pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0020273**
Facility Type	**Municipal**	APS ID	**1060276**
Major / Minor	**Major**	Authorization ID	**1390880**

Applicant and Facility Information

Applicant Name	**Milton Region Sewer Authority, Northumberland County**	Facility Name	**Milton Regional Sewer Authority STP**
Applicant Address	5585 State Route 405 Milton, PA 17847-7519	Facility Address	5585 State Route 405 Milton, PA 17847-7519
Applicant Contact	Genie Bausinger	Facility Contact	Genie Bausinger
Applicant Phone	(570) 742-3424	Facility Phone	(570) 742-3424
Client ID	201704	Site ID	263206
Ch 94 Load Status	Not Overloaded	Municipality	West Chillisquaque Township
Connection Status	No Limitations	County	Northumberland
Date Application Received	April 1, 2022	EPA Waived?	No
Date Application Accepted	April 6, 2022	If No, Reason	Major Facility, Significant CB Discharge

Purpose of Application: Renewal of a NPDES Permit

Summary of Review

The subject facility is a major Publicly Owned Treatment Works (POTW) serving Milton Borough, West Chillisquaque Township, East Chillisquaque Township, Watsontown Borough, Delaware Township, and Turbot Township in Northumberland County.

A map of the discharge location is attached (Attachment A).

Sludge use and disposal description and location(s): The facility's dewatered sludge is disposed by landfill. Per the application 618.98 dry tons were disposed in the previous year.

Public Participation

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

Approve	Deny	Signatures	Date
X		*Keith C. Allison* Keith C. Allison / Project Manager	November 18, 2022
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 6, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	4.25
Latitude	41º 0' 21.51"	Longitude	-76º 51' 57.97"
Quad Name	Milton, PA	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	West Branch Susquehanna River (WWF)	Stream Code	18668
NHD Com ID	66920015	RMI	10.29
Drainage Area	6536 mi^2	Yield (cfs/mi^2)	0.1224
Q_{7-10} Flow (cfs)	800	Q_{7-10} Basis	USGS Gage 01553500 – West Branch Susquehanna River at Lewisburg (1968-2008)
Elevation (ft)	433.6	Slope (ft/ft)	0.00024
Watershed No.	10-C	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	West Branch Susquehanna
Nearest Downstream Public Water Supply Intake	Sunbury Municipal Authority		
PWS Waters	Susquehanna River	Distance from Outfall (mi)	Approx. 11

Changes Since Last Permit Issuance: None

Other Comments: The above stream and drainage characteristics were determined for previous reviews and remain adequate.

Suboutfalls: Three suboutfalls have previously been established to differentiate between domestic wastewater, piped industrial sources (primarily Con Agra), and hauled in wastewater sources.

There is a TMDL for the West Branch Susquehanna River for metals and pH impairment by AMD. The AMD impairment is in the upper reaches of the river and ends at the confluence of the River with Pine Creek approximately 48.4 miles upstream. This discharge is below the impaired segment of the River; however, because the TMDL is for the entire West Branch Susquehanna River watershed, monitoring has been included for the metals typically associated with AMD, Aluminum, Iron and Manganese. The monthly monitoring for all these parameters over the past permit term and renewal sampling were consistently below their respective most stringent instream criteria, and therefore, no additional monitoring for these will be required at this time. Total Aluminum had a max of 136 ug/L compared to a most stringent criterion of 750 ug/L. Total Iron had a max of 577 ug/L compared to a most stringent criterion of 1,500 ug/L. The Total Manganese maximum was 79.2 compared to a most stringent criterion of 1,000 ug/L.

No TMDL has been developed for the PCB impairment to the West Branch Susquehanna River and the facility is not known or expected to be a contributor of the pollutant.

Treatment Facility Summary

Treatment Facility Name: Milton Regional Sewer Authority

WQM Permit No.	Issuance Date	Permit Covered:
4909405 A-2	A-2 - October 4, 2019	Installation of two new sludge presses to replace existing centrifuge and belt filter press
	Amended - May 8, 2013	Removal of Tertiary cloth filters from the plant upgrades
	Original – March 26, 2010	Ww2E improvements including upgrading plant capacities
4906401	August 25, 2006	Additional dewatering and supplemental aeration

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Activated Sludge	Ultraviolet	4.25

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
4.25	49,883	Not Overloaded	Aerobic Digestion/ Anaerobic Digestion/ Dewatering/ Drying	Landfill

Changes Since Last Permit Issuance: The changes to sludge dewatering under WQM Permit No. 4909405 A-2

Other Comments: The facilities permitted by WQM No. 4909405 included 2 rotary fine screen units, 2 vortex grit separators, trucked in waste receiving facilities, 2 ADI-BVF anaerobic reactors with biogas production, 2 modified existing primary clarifiers, 2 vertical loop reactors, 2 existing aeration basins, 2 anoxic tanks, 2 reaeration tanks, 2 final clarifiers, ultraviolet light disinfection, existing sludge thickening, 2 modified aerobic digesters, existing sludge dewatering, utility water system, chemical addition, odor control and effluent pumping. The anaerobic digesters receive wastewater from ConAgra Foods, which is the primary industrial user for the facility. The BVFs also receive trucked in waste and aerobic-digested sludge.

(Piped) Industrial Users

The application lists two direct industrial users to the MRSA system. The only Significant Industrial User (SIU) is ConAgra Brands which contributes an average of 0.784 MGD of food production wastewater on production days. Keystone Sporting Arms, LLC a non-SIU contributes approximately 250 gpd of metal finishing wastewater during production.

Stormwater Management			
Outfall No.	002	Design Flow (MGD)	N/A
Latitude	41° 00’ 21”	Longitude	76° 51’ 51”
RMI	10.3	Drainage Area (ft^2)	251,341
Outfall No.	003	Design Flow (MGD)	N/A
Latitude	41° 00’ 28”	Longitude	76° 51’ 50”
RMI	10.3	Drainage Area (ft^2)	329,314

The permittee has identified two stormwater outfalls.

Stormwater requirements will be included in the NPDES permit because the discharge from the facility meets the definition of a storm water discharges associated with industrial activity in 40 CFR §122.26(b)(14)(ix).

The requirements of the September 24, 2016 PAG-03 Appendix J are appropriate for this discharge and will be included in this permit. The requirements include twice per year monitoring of stormwater outfalls for TSS and Oil and Grease. Benchmark monitoring levels from the PAG-03 for TSS (100 mg/L) and Oil and Grease (30 mg/L) will be included in the draft permit.

These stormwater discharges also are not expected to affect any downstream water supply at this time with the monitoring proposed.

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	1.858122	1.788392	1.653278	1.812164	2.002275	1.927292	1.887146	1.925867	1.557293	1.444026	1.77307	1.9705298
Flow (MGD) Raw Sewage Influent Average Monthly	1.718	1.651	1.48	1.643	1.864	1.742	1.791	1.924	1.456	1.326	1.646	1.854
Flow (MGD) Daily Maximum	2.535829	2.07021	2.009763	2.453799	3.291739	2.549034	2.321335	3.436022	1.9224	1.888033	2.866591	2.725518
Flow (MGD) Raw Sewage Influent Daily Maximum	2.726	2.013	2.03	2.504	3.301	2.611	2.116	3.553	1.807	1.875	2.629	2.726
pH (S.U.) Minimum	7.28	7.32	7.12	7.34	7.25	7.25	7.1	7.05	7.13	6.74	7.00	7.14
pH (S.U.) Maximum	7.64	7.76	7.81	7.66	7.62	7.73	7.52	7.48	7.61	7.61	7.59	7.81
DO (mg/L) Minimum	0.08	3.73	4.60	4.60	4.23	0.81	2.61	5.23	6.19	6.11	5.06	4.35
CBOD5 (lbs/day) Average Monthly	< 34	< 33	< 30	< 33	< 34	< 37	< 33	< 38	< 28	< 26	< 29	< 34
CBOD5 (lbs/day) Weekly Average	< 36	< 39	< 32	< 39	38	44	< 35	47	< 29	< 28	< 33	< 41
CBOD5 (mg/L) Average Monthly	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Weekly Average	< 2	< 2	< 2	2	2	3	< 2	3	< 2	< 2	< 2	< 2
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	13881	16653	14126	13710	14413	13462	14417	15260	14230	13305	10514	13026
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	16729	26595	15904	16285	14877	14599	17144	16732	16039	14322	14200	13480
BOD5 (mg/L) Raw Sewage Influent Average Monthly	857	1159	1004	824	877	836	885	917	1039	995	753	836
TSS (lbs/day) Average Monthly	< 34	< 31	< 30	< 44	< 39	< 37	< 37	< 40	< 29	< 26	< 31	< 33

TSS (lbs/day) Raw Sewage Influent Average Monthly	9358	13126	9755	10553	10870	9262	11408	10388	8942	8650	7748	9081
TSS (lbs/day) Raw Sewage Influent Weekly Average	10945	25274	11338	14574	11782	14032	15765	11760	9700	9028	9660	10927
TSS (lbs/day) Weekly Average	< 38	< 33	< 31	< 71	< 52	< 45	< 49	< 58	< 32	< 28	< 33	< 40
TSS (mg/L) Average Monthly	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
TSS (mg/L) Raw Sewage Influent Average Monthly	585	917	691	677	659	563	711	611	652	702	539	581
TSS (mg/L) Weekly Average	< 2	< 2	< 2	< 5	< 3	< 3	< 3	< 3	< 2	< 2	< 2	< 2
Fecal Coliform (No./100 ml) Geometric Mean	9	< 5	21	10	7	< 2	> 4	< 4	< 2	3	< 2	3
Fecal Coliform (No./100 ml) Instantaneous Maximum	32.3	10.9	42.8	47.1	22.6	8.5	> 2419.6	108.1	10.9	7.3	6.3	8.6
UV Intensity (mW/cm²) Minimum	182.8	160	0.1565	0.1782	0.1907	0.1798	0.195	0.2008	0.212	0.1768	0.1986	0.2019
Nitrate-Nitrite (mg/L) Average Monthly	9.92	12.552	13.641	9.684	9.569	8.637	10.686	11.717	17.54	23.35	17.81	13.03
Nitrate-Nitrite (lbs) Total Monthly	5011.8	5813.5	6023.3	4460	4774.4	4210.3	5302.6	5417.2	7392	8858.2	7603.4	6539.3
Total Nitrogen (mg/L) Average Monthly	< 10.482	< 13.052	< 14.141	< 10.184	< 10.111	< 9.137	< 11.877	< 12.224	< 18.04	< 23.85	< 18.31	< 13.53
Total Nitrogen (lbs) Effluent Net Total Monthly	< 5302.9	< 6044.8	< 6241.4	< 4687.3	< 5047.7	< 4452.8	< 5850.7	< 5648.6	< 7602.8	< 9049.5	< 7823.1	< 6790.5
Total Nitrogen (lbs) Total Monthly	< 5302.9	< 6044.5	< 6241.4	< 4687.3	< 5047.7	< 4452.8	< 5850.7	< 5648.6	< 7602.8	< 9049.5	< 7823.1	< 6790.5
Ammonia (mg/L) Average Monthly	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ammonia (lbs) Total Monthly	< 25.1	< 23.1	< 21.8	< 22.7	< 24.9	< 24.3	< 221	< 22.7	< 21	< 19.1	< 22.4	< 25.1
TKN (mg/L) Average Monthly	< 0.563	< 0.5	< 0.5	< 0.5	< 0.542	< 0.5	< 1.191	< 0.51	< 0.5	< 0.5	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 291.1	< 231	< 218.1	< 227.3	< 270.3	< 242.5	< 548.1	< 231.3	< 210.8	< 191.3	< 219.7	< 251.2

