Pennsylvania Department of Environmental Protection

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0026701**
Facility Type	**Municipal**	APS ID	**1134550**
Major / Minor	**Major**	Authorization ID	**1522164**

Applicant and Facility Information

Applicant Name	**Municipal Authority of Borough of Morrisville**	Facility Name	**Morrisville Borough STP**
Applicant Address	35 Union Street Morrisville, PA 19067-6246	Facility Address	95 Riverview Avenue Morrisville, PA 19067-1271
Applicant Contact	John Warenda	Facility Contact	Shawn Brosovich
Applicant Phone	(215) 295-8181	Facility Phone	(215) 347-4336
Client ID	64800	Site ID	449420
Ch 94 Load Status	Not Overloaded	Municipality	Morrisville Borough
Connection Status	No Limitations	County	Bucks
Date Application Received	April 4, 2025	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment, PCBs TMDL

Purpose of Application: Permit Renewal.

Summary of Review

The applicant has submitted renewal of an NPDES permit to discharge 7.1 MGD of annual average and 8.7 MGD of maximum monthly flow of treated sewage into Delaware River Estuary Zone 2. The Morrisville Borough STP serves Borough of Morrisville, Lower Makefield Township, and Yardley Borough. This permit renewal continues to approve acceptance of 120,000 (GPD) gallons per day (GPD) of landfill leachate from GROWS, GROWS North, and Tullytown landfills conveyed to Morrisville Borough STP for treatment as approved in DRBC Docket No. D-1987-008 CP-4 dated December 12, 2018. The last DRBC Docket No. D-1987-008 CP-5 approved on September 5, 2024 continues approval for the WWTP to receive up to 0.12 mgd of landfill leachate from the above sources, when operating according to the sliding scale in TABLE A-1 of the Docket.

Municipal Authority of Borough of Morrisville was required under DRBC Docket No. D-1987-008 CP-2, dated July 2011 to construct a new outfall into deeper water within Delaware River to gain better dilution of its effluent in order to meet DRBC's in-stream water quality requirements. The new outfall (002) is complete and has been use for about 10 years. However, at those times when the plant effluent flow exceeds the rate of 12.0 MGD (after days of heavy rainfall) or when the flows in the river are so high that they affect the elevation of the high tide, a diversion chamber will allow a portion of the effluent to overflow into existing 54-inch outfall (001) line via a weir in the diversion chamber. This overflow will occur because there will not be sufficient elevation difference between the elevation of effluent at the plant's chlorination tanks and the elevation in the river.

The treatment plant consists of an aerated grit chamber with a screening device, an influent pumping station, a splitter box, four primary settling tanks, four aeration tanks, ten final settling tanks, three rapid sand filters, six chlorine contact tanks, two sludge thickening tanks, and a mechanical sludge dewatering facility. The plant utilizes UNOX system to provide pure oxygen to the treatment process for the purpose of enhancing the biological removal of organics. The wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at landfill. Discharge is generally in compliance with existing NPDES permit limits.

Approve	Deny	Signatures	Date
X		Ketan Thaker Ketan Thaker / Project Manager	12/3/2025
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	12/4/2025

Summary of Review

The DRBC Docket No. D-1987-008 CP-4 was approved on December 12, 2018. This Docket approved acceptance of 120,000 (GPD) gallons per day (GPD) of landfill leachate. Previous Docket approved acceptance of 60,000 gpd of landfill leachate for treatment at STP. The DRBC Docket included the sliding scale that indicates the amount of leachate to be received at different inflows to the sewage treatment plant. This new Docket revised effluent limits for Total Dissolve Solids (1000 mg/l, av. mo. and 1500 mg/l, daily max) and True Color (100 Pt-Co, Av. Mo and 150 Pt-Co, I. Max). The Docket also replaced waste load allocation (1916 lbs/day) to the CBOD20 and 88.5 % of CBOD20 removal requirement and by applying it to CBO5. Compliance with the CBOD20 allocation can be demonstrated by meeting CBOD5 effluent load limit of 1302 lbs/day. Compliance with the 88.5% Zone 2 reduction requirement can be demonstrated by meeting the 88.5% CBOD5 requirement in the permit.

