0	< 5.0	< 5.0	< 5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	345	336	362	400	367	359	369	319	364	421	374	366
TSS (mg/L) Weekly Average	< 5.1	< 5.0	5.0	< 5.0	< 5.0	< 5.0	< 5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (CFU/100 ml) Geometric Mean	6	6	< 2	< 3	5	36	41	30	16	6	5	4
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	11	61	6	9	22	600	102	70	22	39	8	9
UV Transmittance (%) Minimum	49	51	58	67	68	67	73	69	66	66	61	60
Nitrate-Nitrite (mg/L) Average Monthly	3.7	3.5	3.6	3.6	4.0	2.9	3.2	3.6	4.3	3.1	3.1	2.0
Nitrate-Nitrite (lbs) Total Monthly	617	595	594	608	645	490	546	588	682	474	527	302
Total Nitrogen (mg/L) Average Monthly	5.3	5.1	5.0	5.0	5.3	4.4	5.2	5.5	6.0	4.6	4.9	3.5
Total Nitrogen (lbs) Effluent Net Total Monthly	887	865	819	843	849	753	874	891	958	711	825	534
Total Nitrogen (lbs) Total Monthly	887	865	819	843	849	753	874	891	958	711	825	534
Total Nitrogen (lbs) Effluent Net Total Annual					11592							
Total Nitrogen (lbs) Total Annual					9264							
Ammonia (lbs/day) Average Monthly	4.1	2.7	1.5	1.5	1.6	< 1.5	1.8	2.1	2.1	1.7	2.3	2.2
Ammonia (mg/L) Average Monthly	0.8	0.5	0.3	0.3	0.3	< 3.0	0.3	0.4	0.4	0.3	0.4	0.4
Ammonia (lbs) Total Monthly	127	84	45	47	48	< 47	56	63	65	51	71	64
Ammonia (lbs) Total Annual					< 817							
TKN (mg/L) Average Monthly	1.6	1.6	1.4	1.4	1.3	1.6	2.0	1.9	1.7	1.5	1.8	1.5
TKN (lbs) Total Monthly	270	270	225	236	204	267	329	303	273	237	301	229

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Total Phosphorus (lbs/day) Average Monthly	2.4	1.3	1.3	1.9	2.6	2.2	2.8	3.9	1.9	3.0	3.2	2.3
Total Phosphorus (mg/L) Average Monthly	0.4	0.2	0.2	0.4	0.5	0.4	0.5	0.7	0.4	0.6	0.6	0.4
Total Phosphorus (lbs) Effluent Net Total Monthly	74	40	39	59	78	68	87	117	59	90	99	67
Total Phosphorus (lbs) Total Monthly	74	40	39	59	78	68	87	117	59	90	99	67
Total Phosphorus (lbs) Effluent Net Total Annual					1122							
Total Phosphorus (lbs) Total Annual					920							

Existing Effluent Limits and Monitoring Requirments

Tables below summarize effluent limits and monitoring requirements specified in the current permit:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
CBOD5	250	400 Wkly Avg	XXX	25	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	300	450 Wkly Avg	XXX	30	45	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/week	Grab
Ammonia-Nitrogen May 1 - Oct 31	180	XXX	XXX	18	XXX	36	2/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	190	XXX	XXX	19	XXX	38	2/week	24-Hr Composite
Total Phosphorus	10	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite

Existing Effluent Limits and Monitoring Requirements (continued)

Parameter [1]	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum [2] Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	21,918	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2,922	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** 1.2
Latitude 40º 15' 16.00" **Longitude** -77º 0' 31.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: Since the facility utilizes an UV disinfection system, the state TRC effluent standard is not applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)
WQM 7.0 is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. The model output indicates that all existing effluent limits for these pollutants are still appropriate. No changes are therefore recommended.

Toxic Pollutants
DEP utilizes a Toxics Management Spreadsheet (last modified on March 2021 ver. 1.3) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet combines the functionality of DEP's Toxics Screening Analysis worksheet and PENTOXSD. The worksheet output indicates that there are no toxics pollutants of concern.

Whole Effluent Toxicity Testing
SSTSA is required under 40 CFR §122.21(h)(5)(ii)(A) to conduct WETT and submit the results to DEP. See WETT section of this fact sheet for more details on the results submitted by SSTSA.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
The existing minimum DO effluent limit is the current warm water fishery water quality criterion for DO listed in 25 Pa Code §93.7(a). It is recommended that this limit be maintained in the permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) no. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

Total Phosphorus
The existing permit contains average monthly and instantaneous maximum (IMAX) effluent limits of 2.0 mg/L and 4.0 mg/L, respectively. Historically a TP effluent limit of 2.0 mg/L was established in the permit when DEP generally determines that the facility is expected to contribute 0.25% or more of the total point source phosphorus loading at the point of impact (page 17 of DEP's technical guidance no. 391-2000-018). DEP previously documented that the discharge contributes more than 0.25% and phosphorus controls were therefore needed. There is no reason to relax or remove these effluent limits; therefore, continuation of existing effluent limits is still appropriate in accordance with 40 CFR §122.44(l)(1).