Total Phosphorus (mg/L) Average Monthly	2.93	4.26	1.97	1.82	1.12	1.1	1.22	0.93	1.13	1.21	1.15	1.56
Total Phosphorus (lbs) Effluent Net Total Monthly	1509.2	1979.1	884.1	816	551.7	537.3	601.3	380.7	475.9	481.9	522.9	773.7
Total Phosphorus (lbs) Total Monthly	1509.2	1979.1	884.1	816	551.7	537.3	601.3	380.7	475.9	481.9	522.9	773.7
Total Aluminum (lbs/day) Daily Maximum	< 2	< 1	< 0.9	< 2	< 1	< 2	< 2	< 1	< 2	< 0.8	< 2	< 2
Total Aluminum (mg/L) Daily Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Arsenic (lbs/day) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.08	< 0.1	< 0.1
Total Arsenic (lbs/day) Daily Maximum	< 0.2	< 0.1	< 0.1	0.2	0.3	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Total Arsenic (ug/L) Average Monthly	< 8	< 7.35	< 8	< 9.18	< 10.3	< 9.6	< 8	< 8	< 8	< 8	< 8	< 8
Total Arsenic (ug/L) Daily Maximum	< 8	< 8	< 8	10.3	17.2	12.4	< 8	< 8	< 8	< 8	< 8	< 8
Total Cadmium (lbs/day) Average Monthly	< 0.07	< 0.06	< 0.05	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.05	< 0.04	< 0.06	< 0.07
Total Cadmium (lbs/day) Daily Maximum	< 0.08	< 0.07	< 0.06	< 0.07	< 0.07	< 0.07	< 0.08	< 0.06	< 0.06	< 0.06	< 0.07	< 0.09
Total Cadmium (ug/L) Average Monthly	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Total Cadmium (ug/L) Daily Maximum	< 4	< 4	< 4	< 4	< 4	< 4	< 5	< 4	< 4	< 4	< 4	< 4
Total Copper (lbs/day) Average Monthly	< 0.2	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2
Total Copper (lbs/day) Daily Maximum	< 0.2	< 0.2	< 0.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.2	< 0.2
Total Copper (ug/L) Average Monthly	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Copper (ug/L) Daily Maximum	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Iron (lbs/day) Daily Maximum	< 3	< 3	< 2	< 4	3	4	< 3	3	4	3	< 3	< 5
Total Iron (mg/L) Daily Maximum	< 0.2	< 0.2	< 0.2	< 0.2	0.209	0.22	< 0.2	0.231	0.295	0.369	0.219	< 0.2

Total Lead (lbs/day) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.08	< 0.1	< 0.1
Total Lead (lbs/day) Daily Maximum	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2
Total Lead (ug/L) Average Monthly	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Total Lead (ug/L) Daily Maximum	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Total Manganese (lbs/day) Daily Maximum	< 0.3	< 0.3	< 0.2	< 0.4	< 0.3	0.5	< 0.3	< 0.3	< 0.3	< 0.2	< 0.3	< 0.5
Total Manganese (mg/L) Daily Maximum	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.0282	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Mercury (lbs/day) Average Monthly	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.003
Total Mercury (lbs/day) Daily Maximum	< 0.004	< 0.003	< 0.003	< 0.004	< 0.004	< 0.004	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.005
Total Mercury (ug/L) Average Monthly	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Total Mercury (ug/L) Daily Maximum	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Total Nickel (lbs/day) Average Monthly	< 0.8	< 0.7	< 0.6	< 0.7	< 0.8	< 0.8	< 0.8	< 0.7	< 0.6	< 0.5	< 0.8	< 0.8
Total Nickel (lbs/day) Daily Maximum	< 1	< 0.9	< 0.7	< 0.9	< 0.9	< 0.9	< 0.8	< 0.8	< 0.8	< 0.7	< 0.9	< 1.0
Total Nickel (ug/L) Average Monthly	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Total Nickel (ug/L) Daily Maximum	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Total Silver (lbs/day) Average Monthly	< 0.07	< 0.06	< 0.05	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.05	< 0.04	< 0.06	< 0.07
Total Silver (lbs/day) Daily Maximum	< 0.08	< 0.07	< 0.06	< 0.07	< 0.07	< 0.07	< 0.07	< 0.06	< 0.06	< 0.06	< 0.07	< 0.09
Total Silver (ug/L) Average Monthly	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 3.7	< 4	< 4	< 4
Total Silver (ug/L) Daily Maximum	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Acrolein (ug/L) Average Quarterly	< 1.95			< 9.75			< 1.95			< 1.95		
1,4-Dioxane (lbs/day) Daily Maximum	< 0.04			< 0.05			< 0.2			< 0.05		

1,4-Dioxane (ug/L) Daily Maximum	< 3			< 3			< 12			< 2.9		
Benzidine (lbs/day) Average Quarterly	< 0.03			< 0.03			< 0.03			< 0.03		
Benzidine (lbs/day) Daily Maximum	< 0.03			< 0.03			< 0.03			< 0.03		
Benzidine (ug/L) Average Quarterly	< 2.0			< 2.0			< 2.0			< 1.75		
Benzidine (ug/L) Daily Maximum	< 1.75			< 2.0			< 1.75			< 1.75		

DMR Data for Outfall 101 (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) Internal Monitoring Point Average Monthly	0.809697	0.660796	0.623904	0.698226	0.947619	0.977223	0.929686	1.068042	0.682505	0.686363	0.951226	1.00297
Flow (MGD) Internal Monitoring Point Daily Maximum	1.429656	0.891828	0.798378	1.048572	2.265701	1.573484	1.153167	2.458451	0.863006	0.804384	1.716997	1.685863
BOD5 (lbs/day) Internal Monitoring Point Average Monthly	2067	2180	2405	2612	2903	2293	2288	2612	2154	2402	2225	2205
BOD5 (lbs/day) Internal Monitoring Point Weekly Average	2173	2344	2621	2785	3747	2658	2492	3836	2341	3299	2913	2809
BOD5 (mg/L) Internal Monitoring Point Average Monthly	298	405	467	440	390	287	296	310	374	413	300	295
BOD5 (mg/L) Internal Monitoring Point Weekly Average	371	449	520	467	485	368	351	402	398	537	421	420
TSS (lbs/day) Internal Monitoring Point Average Monthly	2920	3210	3487	3759	4592	3826	4572	3731	2447	3440	2797	2892
TSS (lbs/day) Internal Monitoring Point Weekly Average	4181	4286	5211	4216	5839	7557	7155	5104	2843	5911	3407	4172
TSS (mg/L) Internal Monitoring Point Average Monthly	405	589	673	638	623	434	584	443	424	595	365	392
TSS (mg/L) Internal Monitoring Point Weekly Average	480	717	983	637	757	668	838	631	490	985	486	620

DMR Data for Outfall 201 (from October 1, 2021 to September 30, 2022)

Parameter	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21
Flow (MGD) Internal Monitoring Point Average Monthly	0.9058007	0.9849564	0.852553	0.9414422	0.9131929	0.7633689	0.8597389	0.8543403	0.7726775	0.6385221	0.6925687	0.8492998
Flow (MGD) Internal Monitoring Point Daily Maximum	1.347861	1.344877	1.29788	1.531094	1.302978	1.124537	1.114491	1.206068	1.155814	1.15397	1.097253	1.21924
BOD5 (lbs/day) Internal Monitoring Point Average Monthly	11433	10592	11042	10627	10926	10785	11812	12160	11751	10854	7674	10647
BOD5 (lbs/day) Internal Monitoring Point Weekly Average	14182	14083	12970	12603	11580	11916	14458	14789	13066	11834	11756	11516
BOD5 (mg/L) Internal Monitoring Point Average Monthly	1220	1162	1248	988	1231	1308	1397	1451	1490	1434	1148	1353
BOD5 (mg/L) Internal Monitoring Point Weekly Average	1461	1287	1436	1158	1350	1459	1658	1713	1644	1578	1587	1468
TSS (lbs/day) Internal Monitoring Point Average Monthly	5981	5729	5912	6505	5723	5107	6451	6107	6143	5060	4369	5973
TSS (lbs/day) Internal Monitoring Point Weekly Average	7225	6923	7081	10424	6504	7443	8608	7250	6668	6398	5812	7552
TSS (mg/L) Internal Monitoring Point Average Monthly	646	627	671	665	634	631	784	725	781	671	619	749
TSS (mg/L) Internal Monitoring Point Weekly Average	750	670	790	973	727	917	990	843	923	863	737	1000

DMR Data for Outfall 301 (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) Internal Monitoring Point Average Monthly	0.0046984	0.008565	0.005416	0.005011	0.0060159	0.00439	0.003804	0.004432	0.003814	0.005247	0.005836	0.005389
Flow (MGD) Internal Monitoring Point Daily Maximum	0.00971	0.020698	0.01218	0.013371	0.015055	0.009903	0.007625	0.009241	0.00663	0.013213	0.016317	0.008795
BOD5 (lbs/day) Internal Monitoring Point Average Monthly	562	1888	667	618	638	788	564	1016	833	513	1090	1073
BOD5 (lbs/day) Internal Monitoring Point Weekly Average	685	3602	1424	984	1059	1028	996	1190	900	1062	1207	1982
BOD5 (mg/L) Internal Monitoring Point Average Monthly	19227	28299	13519	16893	13588	30613	21494	35672	33044	15977	26582	30647
BOD5 (mg/L) Internal Monitoring Point Weekly Average	27910	66745	22868	25968	20674	45310	42915	45432	36752	30984	27999	60645
TSS (lbs/day) Internal Monitoring Point Average Monthly	629	1756	443	642	628	957	638	1117	1063	449	1130	683
TSS (lbs/day) Internal Monitoring Point Weekly Average	1046	3596	810	1185	978	1266	1170	1487	1229	883	1463	1530
TSS (mg/L) Internal Monitoring Point Average Monthly	19842	28771	8724	17338	13241	35454	21760	40507	46387	17355	28445	18477
TSS (mg/L) Internal Monitoring Point Weekly Average	32163	74124	16972	20922	18090	55453	43942	56619	57565	38493	38877	48175

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2021 to: September 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	03/31/22	Geo Mean	> 4	No./100 ml	2000	No./100 ml
Fecal Coliform	03/31/22	IMAX	> 2419.6	No./100 ml	10000	No./100 ml

Compliance History, Cont'd

Summary of Inspections:	The facility has been inspected at least annually by the Department during the past permit term. The most recent compliance inspection of the facility was on October 25, 2022. This inspection identified no violations.
Other Comments:	A query in WMS found no open violations in eFACTS for Milton Regional Sewer Authority.