CONVENTIONAL PARAMETERS:

Effluent limits for most of the conventional parameters will remain the same in this permit renewal. The CBOD5 limit of 22 mg/l is based on waste load allocation for CBOD20 of 1916 lbs/day by DRBC for Morrisville Borough STP. Effluent limit of (1000 mg/l, av. mo. and 1500 mg/l, daily max) for Total Dissolved Solids (TDS) and (100 Pt-Co, Av. Mo and 150 Pt-Co, I. Max) for True Color will continue as per DRBC Docket. Effluent limit for Dissolved Oxygen was revised to 5.0 mg/l which is consistent with Chapter 93 minimum criteria for WWF streams. Review of the monitoring results shows this limit is achievable and no noncompliance is expected. Effluent limit for Ammonia was revised to 20 mg/l in the last permit renewal to maintain the current treatment quality while DRBC is working on an Ammonia criterion for Estuary. Mass limits are calculated based on annual average flow of 7.1 MGD. We have added monitoring for E. Coli for this permit renewal and is consistent with SOP.

TOXIC PARAMETERS:

Effluent limits for Total Copper and Total Zinc are calculated by DRBC using WQ Criteria for these parameters in Delaware River Estuary Zone-2 and Acute Dilution Factor using COMIX Model. Effluent limits for these parameters will stay the same in this permit renewal. Monitoring for Total Phenolics, 1,4 Dioxane, will continue because the Morrisville Borough is accepting 120,000 GPD of pretreated leachate form GROWS landfill. Monitoring for Dichlorobromomethane has been included for this permit renewal as it was detected at slightly elevated concentration in the effluent.

BIOMONITORING:

As per DRBC Toxic Waste Load Allocation program for Delaware River Estuary Zone 2, Final WLA of 4.0 TUc has been allocated to Morrisville Borough. The permittee is conducting quarterly Chronic Testing required by NPDES permit based on our SOP and also conducting quarterly Acute Testing required under DRBC Docket. The test results show no toxicity in the effluent. Quarterly monitoring for Chronic Toxicity will continue in this permit renewal.

PRETREATMENT PROGRAM:

The permittee shall operate and implement a POTW pretreatment program in accordance with the federal Clean Water Act, the Pennsylvania Clean Streams Law, and the federal General Pretreatment Regulations at 40 CFR Part 403. There is one Industrial user contributing wastewater to Morrisville Borough STP. The Industrial user Waste Management of PA with 120,000 gpd of pretreated leachate and up to 200,000 gpd of non- contact stormwater.

PCBs MONITORING & PMP PLAN:

On December 15, 2003, the U.S. Environmental Protection Agency (EPA), Regions 2 and 3, adopted a Total Maximum Daily Load (TMDL) for Polychlorinated Biphenyls (PCBs) for Zones 2, 3, 4, and 5 of the tidal Delaware River. The TMDLs require the facilities identified as discharging PCBs to these zones of the Delaware River or to the tidal portions of tributaries to these zones to conduct monitoring for 209 PCB congeners, and prepare and implement a PCB Pollutant Minimization Plan (PMP). Subsequent monitoring required by DRBC in 2005 confirmed the presence of PCBs, and indicates that this facility does contribute to 99 percent of the cumulative loadings from all point sources. This facility has been identified as a Group 2 dischargers with a rank within those facilities which contribute 99 percent cumulative loading to the Delaware River. The permittee shall collect two 24-hour composite samples annually during a wet weather flow

Summary of Review

and two 24-hour composite samples annually during a dry weather flow. The samples shall be collected from Outfall(s) 001 and 002.

Sludge use and disposal description and location(s): sludge will continue to be hauled off-site by a licensed hauler for disposal at landfill.