Additional Considerations

Flow Monitoring Requirement
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Influent BOD & TSS Monitoring Requirement
As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

E. Coli Monitoring Requirement
As recommended by DEP's SOP no. BPNPSM-PMT-033, a routine monitoring for E. Coli will be included in the permit under 25 Pa Code §92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/month will be included permit to be consistent with the recommendation from this SOP.

Stormwater Requirements
Stormwater discharges from any POTWs (SIC Code 4952) described in 40 CFR § 122.26(b)(14)(ix) require coverage under an NPDES permit. As mentioned on page 3 of this fact sheet, there are currently two (2) stormwater outfalls collecting stormwater drained from the property. These outfalls are as follows:

Outfall No.	Receiving Stream	Area Drained (ft^2)	Latitude	Longitude	Description
002	Trindle Spring Run	182,516	40° 15' 11"	77° 0' 31"	Pavement, grass
003	Conodoguinet Creek	132,858	40° 15' 14"	77° 0' 33"	Grass, biosolids area

DEP's standard Part C stormwater requirements and site-specific best management practices (BMPs) will be included in the permit as this is a standard approach for major sewage facilities over 1.0 MGD.

UV Monitoring Requirement
The existing UV monitoring requirement will remain unchanged in the permit. This requirement is recommended by DEP's SOP no. BPNPSM-PMT-033 and has been applied to all sewage facilities greater than 0.002 MGD that are equipped with the UV system.

Total Dissolved Solids (TDS)
TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

-Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

-Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

SSTSA reported maximum concentrations of 774 mg/L for TDS, < 0.2 mg/L for bromide, and < 5.0 µg/L for 1,4-dioxane. Accordingly, the requirement to monitor for these pollutants is not necessary.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

Chesapeake Bay TMDL
On March 30, 2012, DEP finalized Pennsylvania's Chesapeake Watershed Implementation Plan Phase 2 (i.e., Phase 2 WIP) to address U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 2 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004) and the Chesapeake WIP Phase I (2011). In August 2019, DEP finalized Phase 3 Chesapeake Bay Watershed Implementation Plan to provide the plans in place by 2025 to further achieve the nutrient and sediment reduction targets. The more details on the TMDL are available at www.dep.pa.gov.

As part of the Phase 3 WIP process, a Supplement to the Phase 3 WIP was developed, providing an update on TMDL implementation for point sources and a discussion of adjustments to the permitting strategy as a result of implementation experience. According to this document, Silver Spring Township WWTP is a Phase 3 significant discharger located within the Chesapeake Bay watershed. The following Cap Loads specified in the current Supplement to the Phase 3 WIP will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0083593	3	Silver Spring Township	10/6/2015	10/31/2020	10/1/2010	21,918	-	2,922	0.951	0.436

Class A Wild Trout Fishery
A Class A Wild Trout stream is not impacted by this discharge.

Anti-backsliding Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as those specified in the existing permit.

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%, 60%, 30%, 8%, and 4%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 8%.

Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
May 2017	100	100		100	100		Yes
May 2018	100	100		100	100		Yes
May 2019	100	100		100	100		Yes
April 2020	100	100		100	60		Yes

***** *A "passing" result is that which is greater than or equal to the TIWC 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: Whole Effluent Toxicity Analysis Spreadsheet is attached to this fact sheet.

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

Acute Partial Mix Factor (PMFa): **0.132** Chronic Partial Mix Factor (PMFc): **0.916**

1. Determine IWC – Acute (IWCa):

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

[(1.2 MGD x 1.547) / ((67.3 cfs x 0.132) + (1.2 MGD x 1.547))] x 100 = **17%**

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

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

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

TIWCa = IWCa / 0.3 = **%**

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

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

[(1.2 MGD x 1.547) / ((67.3 cfs x 0.916) + (1.2 MGD x 1.547))] x 100 = **2.9% = 3%**

3. Determine Dilution Series

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

Dilution Series = 100%, 60%, 30%, 3%, and 1%.

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" (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)	Required
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	250	400	XXX	25.0	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	300	450	XXX	30.0	45	60	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
UV Transmittance (%)	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/day	Metered
Ammonia Nov 1 - Apr 30	190	XXX	XXX	19	XXX	38	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	180	XXX	XXX	18	XXX	36	2/week	24-Hr Composite
E. Coli (no. / 100mL)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Phosphorus	20	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements (continued)

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	21,918	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	2,922	XXX	XXX	XXX	1/year	Calculation

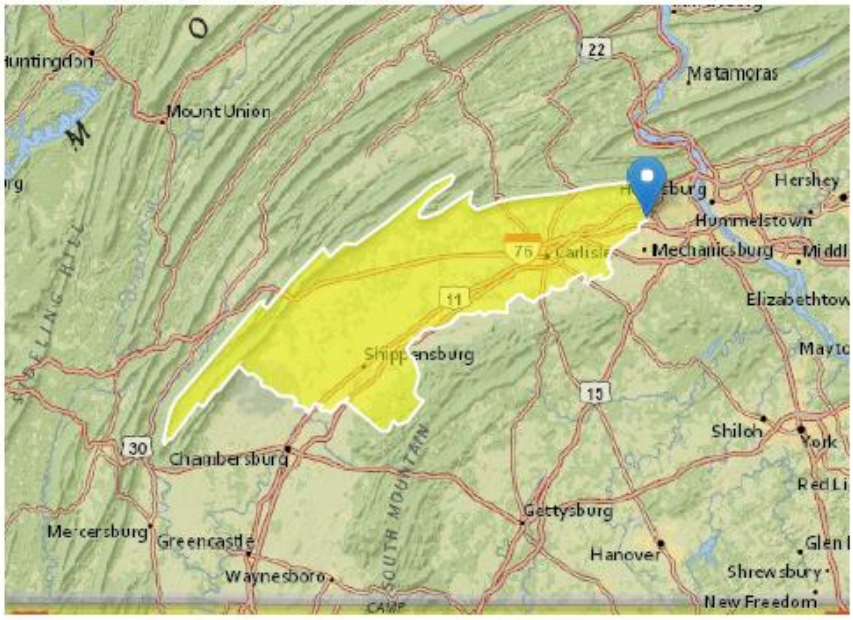
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

1. StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20210330122747846000
Clicked Point (Latitude, Longitude): 40.25443, -77.00811
Time: 2021-03-30 08:28:05 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	468	square miles
PRECIP	Mean Annual Precipitation	39	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.67	miles per square mile
ROCKDEP	Depth to rock	4.6	feet
CARBON	Percentage of area of carbonate rock	38.24	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	468	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	1.67	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.6	feet	3.32	5.65
CARBON	Percent Carbonate	38.24	percent	0	99

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

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	103	ft^3/s	38	38
30 Day 2 Year Low Flow	121	ft^3/s	33	33
7 Day 10 Year Low Flow	67.3	ft^3/s	51	51
30 Day 10 Year Low Flow	79.9	ft^3/s	46	46
90 Day 10 Year Low Flow	98.9	ft^3/s	36	36

Low-Flow Statistics Citations

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

2. WQM 7.0 ver. 1.1

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
07B	10194	CONODOGUINET CREEK	15.840	343.00	468.00	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	0.143	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
Silver Spring	PA0083593	1.2000	1.2000	1.2000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	18.00	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
	07B	10194	CONODOGUINET CREEK	15.010	340.00	488.00	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	0.143	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	20.00	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 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
07B	10194	CONODOGUINET CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.840	Silver Spring	11.07	36	11.07	36	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
15.840	Silver Spring	1.37	18	1.37	18	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)		
15.84	Silver Spring	25	25	18	18	5	5	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07B	10194	CONODOGUINET CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
15.840	66.92	0.00	66.92	1.8564	0.00068	1.035	135	130.45	0.49	0.103	25.00	7.00
Q1-10 Flow												
15.840	42.83	0.00	42.83	1.8564	0.00068	NA	NA	NA	0.39	0.131	25.00	7.00
Q30-10 Flow												
15.840	91.02	0.00	91.02	1.8564	0.00068	NA	NA	NA	0.58	0.087	25.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07B	10194	CONODOGUINET CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
15.840	1.200	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
134.999	1.035	130.455	0.492
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.62	0.359	0.49	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.155	1.770	Tsivoglou	5
Reach Travel Time (days)			
0.103			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.010	2.61	0.48	7.54
0.021	2.60	0.48	7.54
0.031	2.58	0.47	7.54
0.041	2.57	0.47	7.54
0.052	2.56	0.46	7.54
0.062	2.55	0.46	7.54
0.072	2.54	0.45	7.54
0.082	2.52	0.45	7.54
0.093	2.51	0.44	7.54
0.103	2.50	0.44	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07B	10194	CONODOGUINET CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
15.840	Silver Spring	PA0083593	1.200	CBOD5	25		
				NH3-N	18	36	
				Dissolved Oxygen			5

3. Toxics Management Spreadsheet ver. 1.3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Silver Spring Township WWTP** NPDES Permit No.: **PA0083593** Outfall No.: **001**

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

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
1.2	221	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		774									
	Chloride (PWS)	mg/L		270									
	Bromide	mg/L		0.2									
	Sulfate (PWS)	mg/L		88									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		70									
	Total Antimony	µg/L		0.6									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		15									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		300									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.3									
	Total Copper	µg/L		4									
	Free Cyanide	µg/L	<	4									
	Total Cyanide	µg/L	<	4									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L	<	20									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.1									
	Total Phenols (Phenolics) (PWS)	µg/L		18									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		77									
	Total Molybdenum	µg/L		1									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<	2									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5										
	Chlorobenzene	µg/L	<	0.5										
	Chlorodibromomethane	µg/L	<	0.5										
	Chloroethane	µg/L	<	0.5										
	2-Chloroethyl Vinyl Ether	µg/L	<	5										
	Chloroform	µg/L	<	0.5										
	Dichlorobromomethane	µg/L	<	0.5										
	1,1-Dichloroethane	µg/L	<	0.5										
	1,2-Dichloroethane	µg/L	<	0.5										
	1,1-Dichloroethylene	µg/L	<	0.5										
	1,2-Dichloropropane	µg/L	<	0.5										
	1,3-Dichloropropylene	µg/L	<	0.5										
	1,4-Dioxane	µg/L	<	5										
	Ethylbenzene	µg/L	<	0.5										
	Methyl Bromide	µg/L	<	0.5										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L		0.7										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.5										
	Toluene	µg/L	<	0.5										
	1,2-trans-Dichloroethylene	µg/L	<	0.5										
	1,1,1-Trichloroethane	µg/L	<	0.5										
	1,1,2-Trichloroethane	µg/L	<	0.5										
	Trichloroethylene	µg/L	<	0.5										
	Vinyl Chloride	µg/L	<	0.5										
Group 4	2-Chlorophenol	µg/L	<	10										
	2,4-Dichlorophenol	µg/L	<	10										
	2,4-Dimethylphenol	µg/L	<	10										
	4,6-Dinitro-o-Cresol	µg/L	<	10										
	2,4-Dinitrophenol	µg/L	<	10										
	2-Nitrophenol	µg/L	<	10										
	4-Nitrophenol	µg/L	<	10										
	p-Chloro-m-Cresol	µg/L	<	10										
	Pentachlorophenol	µg/L	<	10										
	Phenol	µg/L	<	10										
	2,4,6-Trichlorophenol	µg/L	<	10										
Group 5	Acenaphthene	µg/L	<	2.5										
	Acenaphthylene	µg/L	<	2.5										
	Anthracene	µg/L	<	2.5										
	Benzidine	µg/L	<	50										
	Benzo(a)Anthracene	µg/L	<	2.5										
	Benzo(a)Pyrene	µg/L	<	2.5										
	3,4-Benzofluoranthene	µg/L	<	2.5										
	Benzo(ghi)Perylene	µg/L	<	2.5										
	Benzo(k)Fluoranthene	µg/L	<	2.5										
	Bis(2-Chloroethoxy)Methane	µg/L	<	5										
	Bis(2-Chloroethyl)Ether	µg/L	<	5										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5										
	4-Bromophenyl Phenyl Ether	µg/L	<	5										
	Butyl Benzyl Phthalate	µg/L	<	5										
	2-Chloronaphthalene	µg/L	<	5										
	4-Chlorophenyl Phenyl Ether	µg/L	<	5										
	Chrysene	µg/L	<	2.5										
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5										
	1,2-Dichlorobenzene	µg/L	<	0.5										
	1,3-Dichlorobenzene	µg/L	<	0.5										
	1,4-Dichlorobenzene	µg/L	<	0.5										
	3,3-Dichlorobenzidine	µg/L	<	5										
	Diethyl Phthalate	µg/L	<	5										
	Dimethyl Phthalate	µg/L	<	5										
	Di-n-Butyl Phthalate	µg/L	<	5										
	2,4-Dinitrotoluene	µg/L	<	5										

	2,6-Dinitrotoluene	µg/L	<	5										
	Di-n-Octyl Phthalate	µg/L	<	5										
	1,2-Diphenylhydrazine	µg/L	<	5										
	Fluoranthene	µg/L	<	2.5										
	Fluorene	µg/L	<	2.5										
	Hexachlorobenzene	µg/L	<	5										
	Hexachlorobutadiene	µg/L	<	0.5										
	Hexachlorocyclopentadiene	µg/L	<	5										
	Hexachloroethane	µg/L	<	5										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5										
	Isophorone	µg/L	<	5										
	Naphthalene	µg/L	<	0.5										
	Nitrobenzene	µg/L	<	5										
	n-Nitrosodimethylamine	µg/L	<	5										
	n-Nitrosodi-n-Propylamine	µg/L	<	5										
	n-Nitrosodiphenylamine	µg/L	<	5										
	Phenanthrene	µg/L	<	2.5										
	Pyrene	µg/L	<	2.5										
	1,2,4-Trichlorobenzene	µg/L	<	0.5										
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 1.3, March 2021

Stream / Surface Water Information

Silver Spring Township WWTP, NPDES Permit No. PA0083593, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Conodoguinet Creek**

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	010194	15.84	343	468			Yes
End of Reach 1	010194	15.01	340	488			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	15.84	0.143										190	7		
End of Reach 1	15.01	0.143													

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	15.84														
End of Reach 1	15.01														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Silver Spring Township WWTP, NPDES Permit No. PA0083593, Outfall 001

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

☑ ***Hydrodynamics***

Q_{7-10}

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)
15.84	66.92		66.92	1.856	0.00068	1.035	134.999	130.455	0.492	0.103	858.64
15.01	69.78		69.784								

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)
15.84	292.78		292.78	1.856	0.00068	1.963	134.999	68.779	1.112	0.046	342.831
15.01	303.691		303.69								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.132 Analysis Hardness (mg/l): 195.38 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	4,324	
Total Antimony	0	0		0	1,100	1,100	6,341	
Total Arsenic	0	0		0	340	340	1,960	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	121,062	
Total Boron	0	0		0	8,100	8,100	46,695	
Total Cadmium	0	0		0	3.860	4.21	24.3	Chem Translator of 0.916 applied
Total Chromium (III)	0	0		0	986.099	3,121	17,990	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	93.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	548	
Total Copper	0	0		0	25.260	26.3	152	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	127	

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	132.801	192	1,104	Chem Translator of 0.693 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	9.5	Chem Translator of 0.85 applied
Total Nickel	0	0		0	825.172	827	4,767	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	10.179	12.0	69.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	375	
Total Zinc	0	0		0	206.687	211	1,218	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	17.3	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	3,747	
Benzene	0	0		0	640	640	3,690	
Bromoform	0	0		0	1,800	1,800	10,377	
Carbon Tetrachloride	0	0		0	2,800	2,800	16,142	
Chlorobenzene	0	0		0	1,200	1,200	6,918	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	103,768	
Chloroform	0	0		0	1,900	1,900	10,953	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	86,473	
1,1-Dichloroethylene	0	0		0	7,500	7,500	43,236	
1,2-Dichloropropane	0	0		0	11,000	11,000	63,413	
1,3-Dichloropropylene	0	0		0	310	310	1,787	
Ethylbenzene	0	0		0	2,900	2,900	16,718	
Methyl Bromide	0	0		0	550	550	3,171	
Methyl Chloride	0	0		0	28,000	28,000	161,416	
Methylene Chloride	0	0		0	12,000	12,000	69,178	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	5,765	
Tetrachloroethylene	0	0		0	700	700	4,035	
Toluene	0	0		0	1,700	1,700	9,800	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	39,201	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	17,295	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	19,601	
Trichloroethylene	0	0		0	2,300	2,300	13,259	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	3,228	
2,4-Dichlorophenol	0	0		0	1,700	1,700	9,800	
2,4-Dimethylphenol	0	0		0	660	660	3,805	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	461	
2,4-Dinitrophenol	0	0		0	660	660	3,805	
2-Nitrophenol	0	0		0	8,000	8,000	46,119	
4-Nitrophenol	0	0		0	2,300	2,300	13,259	
p-Chloro-m-Cresol	0	0		0	160	160	922	
Pentachlorophenol	0	0		0	8.723	8.72	50.3	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	2,652	
Acenaphthene	0	0		0	83	83.0	478	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,729	
Benzo(a)Anthracene	0	0		0	0.5	0.5	2.88	
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	172,946	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	25,942	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,557	
Butyl Benzyl Phthalate	0	0		0	140	140	807	
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	4,727	
1,3-Dichlorobenzene	0	0		0	350	350	2,018	
1,4-Dichlorobenzene	0	0		0	730	730	4,208	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	23,059	
Dimethyl Phthalate	0	0		0	2,500	2,500	14,412	
Di-n-Butyl Phthalate	0	0		0	110	110	634	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	9,224	
2,6-Dinitrotoluene	0	0		0	990	990	5,707	
1,2-Diphenylhydrazine	0	0		0	15	15.0	86.5	
Fluoranthene	0	0		0	200	200	1,153	
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	57.6	
Hexachlorocyclopentadiene	0	0		0	5	5.0	28.8	
Hexachloroethane	0	0		0	60	60.0	346	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	57,649	
Naphthalene	0	0		0	140	140	807	
Nitrobenzene	0	0		0	4,000	4,000	23,059	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	98,003	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,729	
Phenanthrene	0	0		0	5	5.0	28.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	749	

☑ *CFC* CCT (min): 720 PMF: 0.916 Analysis Hardness (mg/l): 190.91 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	7,483	
Total Arsenic	0	0		0	150	150	5,102	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	139,449	
Total Boron	0	0		0	1,600	1,600	54,419	
Total Cadmium	0	0		0	0.385	0.44	14.9	Chem Translator of 0.882 applied
Total Chromium (III)	0	0		0	125.865	146	4,978	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	354	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	646	
Total Copper	0	0		0	15.562	16.2	551	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	177	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	55,576	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.049	7.25	246	Chem Translator of 0.697 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	30.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	89.876	90.1	3,066	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	170	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	442	
Total Zinc	0	0		0	204.335	207	7,048	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	102	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	4,422	
Benzene	0	0		0	130	130	4,422	
Bromoform	0	0		0	370	370	12,584	
Carbon Tetrachloride	0	0		0	560	560	19,047	
Chlorobenzene	0	0		0	240	240	8,163	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	119,042	
Chloroform	0	0		0	390	390	13,265	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	105,437	
1,1-Dichloroethylene	0	0		0	1,500	1,500	51,018	
1,2-Dichloropropane	0	0		0	2,200	2,200	74,826	
1,3-Dichloropropylene	0	0		0	61	61.0	2,075	
Ethylbenzene	0	0		0	580	580	19,727	
Methyl Bromide	0	0		0	110	110	3,741	
Methyl Chloride	0	0		0	5,500	5,500	187,066	
Methylene Chloride	0	0		0	2,400	2,400	81,629	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	7,143	
Tetrachloroethylene	0	0		0	140	140	4,762	

Toluene	0	0			0	330	330	11,224	
1,2-trans-Dichloroethylene	0	0			0	1,400	1,400	47,617	
1,1,1-Trichloroethane	0	0			0	610	610	20,747	
1,1,2-Trichloroethane	0	0			0	680	680	23,128	
Trichloroethylene	0	0			0	450	450	15,305	
Vinyl Chloride	0	0			0	N/A	N/A	N/A	
2-Chlorophenol	0	0			0	110	110	3,741	
2,4-Dichlorophenol	0	0			0	340	340	11,564	
2,4-Dimethylphenol	0	0			0	130	130	4,422	
4,6-Dinitro-o-Cresol	0	0			0	16	16.0	544	
2,4-Dinitrophenol	0	0			0	130	130	4,422	
2-Nitrophenol	0	0			0	1,600	1,600	54,419	
4-Nitrophenol	0	0			0	470	470	15,986	
p-Chloro-m-Cresol	0	0			0	500	500	17,006	
Pentachlorophenol	0	0			0	6.693	6.69	228	
Phenol	0	0			0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0			0	91	91.0	3,095	
Acenaphthene	0	0			0	17	17.0	578	
Anthracene	0	0			0	N/A	N/A	N/A	
Benzidine	0	0			0	59	59.0	2,007	
Benzo(a)Anthracene	0	0			0	0.1	0.1	3.4	
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	204,072	
Bis(2-Chloroisopropyl)Ether	0	0			0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0			0	910	910	30,951	
4-Bromophenyl Phenyl Ether	0	0			0	54	54.0	1,837	
Butyl Benzyl Phthalate	0	0			0	35	35.0	1,190	
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	5,442	
1,3-Dichlorobenzene	0	0			0	69	69.0	2,347	
1,4-Dichlorobenzene	0	0			0	150	150	5,102	
3,3-Dichlorobenzidine	0	0			0	N/A	N/A	N/A	
Diethyl Phthalate	0	0			0	800	800	27,210	
Dimethyl Phthalate	0	0			0	500	500	17,006	
Di-n-Butyl Phthalate	0	0			0	21	21.0	714	
2,4-Dinitrotoluene	0	0			0	320	320	10,884	
2,6-Dinitrotoluene	0	0			0	200	200	6,802	
1,2-Diphenylhydrazine	0	0			0	3	3.0	102	
Fluoranthene	0	0			0	40	40.0	1,360	
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	68.0	
Hexachlorocyclopentadiene	0	0		0	1	1.0	34.0	
Hexachloroethane	0	0		0	12	12.0	408	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	71,425	
Naphthalene	0	0		0	43	43.0	1,463	
Nitrobenzene	0	0		0	810	810	27,550	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	115,641	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	2,007	
Phenanthrene	0	0		0	1	1.0	34.0	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	884	

☑ ***THH*** CCT (min): 720 PMF: 0.916 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	190	
Total Arsenic	0	0		0	10	10.0	340	
Total Barium	0	0		0	2,400	2,400	81,629	
Total Boron	0	0		0	3,100	3,100	105,437	
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	136	
Dissolved Iron	0	0		0	300	300	10,204	
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	34,012	
Total Mercury	0	0		0	0.050	0.05	1.7	
Total Nickel	0	0		0	610	610	20,747	
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	8.16	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	102	
Acrylamide	0	0		0	N/A	N/A	N/A	

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	3,401	
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	N/A	N/A	N/A	
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	1,122	
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	2,313	
Methyl Bromide	0	0		0	100	100.0	3,401	
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	1,939	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	3,401	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	340,119	
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	1,020	
2,4-Dichlorophenol	0	0		0	10	10.0	340	
2,4-Dimethylphenol	0	0		0	100	100.0	3,401	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	68.0	
2,4-Dinitrophenol	0	0		0	10	10.0	340	
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	136,048	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	2,381	
Anthracene	0	0		0	300	300	10,204	
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	6,802	

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	3.4	
2-Chloronaphthalene	0	0		0	800	800	27,210	
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	34,012	
1,3-Dichlorobenzene	0	0		0	7	7.0	238	
1,4-Dichlorobenzene	0	0		0	300	300	10,204	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	20,407	
Dimethyl Phthalate	0	0		0	2,000	2,000	68,024	
Di-n-Butyl Phthalate	0	0		0	20	20.0	680	
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	680	
Fluorene	0	0		0	50	50.0	1,701	
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	136	
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	1,156	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	340	
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	680	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	2.38	

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

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total 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	
Acrylamide	0	0			0	0.07	0.07	11.1	
Acrylonitrile	0	0			0	0.06	0.06	9.52	
Benzene	0	0			0	0.58	0.58	92.1	
Bromoform	0	0			0	7	7.0	1,111	
Carbon Tetrachloride	0	0			0	0.4	0.4	63.5	
Chlorobenzene	0	0			0	N/A	N/A	N/A	
Chlorodibromomethane	0	0			0	0.8	0.8	127	
2-Chloroethyl Vinyl Ether	0	0			0	N/A	N/A	N/A	
Chloroform	0	0			0	5.7	5.7	905	
Dichlorobromomethane	0	0			0	0.95	0.95	151	
1,2-Dichloroethane	0	0			0	9.9	9.9	1,571	
1,1-Dichloroethylene	0	0			0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0			0	0.9	0.9	143	
1,3-Dichloropropylene	0	0			0	0.27	0.27	42.9	
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	3,174	
1,1,2,2-Tetrachloroethane	0	0			0	0.2	0.2	31.7	
Tetrachloroethylene	0	0			0	10	10.0	1,587	
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	87.3	
Trichloroethylene	0	0			0	0.6	0.6	95.2	
Vinyl Chloride	0	0			0	0.02	0.02	3.17	
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	4.76	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	238	
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	0.016	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.16	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.016	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.16	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	1.59	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	4.76	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	50.8	
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	19.0	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.016	
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	7.94	
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	7.94	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	7.94	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	4.76	
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	0.013	
Hexachlorobutadiene	0	0		0	0.01	0.01	1.59	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	15.9	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.16	
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	0.11	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.79	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	524	
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

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

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	2,771	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	190	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	77,596	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	29,930	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	14.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	4,978	µg/L	Discharge Conc < TQL
Hexavalent Chromium	60.2	µg/L	Discharge Conc < TQL
Total Cobalt	351	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	97.2	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	81.3	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	10,204	µg/L	Discharge Conc < TQL
Total Iron	55,576	µg/L	Discharge Conc < TQL
Total Lead	246	µg/L	Discharge Conc < TQL
Total Manganese	34,012	µg/L	Discharge Conc ≤ 10% WQBEL

Total Mercury	1.7	µg/L	Discharge Conc < TQL
Total Nickel	3,055	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	170	µg/L	Discharge Conc < TQL
Total Silver	44.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	8.16	µg/L	Discharge Conc < TQL
Total Zinc	781	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	11.1	µg/L	Discharge Conc < TQL
Acrylamide	11.1	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	9.52	µg/L	Discharge Conc < TQL
Benzene	92.1	µg/L	Discharge Conc < TQL
Bromoform	1,111	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	63.5	µg/L	Discharge Conc < TQL
Chlorobenzene	3,401	µg/L	Discharge Conc < TQL
Chlorodibromomethane	127	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	66,511	µg/L	Discharge Conc < TQL
Chloroform	905	µg/L	Discharge Conc < TQL
Dichlorobromomethane	151	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,571	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	1,122	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	143	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	42.9	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	2,313	µg/L	Discharge Conc < TQL
Methyl Bromide	2,032	µg/L	Discharge Conc < TQL
Methyl Chloride	103,461	µg/L	Discharge Conc < TQL
Methylene Chloride	3,174	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	31.7	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,587	µg/L	Discharge Conc < TQL
Toluene	1,939	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	3,401	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	11,085	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	87.3	µg/L	Discharge Conc < TQL
Trichloroethylene	95.2	µg/L	Discharge Conc < TQL
Vinyl Chloride	3.17	µg/L	Discharge Conc < TQL
2-Chlorophenol	1,020	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	340	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,439	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	68.0	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	340	µg/L	Discharge Conc < TQL
2-Nitrophenol	29,560	µg/L	Discharge Conc < TQL
4-Nitrophenol	8,499	µg/L	Discharge Conc < TQL

p-Chloro-m-Cresol	591	µg/L	Discharge Conc < TQL
Pentachlorophenol	4.76	µg/L	Discharge Conc < TQL
Phenol	136,048	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	238	µg/L	Discharge Conc < TQL
Acenaphthene	307	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	10,204	µg/L	Discharge Conc < TQL
Benzidine	0.016	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.16	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.016	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.16	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.59	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	4.76	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	6,802	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	50.8	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	998	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	3.4	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	27,210	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	19.0	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.016	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	3,030	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	238	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	2,697	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	7.94	µg/L	Discharge Conc < TQL
Diethyl Phthalate	14,780	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	9,238	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	406	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	7.94	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	7.94	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	4.76	µg/L	Discharge Conc < TQL
Fluoranthene	680	µg/L	Discharge Conc < TQL
Fluorene	1,701	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.013	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	1.59	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	18.5	µg/L	Discharge Conc < TQL
Hexachloroethane	15.9	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.16	µg/L	Discharge Conc < TQL
Isophorone	1,156	µg/L	Discharge Conc < TQL
Naphthalene	517	µg/L	Discharge Conc < TQL
Nitrobenzene	340	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.11	µg/L	Discharge Conc < TQL

n-Nitrosodi-n-Propylamine	0.79	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	524	µg/L	Discharge Conc < TQL
Phenanthrene	18.5	µg/L	Discharge Conc < TQL
Pyrene	680	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	2.38	µg/L	Discharge Conc < TQL

4. Whole Effluent Toxicity Analysis Spreadsheet

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.08
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Silver Sping Township WWTP

Permit No.: PA0083593

Replicate No.	Test Completion Date 5/23/2017 Control	TIWC
1	29	34
2	33	28
3	37	37
4	35	37
5	32	31
6	29	30
7	27	32
8	26	39
9	29	30
10	18	27
11		
12		
13		
14		
15		
Mean	29.500	32.500
Std Dev.	5.339	4.089
# Replicates	10	10
T-Test Result	5.7327	
Deg. of Freedom	17	
Critical T Value	0.8633	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 5/1/2018 Control	TIWC
1	34	28
2	30	29
3	31	29
4	33	30
5	34	31
6	32	34
7	33	34
8	33	33
9	34	35
10	28	38
11		
12		
13		
14		
15		
Mean	32.200	32.100
Std Dev.	1.989	3.213
# Replicates	10	10
T-Test Result	7.0973	
Deg. of Freedom	14	
Critical T Value	0.8681	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 5/27/2019 Control	TIWC
1	31	32
2	33	23
3	34	31
4	34	28
5	33	34
6	30	36
7	26	35
8	35	29
9	31	32
10	32	31
11		
12		
13		
14		
15		
Mean	31.900	31.100
Std Dev.	2.601	3.784
# Replicates	10	10
T-Test Result	5.3289	
Deg. of Freedom	15	
Critical T Value	0.8662	
Pass or Fail	PASS	

Replicate No.	Test Completion Date 4/28/2020 Control	TIWC
1	19	15
2	24	18
3	19	13
4	21	16
5	19	20
6	18	19
7	16	21
8	21	23
9	21	18
10	22	
11		
12		
13		
14		
15		
Mean	20.000	18.111
Std Dev.	2.261	3.100
# Replicates	10	9
T-Test Result	2.6723	
Deg. of Freedom	13	
Critical T Value	0.8702	
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.08
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Silver Sping Township WWTP

Permit No.: PA0083593

Replicate No.	Test Completion Date: 5/23/2017 Control	TIWC	Test Completion Date: 5/1/2018 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	1.000	1.000	1.000	1.000
Std Dev.	0.000	0.000	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date: 5/27/2019 Control	TIWC	Test Completion Date: 4/28/2020 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	
11				
12				
13				
14				
15				
Mean	1.000	1.000	1.000	1.000
Std Dev.	0.000	0.000	0.000	0.000
# Replicates	10	10	10	9
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.08
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Silver Sping Township WWTP

Permit No.: PA0083593

Test Completion Date: 5/23/2017

Replicate No.	Control	TIWC
1	0.8	0.9
2	0.7	0.9
3	1	0.9
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.875	0.900
Std Dev.	0.150	0.000
# Replicates	4	4
T-Test Result	7.9572	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	PASS	

Test Completion Date: 5/1/2018

Replicate No.	Control	TIWC
1	0.8	0.8
2	1	1
3	1	1
4	0.9	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.925	0.925
Std Dev.	0.096	0.096
# Replicates	4	4
T-Test Result	7.3882	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Test Completion Date: 5/28/2019

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	0.975
Std Dev.	0.000	0.050
# Replicates	4	4
T-Test Result	17.8623	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	PASS	

Test Completion Date: 4/28/2020

Replicate No.	Control	TIWC
1	1	0.9
2	1	1
3	0.9	1
4	0.9	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.950	0.975
Std Dev.	0.058	0.050
# Replicates	4	4
T-Test Result	14.6365	
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)	0.08
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Silver Sping Township WWTP

Permit No.: PA0083593

Replicate No.	Test Completion Date: 5/23/2017 Control	TIWC
1	0.29	0.316
2	0.281	0.29
3	0.399	0.429
4	0.38	0.414
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.338	0.362
Std Dev.	0.061	0.070
# Replicates	4	4
T-Test Result	2.6274	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 5/1/2018 Control	TIWC
1	0.229	0.301
2	0.344	0.347
3	0.363	0.411
4	0.272	0.35
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.302	0.352
Std Dev.	0.062	0.045
# Replicates	4	4
T-Test Result	3.8654	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 5/28/2019 Control	TIWC
1	0.389	0.406
2	0.336	0.379
3	0.438	0.466
4	0.362	0.404
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.381	0.414
Std Dev.	0.044	0.037
# Replicates	4	4
T-Test Result	5.1827	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 4/28/2020 Control	TIWC
1	0.455	0.37
2	0.398	0.441
3	0.438	0.445
4	0.395	0.415
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.422	0.418
Std Dev.	0.030	0.035
# Replicates	4	4
T-Test Result	4.9486	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

WET Summary and Evaluation

Facility Name	Silver Sping Township WWTP
Permit No.	PA0083593
Design Flow (MGD)	1.2
Q_{7-10} Flow (cfs)	67.3
PMF_a	0.132
PMF_c	0.916

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/23/17	5/1/18	5/27/19	4/28/20
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/23/17	5/1/18	5/27/19	4/28/20
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/23/17	5/1/18	5/28/19	4/28/20
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	5/23/17	5/1/18	5/28/19	4/28/20
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**	
TIWC	**3**	% Effluent
Dilution Series	**1, 3, 30, 60, 100**	% Effluent
Permit Limit	**None**	
Permit Limit Species		