Outfall 001 Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) Raw Sewage Influent	Report	Report	XXX	XXX	XXX	XXX	1/day	Calculation
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	886	1417 Wkly Avg	XXX	25	40 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Wkly Avg	XXX	Report	XXX	XXX	2/week	Calculation
Total Suspended Solids	1063	1595 Wkly Avg	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Wkly Avg	XXX	Report	XXX	XXX	2/week	Calculation
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
Ultraviolet light intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Aluminum, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Arsenic, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Cadmium, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Copper, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Iron, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Lead, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Manganese, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Mercury, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Nickel, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Silver, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Acrolein (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
1,4-Dioxane (ug/L)	XXX	Report	XXX	XXX	Report	XXX	1/quarter	Grab
Benzidine (ug/L)	Report Avg Qrtly	Report	XXX	50.0 Avg Qrtly	50.0	50	1/quarter	24-Hr Composite

Outfalls 011 and 012

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Suboutfalls 101, 201, and 301

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
Biochemical Oxygen Demand (BOD5) Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Total Suspended Solids Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite

Existing Effluent Limitations and Monitoring Requirements – Chesapeake Bay

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	72,217	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	10,049	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 4.25
Latitude 41º 0' 21.40" **Longitude** -76º 51' 53.80"
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)

Comments: The above limits are applicable and are included in the existing permit.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed (see Attachment B) for the discharge to the West Branch Susquehanna River and showed that no limitations are necessary for these parameters beyond the technology-based secondary treatment limits listed above.

Water Quality Toxics Management

The parameters listed below were determined by a reasonable potential analysis, based on sampling provided in the application. The Reasonable Potential Analysis recommends limits when the highest sampling result is greater than 50% of the WQBEL and recommends monitoring when the result is greater than 10% of the WQBEL for conservative pollutants, consistent with the Department's SOPs. The Department assumes that results for pollutants at detection levels greater than the Department's Target Quantitation Limits are potentially present at concentrations near the higher detection level. The table below shows the permittee's sample results, the WQ-based monthly average limitation and the Target Quantitation Limit for each parameter. See Attachments C for the Toxics Management Spreadsheet which applies the Department's instream criteria from 25 PA Code 93 at available instream dilution. Note that the existing permit includes monitoring for both cadmium and copper.

Initial Reasonable Potential Analysis Results

Pollutant	Sample Results (µg/L)	WQBEL (µg/L)	Target Quantitation Limit (µg/L)	TMS Result
Total Cadmium	<4	7.79	0.2	Limit
Total Copper	10	79.9	4	Monitoring
Total Selenium	20	107	5	Monitoring

For Copper and Selenium, the analysis recommended monitoring in the permit and therefore monitoring for these will also be included in the permit. Due to the consistent sampling for Cadmium at <4 µg/L no compliance schedule is expected to be necessary.

Should MRSA conduct an additional round of sampling during the draft comment period that shows that levels in the effluent of Cadmium are undetectable at or below the Department's TQL then the limitation specifically for Cadmium will be removed from the permit. Monitoring would remain due to the Trucked-In Waste analysis below.

The existing permit includes monitoring for 1,4-Dioxane due to a previous policy recommending monitoring when concentrations exceed 10 ug/L. Over the past permit term one detectable quarterly sample was found at 14.6 ug/L. Per the TMS Instructions "Special parameter monitoring requirements for TDS, bromide, chloride, sulfate and 1.4-dioxane requirements no longer apply and are not included in the TMS (starting 10/1/2020)." Therefore, this regular monitoring for 1,4-dioxane is no longer necessary at this time and has been removed.

Acrolein and Benzidine monitoring were included in the previous renewal permit primarily due application samples not meeting the Target Quantitation Limits. Based on existing sampling and the sampling for this renewal no additional monitoring is recommended.

Diffuser/Instream Mixing

The MRSA discharge to the River is through a diffuser. According to MRSA the diffuser extends 250 feet into the river and at least a third of the river passes over it. It has five discharge points, the first of which is 70 feet from the shore. The TMS determined partial mixing factors (PMFs) of 0.024 (Acute), 0.169 (Chronic and Total Human Health) and 0.247 (Cancer Risk Level). For the previous review the Department assumed mixing factors of 0.24 (Acute), 0.498 (Chronic and Total Human Health) and 0.576 (Cancer Risk Level) based on the above single point discharge mixing factors and assuming equal distribution from the five diffuser holes.

The following condition was included in the previous permit.

> *In order for the permittee to utilize site specific mixing factors for future water quality modeling, a mixing study of the receiving stream must be completed prior to the submission of the next permit amendment or renewal application. The mixing zone study shall provide the percentage of mixing between the effluent discharged from Outfall 001 and the receiving surface water versus downstream travel time at low-flow (Q_{7-10}) conditions. The endpoints of the study shall be fifteen (15) minutes and twelve (12) hours downstream travel time.*

Therefore, because no mixing study has been provided, no site-specific mixing factors have been applied in these evaluations. Should MRSA conduct new mixing studies in the future, the Department will reevaluate the applicability of site-specific mixing factors at that time.

Trucked In Waste

MRSA receives hauled in wastes from multiple sources. MRSA has provided a listing of totals of hauled in wastes for the past three years and expected levels for the next five years broken into 7 major categories as listed below with the average volumes received and expected to be received:

Proposed Trucked In Waste Sources

Type of Waste	Average Volume Received (MGD)	Annual Average Expected (MGD)
Leachate	0.00129	0.0052
On-Lot Wastes	0.00846	0.00836
Portable Toilets	0.0002	0.00052
Municipal Sludges	0.0016	0.0057
Industrial Wastewaters	0.00576	0.0131
Grit Waste	0.0001	0.00005
Grease Trap and High Strength	0.000185	0.0192
Total	0.0174	0.0522

Anticipated maximum daily waste expected to be received is 1.229 MGD which is 28.9% of design flow and approximately 69.3% of current actual average piped flows.

The categories under industrial waste include:

- Hydrostatic test water
- Ink Wash water

- Paint Wash water
- Latex Paint Manufacturing
- Stone Processing Waste
- Adhesive Wastewater
- Acid Pickling wash water
- Irrigation Runoff
- Nonferrous metals forming
- Abrasive Jet Cutting Water

Trucked-in-Waste Influent Accounting

In order to account for flow as well as organic and TSS loadings to the facility in eDMR, internal monitoring points (IMPs) have been established for the following three influent waste streams:

Flow – Influent Monitoring

IMP	Waste stream	Assigned Capacity Allocation	Minimum Measurement Frequency	Required Sample Type
101	Residential piped sewage	2.347 MGD* of the 4.25 MGD capacity	Continuous	Measured
201	ConAgra and piped industrial	2.1 MGD* of the 4.25 MGD capacity	Continuous	Measured
301	Trucked-in-Waste	subcomponent of the industrial allocated capacity	Volume estimations per load	
001	Net Flow (The Above Three (3) Combined)	4.25 MGD	Calculation	

* - Loadings listed in the application for WQM Permit No. 4909405.

TSS and Organic Loading – Influent Monitoring

IMP	Waste stream	Minimum Measurement Frequency	Required Sample Type
101	Residential piped sewage	2/week	24-hour composite
201	ConAgra and piped industrial	2/week	24-hour composite
301	Trucked-in-Waste	Regular, representative sampling may be utilized to establish a load	
001	Net Loading (The Above Three Combined)	Calculation	

The net reported influent flows and loadings shall be a calculation of the sum of the three (3) waste streams cited above.

Average Flows and Loadings for each IMP for the past permit term

IMP	Waste stream	Average Flow (MGD)	Average Influent BOD (lb/day)	Average Influent TSS (lb/day)
101	Residential piped sewage	1.0065	2670.7	3975.1
201	ConAgra and piped industrial	0.7672	11352.0	7066.2
301	Trucked-in-Waste	0.00539	1130.5	1151.9
Total Influent	Net Flow/Loading (The Above Three Combined)	1.7791	15153.2	12193.1

Trucked-in-Waste: Acute and Chronic Toxicity Accounting

The MRSA application included a breakdown of industrial sectors (as listed above) and ranges of projected flows and constituent strengths from each industry.

The abovementioned initial reasonable potential analysis has been supplemented to account for the potential additional pollutant waste loads from Hauled In Waste.

To evaluate both (a) the projected facility performance under the loadings reported in the application, and (b) the potential impacts of the loadings to the receiving watercourse, the Department considered influent loadings for the TIW internal monitoring point to be the maximum value in the flow range, multiplied by the maximum value in the parameter strength range, carried forward through the treatment facility as a maximum pollutant loading. This conservative calculation identifies parameters for further Reasonable Potential analysis.

The net loading calculations are demonstrated below. Spreadsheets used to develop the calculations below are attached (Attachment E).

Total TIW Pollutant Loadings were first calculated using the maximum daily flow and concentrations as provided in the application (Application Appendix F) – The calculations for Arsenic from each of the industries reported as contributing that pollutant are listed below as an example.

TIW Pollutant Loading Example - Arsenic

Type of Waste	Max Daily Flow (MGD)		Concentration (mg/L)		Conversion Factor		Total Load (ppd)
Leachate	0.360	X	0.3	X	8.34	=	0.90
Municipal Liquid Sludge	0.050	X	5	X	8.34	=	2.09
Municipal Dewatered Sludge	0.030	X	5	X	8.34	=	1.25
Latex Paint Manufacturing	0.010	X	0.25	X	8.34	=	0.02
Landfill Gas Condensate	0.010	X	5	X	8.34	=	0.42
Parameter-specific Total Flow:	0.460		Parameter-specific Total Load:				4.67

The values above were mass balanced against the reported discharge concentration and 5-year average piped flow (0.00768 mg/L, 1.774 MGD, 4.79 ppd) to generate a resultant total discharge concentration of 0.1896 mg/L.

The cumulative loadings result in concentrations for each of the evaluated pollutants as listed in the table below. Note the potential for the TIW loadings to be significantly greater than the loadings from the application sampling for most of these parameters. These loadings are based on a combined flow of 3.0287 MGD resulting from the average piped flow of 1.7737 MGD and the maximum potential daily TIW flow of 1.255 MGD.

TIW Cumulative Pollutant Loadings

Parameter	*TIW Loading (ppd)*	*Piped Influent Loading (ppd)*	*Resultant Weighted Concentration (mg/L)*
Arsenic	*4.67*	*0.1063*	*0.1896*
Barium	*90.1*	*0.133*	*3.57*
Cadmium	*0.605*	*0.0526*	*0.0262*
Chromium	*2.15*	*0.0276*	*0.08635*
Copper	*262*	*0.1332*	*10.39*
Cyanide	*0.342*	*0.0485*	*0.0156*
Iron	*289*	*3.613*	*11.593*
Lead	*1.80*	*0.1055*	*0.0756*
Mercury	*0.0601*	*0.0027*	*0.00249*
Nickel	*69.0*	*0.661*	*2.758*
Phenols	*2.16*	*0.322*	*0.09915*
Selenium	*0.709*	*0.169*	*0.0352*
Silver	*3.65*	*0.0532*	*0.147*
Zinc	*5.68*	*0.484*	*0.245*
Molybdenum	*0.688*	*0.0354*	*0.0287*

The following parameters were identified for long-term monitoring using the above pollutant levels and reasonable potential methodology of the Department's Toxics Management Spreadsheet.

Analysis Results and Recommendations

Parameter	Screening Recommendation	Weighted Effluent Concentration (µg/L)	WQBEL (µg/L)	Controlling WQBEL	Department Recommendation
Total Arsenic	Establish Limits	197	309	THH	Monitor[1]
Total Cadmium	Establish Limits	27.0	10.8	CFC	Monitor[1]
Hexavalent Chromium	Establish Limits	89.6	55.5	AFC	Monitor[1]
Total Copper	Establish Limits	10,790[(2)]	95.4	AFC	Monitor[1]
Total Lead	Establish Limits	78.3	154	CFC	Monitor[1]
Total Mercury	Establish Limits	2.58	1.55	THH	Monitor[1]
Total Nickel	Establish Limits	2,860	2,168	CFC	Monitor[1]
Total Selenium	Monitor	36.1	154	CFC	Monitor
Total Silver	Establish Limits	152[(2)]	45.6	AFC	Monitor[1]
Total Zinc	Monitor	254	761	AFC	Monitor

[1] – The maximum criterion inputs to the TMS resulting in WQBEL limits are based on maximum potential pollutant loads as noted above. Monitoring alone is adequate at this time for these parameters due to the conservative analysis and the ongoing monitoring for current parameters. These requirements may be further refined in future permit cycles.
[2] – The majority of copper (250 ppd of 262 total TIW ppd) and silver (2.1 ppd of 3.7 total TIW ppd) are from dewatered sludge and will likely leave in the facility's sludge component: See Appendix E.

Monitoring for Hexavalent Chromium, Selenium, and Zinc is new for this permit term from this analysis.

The weekly screening for the past permit term for the existing parameters resulted in consistently non-detectable levels for Cadmium, Lead, Mercury, Nickel, and Silver. Copper had one hit at 10.5 µg/L (WQBEL is 79.9 µg/L) and Arsenic had six detections at a max of 17.2 µg/L (WQBEL is 215 µg/L) all between April and June of 2022.

In light of the existing data the monitoring, as well as the conservativeness of the analysis and the uncertainties listed below the monitoring frequencies for these ten parameters will be reduced from weekly to twice per month.

The Trucked in Waste Toxic Management Spreadsheet and spreadsheets for the above calculations are attached to this Fact Sheet (Attachments D and E, respectively)

The Department believes that long term monitoring should continue in the permit for the above parameters given the lack of specific data and uncertainties for the Trucked In Waste, including:

- The unknown actual quality of each waste received,
- Additional pollutants unaccounted for in the analysis but potentially present in the particular wastes,
- Any removal in the treatment process,
- Any interference on treatment process by the pollutants,
- Holding times in the BVFs,
- Daily variation in wastes received, and
- Sampling data results from previous permit term.

Chesapeake Bay Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania in order to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. The Milton Regional Sewer Authority is considered a Phase 2, Significant Chesapeake Bay discharger per the Phase III Watershed Implementation Plan (WIP).

Nutrient cap loadings have previously been established for this facility pursuant to the WIP. MRSA's current cap loadings listed in their permit are 72,217 pounds per year for total nitrogen (TN) and 10,049 pounds per year for total phosphorus (TP). These Cap Loads include 7,306 lbs/year of TN and 974 lbs/year of TP from the connection of the former Watsontown

Borough treatment facility (PA0021733) and 2,446 lbs/year of TN and 746 lbs/year of TP from the connection of the former Delaware Township Municipal Authority treatment facility (PA0028606).

In addition to the Cap Loads listed above, the permittee is authorized to use 19,875 lbs/year of Total Nitrogen (TN) Offsets towards compliance with the Annual Net TN mass load limitation (Cap Load), in accordance with Part C of the NPDES permit. The Offsets are authorized for the following pollutant load reduction activities:

- Connection of 795 on-lot sewage disposal systems to the public sewer system after January 1, 2003 in which 25 lbs/year of TN offsets are granted per connection.

For reference, the actual facility Nitrogen and Phosphorus total loads for the past two available cycle years are listed in the table below with the proper cap loads that will be listed in the permit.

Nutrient	Total Nitrogen (lbs)	Total Phosphorus (lbs)
Nutrient Cap Loads for PA0020273	72,217	10,049
10/1/20 – 9/30/21 Net Loadings	<50,879	10,048
10/1/20 – 9/30/21 Offsets Used	19,875	--
10/1/20 – 9/30/21 Credits Purchased	---	807
10/1/20 – 9/30/21 Total Mass Load	<70,754	10,855
10/1/19 – 9/30/20 Net Loadings	67,484	<9,064
10/1/19 – 9/30/20 Offsets Used	19,875	--
10/1/19 – 9/30/20 Total Mass Load	87,359	<9,064

Best Professional Judgment (BPJ) Limitations

Comments: No additional BPJ limitations are necessary beyond the technology and water quality-based limits noted above.

Anti-Backsliding

No limitations were made less stringent consistent with the anti-degradation requirements of the Clean Water Act and 40 CFR 122.44(l). Monitoring has been removed for 1,4-Dioxane, Acrolein, Benzidine, Total Aluminum, Total Iron, and Total Manganese due to current additional data being available.

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: **annually over the permit term**

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 2.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
08/06/2018	100%	100%	100%	97.5%	100%	100%	Pass
06/25/2019	100%	100%	100%	100%	100%	100%	Pass
07/13/2020	100%	100%	100%	100%	100%	100%	Pass
04/26/2021	100%	100%	100%	100%	100%	100%	Pass

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

TST Data Analysis

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

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
08/06/2018	Pass	Pass	Pass	Pass
06/25/2019	Pass	Pass	Pass	Pass
07/13/2020	Pass	Pass	Pass	Pass
04/26/2021	Pass	Pass	Pass	Pass

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

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

☐ **YES** ☐ **NO**

Comments: See the attached WETT Analysis Spreadsheet results (Attachment F).

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

Acute Partial Mix Factor (PMFa): **0.024** Chronic Partial Mix Factor (PMFc): **0.169**

1. Determine IWC – Acute (IWCa):

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

[(4.25 MGD x 1.547) / ((800 cfs x 0.024) + (4.25 MGD x 1.547))] x 100 = **25.51%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

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

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

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

[(4.25 MGD x 1.547) / ((800 cfs x **0**.169) + (4.25 MGD x 1.547))] x 100 = **4.64%**

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%, 5%, and 2%.

The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 5

Changed IWCc and dilution series from the previous permit are due to changes in the PMFs from the previous review that had accounted for a diffuser on the discharge. This evaluation did not include site specific PMFs as noted above.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) Raw Sewage Influent	Report	Report	XXX	XXX	XXX	XXX	1/day	Calculation
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	886	1417 Wkly Avg	XXX	25	40 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Wkly Avg	XXX	Report	XXX	XXX	2/week	Calculation
Total Suspended Solids	1063	1595 Wkly Avg	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Wkly Avg	XXX	Report	XXX	XXX	2/week	Calculation
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Ultraviolet light intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Arsenic, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Cadmium, Total (ug/L)	0.28	0.43	XXX	7.79	12.2	19.5	2/month	24-Hr Composite
Chromium, Hexavalent (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Copper, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Lead, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Mercury, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Nickel, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Selenium, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Silver, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Zinc, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: E. coli monitoring is new consistent with changes to Chapter 93 of the Department's regulations and Department policy. Monitoring for Hexavalent Chromium, Selenium, and Zinc are new as mentioned above. A new Cadmium limitation is included due to samples not meeting the Department's Target QL as also mentioned above. Monitoring frequencies for Arsenic, Cadmium, Copper, Lead, Mercury, Nickel, and Silver have reduced from weekly to twice per month as mentioned above. Monitoring for Aluminum, Iron, Manganese, 1,4-Dioxane, Benzidine, and Acrolein have been removed as also mentioned above.

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 002, 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	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Stormwater Outfall 002 (S02)

Outfall 003, 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	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Stormwater Outfall 003 (S03)

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 101, 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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
BOD5 Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
TSS Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite

Compliance Sampling Location: Residential Piped Sewage

Outfall 201, 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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
BOD5 Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
TSS Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite

Compliance Sampling Location: ConAgra and Piped Industrial

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 301, 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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
BOD5 Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	Calculation
TSS Internal Monitoring Point	Report	Report	XXX	Report	Report	XXX	2/week	Calculation

Compliance Sampling Location: Trucked In Waste

Proposed Effluent Limitations and Monitoring Requirements

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) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	72.217(3)(4)	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	10.049(3)(4)	XXX	XXX	XXX	XXX	1/year	Calculation

(3) The permittee is authorized to use 19,875 lbs/year of Total Nitrogen (TN) Offsets towards compliance with the Annual Net TN mass load limitation (Cap Load), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of Offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities:

- Connection of 795 on-lot sewage disposal systems to the public sewer system after January 1, 2003 in which 25 lbs/year of TN offsets are granted per connection.

(4) The Nutrient Cap Loads listed above include the following:

- 7,306 lbs/year of TN and 974 lbs/year of TP from the connection of the former Watsontown Borough treatment facility (PA0021733).
- 2,446 lbs/year of TN and 746 lbs/year of TP from the connection of the former Delaware Township Municipal Authority treatment facility (PA0028606).

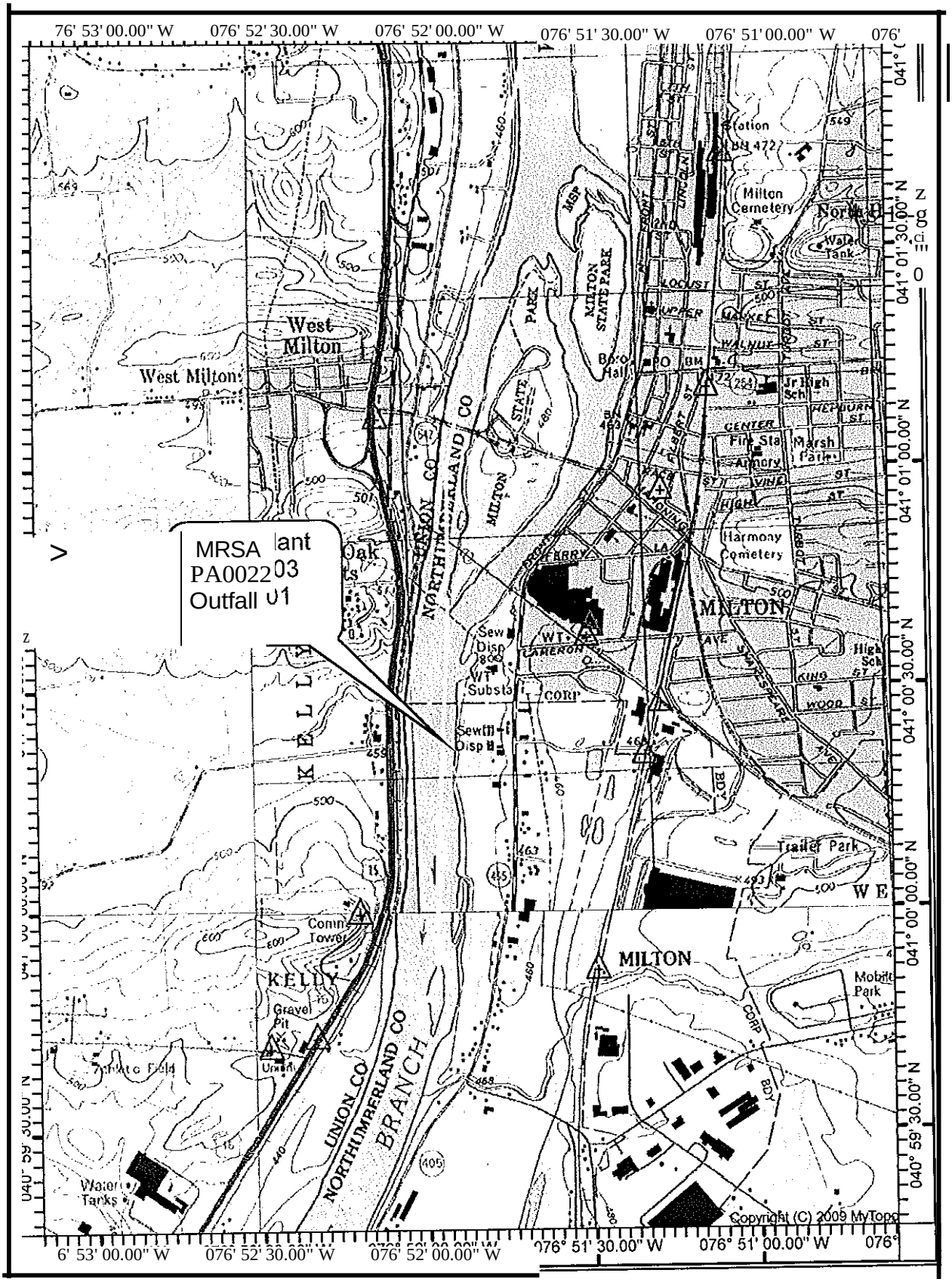
Compliance Sampling Location: Outfall 001

Other Comments: Monthly Net Total Nitrogen and Total Phosphorus monitoring will no longer be required consistent with current policy for Chesapeake Bay discharges.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment **C&D**)
☒	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.
☒	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.
☒	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.
☒	Design Stream Flows, 391-2000-023, 9/98.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP(s): Establishing Effluent Limitations for Individual Sewage Permits, 03/21; Whole Effluent Toxicity (WET), 05/14.
☐	Other:

Attachments:

A. Discharge Location Map
B. WQM7.0 Modeling
C. Toxics Management Spreadsheet – Renewal Sampling
D. Toxics Management Spreadsheet – Trucked in Waste
E. Hauled in Waste Loading Spreadsheets: a. Loading per Industry, b. Net Loadings, c. Sample Calculations
F. WETT Analysis Spreadsheet



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0 1000 2000 3000 4000 5000 6000

FEET

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
10D	18668	WEST BRANCH SUSQUEHANNA RI	**10.290**	433.60	6536.50	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	0.122	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	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
MRSA	PA0020273	4.2500	0.0000	0.0000	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
10D	18668	WEST BRANCH SUSQUEHANNA RI	**5.010**	426.80	6685.60	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	0.122	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	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	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	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
10D	18668	WEST BRANCH SUSQUEHANNA RIVER

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 (ºC)	Analysis pH
Q7-10 Flow												
10.290	797.45	0.00	797.45	6.5747	0.00024	1.158	602.21	519.85	1.15	0.280	20.04	7.00
Q1-10 Flow												
10.290	510.37	0.00	510.37	6.5747	0.00024	NA	NA	NA	0.90	0.359	20.06	7.00
Q30-10 Flow												
10.290	1084.54	0.00	1084.54	6.5747	0.00024	NA	NA	NA	1.37	0.236	20.03	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
10D	18668	WEST BRANCH SUSQUEHANNA RIVER

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
10.290	MRSA	16.67	50	16.67	50	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
10.290	MRSA	1.88	25	1.88	25	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)		
10.29	MRSA	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
10D	18668	WEST BRANCH SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
10.290	4.250	20.041	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
602.209	1.158	519.854	1.153
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.19	0.116	0.20	0.702
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.200	1.313	Tsivoglou	5
Reach Travel Time (days)			
0.280			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.028	2.18	0.20	8.21
0.056	2.17	0.20	8.21
0.084	2.17	0.19	8.22
0.112	2.16	0.19	8.23
0.140	2.15	0.19	8.23
0.168	2.15	0.18	8.24
0.196	2.14	0.18	8.24
0.224	2.13	0.17	8.24
0.252	2.12	0.17	8.24
0.280	2.12	0.17	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
10D	18668	WEST BRANCH SUSQUEHANNA RIVER

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)
10.290	MRSA	PA0020273	4.250	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

Discharge Information

Instructions | Discharge | Stream

Facility: **Milton Regional Sewer Authority** NPDES Permit No.: **PA0020273** 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
4.25	556	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		842									
	Chloride (PWS)	mg/L		130									
	Bromide	mg/L		0.869									
	Sulfate (PWS)	mg/L		81.4									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		136									
	Total Antimony	µg/L		0.443									
	Total Arsenic	µg/L		8									
	Total Barium	µg/L	<	9.58									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L		188									
	Total Cadmium	µg/L	<	4									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.89									
	Total Copper	µg/L		10									
	Free Cyanide	µg/L	<	5									
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		60									
	Total Iron	µg/L		577									
	Total Lead	µg/L	<	8									
	Total Manganese	µg/L		79.2									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		50									
	Total Phenols (Phenolics) (PWS)	µg/L		94									
	Total Selenium	µg/L		20									
	Total Silver	µg/L		4									
	Total Thallium	µg/L	<	0.068									
	Total Zinc	µg/L		42									
	Total Molybdenum	µg/L		3.15									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									

Group 3	Carbon Tetrachloride	µg/L	<	0.51									
	Chlorobenzene	µg/L		0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.33									
	1,4-Dioxane	µg/L		14.9									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L	<	0.13									
	2,4-Dichlorophenol	µg/L	<	0.25									
	2,4-Dimethylphenol	µg/L	<	0.26									
	4,6-Dinitro-o-Cresol	µg/L	<	0.9									
	2,4-Dinitrophenol	µg/L	<	0.86									
	2-Nitrophenol	µg/L	<	0.25									
	4-Nitrophenol	µg/L	<	0.19									
	p-Chloro-m-Cresol	µg/L	<	0.4									
	Pentachlorophenol	µg/L	<	0.97									
	Phenol	µg/L	<	0.25									
	2,4,6-Trichlorophenol	µg/L	<	0.24									
Group 5	Acenaphthene	µg/L	<	0.26									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.13									
	Benzidine	µg/L	<	3.9									
	Benzo(a)Anthracene	µg/L	<	0.21									
	Benzo(a)Pyrene	µg/L	<	0.29									
	3,4-Benzofluoranthene	µg/L	<	0.31									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.15									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.34									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.14									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.19									
	Butyl Benzyl Phthalate	µg/L	<	0.38									
	2-Chloronaphthalene	µg/L	<	0.28									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.29									
	Chrysene	µg/L	<	0.45									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.28									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	0.13									
	Diethyl Phthalate	µg/L	<	0.27									
	Dimethyl Phthalate	µg/L	<	0.23									
	Di-n-Butyl Phthalate	µg/L	<	0.29									
	2,4-Dinitrotoluene	µg/L	<	0.77									

	2,6-Dinitrotoluene	µg/L	<	0.32									
	Di-n-Octyl Phthalate	µg/L	<	0.28									
	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.35									
	Fluorene	µg/L	<	0.25									
	Hexachlorobenzene	µg/L	<	0.25									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	0.22									
	Hexachloroethane	µg/L	<	0.26									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.25									
	Isophorone	µg/L	<	0.23									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L	<	0.26									
	n-Nitrosodimethylamine	µg/L	<	0.4									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.31									
	n-Nitrosodiphenylamine	µg/L	<	0.27									
	Phenanthrene	µg/L	<	0.21									
	Pyrene	µg/L	<	0.16									
	1,2,4-Trichlorobenzene	µg/L	<	0.27									
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											

Stream / Surface Water Information

Milton Regional Sewer Authority, NPDES Permit No. PA0020273, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **West Branch Susquehanna River**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	018668	10.29	433.6	6536			Yes
End of Reach 1	018668	5.01	426.8	6685.6			Yes

Q ***7-10***

Location	RMI	LFY (cfs/mi²)*	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	10.29	0.122										128	7		
End of Reach 1	5.01	0.122													

Q ***h***

Location	RMI	LFY (cfs/mi²)	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	10.29														
End of Reach 1	5.01														

Model Results

Milton Regional Sewer Authority, NPDES Permit No. PA0020273, 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)
10.29	797.39		797.39	6.575	0.00024	1.158	602.177	519.822	1.153	0.28	25108.384
5.01	815.64		815.6432								

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)
10.29	2553.00		2553.00	6.575	0.00024	1.928	602.177	312.296	2.204	0.146	11824.535
5.01	2603.994		2603.99								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.024 Analysis Hardness (mg/l): 235.96 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	2,973	
Total Antimony	0	0		0	1,100	1,100	4,361	
Total Arsenic	0	0		0	340	340	1,348	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	83,251	
Total Boron	0	0		0	8,100	8,100	32,111	
Total Cadmium	0	0		0	4.636	5.11	20.2	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	1150.940	3,642	14,439	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	64.6	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	377	
Total Copper	0	0		0	30.176	31.4	125	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	22	22.0	87.2	
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	162.171	244	965	Chem Translator of 0.666 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.53	Chem Translator of 0.85 applied
Total Nickel	0	0		0	968.032	970	3,845	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	14.083	16.6	65.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	258	
Total Zinc	0	0		0	242.530	248	983	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	11.9	
Acrylonitrile	0	0		0	650	650	2,577	
Benzene	0	0		0	640	640	2,537	
Bromoform	0	0		0	1,800	1,800	7,136	
Carbon Tetrachloride	0	0		0	2,800	2,800	11,100	
Chlorobenzene	0	0		0	1,200	1,200	4,757	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	71,358	
Chloroform	0	0		0	1,900	1,900	7,532	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	59,465	
1,1-Dichloroethylene	0	0		0	7,500	7,500	29,733	
1,2-Dichloropropane	0	0		0	11,000	11,000	43,608	
1,3-Dichloropropylene	0	0		0	310	310	1,229	
Ethylbenzene	0	0		0	2,900	2,900	11,497	
Methyl Bromide	0	0		0	550	550	2,180	
Methyl Chloride	0	0		0	28,000	28,000	111,002	
Methylene Chloride	0	0		0	12,000	12,000	47,572	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,964	
Tetrachloroethylene	0	0		0	700	700	2,775	
Toluene	0	0		0	1,700	1,700	6,739	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	26,958	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	11,893	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	13,479	
Trichloroethylene	0	0		0	2,300	2,300	9,118	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	2,220	
2,4-Dichlorophenol	0	0		0	1,700	1,700	6,739	
2,4-Dimethylphenol	0	0		0	660	660	2,616	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	317	
2,4-Dinitrophenol	0	0		0	660	660	2,616	
2-Nitrophenol	0	0		0	8,000	8,000	31,715	
4-Nitrophenol	0	0		0	2,300	2,300	9,118	
p-Chloro-m-Cresol	0	0		0	160	160	634	
Pentachlorophenol	0	0		0	8.723	8.72	34.6	

Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,824	
Acenaphthene	0	0		0	83	83.0	329	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,189	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.98	
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	118,930	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	17,840	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,070	
Butyl Benzyl Phthalate	0	0		0	140	140	555	
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	3,251	
1,3-Dichlorobenzene	0	0		0	350	350	1,388	
1,4-Dichlorobenzene	0	0		0	730	730	2,894	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	15,857	
Dimethyl Phthalate	0	0		0	2,500	2,500	9,911	
Di-n-Butyl Phthalate	0	0		0	110	110	436	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	6,343	
2,6-Dinitrotoluene	0	0		0	990	990	3,925	
1,2-Diphenylhydrazine	0	0		0	15	15.0	59.5	
Fluoranthene	0	0		0	200	200	793	
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	39.6	
Hexachlorocyclopentadiene	0	0		0	5	5.0	19.8	
Hexachloroethane	0	0		0	60	60.0	238	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	39,643	
Naphthalene	0	0		0	140	140	555	
Nitrobenzene	0	0		0	4,000	4,000	15,857	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	67,394	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,189	
Phenanthrene	0	0		0	5	5.0	19.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	515	

☑ ***CFC*** CCT (min): 720 PMF: 0.169 Analysis Hardness (mg/l): 147.87 Analysis pH: 7.00

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

	(µg/L)	CV	(µg/L)	Coef	(µg/L)	(µg/L)		
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	4,738	
Total Arsenic	0	0		0	150	150	3,231	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	88,304	
Total Boron	0	0		0	1,600	1,600	34,460	
Total Cadmium	0	0		0	0.323	0.36	7.79	Chem Translator of 0.893 applied
Total Chromium (III)	0	0		0	102.103	119	2,557	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	224	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	409	
Total Copper	0	0		0	12.510	13.0	281	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	112	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	183,421	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.842	5.23	113	Chem Translator of 0.734 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	19.5	Chem Translator of 0.85 applied
Total Nickel	0	0		0	72.407	72.6	1,564	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	107	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	280	
Total Zinc	0	0		0	164.565	167	3,595	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	64.6	
Acrylonitrile	0	0		0	130	130	2,800	
Benzene	0	0		0	130	130	2,800	
Bromoform	0	0		0	370	370	7,969	
Carbon Tetrachloride	0	0		0	560	560	12,061	
Chlorobenzene	0	0		0	240	240	5,169	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	75,382	
Chloroform	0	0		0	390	390	8,400	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	66,767	
1,1-Dichloroethylene	0	0		0	1,500	1,500	32,306	
1,2-Dichloropropane	0	0		0	2,200	2,200	47,383	
1,3-Dichloropropylene	0	0		0	61	61.0	1,314	
Ethylbenzene	0	0		0	580	580	12,492	
Methyl Bromide	0	0		0	110	110	2,369	
Methyl Chloride	0	0		0	5,500	5,500	118,457	
Methylene Chloride	0	0		0	2,400	2,400	51,690	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	4,523	

Tetrachloroethylene	0	0		0	140	140	3,015	
Toluene	0	0		0	330	330	7,107	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	30,153	
1,1,1-Trichloroethane	0	0		0	610	610	13,138	
1,1,2-Trichloroethane	0	0		0	680	680	14,646	
Trichloroethylene	0	0		0	450	450	9,692	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	2,369	
2,4-Dichlorophenol	0	0		0	340	340	7,323	
2,4-Dimethylphenol	0	0		0	130	130	2,800	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	345	
2,4-Dinitrophenol	0	0		0	130	130	2,800	
2-Nitrophenol	0	0		0	1,600	1,600	34,460	
4-Nitrophenol	0	0		0	470	470	10,123	
p-Chloro-m-Cresol	0	0		0	500	500	10,769	
Pentachlorophenol	0	0		0	6.693	6.69	144	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	1,960	
Acenaphthene	0	0		0	17	17.0	366	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,271	
Benzo(a)Anthracene	0	0		0	0.1	0.1	2.15	
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	129,226	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	19,599	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,163	
Butyl Benzyl Phthalate	0	0		0	35	35.0	754	
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	3,446	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,486	
1,4-Dichlorobenzene	0	0		0	150	150	3,231	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	17,230	
Dimethyl Phthalate	0	0		0	500	500	10,769	
Di-n-Butyl Phthalate	0	0		0	21	21.0	452	
2,4-Dinitrotoluene	0	0		0	320	320	6,892	
2,6-Dinitrotoluene	0	0		0	200	200	4,308	
1,2-Diphenylhydrazine	0	0		0	3	3.0	64.6	
Fluoranthene	0	0		0	40	40.0	862	
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	43.1	
Hexachlorocyclopentadiene	0	0		0	1	1.0	21.5	
Hexachloroethane	0	0		0	12	12.0	258	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	45,229	
Naphthalene	0	0		0	43	43.0	926	
Nitrobenzene	0	0		0	810	810	17,445	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	73,228	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,271	
Phenanthrene	0	0		0	1	1.0	21.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	560	

☑ ***THH*** CCT (min): 720 PMF: 0.169 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	121	
Total Arsenic	0	0		0	10	10.0	215	
Total Barium	0	0		0	2,400	2,400	51,690	
Total Boron	0	0		0	3,100	3,100	66,767	
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	86.2	
Dissolved Iron	0	0		0	300	300	6,461	
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	21,538	
Total Mercury	0	0		0	0.050	0.05	1.08	
Total Nickel	0	0		0	610	610	13,138	
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	5.17	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	64.6	

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	2,154	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	123	
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	711	
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	1,465	
Methyl Bromide	0	0		0	100	100.0	2,154	
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	1,228	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	2,154	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	215,376	
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	646	
2,4-Dichlorophenol	0	0		0	10	10.0	215	
2,4-Dimethylphenol	0	0		0	100	100.0	2,154	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	43.1	
2,4-Dinitrophenol	0	0		0	10	10.0	215	
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	86,150	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	1,508	
Anthracene	0	0		0	300	300	6,461	
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	4,308	

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	2.15	
2-Chloronaphthalene	0	0		0	800	800	17,230	
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	21,538	
1,3-Dichlorobenzene	0	0		0	7	7.0	151	
1,4-Dichlorobenzene	0	0		0	300	300	6,461	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	12,923	
Dimethyl Phthalate	0	0		0	2,000	2,000	43,075	
Di-n-Butyl Phthalate	0	0		0	20	20.0	431	
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	431	
Fluorene	0	0		0	50	50.0	1,077	
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	86.2	
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	732	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	215	
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	431	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	1.51	

☑ ***CRL*** CCT (min): 720 PMF: 0.247 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	
Acrylonitrile	0	0		0	0.06	0.06	5.81	
Benzene	0	0		0	0.58	0.58	56.2	
Bromoform	0	0		0	7	7.0	678	
Carbon Tetrachloride	0	0		0	0.4	0.4	38.7	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	77.5	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	92.0	
1,2-Dichloroethane	0	0		0	9.9	9.9	958	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	87.1	
1,3-Dichloropropylene	0	0		0	0.27	0.27	26.1	
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	1,936	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	19.4	
Tetrachloroethylene	0	0		0	10	10.0	968	
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	53.2	
Trichloroethylene	0	0		0	0.6	0.6	58.1	
Vinyl Chloride	0	0		0	0.02	0.02	1.94	
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	2.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	145	
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	0.01	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.097	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.01	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.097	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.97	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	2.9	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	31.0	
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	11.6	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.01	
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	4.84	
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	4.84	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	4.84	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	2.9	
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	0.008	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.97	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	9.68	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.097	
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	0.068	

n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.48	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	319	
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
Total Cadmium	0.28	0.43	7.79	12.2	19.5	µg/L	7.79	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	79.9	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	107	CFC	Discharge Conc > 10% WQBEL (no RP)

☐ ***Other Pollutants without Limits or Monitoring***

Discharge Information

Instructions | Discharge | Stream

Facility: **Milton Regional Sewer Authority** NPDES Permit No.: **PA0020273** 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
3.029	556	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		490.52									
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L		189.5									
	Total Barium	µg/L		3571.5									
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L		26.16									
	Total Chromium (III)	µg/L		86.35									
	Hexavalent Chromium	µg/L		86.35									
	Total Cobalt	µg/L											
	Total Copper	µg/L		10389									
	Free Cyanide	µg/L		15.6									
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		11593									
	Total Lead	µg/L		75.62									
	Total Manganese	µg/L											
	Total Mercury	µg/L		2.49									
	Total Nickel	µg/L		2758									
	Total Phenols (Phenolics) (PWS)	µg/L		99.15									
	Total Selenium	µg/L		35.21									
	Total Silver	µg/L		146.9									
	Total Thallium	µg/L											
	Total Zinc	µg/L		245.4									
	Total Molybdenum	µg/L		28.74									
	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	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L											
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

Stream / Surface Water Information

Milton Regional Sewer Authority, NPDES Permit No. PA0020273, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **West Branch Susquehanna River**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	018668	10.29	433.6	6536			Yes
End of Reach 1	018668	5.01	426.8	6685.6			Yes

Q ***7-10***

Location	RMI	LFY (cfs/mi²)*	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	10.29	0.122										128	7		
End of Reach 1	5.01	0.122													

Q ***h***

Location	RMI	LFY (cfs/mi²)	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	10.29														
End of Reach 1	5.01														

Model Results

Milton Regional Sewer Authority, NPDES Permit No. PA0020273, 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)
10.29	797.39		797.39	4.686	0.00024	1.159	601.344	518.922	1.151	0.28	25143.882
5.01	815.64		815.6432								

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)
10.29	2553.00		2553.00	4.686	0.00024	1.93	601.344	311.534	2.203	0.146	11790.525
5.01	2603.994		2603.99								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.024 Analysis Hardness (mg/l): 211 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	
Total Arsenic	0	0		0	340	340	1,753	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	108,283	
Total Cadmium	0	0		0	4.160	4.56	23.5	Chem Translator of 0.913 applied
Total Chromium (III)	0	0		0	1050.242	3,324	17,137	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	84.0	Chem Translator of 0.982 applied
Total Copper	0	0		0	27.159	28.3	146	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	113	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	144.100	211	1,089	Chem Translator of 0.682 applied
Total Mercury	0	0		0	1.400	1.65	8.49	Chem Translator of 0.85 applied
Total Nickel	0	0		0	880.674	882	4,550	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	11.620	13.7	70.5	Chem Translator of 0.85 applied
Total Zinc	0	0		0	220.611	226	1,163	Chem Translator of 0.978 applied

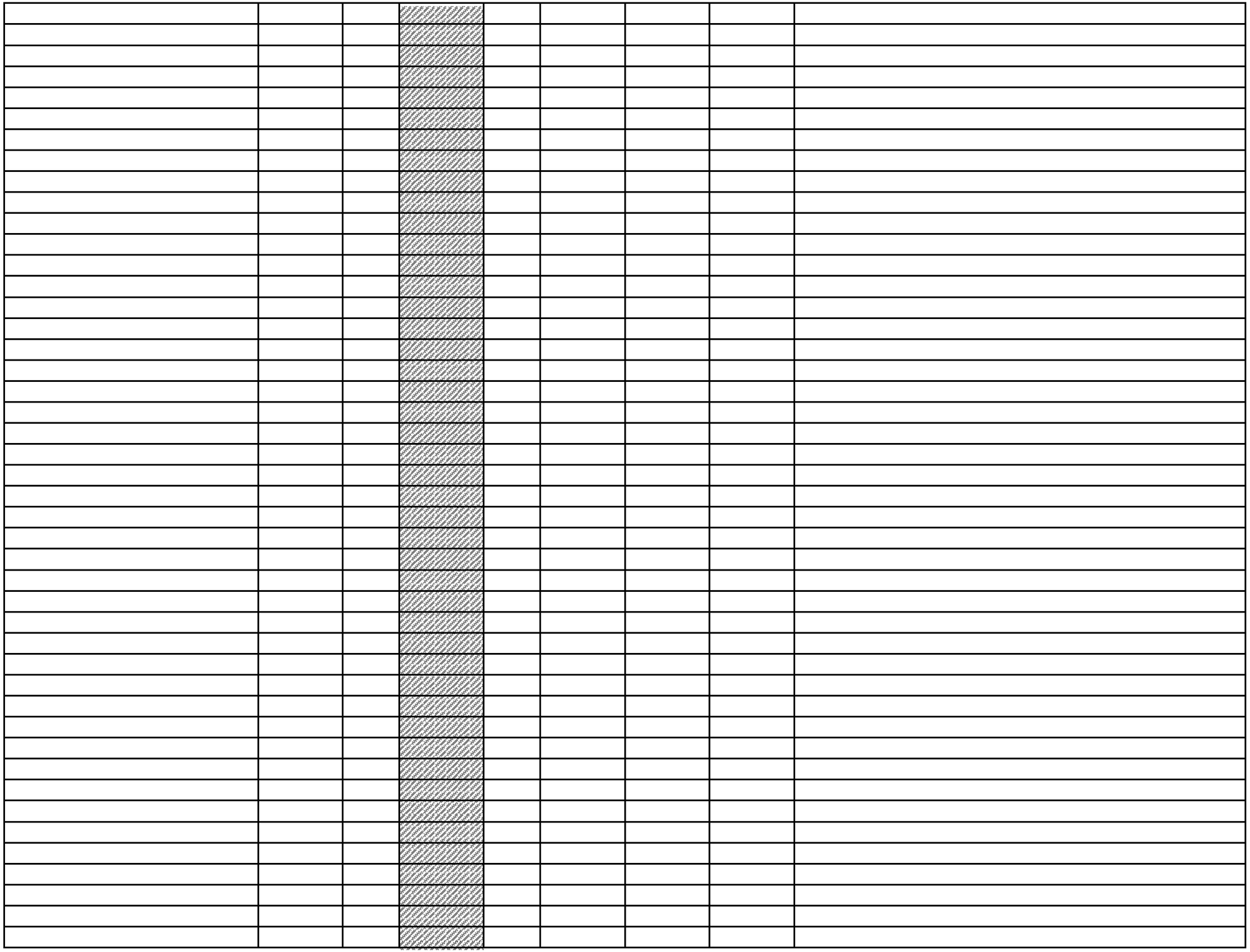
☑ ***CFC*** CCT (min): 720 PMF: 0.169 Analysis Hardness (mg/l): 142.36 Analysis pH: 7.00

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

	(µg/L)	CV	(µg/L)	Coef	(µg/L)	(µg/L)		
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	150	150	4,469	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	122,164	
Total Cadmium	0	0		0	0.314	0.35	10.5	Chem Translator of 0.894 applied
Total Chromium (III)	0	0		0	98.978	115	3,429	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	310	Chem Translator of 0.962 applied
Total Copper	0	0		0	12.111	12.6	376	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	155	
Total Iron	0	0		0	1,500	1,500	256,755	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.689	4.99	149	Chem Translator of 0.74 applied
Total Mercury	0	0		0	0.770	0.91	27.0	Chem Translator of 0.85 applied
Total Nickel	0	0		0	70.119	70.3	2,096	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	149	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Zinc	0	0		0	159.357	162	4,816	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.169 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	
Total Arsenic	0	0		0	10	10.0	298	
Total Barium	0	0		0	2,400	2,400	71,510	
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 Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	119	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.050	0.05	1.49	
Total Nickel	0	0		0	610	610	18,176	
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 Zinc	0	0		0	N/A	N/A	N/A	



☑ ***CRL***

CCT (min): 720 PMF: 0.247 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	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	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 Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	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 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 Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Arsenic	7.53	11.7	298	465	745	µg/L	298	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Cadmium	0.26	0.41	10.5	16.3	26.2	µg/L	10.5	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	1.36	2.12	53.8	84.0	135	µg/L	53.8	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	2.36	3.69	93.5	146	234	µg/L	93.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	3.75	5.86	149	232	372	µg/L	149	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Mercury	0.038	0.059	1.49	2.32	3.72	µg/L	1.49	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	52.9	82.6	2,096	3,269	5,239	µg/L	2,096	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	149	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	1.14	1.78	45.2	70.5	113	µg/L	45.2	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	746	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Total Barium	69,405	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	3,429	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	72.7	µg/L	Discharge Conc ≤ 25% WQBEL
Total Iron	256,755	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	N/A	N/A	PWS Not Applicable
Total Molybdenum	N/A	N/A	No WQS

Milton Regional Sewer Authority NPDES Permit No. PA0020273

Hauled In Waste Loadings per Industry and Pollutant

		Max Daily	Annual Tot	Annual Ave	**TDS??**		Arsenic		Barium		Cadmium	
Type of Waste	Sub-category	MGD	MGD	MGD	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day
Leachate		0.36	3	0.008219	60	180.1	0.3	0.90072	30	90.072	0.1	0.30024
Onlot Systems	Holding Tank	0.01	0.25	0.000685		0		0		0		0
	Septic Tank	0.05	3.5	0.009589		0		0		0		0
Portable Toilets		0.01	0.24	0.000658		0		0		0		0
Municipal	Liquid Sludge	0.05	2	0.005479		0	5	2.085		0	0.05	0.02085
	Dewatered Sludge	0.03	0.6	0.001644		0	5	1.251		0	1	0.2502
	Hydrostatic Test Water	0.15	1.3	0.003562		0		0		0		0
	Ink Washwater	0.01	0.08	0.000219		0		0		0		0
	Paint Washwater	0.005	0.03	8.22E-05		0		0		0		0
	Latex Paint Manufacturing	0.01	0.04	0.00011	40	3.336	0.25	0.02085		0	0.2	0.01668
	Stone Processing	0.003	0.05	0.000137	100	2.502		0		0		0
	Adhesive Washwater	0.01	0.05	0.000137		0		0		0		0
	Acid Pickling Washwater	0.004	0.5	0.00137		0		0		0		0
	Irrigation Runoff	0.013	0.5	0.00137		0		0		0		0
	Non ferrous Metals Forming	0.004	0.05	0.000137		0		0		0		0
Industrial	Abrasive Jet Cutting Water	0.004	0.07	0.000192		0		0		0		0
Grit Waste		0.001	0.02	5.48E-05	5	0.042		0		0		0
	Grease Trap	0.01	0.8	0.002192		0		0		0		0
	Animal Processing Waste	0.11	2	0.005479		0		0		0		0
	Pre-consumer Food Waste	0.281	4.55	0.012466		0		0		0		0
Grease Trap and	Post Consumer Food Waste	0.12	4	0.010959		0		0		0		0
High Strength	Landfill Gas Condensate	0.01	0.6	0.001644	4	0.334	5	0.417		0	0.2	0.01668
Totals		1.255	24.23	0.066384		186.4		4.67457		90.072		0.60465

Categories, Concentrations and Flowrates as provided in Application Appendix F

* - Concentration for Sludge Cyanide provided in mg/kg

Milton Regional Sewer Authority

Hauled In Waste Loadings per Industry and P

Type of Waste	Sub-category	Chromium		Copper		Cyanide*		Iron		Lead		N
		mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L
Leachate		0.2	0.60048	0.25	0.7506	0.05	0.15012	10	30.024	0.1	0.30024	0.001
Onlot Systems	Holding Tank		0		0		0		0		0	
	Septic Tank		0		0		0		0		0	
Portable Toilets			0		0		0		0		0	
Municipal	Liquid Sludge	0.5	0.2085	2	0.834	0.25	0.10425	600	250.2	0.5	0.2085	0.005
	Dewatered Sludge	5	1.251	1000	250.2	0.25	0.06255		0	5	1.251	0.2
	Hydrostatic Test Water		0		0		0	7	8.757		0	
	Ink Washwater		0		0		0		0		0	
	Paint Washwater		0		0		0		0		0	
	Latex Paint Manufacturing	0.5	0.0417	125	10.425		0		0	0.25	0.02085	0.05
	Stone Processing		0		0		0		0		0	
	Adhesive Washwater		0	0.5	0.0417	0.2	0.01668		0		0	
	Acid Pickling Washwater	0.5	0.01668		0		0		0		0	
	Irrigation Runoff				0		0		0		0	
	Non ferrous Metals Forming	0.5	0.01668		0		0		0		0	
Industrial	Abrasive Jet Cutting Water		0		0		0		0		0	
Grit Waste			0		0		0		0		0	
	Grease Trap		0		0		0		0		0	
	Animal Processing Waste		0		0		0		0		0	
	Pre-consumer Food Waste		0		0		0		0		0	
Grease Trap and	Post Consumer Food Waste		0		0		0		0		0	
High Strength	Landfill Gas Condensate	0.2	0.01668	0.2	0.01668	0.1	0.00834		0	0.2	0.01668	0.01
Totals			2.15172		262.26798		0.34194		288.981		1.79727	

Categories, Concentrations and Flowrates as prov

* - Concentration for Sludge Cyanide provided in

Milton Regional Sewer Authority

Hauled In Waste Loadings per Industry and P

		ercury	Nickel		Phenols		Selenium		Silver		Zinc	
Type of Waste	Sub-category	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day
Leachate		0.0030024	1.25	3.753	0.2	0.60048		0	0.1	0.30024	0.5	1.5012
Onlot Systems	Holding Tank	0		0		0		0		0		0
	Septic Tank	0		0		0		0		0		0
Portable Toilets		0		0		0		0		0		0
Municipal	Liquid Sludge	0.002085	0.2	0.0834	1.4	0.5838	1	0.417	5	2.085	7.5	3.1275
	Dewatered Sludge	0.05004	260	65.052	1.4	0.35028	1	0.2502	5	1.251	1.973	0.4936446
	Hydrostatic Test Water	0		0		0		0		0		0
	Ink Washwater	0		0		0		0		0		0
	Paint Washwater	0		0		0		0		0		0
	Latex Paint Manufacturing	0.00417	0.25	0.02085		0	0.5	0.0417		0	5	0.417
	Stone Processing	0		0		0		0		0		0
	Adhesive Washwater	0		0		0		0		0	1.5	0.1251
	Acid Pickling Washwater	0	0.5	0.01668		0		0		0		0
	Irrigation Runoff	0				0		0		0		0
	Non ferrous Metals Forming	0	0.5	0.01668		0		0		0		0
Industrial	Abrasive Jet Cutting Water	0		0		0		0		0		0
Grit Waste		0		0		0		0		0		0
	Grease Trap	0		0		0		0		0		0
	Animal Processing Waste	0		0		0		0		0		0
	Pre-consumer Food Waste	0		0		0		0		0		0
Grease Trap and	Post Consumer Food Waste	0		0		0		0		0		0
High Strength	Landfill Gas Condensate	0.000834	0.2	0.01668	7.5	0.6255		0	0.2	0.01668	0.2	0.01668
Totals		0.0601314		68.95929		2.16006		0.7089		3.65292		5.6811246

Categories, Concentrations and Flowrates as prov

* - Concentration for Sludge Cyanide provided in

Milton Regional Sewer Authority

Hauled In Waste Loadings per Industry and P

Type of Waste	Sub-category	Molybdenum	
		mg/L	lb/day
Leachate			0
Onlot Systems	Holding Tank		0
	Septic Tank		0
Portable Toilets			0
Municipal	Liquid Sludge	1	0.417
	Dewatered Sludge	1	0.2502
Industrial	Hydrostatic Test Water		0
	Ink Washwater		0
	Paint Washwater		0
	Latex Paint Manufacturing	0.25	0.02085
	Stone Processing		0
	Adhesive Washwater		0
	Acid Pickling Washwater		0
	Irrigation Runoff		0
	Non ferrous Metals Forming		0
	Abrasive Jet Cutting Water		0
Grit Waste			0
Grease Trap and High Strength	Grease Trap		0
	Animal Processing Waste		0
	Pre-consumer Food Waste		0
	Post Consumer Food Waste		0
	Landfill Gas Condensate		0
Totals			0.68805

Categories, Concentrations and Flowrates as prov

* - Concentration for Sludge Cyanide provided in

Milton Regional Sewer Authority NPDES Permit No. PA0020273

Net Hauled In Waste Loadings per Pollutant

Pollutant	TIW Loading lb/day	Application Average Concentration mg/L	Loading lb/day	Total Load lb/day	Total Conc. mg/L	TMS Limitation mg/L	Note
TDS	186.4	825	12203.9429	12390.34285	490.52485	N/A	PWS criteria
Arsenic	4.67457	0.00768	0.1136	4.78818	0.18956	0.298	
Barium	90.072	0.00958	0.1417	90.21371	3.57150	69.405	
Cadmium	0.60465	0.0038	0.0562	0.66086	0.02616	0.0105	
Chromium	2.15172	0.00199	0.0294	2.18116	0.08635	0.0538	CrIV
Copper	262.26798	0.00962	0.1423	262.41029	10.38864	0.0935	
Cyanide	0.34194	0.0035	0.0518	0.39371	0.01559	0.0727	Free Cyanide
Iron	288.981	0.261	3.8609	292.84188	11.59340	256.75	Total Fe
Lead	1.79727	0.00762	0.1127	1.90999	0.07562	0.149	
Mercury	0.0601314	0.000195	0.0029	0.06302	0.00249	0.00149	
Nickel	68.95929	0.04775	0.7063	69.66564	2.75801	2.096	
Phenols	2.16006	0.02329	0.3445	2.50458	0.09915	N/A	PWS criteria
Selenium	0.7089	0.0122	0.1805	0.88937	0.03521	0.149	
Silver	3.65292	0.00384	0.0568	3.70972	0.14687	0.0452	
Zinc	5.6811246	0.035	0.5177	6.19887	0.24541	0.746	
Molybdenum	0.68805	0.00256	0.0379	0.72592	0.02874	N/A	No criteria

Average Municipal Flow (MGD):	1.7737	
TIW Max Flow:	1.255	
Total Flow:	3.0287	Flow used in TMS
Design Flow:	4.25	

Sample Calculations

Source Max Daily Flow (MGD)	x	Source Max Concentration (mg/L) x 8.34*	=	Source Load	(lb/day)
∑ Source loads for a pollutant			=	Total TIW Pollutant Load	(lb/day)
Application Ave Conc. (mg/L)	x	Average Flow (MGD) x 8.34*	=	Municipal Pollutant Load	(lb/day)
TIW Pollutant Load (lb/day)	+	Municipal Pollutant Load (lb/day)	=	Total Pollutant Load	(lb/day)
∑ Max Daily Flows for each source (MGD)			=	TIW Max Flow	(MGD)
Average Facility Flow (MGD)	+	TIW Max Flow (MGD)	=	Total Flow	(MGD)
Total Pollutant Load (lb/day)	/	(Total Flow (MGD) x 8.34*)	=	Total Concentration	(mg/l)

* - 8.34 Lbs/Gal conversion factor

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.01
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name

Milton Regional Sewer Authority

Permit No.

PA0020273

Test Completion Date 8/13/2018

Replicate No.	Control	TIWC
1	1	1
2	1	0
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10

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

Test Completion Date 7/3/2019

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	0
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10

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

Test Completion Date 7/21/2020

Replicate No.	Control	TIWC
1	1	1
2	1	0
3	1	1
4	1	1
5	0	1
6	1	1
7	0	0
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	0.800	0.800
Std Dev.	0.422	0.422
# Replicates	10	10

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

Test Completion Date 5/31/2021

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

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

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.01
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name

Milton Regional Sewer Authority

Permit No.

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Replicate No.	Test Completion Date: 8/13/2018 Control	TIWC
1	24	34
2	23	16
3	27	15
4	31	29
5	23	31
6	23	23
7	24	16
8	21	21
9	30	27
10	31	28
11		
12		
13		
14		
15		
Mean	25.700	24.000
Std Dev.	3.743	6.815
# Replicates	10	10
T-Test Result	2.0272	
Deg. of Freedom	14	
Critical T Value	0.8681	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/3/2019 Control	TIWC
1	45	38
2	24	44
3	43	40
4	32	34
5	36	32
6	38	32
7	25	37
8	38	42
9	38	35
10	37	19
11		
12		
13		
14		
15		
Mean	35.600	35.300
Std Dev.	6.851	7.009
# Replicates	10	10
T-Test Result	3.1294	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/21/2020 Control	TIWC
1	32	10
2	0	0
3	33	34
4	15	27
5	0	25
6	15	28
7	0	0
8	33	48
9	25	40
10	35	5
11		
12		
13		
14		
15		
Mean	18.800	21.700
Std Dev.	14.786	17.043
# Replicates	10	10
T-Test Result	1.1820	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 5/3/2021 Control	TIWC
1	40	42
2	40	41
3	43	43
4	38	31
5	41	32
6	34	46
7	23	18
8	32	40
9	34	40
10	36	36
11		
12		
13		
14		
15		
Mean	36.100	36.900
Std Dev.	5.801	8.157
# Replicates	10	10
T-Test Result	3.3606	
Deg. of Freedom	15	
Critical T Value	0.8662	
Pass or Fail	**PASS**	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.01
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Milton Regional Sewer Authority

Permit No.

PA0020273

Replicate No.	Test Completion Date: 8/14/2018 Control	TIWC
1	10	10
2	10	9
3	10	7
4	9	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	9.000
Std Dev.	0.500	1.414
# Replicates	4	4
T-Test Result	2.2857	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/4/2019 Control	TIWC
1	10	10
2	9	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	10.000
Std Dev.	0.500	0.000
# Replicates	4	4
T-Test Result	12.5523	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/21/2020 Control	TIWC
1	10	10
2	9	10
3	8	10
4	9	9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.000	9.750
Std Dev.	0.816	0.500
# Replicates	4	4
T-Test Result	6.9446	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 5/4/2021 Control	TIWC
1	10	10
2	10	9
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	9.750
Std Dev.	0.000	0.500
# Replicates	4	4
T-Test Result	7.6643	
Deg. of Freedom	3	
Critical T Value	0.7649	
Pass or Fail	**PASS**	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.01
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

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Replicate No.	Test Completion Date: 8/14/2018 Control	TIWC
1	0.768	0.672
2	0.609	0.537
3	0.73	0.505
4	0.686	0.816
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.698	0.633
Std Dev.	0.068	0.142
# Replicates	4	4
T-Test Result	1.4404	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/4/2019 Control	TIWC
1	0.63	0.568
2	0.522	0.549
3	0.604	0.563
4	0.529	0.501
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.571	0.545
Std Dev.	0.054	0.031
# Replicates	4	4
T-Test Result	4.6060	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 7/21/2020 Control	TIWC
1	0.548	0.595
2	0.446	0.44
3	0.454	0.478
4	0.414	0.381
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.466	0.474
Std Dev.	0.058	0.090
# Replicates	4	4
T-Test Result	2.4846	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 5/4/2021 Control	TIWC
1	0.52	0.471
2	0.446	0.475
3	0.436	0.571
4	0.396	0.444
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.450	0.490
Std Dev.	0.052	0.056
# Replicates	4	4
T-Test Result	4.5190	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

WET Summary and Evaluation

Facility Name	Milton Regional Sewer Authority
Permit No.	PA0020273
Design Flow (MGD)	4.25
Q_{7-10} Flow (cfs)	800
PMF_a	0.24
PMF_c	0.498

		Test Results (Pass/Fail)			
		Test Date	**Test Date**	**Test Date**	**Test Date**
Species	**Endpoint**	8/13/18	7/3/19	7/21/20	5/31/21
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	**Test Date**	**Test Date**	**Test Date**
Species	**Endpoint**	8/13/18	7/3/19	7/21/20	5/3/21
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	**Test Date**	**Test Date**	**Test Date**
Species	**Endpoint**	8/14/18	7/4/19	7/21/20	5/4/21
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	**Test Date**	**Test Date**	**Test Date**
Species	**Endpoint**	8/14/18	7/4/19	7/21/20	5/4/21
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**	
TIWC	**2**	% Effluent
Dilution Series	**1, 2, 30, 60, 100**	% Effluent
Permit Limit	**None**	
Permit Limit Species		