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	7.1
Latitude	40Âº 12' 17.51"	Longitude	-74Âº 45' 50.29"
Quad Name	Trenton West	Quad Code	1747
Wastewater Description:	Sewage Effluent,		

Receiving Waters	Delaware River	Stream Code	00002
NHD Com ID	25486800	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN,		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	LBCJMA		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	7.1
Latitude	40Âº 12' 17.13"	Longitude	-74Âº 45' 49.99"
Quad Name	Trenton West	Quad Code	1747
Wastewater Description:	Sewage Effluent		

Receiving Waters	Delaware River	Stream Code	00002
NHD Com ID	25486800	RMI	132.1600
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN,		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	LBCJMA		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11

Discharge, Receiving Waters and Water Supply Information

Outfall No.	MP 201	Design Flow (MGD)	7.1
Latitude	40Âº 12' 18.44"	Longitude	-74Âº 45' 51.01"
Quad Name	Trenton West	Quad Code	1747
Wastewater Description:	Sewage Effluent		
Receiving Waters	Delaware River	Stream Code	00002
NHD Com ID	25486800	RMI	132.1600
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN,		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	LBCJMA		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40Âº 12' 19.35"	Longitude	-74Âº 45' 51.70"
Quad Name	Trenton West	Quad Code	1747
Wastewater Description:	Stormwater		

Receiving Waters	Delaware River	Stream Code	00002
NHD Com ID	25486800	RMI	1.2100
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	2-E	Chapter 93 Class.	
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS),		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	LBCJMA		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	11

Treatment Facility Summary

Treatment Facility Name: Morrisville Borough STP

WQM Permit No.	Issuance Date
0987403	2/12/2016

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Activated Sludge with Solids Removal	Liquid Sodium Hypochlorite	7.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
8.7	18,410	Not Overloaded		Combination of methods

Compliance History

DMR Data for Outfall 002 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Average Monthly	3.206	3.544	4.554	5.152	5.666	5.362	4.393	4.02	3.926	3.773	3.483	3.514
Flow (MGD) Daily Maximum	3.637	4.061	5.619	6.491	8.001	6.496	5.19	4.987	4.361	4.624	4.131	4.008

DMR Data for Outfall 003 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
pH (S.U.) Daily Maximum										6.36		
CBOD5 (mg/L) Daily Maximum										905		
COD (mg/L) Daily Maximum										1100		
TSS (mg/L) Daily Maximum										38		
Oil and Grease (mg/L) Daily Maximum										< 5		
TKN (mg/L) Daily Maximum										1.38		
Total Phosphorus (mg/L) Daily Maximum										0.12		
Dissolved Iron (mg/L) Daily Maximum										1.94		

DMR Data for Outfall 201 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Average Monthly	3.206	3.544	4.554	5.152	5.666	5.362	4.393	4.02	3.926	3.773	3.483	3.514

Flow (MGD) Daily Maximum	3.637	4.061	5.619	6.491	8.001	6.496	5.19	4.987	4.361	4.624	4.131	4.008
pH (S.U.) Instantaneous Minimum	7.13	7.1	6.9	6.5	6.85	6.81	6.69	6.86	6.38	6.64	6.9	6.79
pH (S.U.) Instantaneous Maximum	7.24	7.33	7.19	7.07	7.03	6.98	7.08	7.02	7.05	7.14	7.0	7.02
DO (mg/L) Instantaneous Minimum	5.8	5.9	6.0	6.4	6.2	7.5	7.8	7.8	7.4	5.3	6.3	5.5
TRC (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02	< 0.02
TRC (mg/L) Instantaneous Maximum	< 0.02	0.03	0.03	< 0.02	0.04	0.03	0.04	0.04	0.22	0.04	0.06	0.03
Color (Pt-Co Units) Average Monthly	95	86	90	85	85	72	64	71	63	84	86	80
Color (Pt-Co Units) Instantaneous Maximum	100	95	100	100	100	85	70	84	75	100	96	100
CBOD5 (lbs/day) Average Monthly	432	447	442	448	683	367	323	323	326	400	445	445
CBOD5 (lbs/day) Raw Sewage Influent Average Monthly	5618	5329	6043	5909	6471	7001	7474	7324	6555	6974	6196	5526
CBOD5 (lbs/day) Weekly Average	499	574	631	521	927	419	356	373	502	440	505	557
CBOD5 (mg/L) Average Monthly	16	15	12	10	14	8	9	10	10	13	15	15
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	209.8	179.1	160.2	137.9	142.9	156.8	203.4	218.5	199.9	221.8	213.1	188.9
CBOD5 (mg/L) Weekly Average	18	18	19	12	17	10	10	10	14	15	18	19
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	6480	6052	6037	6068	6647	8379	6126	7605	6174	7055	5312	5357

BOD5 (mg/L) Raw Sewage Influent Average Monthly	235.7	194.3	155.5	137.2	155.9	184.6	163.3	228.4	192.2	212.6	182.3	186.7
CBOD5 % Removal (%) Percent Removal Minimum Monthly Average	92.20	91.41	92.63	92.35	89.01	94.52	95.53	95.40	94.92	94.00	92.59	91.90
TSS (lbs/day) Average Monthly	210	222	275	323	394	263	306	231	191	316	346	235
TSS (lbs/day) Raw Sewage Influent Average Monthly	7512	6648	6738	6250	6820	7430	10667	7723	6957	6927	6440	6542
TSS (lbs/day) Weekly Average	249	259	285	366	512	278	443	338	319	329	393	291
TSS (mg/L) Average Monthly	8	7	7	8	8	6	8	7	6	10	12	8
TSS (mg/L) Raw Sewage Influent Average Monthly	280.1	223.9	178	146.7	148.3	165.8	286.8	230.6	212.8	219	221.5	223
TSS (mg/L) Weekly Average	9	9	8	9	10	6	11	9	9	11	14	10
Total Dissolved Solids (mg/L) Average Monthly	628.0	666.0	668.0	635.0	665.0	645.0	538.0	763.0	588.0	651.0	703.0	758.0
Total Dissolved Solids (mg/L) Daily Maximum	700.0	750.0	770.0	770.0	780.0	770.0	670.0	860.0	620.0	720.0	770.0	840.0
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 2	5	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 3	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	13.4	33.1	29.5	51.2	3.1	2	2	2	3.1	10.9	124.6	16
Total Nitrogen (lbs/day) Average Monthly	1002	1006	1658	2008	1960	1564	1199	1330	1166	1521	1250	931
Total Nitrogen (mg/L) Average Monthly	37.1	32.2	41.8	45.6	44.6	34.8	32.2	39.8	35.9	48.1	43.7	31.9

Ammonia (lbs/day) Average Monthly	771	726	720	739	737	886	678	693	749	674	721	663
Ammonia (mg/L) Average Monthly	28.8	24.62	18.95	17.33	16.05	19.8	18.6	20.71	22.92	21.4	24.87	22.63
Total Phosphorus (lbs/day) Average Monthly	112	128	128	118	119	120	86	115	79	108	108	119
Total Phosphorus (mg/L) Average Monthly	4.12	4.1	3.23	2.68	2.72	2.66	2.36	3.46	2.44	3.48	3.77	4.07
Total Copper (lbs/day) Average Monthly	0.4	0.4	0.5	< 0.5	0.9	< 0.5	< 0.4	< 0.4	< 0.4	0.4	< 0.4	0.4
Total Copper (lbs/day) Daily Maximum	0.4	0.4	0.6	0.5	2.0	< 0.5	0.5	0.4	0.4	0.5	0.5	0.4
Total Copper (mg/L) Average Monthly	0.015	0.013	0.012	< 0.010	0.0198	< 0.010	< 0.010	< 0.010	< 0.010	0.010	< 0.010	0.010
Total Copper (mg/L) Daily Maximum	0.016	0.014	0.014	0.012	0.04	0.012	0.012	0.014	0.012	0.015	0.016	0.016
Total Zinc (lbs/day) Average Monthly	2	2	7	5.7	8	4	5	7	2	3	2	3
Total Zinc (lbs/day) Daily Maximum	1.7	2.2	11.2	8.0	11.1	4.5	7.1	16.1	2.7	4.6	2.4	4.3
Total Zinc (mg/L) Average Monthly	0.057	0.058	0.160	0.132	0.1935	0.090	0.130	0.210	0.070	0.100	0.080	0.110
Total Zinc (mg/L) Daily Maximum	0.059	0.068	0.276	0.18	0.287	0.116	0.168	0.441	0.083	0.127	0.083	0.143
1,4-Dioxane (mg/L) Average Monthly	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0052	0.0051	0.0052
Total Phenolics (lbs/day) Average Monthly	< 0.5	< 0.6	< 0.8	< 0.9	< 0.9	< 0.9	< 0.7	< 0.7	< 0.7	< 0.5	< 0.6	< 0.6
Total Phenolics (lbs/day) Daily Maximum	< 0.6	< 0.7	< 0.9	< 1	< 1	< 1	< 0.9	< 0.7	< 0.7	< 0.7	< 0.6	< 0.6
Total Phenolics (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.016	< 0.02	< 0.02
Total Phenolics (mg/L) Daily Maximum	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
PCBs (Dry Weather) (pg/L) Daily Maximum				13200						4270		
PCBs (Wet Weather) (pg/L) Daily Maximum				13200						6310		

Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum	100			100			100			100		
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum	100			100			100			100		
Chronic WET - Pimephales Survival (TUc) Daily Maximum	100			100			100			100		
Chronic WET - Pimephales Growth (TUc) Daily Maximum	100			100			100			100		

Development of Effluent Limitations

Outfall No. 002 and (MP 201) **Design Flow (MGD)** 7.1
Latitude 40º 12' 13.00" **Longitude** -74º 45' 58.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

A “reasonable potential analysis” determined the following are parameters of concern:

Effluent Parameter	Maximum Concentration in Application	Most Stringent Criterion (ug/l)	Max. Allowable Concentration using dilution factor (6.4)	Comments
Total Copper	8	9.0	9 X 6.4 = 57.6	67 Existing Limit *
Total Zinc	284	116	116 X 6.4 = 742.4	594 Existing Limit *
Dichlorobromomethane	3.0	0.95	0.95 X 6.4 = 6.08	Report **
Aluminum	70	750	750 X 6.4 = 4800	No Concern
Bromoform	0.5	7.0	7 X 6.4 = 44.8	No Concern
Chlorodibromomethane	1.3	0.8	0.8 X 6.4 = 5.12	No Concern
Chloroform	7.6	5.7	5.7 X 6.4 = 36.48	No Concern

All values are expressed as Micrograms per Liter (ppb). Dilution available in Delaware River Estuary
6.4 Dilution Factor Acute, 180.7 Dilution Factor Chronic (From CORMIX).

* Effluent limits for Total Copper and Total Zinc are calculated by DRBC using WQ Criteria for these parameters in Delaware River Estuary Zone-2 and Acute Dilution Factor using COMIX Model. Effluent limits for these parameters will stay the same in this permit renewal.
For Total Zinc, reported concentration is much less than the maximum allowable concentration, so there is no concern.

* *For Dichlorobromomethane, we have only three sample results. We do not have enough data to determine if there is reasonable potential to exceed WQ criteria. With quarterly reporting requirement for this permit renewal, will have enough data for next permit cycle to determine reasonable potential for this parameter.

For Aluminum, reported concentration is much less than the maximum allowable concentration, so there is no concern.

For, Chloroform and Chlorodibromomethane, reported concentration is much lower than maximum allowable concentration, so there is no concern.

Water Quality-Based Limitations

For the protection of aquatic life (acute)		dilution factor	6.4	
DRBC criteria derived using 74 mg/l of default hardness		PA criteria derived using 100 mg/l of default hardness		
	74		100	
DRBC (dissolved)	**DRBC (total)**	**PADEP (dissolved)**	**PADEP (total)**	
=0.908*EXP(0.9422*LN(74)-1.7)	=EXP(0.9422*LN(74)-1.7)	=0.96*EXP(0.9422*LN(100)-1.7)	=EXP(0.9422*LN(100)-1.7)	
9.6	10.5	13.4	14.0	Copper
=0.95*EXP(0.8473*LN(74)+0.884)	=EXP(0.8473*LN(74)+0.884)	=0.978*EXP(0.8473*LN(100)+0.884)	=EXP(0.8473*LN(100)+0.884)	
88.2	92.8	117.2	119.8	Zinc
61.3	67.5	86.0	89.6	Copper
564.4	594.2	750.0	766.8	Zinc

Following are effluent limits:

PARAMETER	EFFLUENT LIMITS (av. mo. mg/l)	BASIS
CBOD5	22.0	DRBC Docket No. D-1987-008-CP-4
Total Suspended Solids	30.0	25 Pa Code 92a.47
Ammonia-Nitrogen	20.0	DRBC
Total Dissolved Solids	1000	DRBC Docket No. D-1987-008-CP-5
pH (S.U)	6.0 to 9.0 SU	25 Pa Code 92a.47, 95.2
Dissolved Oxygen	5.0	25 Pa Code 93.7
Total Residual Chlorine	0.5	25 Pa Code 92a.47-48
Total Nitrogen	Report	25 Pa Code 92a.61
Total Phosphorus	Report	25 Pa Code 92a.61
Fecal Coliform (#/100 ml)	200 Geo Mean	25 Pa Code 92a.47
Chronic Toxicity (TUc)	Report	DRBC Docket No. D-1987-008-CP-5
PCBs	Report	DRBC Docket No. D-1987-008-CP-5
Color (Pt-Co Units)	100	DRBC Docket No. D-1987-008-CP-5
Total Copper	0.067	DRBC Docket No. D-1987-008-CP-5
Total Zinc	0.59	DRBC Docket No. D-1987-008-CP-5
1, 4 Dioxane	Report	SOP
Total Phenolics	Report	SOP
Dichlorobromomethane	Report	SOP
E. Coli	Report	25 Pa Code 92a.47
PFOA (ng/L)	Report	SOP for PFAS related compounds
PFOS (ng/L)	Report	SOP for PFAS related compounds
PFBS (ng/L)	Report	SOP for PFAS related compounds
HFPO-DA (ng/L)	Report	SOP for PFAS related compounds

Whole Effluent Toxicity (WET)

WET Summary and Evaluation

Facility Name	Morrisville Borough STP
Permit No.	PA0026701
Design Flow (MGD)	7.1
Q_{7-10} Flow (cfs)	2516
PMF_a	0.024
PMF_c	0.785

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/5/24	4/15/24	7/29/24	10/22/24
Ceriodaphnia	Reporduction	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/5/24	4/15/24	7/29/24	10/22/24
Ceriodaphnia	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/6/24	4/16/24	7/30/24	10/22/24
Pimephales	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/6/24	4/16/24	7/30/24	10/22/24
Pimephales	Growth	Pass	Pass	Pass	Pass

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**1** % Effluent
Dilution Series	**1, 2, 30, 60, 100** % Effluent

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Total Monthly	Daily Maximum	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
Duration of Discharge (minutes)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Recorded

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TKN	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall MP 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	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
Color (Pt-Co Units)	XXX	XXX	XXX	100	XXX	150	1/week	Grab
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
CBOD5	1302	1954	XXX	22	33 Wkly Avg	44	1/day	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
CBOD5 % Removal (%) Percent Removal	XXX	XXX	XXX	88.50 Min Mo Avg	XXX	XXX	1/week	24-Hr Composite
TSS	1775	2665	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	1500.0	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab

Outfall 201 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia	1184	XXX	XXX	20.0	XXX	40	1/day	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Copper	4.0	5.9 Daily Max	XXX	0.067	0.10	0.135	1/month	24-Hr Composite
Total Zinc	35	52.7 Daily Max	XXX	0.594	0.89	1.18	1/month	24-Hr Composite
1,4-Dioxane	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Phenolics, Total	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Dichlorobromo-methane	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	24-Hr Composite
PCBs (Dry Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	Grab
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

Outfall 201 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Chronic WET - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Chronic WET - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite