

Application Type Renewal  
Facility Type Municipal  
Major / Minor Major

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0021601  
APS ID 20281  
Authorization ID 1468755

**Applicant and Facility Information**

Applicant Name	<u>Hamburg Borough Municipal Authority Berks County</u>	Facility Name	<u>Hamburg STP</u>
Applicant Address	<u>61 N 3rd Street Hamburg, PA 19526-1501</u>	Facility Address	<u>Front And Pine Streets Hamburg, PA 19526</u>
Applicant Contact	<u>Stan Henne, Authority Chair* (610) 562-7821 <a href="mailto:Stanhenne@comcast.net">Stanhenne@comcast.net</a> (newest) admin@hamburgboro.com</u>	Facility Contact	<u>Kyle Chelius, Superintendent (610) 562-7821 Kchelius.hma@hamburgboro.com</u>
Applicant Phone	<u>64648</u>	Facility Phone	<u>262948</u>
Client ID	<u>64648</u>	Site ID	<u>262948</u>
Ch 94 Load Status	<u></u>	Municipality	<u>Hamburg Borough</u>
Connection Status	<u></u>	County	<u>Berks</u>
Date Application Received	<u>January 18, 2024</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>January 25, 2024</u>	If No, Reason	<u>Major Facility</u>
Purpose of Application	<u>Renewal of NPDES permit</u>		

\* consultant: Nicolas Volk, Systems Design Engineering, Inc. [n.volk@sdei.net](mailto:n.volk@sdei.net) 610-916-8500

**Summary of Review**

The existing permit was issued July 25, 2019 and administratively extended past its expiration date of July 31, 2024. The renewal application was received on January 18, 2024 using DEP's electronic upload system, Reference ID #202427. Responses to DEP's Pre-Draft Survey were forwarded by email on November 12, 2024. Lab results pages for October 2023 effluent samples were forwarded by email on November 14, 2024.

This Sewage Treatment Plant (STP) serves Hamburg Borough, Windsor Township, and Tilden Township. According to their application, they have no industrial users.

Design Flow

The existing permit's limits were based on a design flow of 1.5 MGD. The renewal application did not propose any change to the design flow, nor do their Discharge Monitoring Reports (DMRs) indicate a need for a higher design flow. The draft renewal permit includes the same design flow of 1.5 MGD.

DMRs from the last 3 years (9/1/2021-9/30/2024) indicate an average flow of 0.73 MGD and a Maximum Monthly Average flow of 1.25 MGD.

Approve	Deny	Signatures	Date
x		<i>Bonnie Boylan</i> Bonnie Boylan / Environmental Engineering Specialist	November 15, 2024
x		<i>Daniel W. Martin</i> Daniel W. Martin, P.E. / Environmental Engineer Manager	November 26, 2024
x		<i>Maria D. Bebenek</i> Maria D. Bebenek, P.E. / Environmental Program Manager	November 26, 2024

**Summary of Review**

Combined Sewers

Not Applicable

EPA Pretreatment Program

Not applicable. There are no industrial users.

Hauled-in Wastes

None and none intended for next 5 years according to their application

Variances

There were no variances requested.

Sludge use and disposal

Sludge is dewatered using a belt filter press. The sludge cake is disposed at a landfill or at (offsite) Pretreatment Plant or at another wastewater treatment plant.

Delaware River Basin Commission (DRBC)

The discharge is within the Delaware River watershed. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from the DRBC will be considered. The most recent DRBC docket #D-1992-073 CP-6 was approved for this facility on September 5, 2024 and expires on July 31, 2029.

Outstanding Violations

There are no outstanding violations for this client according to DEP's Compliance History Summary report.

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.	<u>001</u>	Design Flow (MGD)	<u>1.5</u>
Latitude	<u>40° 33' 07" (appl. &amp; DRBC docket)</u>	Longitude	<u>-75° 59' 31" (appl &amp; docket)</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Schuylkill River (WWF)</u>	Stream Code	<u>00833</u>
NHD Com ID	<u>25975432</u>	RMI	<u>98.9 (eMapPA)</u>
Drainage Area	<u>346 mi<sup>2</sup> (USGS PA Strm Stats)</u>	Yield (cfs/mi <sup>2</sup> )	<u>0.24</u>
Q <sub>7-10</sub> Flow (cfs)	<u>82.6</u>	Q <sub>7-10</sub> Basis	<u>USGS PA Stream Stats</u>
Elevation (ft)	<u>340</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>3-B</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u>-</u>	Existing Use Qualifier	<u>-</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Polychlorinated Biphenyls (PCBs)</u>		
Source(s) of Impairment	<u>Unknown</u>		
TMDL Status	<u>EPA Approved, Final as of 4/7/2007</u>	Name	<u>Schuylkill River PCB TMDL</u>
Background/Ambient Data		Data Source	
pH (SU)	<u></u>	<u></u>	
Temperature (°F)	<u></u>	<u></u>	
Hardness (mg/L)	<u></u>	<u></u>	
Other:	<u></u>	<u></u>	
Nearest Downstream Public Water Supply Intake	<u>Pottstown Boro PWS</u>		
PWS Waters	<u>Schuylkill River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>Approx. 57</u>	Distance from Outfall (mi)	<u>&gt; 40 miles</u>

Other Comments:

No other STPs in proximity to include in models. Closest downstream STP is Shoemakersville Boro, 7 miles away.

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Hamburg STP				
<b>WQM Permit No.</b>		<b>Issuance Date</b>		
0605412 A-1		11/22/2017		
0605412		11/4/2005		
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Sewage	Secondary With Ammonia Reduction	Oxidation Ditch	Gas Chlorine	1.5
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
1.5	3753		Gravity Thickening	Other WWTP

The application described the treatment facility thus:

“Nitrification and Denitrification are handled biologically through the secondary treatment process with the fixed film and oxidation ditch. Phosphorus is handled chemically through flocculation by the alum and is also biologically reduced in the oxidation ditch.

...The new wastewater treatment plant was brought online at the end of 2006 and consists of a fine bubble aeration system and two (2) oxidation ditches, capable of operating as three separate units, with flow division box to three (3) clarifiers, and chlorination / de-chlorination contact tanks before final discharge of effluent to the Schuylkill River. The wasted sludge is pumped from the clarifiers to one of three (3) aeration tanks for storage until an adequate quantity can be sent to the filter press for dewatering and final removal from the plant.

...Piping is also configured as to allow the oxidation ditch or the fine bubble aeration tank to be bypassed entirely.

...The effluent from the oxidation ditch/fine bubble aeration flows by gravity via a new flow division box into three circular clarifiers consisting of one (1) 40-foot diameter and two (2) 45-foot diameter circular clarifiers. Compensation for the differential flow rates to the clarifiers is provided by adjustable weir gates of flow proportioned widths.

...Residual chlorine levels are continuously monitored by an analyzer, which provides a signal to the chlorination feed controller unit. Effluent flow rates are monitored by an ultrasonic flow meter, which likewise feeds a proportional signal to the controller unit. Gaseous chlorine is dispensed from a one (1) ton primary source tank to the injector unit. Two (2) one-hundred fifty (150) pound cylinders are provided for system backup.

...Gaseous sulfur dioxide is utilized as the means to provide de-chlorination prior to plant discharge. A flow-proportional signal from the ultrasonic flow meter to the de-chlorination feed controller is utilized for metering the required feed rate

...For extreme flows:

The operator directs all of the influent into the middle channel of the oxidation ditch and all of the RAS into the outer channel. This is done to prevent washout of the activated sludge.”

EXISTING PERMIT LIMITS, OUTFALL 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	312	500	XXX	25	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	375	563	XXX	30	45	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10,000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia	250	XXX	XXX	20	XXX	40	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
PCBs (Dry Weather) (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite

Compliance History

DMR Data for Outfall 001 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly	0.666	0.568	0.507	0.685	0.957	0.999	0.724	1.246	1.091	0.551	0.562	0.801
Flow (MGD) Daily Maximum	1.464	0.737	0.743	1.059	3.745	2.289	1.29	4.074	4.021	1.291	0.796	2.051
pH (S.U.) Daily Minimum	6.99	7.22	7.0	7.02	7.04	7.01	7.19	6.76	7.05	7.14	7.2	7.24
pH (S.U.) Daily Maximum	7.67	7.57	7.51	7.65	7.78	7.44	7.51	7.45	7.59	7.65	7.61	7.76
DO (mg/L) Daily Minimum	7.3	5.5	6.7	6.46	6.9	6.22	8.1	5.9	5.6	8.2	7.7	6.7
TRC (mg/L) Average Monthly	0.05	< 0.03	0.05	< 0.04	0.03	0.07	0.037	0.06	0.07	0.05	0.09	0.19
TRC (mg/L) Instantaneous Maximum	0.40	0.12	0.6	0.57	0.27	0.59	0.059	0.43	0.6	0.39	0.44	0.96
CBOD5 (lbs/day) Average Monthly	< 15	< 12	13	< 15	< 25	< 17	< 14	< 36	< 66	< 22	< 14	32
CBOD5 (lbs/day) Weekly Average	20	< 15	16	< 22	65	< 22	< 18	< 75	178	52	24	54
CBOD5 (mg/L) Average Monthly	< 2.0	< 3	3	< 3	< 3	< 2.0	< 2	< 3	< 5	< 4	< 3	5
CBOD5 (mg/L) Weekly Average	< 3.0	< 4.0	4	4	3.0	3.0	< 2	4	10	8	6	5
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	1098	1259	1056	1047	1423	1191	1398	1423	1138	1357	968	950
BOD5 (lbs/day) Raw Sewage Influent   Daily Maximum	1263	2538	1446	1628	2726	1415	2275	2914	1848	3022	1361	1304
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	193	251	237	184	192	161	221	150	132	245	192	140
TSS (lbs/day) Average Monthly	< 30	< 19	< 28	< 27	< 57	< 34	< 25	< 63	< 93	< 24	< 32	< 55

**NPDES Permit Fact Sheet  
Hamburg STP**

**NPDES Permit No. PA0021601**

TSS (lbs/day) Raw Sewage Influent   Average Monthly	1146	1234	1017	935	1516	1110	1231	1483	1400	1441	1085	1209
TSS (lbs/day) Raw Sewage Influent   Daily Maximum	1506	2548	1644	1398	3005	1492	1762	2781	2470	2783	1747	1575
TSS (lbs/day) Weekly Average	< 38	< 22	34	< 32	177	43	< 33	< 146	243	< 39	68	110
TSS (mg/L) Average Monthly	< 5	< 4.0	< 7	< 5	< 5	< 4.0	< 4	< 5	< 7	< 5	< 7	< 8
TSS (mg/L) Raw Sewage Influent   Average Monthly	203	247	229	160	194	145	195	154	162	267	216	175
TSS (mg/L) Weekly Average	< 8	< 5.0	8	6	8	6	< 4	< 6	14	< 6	16	16
Total Dissolved Solids (mg/L) Average Quarterly			437.0			398.7			410.2			410.0
Fecal Coliform (No./100 ml) Geometric Mean	44	32	23	9	14	< 3.0	4	< 8	13	< 3	9	< 6
Fecal Coliform (No./100 ml) Instantaneous Maximum	381	92	47	17	20000	6	20	124	2700	7	180	18
Total Nitrogen (mg/L) Daily Maximum			19.2			13.1			21.5			24.3
Ammonia (lbs/day) Average Monthly	< 30	< 0.5	< 0.4	< 0.6	< 1	< 1.0	< 0.6	< 5	< 13	< 0.5	< 0.4	< 0.7
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.15	< 0.1	< 0.1	< 0.29	< 0.88	< 0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Daily Maximum			5.29			2.68			5.44			5.5
PCBs (Dry Weather) (ng/L) Daily Maximum									5670			
PCBs (Wet Weather) (ng/L) Daily Maximum									1040			

**Compliance History**

**Effluent Violations for Outfall 001, from January 1, 2021 to October 31, 2024:**

Parameter	Date	Statistical Base Code (SBC)	DMR Value	Units	Limit Value	Units
Fecal Coliform	04/30/24	Instant. Maximum	20000	No./100 ml	10000	No./100 ml
Dissolved Oxygen	10/30/2021	Daily Minimum	4	mg/l	5	mg/l
Total Residual Chlorine	8/31/2021	Instant. Maximum	2.4	mg/l	1.6	mg/l
Fecal Coliform	6/30/2021	Instant. Maximum	2500	No./100 ml	1000	No./100 ml

DEP Inspections:

7/13/2023 - No violations.

3 Pump Stations (PS's). View from outfall: appears clear with no foam or algae upstream. Outfall is very well maintained and accessible. Effluent is clear, with no foaming, or color tint. View from outfall downstream: appears clear with no noticeable foam, algae or turbidity. Have High Flow Management Plan for > 2 MGD. Uses MasterGuard 1048 for Total Phosphorus reduction.

6/15/2021 – No violations. Ridgelawn PS, Edinburg PS and Pine Street influent PS. Effluent samples are collected post Chlorine Contact Tank.

Field measurements were taken: values within permit limits. Effluent samples were collected and analyzed: concentrations were less than permit limits.

**Development of Effluent Limitations**

<b>Outfall No.</b> <u>001</u>	<b>Design Flow (MGD)</b> <u>1.5</u>
<b>Latitude</b> <u>40° 33' 7"</u>	<b>Longitude</b> <u>-75° 59' 31"</u>
<b>Wastewater Description:</b> <u>Sewage Effluent</u>	

DEP separately determines applicable Technology-Based Effluent Limitations (TBELs), Best Professional Judgement limitations (BPJ), and, as needed, Water Quality-Based Effluent Limitations (WQBELs), compares these to existing permit limits, and decides which to impose as permit limits for the renewal permit.

**Technology-Based Effluent Limitations (TBELs)**

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC*
CBOD <sub>5</sub>	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 (TSS)	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	Instant.Max.	-	92a.47(a)(4)	
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geometric Mean	-	92a.47(a)(5)	
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	Instant.Max.	-	92a.47(a)(5)	
Total Residual Chlorine (TRC)	0.5	Average Monthly	-	92a.48(b)(2)	
Total Dissolved Solids (TDS)	1000**	Average Monthly			18 CFR Part 410
Ammonia (NH <sub>3</sub> )	20	Average Monthly			18 CFR Part 410

\*DEP has an interagency agreement with the Delaware River Basin Commission and incorporates their requirements (18 CFR Part 410 Water Quality Regulations and approved dockets) into our permits where appropriate.

\*\*Or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers (i.e. a limit based on a TDS Determination submitted to DRBC proving that the discharge will not cause the TDS in the receiving water to exceed the lesser of 500 mg/l or 133% of background. The DRBC docket for this facility does not include such a TDS variance).

The above TBELs have been imposed in the draft renewal permit for **CBOD<sub>5</sub>, TSS, pH, Fecal Coliform, TRC, TDS, and Ammonia**. The existing permit included the same limits for these parameters.

**Best Professional Judgment (BPJ) Limitations**

None needed.

**Water Quality-Based Effluent Limitations (WQBELs)**

For determining WQBELs, DEP relies on models (discussed below) and water quality criteria promulgated in Pa Code Chapter 93. The following limitations were determined through water quality modeling (input values used and output files attached) and have been included in the renewal permit:

Parameter	Limit (mg/l)	Statistical Base Code	Model
Total Residual Chlorine	0.5 / 1.6 *	Avg. Monthly / IMAX	TRC Excel Spreadsheet
Dissolved Oxygen	5.0	Instant. Min.	WQM 7.0
CBOD5	25 *	Avg. Monthly	WQM 7.0
Ammonia (NH3-N)	20 *	Avg. Monthly	WQM 7.0

\*Note: the models defaulted to TBELs because the TBELs are considered protective of the receiving water and no WQBELs are needed.

Parameter	units	Average Monthly	Daily Maximum	Instant. Maximum	Model
Bis(2-Ethylhexyl)Phthalate	ug/l	48.8	76.2	122	Toxics Management Spreadsheet (TMS)
Hexachlorobutadiene	ug/l	1.53	2.38	3.82	Toxics Management Spreadsheet (TMS)

In addition, the TMS model recommended a monitoring requirement for **Total Copper** and for **1,2,4-Trichlorobenzene**.

There were no detects reported in the effluent (or the influent) for **Hexachlorobutadiene** or **1,2,4-Trichlorobenzene**. The model recommended limits for Hexachlorobutadiene and a monitoring requirement for 1,2,4-Trichlorobenzene because the applicant, according to their originally submitted application, reported their three effluent samples results as '< Reporting Level (RL)' and the RLs provided were less sensitive than DEP's Target Quantitation Limits (TQLs). However, the permittee produced lab results pages on November 14, 2024 which proved that both **Hexachlorobutadiene and 1,2,4-Trichlorobenzene** were non-detects in the three effluent samples collected and analyzed for the renewal application using a RL of 0.5 ug/l. The TMS was re-run for these two parameters with the new information to illustrate that the above limit for Hexachlorobutadiene and the above monitoring requirement for 1,2,4-Trichlorobenzene were no longer recommended by the model (results attached).

For the proposed new WQBEL(s), a Pre-Draft Survey was sent to the permittee, in accordance with DEP standard operating procedures (SOP's) when new WQBELs are proposed for an existing discharger and it is unclear if the facility will be able to meet the new limits immediately. After considering the responses in the Pre-Draft Survey, the draft renewal permit includes a three-year compliance schedule for the permittee to meet the new WQBELs for **Bis(2-Ethylhexyl) Phthalate**. A compliance schedule is considered appropriate because the average concentration and the range of concentrations of this parameter in the discharge is uncertain, the sources are unknown, and new treatment could be needed to achieve the limits. Also, DEP's SOP 'Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers' recommends that permittees be given the opportunity to forward site-specific data to replace any default values used in DEP's model simulations in order to refine the WQBELs. This option has been included in the Part C Conditions of the draft renewal permit. If the data is collected and forwarded to DEP, it will be reviewed and considered. Any changes to the permit limits would require a permit amendment, with due process: issuance of a draft permit, a public notice, a mandatory 30-day comment period, and issuance of a final permit. DEP's workload and staffing levels were also considered in proposing three years as the compliance schedule, especially since DEP may have to prepare multiple permit amendments for multiple facilities for changes to permit limits based on WQBELs.

DEP uses a model known as WQM 7.0 to determine appropriate limits for **CBOD5, Ammonia (NH3-N), and Dissolved Oxygen (DO)**. For more explanation of the WQM 7.0 model, see Technical Reference Guide WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, document #386-2000-016. (For discussion of determining Ammonia limits, also see DEP's Implementation Guidance for Section 93.7 Ammonia Criteria, document #386-2000-022).

The source of the River Mile Indices (RMI's) and elevations that were used in the WM 7.0 model (and TMS model discussed below) was DEP's eMapPA while the source of the Drainage Areas and stream design low-flows (Q7-10) was the USGS PA Stream Stats online tool (see attached). Low Flow Yield (LFY) is calculated as stream low-flow Q7-10 divided by Drainage Area of the stream at the outfall location.

The WQM 7.0 model does not account for partial mixing. Because the receiving water in this case is the wide Schuylkill River, it is not expected that full mixing across the River would happen within the first minutes whereas the water quality criteria for aquatic life is applied within the first minutes, either 15 minutes or complete mix time, whichever is less. To adjust for partial mixing and improve the accuracy of the results, the acute Partial Mix Factor calculated by the TMS model was multiplied by the Q7-10 value, thus reducing the LFY input value in the WQM 7.0 model simulation.

Default values used in the WQM 7.0 model in the absence of site-specific data include:

- Stream pH = 7 s.u.
- Stream Temperature = 25°C
- Discharge pH = 7 s.u.
- Discharge Temperature = 25°C
- Background Concentration of CBOD5 = 2.0 mg/l
- Background Concentrations of DO = 8.24 mg/l
- Fate Coefficients

In addition, the following values were estimated by the model: slope and velocity.

The WQM 7.0 model indicated that the existing permit limits for CBOD5 and Ammonia (TBELs) are protective of water quality.

The WQM 7.0 model used a minimum limit of 5.0 mg/l for DO. The permit limit of 5.0 mg/l for DO in the draft renewal permit is the same as the DO limit in the existing permit.

DEP's uses a TRC model (Excel spreadsheet) consistent with DEP's Implementation Guidance for TRC, document #386-2000-011. The TRC model indicated that the existing permit limits for **TRC** (TBELs) are protective of water quality.

DEP uses a model called the Toxics Management Spreadsheet (TMS) for toxic pollutants. It is a macro-enabled Excel version of DEP's former PENTOX model. It evaluates the reasonable potential for discharges to cause in-stream exceedances of water quality criteria and recommends Water Quality-Based Effluent Limitations (WQBELs) be imposed in the permit or recommends monitoring requirements to better evaluate 'reasonable potential' in the future for some parameters. For more explanation of the TMS / PENTOX model, see Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, document #386-2000-015. Unlike the WQM 7.0 model, the TMS accounts for partial mixing. To improve the accuracy of the results, an estimated width and an estimated depth were entered as input values.

When there are less than 10 data points, the maximum effluent concentration of the available data (such as from the permit application and from DMRs) is used by DEP as the discharge concentration input values in the TMS, with the exception of discharge Hardness for which the average effluent concentration is typically used.

Default values used in the TMS model in the absence of site-specific data include:

- Stream pH = 7 s.u.
- Discharge pH = 7 s.u.
- Coefficient of Variability in data = 0.5
- Chemical translators for metals

In addition, the following values were estimates: the stream width and depth during design low flow conditions. In addition, the following values were estimated by the TMS model: slope, velocity, and partial mix factors. The discharge Hardness, an input value, was the average of three effluent samples in the application. The upstream Hardness, an input value, was taken from the application.

TMDL:

The Schuylkill River is impaired due to elevated polychlorinated biphenyl (PCB) concentrations found in fish tissue and sediment samples taken throughout the basin. On April 7, 2007, the U.S. Environmental Protection Agency (EPA) Region III established a Total Maximum Daily Load (TMDL) for PCBs for the Schuylkill River. The Schuylkill River PCB TMDL was established using water quality criteria of 0.044 ng/l for PCBs, but did not require PCB numeric limits in permits. Implementation of the TMDL required that permitted facilities that discharge directly to the Schuylkill River conduct monitoring for PCBs using analytical Method 1668A and implement a Pollution Minimization Plan (PMP) to eliminate sources and/or reduce PCB discharge concentrations.

The facility submitted a PCB PMP. DEP determined that the PMP was complete in a letter to the permittee on November 25, 2020, with commencement of the plan to start by January 2021. The PMP estimated the facility's PCB "baseline load" as 0.471 grams/year for Dry Weather and 0.781 grams/year for Wet Weather, based on sampling results from 2020 and monthly average flows.

Although PCBs have been taken out of use for most products, the PCB concentrations and the PCB loads have not been decreasing in this facility's discharge. The Annual Reports have not described PCB sampling at various locations within the collection system to try to track the source or sending out surveys to their users. The 2023 PCB Annual Report details their efforts to reduce inflow and infiltration in the collection system. According to the report, the only proposed pollutant minimization measures are again locating and reducing infiltration and inflow in the collection system: "...Reducing the I/I into the sewer collection system in the Industrial Zone areas can potentially reduce PCB loadings to the Hamburg WWTP."

PCB Monitoring Data (from 2023 PCB Annual Report):

HMA PCB Loading History		
Year	PCB Loadings (pg/l) Dry Weather	PCB Loadings (pg/l) Wet Weather
2023	5,670	1,040
2022	764	1360
2021	1180	462
2020	539	893
2019	1270	1480
2018	713	1010
2017	938	1310
2016	733	1320
2015	643	987
2013	3930	
2013	974	
2013		1530
2010		1366
Average	1578	1160

Year	PCB Loading (grams/ year)	Estimated Reductions from Baseline (grams/ year)	Cumulative Reductions from Baseline (% from 2020 Baseline)
TMDL Estimated Loading (to be added by DRBC)			
Discharger Computed Baseline	0.471 (Dry); 0.781 (Wet)		
Year 3 (Dry Event)	4.971	0	0%
Year 3 (Wet Event)	0.915	0	0%
Year 2 (Dry Event)	0.538	0	0%
Year 2 (Wet Event)	1.371	0	0%
Year 1 (Dry Event)	0.933	0	0%
Year 1 (Wet Event)	0.403	0.378	51.6%

Because the discharge concentrations of PCBs are still consistently greater than the target of 0.044 ng/l, a permit condition is included in Part C of the renewal permit requiring:

- continued annual sampling of PCBs (both wet and dry weather) using EPA Method 1668A and reporting total and individual congener results for all 209 PCB congeners;
- continued implementation of the PCB PMPs;
- submittal of Annual Reports to DEP by the anniversary of the effective date of this permit; and
- "If DEP determines at any time that a PMP or Annual Report is deficient or inadequate, the permittee must, when notified by DEP, submit a revised PMP or Annual Report to more aggressively identify and/or reduce pollutant loading. The permittee shall submit a revised PMP or Annual Report responsive to DEP's written request within 60 days of the date of the written request unless DEP grants an extension."

Because the permittee has made numerous mistakes completing the DMRs correctly, the units in the permit limits table and the DMRs have been changed from ng/l to pg/l. Labs typically report PCB results from method 1668A in pg/l units: the permittee will only have to copy those results into the DMRs instead of converting them to units of ng/l.

### **Anti-Backsliding**

No limits in the renewal permit are less stringent than the previous permit.

### **Mass Load vs. Concentration Limits**

Consistent with the Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and the SOP for Establishing Effluent Limitations for Individual Sewage Permits, average monthly mass loading limits have been established for CBOD5, TSS, Ammonia, and toxic parameters and average weekly mass loading limits have additionally been established for CBOD5 and TSS.

### **Sample Types and Frequencies**

Sample Types and Frequencies for the purpose of determining compliance with permit limits are consistent with the Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and/or carried forward from the previous permit when deemed appropriate. For those parameters where monitoring is required to collect information rather than to determine compliance with permit limits, the sampling frequency in the draft renewal permit is consistent with other Major Sewage dischargers: quarterly monitoring for E. Coli, TDS, Nitrogen, and Phosphorus in the existing permit were changed to monthly monitoring in the renewal permit.

### **Flow Monitoring**

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

### **Influent BOD & TSS Monitoring**

The existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the renewal permit, consistent with the permits of other municipal wastewater treatment facilities.

### **E. Coli Monitoring**

Consistent with the SOP Establishing Effluent Limitations for Individual Sewage Permits and due to the regulatory change in the State Water Quality Standards, E. Coli monitoring has been included. The statutory basis for this requirement is found at PA Code Chapter 92a.61.

### **Nutrient Monitoring**

In an effort to understand nutrient loading on PA streams, sewage dischargers with design flows greater than 2000 gpd are being required to at least monitor for Total Nitrogen and Total Phosphorus in new and reissued permits. Total Nitrogen and Total Phosphorus monitoring were also included in the existing permit.

Discharge Monitoring Reports (DMRs) from September 1, 2021 through September 30, 2024 (12 dp's) indicate an average Total Nitrogen concentration in the effluent of 17.1 mg/l. The average load for the same period is estimated as: 17.1 mg/l x 0.732 MGD (the average monthly flow according to the DMRs) x 8.34 conversion factor = 104.4 lbs/day

Discharge Monitoring Reports (DMRs) from September 1, 2021 through September 30, 2024 indicate an average Total Phosphorus concentration in the effluent of 4.1 mg/l. The average load for the same period is estimated as: 4.1 mg/l x 0.732 MGD (the average monthly flow according to the DMRs) x 8.34 conversion factor = 25.0 lbs/day

### **Per- and Polyfluoroalkyl Substances (PFAS) Monitoring**

The application did not include any sampling results for PFAS parameters because the application was received using DEP's older application forms (during the transition period). DEP's new NPDES major sewage application forms require sampling for PFAS as a result of concerns over the potential for PFAS in waterways. DEP has initiated a policy to identify PFAS in discharges using 4 indicator parameters: Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonic acid (PFOS), Perfluorobutane sulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA). For major sewage facilities who do not receive wastewater from an industrial category that is suspected to have generated PFAS, annual monitoring can be imposed instead of quarterly monitoring. A footnote has been added to the limits tables to allow the monitoring to be discontinued if 4 consecutive monitoring periods indicate non-detect results at or below specified sufficiently sensitive Quantitation Levels.

Also, the general Pretreatment conditions in Part B have changed to require that facilities report industrial dischargers suspected of having PFAS in their wastewater to EPA. The NPDES permits include a list of such industrial dischargers in Part B.I.D.4. While this does not affect this facility at this time since they do not have industrial users, it is standard permit language now included in NPDES permits for major sewage dischargers.

### **Antidegradation**

The permit limits and conditions are intended to protect the designated and existing uses of the receiving stream. No High Quality or Exceptional Value waters are impacted by this discharge.

### **Class A Wild Trout Fisheries**

No Class A Wild Trout Fisheries are impacted by this discharge.

### **303(d) Listed Streams – Impaired Waters**

DEP's Integrated Water Quality Report is forwarded to the US EPA in compliance with Section 303(d) of the federal Clean Water Act. Schuylkill River is "listed" as an impaired water for Fish Consumption. The impairment is due to the presence of elevated PCB concentrations found in fish tissues in the Schuylkill River. The Schuylkill River PCB TMDL was completed and approved by EPA in April 2007. Implementation of the TMDL has been discussed under the TMDL section of this Fact Sheet.

**Whole Effluent Toxicity (WET)**

Whole Effluent Toxicity (WET) is a term used to describe the aggregate toxic effect of an aqueous sample (i.e whole effluent wastewater discharge) as measured by an organism's response upon exposure to the sample (lethality, impaired growth or reproduction). WET tests replicate, to the greatest extent possible, the total effect and actual environmental exposure of aquatic life to toxic pollutants in an effluent without requiring the identification of the specific pollutants. EPA's promulgated WET test methods include acute and chronic tests.

The last permit required Chronic WET testing using dilutions of 1%, 3%, 30%, 60%, and 100% and a Target Instream Waste Concentration (TIWC) of 3%.

The last permit required quarterly samples for the first year, after which the frequency could be reduced to annually if there were no endpoint failures in the initial 4 quarterly tests.

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: Quarterly for the first year following the 2019 NPDES permit issuance, reduced to annually thereafter

The dilution series used for the tests was: 100%, 60%, 30%, 3%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 3%.

**Summary of Four Most Recent Test Results**

TST Data Analysis

Test Date	<i>Ceriodaphnia</i> Results (Pass/Fail)*		<i>Pimephales</i> Results (Pass/Fail)*	
	Survival	Reproduction	Survival	Growth
6/28/2021	Pass	Pass		
6/29/2021			Pass	Pass
9/20/2021	Pass	Pass		
9/21/2021			Pass	Pass
11/7/2022	Pass	Pass		
11/8/2022			Pass	Pass
2/21/2023	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

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

Acute Partial Mix Factor (PMFa): 0.472                      Chronic Partial Mix Factor (PMFc): 1

(PMFs are taken from the TMS, attached)

**1. Determine IWC – Acute (IWCa):**

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

$$[(1.5 \text{ MGD} \times 1.547) / ((82.6 \text{ cfs} \times 0.472) + (1.5 \text{ MGD} \times 1.547))] \times 100 = \text{IWCa}\% = 5.6\%$$

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

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

**2. Determine Target IWCC (If Chronic Tests Required)**

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

$$[(1.5 \text{ MGD} \times 1.547) / ((82.6 \text{ cfs} \times 1) + (1.5 \text{ MGD} \times 1.547))] \times 100 = \text{TIWCC}\% = 2.7\% \text{ Rounded to } 3\%$$

**3. Determine Dilution Series**

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

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

**WET Limits**

Has reasonable potential been determined?  YES  NO

Will WET limits be established in the permit?  YES  NO

Stormwater, per application:

OUTFALL NO.	LATITUDE			LONGITUDE			RECEIVING WATERS		
	Deg	Min	Sec	Deg	Min	Sec	Name	Ch. 93 Class.	Drainage Area (ft <sup>2</sup> )
002	40	33	03	-75	59	26	Schuylkill River	WWF / MF	380,279
003	40	33	03	-75	59	28	Schuylkill River	WWF / MF	7,405
004	40	33	03	-75	59	29	Schuylkill River	WWF / MF	33,541

As with the existing permit, no permit limits are included for stormwater-only outfalls but they are identified in Part C of the renewal permit and DEP's "standard" language for stormwater outfalls is included requiring (1) a Preparedness, Prevention, and Contingency (PPC) Plan, (2) Best Management Practices (BMPs) to prevent contamination of the stormwater, and (3) Routine Inspections.

**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 as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally 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 Effective Date + 3 Years**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	312	500	XXX	25	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	375	563	XXX	30	45	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	XXX	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia	250	XXX	XXX	20	XXX	40	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Kjeldahl Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen*	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Bis(2-Ethylhexyl)Phthalate	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
PCBs (Dry Weather) (pg/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
PFOA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
HFPO-DA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

\* Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO<sub>2</sub>+NO<sub>3</sub>-N), where TKN and NO<sub>2</sub>+NO<sub>3</sub>-N are measured in the same sample.

\*\*The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Compliance Sampling Location: at discharge from the facility

**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 as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally 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 + 3 Years through Permit Expiration Date.**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	312	500	XXX	25	40	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	375	563	XXX	30	45	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	XXX	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia	250	XXX	XXX	20	XXX	40	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Kjeldahl Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen*	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Bis(2-Ethylhexyl)Phthalate	0.61	0.95 Daily Max	XXX	0.049	0.076 Daily Max	0.122	1/week	24-Hr Composite
PCBs (Dry Weather) (pg/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
PFOA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
HFPO-DA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

\* Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO<sub>2</sub>+NO<sub>3</sub>-N), where TKN and NO<sub>2</sub>+NO<sub>3</sub>-N are measured in the same sample.

\*\*The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Compliance Sampling Location: at discharge from the facility

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment)
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment)
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment)
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input checked="" type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input checked="" type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input checked="" type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
<input checked="" type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: New and Reissuance Sewage Individual NPDES Permit Applications, Version 2.0, February 3, 2022
<input checked="" type="checkbox"/>	SOP: Establishing Effluent Limitations in Individual Sewage NPDES Permits, version 2.0, February 5, 2024
<input checked="" type="checkbox"/>	SOP: Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. Version 1.5, May 20, 2021.
<input checked="" type="checkbox"/>	SOP: Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. Version 1.5, May 20, 2021.
<input type="checkbox"/>	Other:



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

**PADEP Chapter 94 Spreadsheet**  
**Sewage Treatment Plants**

Reporting Year:

Facility Name:

Existing Hydraulic Design Capacity:  MGD

Upgrade Planned in Next 5 Years?  Year:

Future Hydraulic Design Capacity:  MGD

Permit No.:

Persons/EDU:

Existing Organic Design Capacity:  lbs BOD5/day

Upgrade Planned in Next 5 Years?  Year:

Future Organic Design Capacity:  lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2019	2020	2021	2022	2023
January	1.094	0.879	0.729	0.632	0.888
February	0.977	0.82	0.882	0.902	0.606
March	1.063	0.81	1.047	0.725	0.766
April	0.93	0.856	0.738	0.945	0.58
May	1.149	0.732	0.582	0.978	0.635
June	0.846	0.633	0.851	0.677	0.637
July	0.878	0.724	0.632	0.547	0.765
August	0.71	0.906	0.5929	0.51	0.6551
September	0.568	0.671	1.045	0.627	0.801
October	0.835	0.629	0.584	0.7	0.562
November	0.882	0.741	0.617	0.73	0.551
December	0.854	0.906	0.573	0.971	1.091
Annual Avg	0.899	0.776	0.7394	0.745	0.7114
Max 3-Mo Avg	1.047	0.872	0.889	0.883	0.863
Max : Avg Ratio	1.16	1.12	1.20	1.19	1.21
Existing EDUs	2,788.0	2,795.0	2,795.0	2,796.0	2,796.0
Flow/EDU (GPD)	322.5	277.6	264.5	266.5	254.4
Flow/Capita (GPD)	92.1	79.3	75.6	76.1	72.7
Exist. Overload?	NO	NO	NO	NO	NO

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2019	2020	2021	2022	2023
January	1,721	1,620	1,175	932	1,166
February	1,975	1,535	1,438	1,142	1,204
March	1,959	1,427	1,395	1,257	1,426
April	1,844	1,547	1,298	1,493	1,443
May	2,084	1,105	1,169	1,110	1,089
June	1,667	958	1,169	1,106	1,282
July	1,497	1,129	1,075	760	854
August	1,524	1,132	1,223	253	1,233
September	1,292	1,097	1,727	1,509	950
October	1,646	947	1,059	1,392	968
November	1,411	1,182	1,011	1,149	1,357
December	1,923	1,331	1,170	1,001	1,138
Annual Avg	1,712	1,251	1,242	1,092	1,176
Max Mo Avg	2,084	1,620	1,727	1,509	1,443
Max : Avg Ratio	1.22	1.30	1.39	1.38	1.23
Existing EDUs	2,788	2,795	2,795	2,796	2,796
Load/EDU	0.614	0.448	0.445	0.391	0.421
Load/Capita	0.175	0.128	0.127	0.112	0.120
Exist. Overload?	NO	NO	NO	NO	NO

Projected Flows for Next Five Years (MGD)

	2024	2025	2026	2027	2028
New EDUs					
New EDU Flow					
Proj. Annual Avg	0.7742				
Proj. Max 3-Mo Avg	0.9119				
Proj. Overload?	NO				

Projected BOD5 Loads for Next Five Years (lbs/day)

	2024	2025	2026	2027	2028
New EDUs					
New EDU Load					
Proj. Annual Avg					
Proj. Max Avg					
Proj. Overload?					

NPDES Permit Fact Sheet  
Hamburg STP

NPDES Permit No. PA0021601

eDMRs:

PA0021601	HAMBURG STP	9/1/2021	9/30/2021	Monthly	1	1	Yes	Final Effluent	Flow	MGD	1.045	Monitor a	Average N	2.017	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	10/1/2021	10/31/2021	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.584	Monitor a	Average N	0.845	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	11/1/2021	11/30/2021	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.617	Monitor a	Average N	0.976	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	12/1/2021	12/31/2021	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.573	Monitor a	Average N	0.96	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	1/1/2022	1/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.632	Monitor a	Average N	0.872	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	2/1/2022	2/28/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.902	Monitor a	Average N	2.46	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	3/1/2022	3/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.725	Monitor a	Average N	0.923	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	4/1/2022	4/30/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.945	Monitor a	Average N	2.317	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	5/1/2022	5/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.978	Monitor a	Average N	3.11	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	6/1/2022	6/30/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.677	Monitor a	Average N	0.991	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	7/1/2022	7/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.547	Monitor a	Average N	0.74	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	8/1/2022	8/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.51	Monitor a	Average N	0.671	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	9/1/2022	9/30/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.627	Monitor a	Average N	1.05	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	10/1/2022	10/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.7	Monitor a	Average N	1.809	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	11/1/2022	11/30/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.73	Monitor a	Average N	1.447	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	12/1/2022	12/31/2022	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.971	Monitor a	Average N	2.19	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	1/1/2023	1/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.888	Monitor a	Average N	1.523	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	2/1/2023	2/28/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.606	Monitor a	Average N	0.73	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	3/1/2023	3/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.766	Monitor a	Average N	2.098	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	4/1/2023	4/30/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.58	Monitor a	Average N	1.171	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	5/1/2023	5/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.635	Monitor a	Average N	1.913	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	6/1/2023	6/30/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.637	Monitor a	Average N	1.354	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	7/1/2023	7/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.765	Monitor a	Average N	2.068	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	8/1/2023	8/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.655	Monitor a	Average N	1.149	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	9/1/2023	9/30/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.801	Monitor a	Average N	2.051	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	10/1/2023	10/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.562	Monitor a	Average N	0.796	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	11/1/2023	11/30/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.551	Monitor a	Average N	1.291	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	12/1/2023	12/31/2023	Monthly	1	1	Yes	Final Effluent	Flow	MGD	1.091	Monitor a	Average N	4.021	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	1/1/2024	1/31/2024	Monthly	3	1	Yes	Final Effluent	Flow	MGD	1.246	Monitor a	Average N	4.074	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	2/1/2024	2/29/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.724	Monitor a	Average N	1.29	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	3/1/2024	3/31/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.999	Monitor a	Average N	2.289	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	4/1/2024	4/30/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.957	Monitor a	Average N	3.745	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	5/1/2024	5/31/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.685	Monitor a	Average N	1.059	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	6/1/2024	6/30/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.507	Monitor a	Average N	0.743	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	7/1/2024	7/31/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.568	Monitor a	Average N	0.737	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	8/1/2024	8/31/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.666	Monitor a	Average N	1.464	Monitor a	Daily Maximum
PA0021601	HAMBURG STP	9/1/2024	9/30/2024	Monthly	1	1	Yes	Final Effluent	Flow	MGD	0.444	Monitor a	Average N	0.571	Monitor a	Daily Maximum
											0.732	Avg		1.609	Avg D Max's	
											1.246	MMA		4.074	Max	

USGS PA Stream Stats Online Tool:

StreamStats Output Report-Schuylkill River at outfall 001					
State/Region ID	PA				
Workspace ID	PA20241104145332567000				
Latitude	40.55198				
Longitude	-75.99247				
Time	11/4/2024 9:53:57 AM				
Low-Flow Statistics Parameter 100.0 Percent Low Flow Region 2					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	346	square mi	4.93	1280
PRECIP	Mean Annual Precipitation	49	inches	35	50.4
STRDEN	Stream Density	1.25	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonaceous	0.13	percent	0	99
Low-Flow Statistics Flow 100.0 Percent Low Flow Region 2					
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Year Low Flow	138	ft <sup>3</sup> /s	38	38	
30 Day 2 Year Low Flow	168	ft <sup>3</sup> /s	33	33	
7 Day 10 Year Low Flow	82.6	ft <sup>3</sup> /s	51	51	
30 Day 10 Year Low Flow	100	ft <sup>3</sup> /s	46	46	
90 Day 10 Year Low Flow	131	ft <sup>3</sup> /s	36	36	
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.					
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS).					
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not constitute an endorsement.					
Application Version: 4.24.0					
StreamStats Services Version: 1.2.22					
NSS Services Version: 2.2.1					

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<https://streamstats.usgs.gov/ss/>

StreamStats Output Report-conf1 Sch R and UNT 02197					
State/Region ID	PA				
Workspace ID	PA20241104150728287000				
Latitude	40.54741				
Longitude	-75.99078				
Time	11/4/2024 10:07:51 AM				
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
CARBON	Percentage of area	0.13	percent		
DRNAREA	Area that drains to	347	square miles		
PRECIP	Mean Annual Preci	49	inches		
ROCKDEP	Depth to rock	4.5	feet		
STRDEN	Stream Density -- to	1.25	miles per square mile		
Low-Flow Statistics Para 100.0 Percent Low Flow Region 2					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	347	square mi	4.93	1280
PRECIP	Mean Annual Preci	49	inches	35	50.4
STRDEN	Stream Density	1.25	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	0.13	percent	0	99
Low-Flow Statistics Flow 100.0 Percent Low Flow Region 2					
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Year Low Flow	138	ft <sup>3</sup> /s	38	38	
30 Day 2 Year Low Flow	168	ft <sup>3</sup> /s	33	33	
7 Day 10 Year Low Flow	82.9	ft <sup>3</sup> /s	51	51	
30 Day 10 Year Low Flow	100	ft <sup>3</sup> /s	46	46	
90 Day 10 Year Low Flow	132	ft <sup>3</sup> /s	36	36	
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are c					
USGS Software Disclaimer: This software has been approved for release by the U.S. Geologica					
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive p					

WQM 7.0 with acute Partial Mix Factor calculated in TMS model, 0.47, used to reduce Q7-10 stream low-flow and subsequently the Low Flow Yield input value in the WQM 7 model ...  
 $Q7-10 = 86.3 \text{ cfs}$ .  $LFY = Q7-10 / \text{Drainage Area}$ .  $(96.3 \text{ cfs} \times 0.47) / 346 \text{ mi}^2 = 0.113 \text{ cfs/mi}^2 \text{ adjusted LFY}$

Input Data WQM 7.0

### General Data

General
Stream
Discharge and Parameters

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	LFY (cfsm)	Slope (ft/ft)	PWS With (mgd)	Apply FC
▶ 833	98.900	340	346	0.113	0	0	<input checked="" type="checkbox"/>
833	98.500	330	347	0.112	0	0	<input checked="" type="checkbox"/>

Input Data WQM 7.0

### Stream Data

General
Stream
Discharge and Parameters

**Design Condition**     Q7-10     Q1-10     Q30-10

RMI	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
▶ 98.900	0.00	0.00	0.000	0.00	0	0.00	0.00	25.00	7.00	0.000	0.00
98.500	0.00	0.00	0.000	0.00	0	0.00	0.00	25.00	7.00	0.000	0.00

Input Data WQM 7.0

### Discharge and Parameter Data

General      Stream      **Discharge and Parameters**

Discharge Data								
RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
98.900	Hamburg STP	PA0021601	0.0000	1.5000	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/day)
▶ CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 1 of 2      No Filter      Search

Input Data WQM 7.0

### Discharge and Parameter Data

General      Stream      **Discharge and Parameters**

Discharge Data								
RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
98.500	downstrm		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/day)
▶ CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 2 of 2      No Filter      Search

Analysis Results WQM 7.0

Hydrodynamics   NH3-N Allocations   D.O. Allocations   D.O. Simulation   **Effluent Limitations**

RMI	Discharge Name	Permit Number	Disc Flow (mgd)
98.90	Hamburg STP	PA0021601	0.0000

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	20	40	
Dissolved Oxygen			5

Record: 1 of 1   No Filter   Search

Print   < Back   Next >   Archive   Cancel



## Discharge Information

Instructions Discharge Stream

Facility: Hamburg Boro STP NPDES Permit No.: PA0021601 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 <sub>7-10</sub>	Q <sub>h</sub>
1.5	162	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			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	454								
	Chloride (PWS)	mg/L	116								
	Bromide	mg/L	< 0.2								
	Sulfate (PWS)	mg/L	27.7								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	µg/L	< 9								
	Total Antimony	µg/L	0.7								
	Total Arsenic	µg/L	< 1								
	Total Barium	µg/L	38								
	Total Beryllium	µg/L	< 0.4								
	Total Boron	µg/L	185								
	Total Cadmium	µg/L	< 0.1								
	Total Chromium (III)	µg/L	< 1								
	Hexavalent Chromium	µg/L	< 0.1								
	Total Cobalt	µg/L	< 1								
	Total Copper	mg/L	0.018								
	Free Cyanide	µg/L	3								
	Total Cyanide	µg/L	8								
	Dissolved Iron	µg/L	36								
	Total Iron	µg/L	50								
	Total Lead	µg/L	< 1								
	Total Manganese	µg/L	3								
	Total Mercury	µg/L	< 0.2								
	Total Nickel	µg/L	4								
	Total Phenols (Phenolics) (PWS)	µg/L	< 3								
Total Selenium	µg/L	< 2									
Total Silver	µg/L	< 1									
Total Thallium	µg/L	< 0.4									
Total Zinc	mg/L	0.000057									

Total Zinc	mg/L		0.000057									
Total Molybdenum	µg/L		1									
Acrolein	µg/L	<	1									
Acrylamide	µg/L	<										
Acrylonitrile	µg/L	<	0.5									
Benzene	µg/L	<	0.5									
Bromoform	µg/L	<	0.5									

ischarge Information

11/4/2024

Page 1

Group 3	Carbon Tetrachloride	µg/L	<	0.5								
	Chlorobenzene	µg/L	<	0.5								
	Chlorodibromomethane	µg/L		1.6								
	Chloroethane	µg/L	<	0.5								
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5								
	Chloroform	µg/L		14.9								
	Dichlorobromomethane	µg/L		6.2								
	1,1-Dichloroethane	µg/L	<	0.5								
	1,2-Dichloroethane	µg/L	<	0.5								
	1,1-Dichloroethylene	µg/L	<	0.5								
	1,2-Dichloropropane	µg/L	<	0.5								
	1,3-Dichloropropylene	µg/L	<	0.5								
	1,4-Dioxane	µg/L	<	1								
	Ethylbenzene	µg/L	<	0.5								
	Methyl Bromide	µg/L	<	0.5								
	Methyl Chloride	µg/L	<	0.5								
	Methylene Chloride	µg/L	<	0.5								
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5								
	Tetrachloroethylene	µg/L	<	0.5								
	Toluene	µg/L	<	0.5								
1,2-trans-Dichloroethylene	µg/L	<	0.5									
1,1,1-Trichloroethane	µg/L	<	0.5									
1,1,2-Trichloroethane	µg/L	<	0.5									
Trichloroethylene	µg/L	<	0.5									
Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	1								
	2,4-Dichlorophenol	µg/L	<	1								
	2,4-Dimethylphenol	µg/L	<	1								
	4,6-Dinitro-o-Cresol	µg/L	<	3								
	2,4-Dinitrophenol	µg/L	<	3								
	2-Nitrophenol	µg/L	<	1								
	4-Nitrophenol	µg/L	<	3								
	p-Chloro-m-Cresol	µg/L	<	1								
	Pentachlorophenol	µg/L	<	1								
	Phenol	µg/L	<	3								
2,4,6-Trichlorophenol	µg/L		1.2									





## Stream / Surface Water Information

Hamburg Boro STP, NPDES Permit No. PA0021601, Outfall 001

- Instructions
- Discharge
- Stream

Receiving Surface Water Name: Schuylkill River

No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	98.9	340	346			Yes
End of Reach 1	000833	98.5	330	347			Yes

**Q<sub>7-10</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	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	98.9	0.24	82.6			200	5					100	7		
End of Reach 1	98.5	0.24													

**Q<sub>h</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	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	98.9														
End of Reach 1	98.5														



## Model Results

Hamburg Boro STP, NPDES Permit No. PA0021601, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

**Hydrodynamics**

**Q<sub>7-10</sub>**

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)
98.9	82.60		82.60	2.321	0.005	5.	200.	40.	0.085	0.288	67.424
98.5	82.84		82.84								

**Q<sub>n</sub>**

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)
98.9	351.91		351.91	2.321	0.005	9.373	200.	21.337	0.189	0.129	27.403
98.5	352.802		352.80								

**Wasteload Allocations**

**AFC**

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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	13,342	
Total Antimony	0	0		0	1,100	1,100	19,568	
Total Arsenic	0	0		0	340	340	6,048	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	373,579	
Total Boron	0	0		0	8,100	8,100	144,095	
Total Cadmium	0	0		0	2.082	2.21	39.3	Chem Translator of 0.943 applied
Total Chromium (III)	0	0		0	585.976	1,854	32,988	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	290	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,690	
Total Copper	0	0		0	13.880	14.5	257	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	391	

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	67.034	85.3	1,517	Chem Translator of 0.786 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	1.400	1.65	29.3	Chem Translator of 0.85 applied
Total Nickel	0	0	0	482.005	483	8,592	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	3.412	4.01	71.4	Chem Translator of 0.85 applied
Total Thallium	0	0	0	65	65.0	1,156	
Total Zinc	0	0	0	120.632	123	2,194	Chem Translator of 0.978 applied
Acrolein	0	0	0	3	3.0	53.4	
Acrylonitrile	0	0	0	650	650	11,563	
Benzene	0	0	0	640	640	11,385	
Bromoform	0	0	0	1,800	1,800	32,021	
Carbon Tetrachloride	0	0	0	2,800	2,800	49,810	
Chlorobenzene	0	0	0	1,200	1,200	21,347	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	18,000	18,000	320,210	
Chloroform	0	0	0	1,900	1,900	33,800	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	15,000	15,000	266,842	
1,1-Dichloroethylene	0	0	0	7,500	7,500	133,421	
1,2-Dichloropropane	0	0	0	11,000	11,000	195,684	
1,3-Dichloropropylene	0	0	0	310	310	5,515	
Ethylbenzene	0	0	0	2,900	2,900	51,589	
Methyl Bromide	0	0	0	550	550	9,784	
Methyl Chloride	0	0	0	28,000	28,000	498,105	
Methylene Chloride	0	0	0	12,000	12,000	213,474	
1,1,2,2-Tetrachloroethane	0	0	0	1,000	1,000	17,789	
Tetrachloroethylene	0	0	0	700	700	12,453	
Toluene	0	0	0	1,700	1,700	30,242	
1,2-trans-Dichloroethylene	0	0	0	6,800	6,800	120,968	
1,1,1-Trichloroethane	0	0	0	3,000	3,000	53,368	
1,1,2-Trichloroethane	0	0	0	3,400	3,400	60,484	
Trichloroethylene	0	0	0	2,300	2,300	40,916	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	560	560	9,962	
2,4-Dichlorophenol	0	0	0	1,700	1,700	30,242	
2,4-Dimethylphenol	0	0	0	660	660	11,741	
4,6-Dinitro-o-Cresol	0	0	0	80	80.0	1,423	
2,4-Dinitrophenol	0	0	0	660	660	11,741	
2-Nitrophenol	0	0	0	8,000	8,000	142,316	
4-Nitrophenol	0	0	0	2,300	2,300	40,916	
p-Chloro-m-Cresol	0	0	0	160	160	2,846	
Pentachlorophenol	0	0	0	8.723	8.72	155	
Phenol	0	0	0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0	0	460	460	8,183	

Acenaphthene	0	0		0	83	83.0	1,477	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	5,337	
Benzo(a)Anthracene	0	0		0	0.5	0.5	8.89	
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	533,684	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	80,053	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	4,803	
Butyl Benzyl Phthalate	0	0		0	140	140	2,491	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	14,587	
1,3-Dichlorobenzene	0	0		0	350	350	6,226	
1,4-Dichlorobenzene	0	0		0	730	730	12,986	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	71,158	
Dimethyl Phthalate	0	0		0	2,500	2,500	44,474	
Di-n-Butyl Phthalate	0	0		0	110	110	1,957	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	28,463	
2,6-Dinitrotoluene	0	0		0	990	990	17,612	
1,2-Diphenylhydrazine	0	0		0	15	15.0	267	
Fluoranthene	0	0		0	200	200	3,558	
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	178	
Hexachlorocyclopentadiene	0	0		0	5	5.0	88.9	
Hexachloroethane	0	0		0	60	60.0	1,067	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	177,895	
Naphthalene	0	0		0	140	140	2,491	
Nitrobenzene	0	0		0	4,000	4,000	71,158	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	302,421	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	5,337	
Phenanthrene	0	0		0	5	5.0	88.9	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	2,313	

CFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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

Chloride (PWS)	0	0	0	N/A	N/A	N/A	
Sulfate (PWS)	0	0	0	N/A	N/A	N/A	
Total Aluminum	0	0	0	N/A	N/A	N/A	
Total Antimony	0	0	0	220	220	8,051	
Total Arsenic	0	0	0	150	150	5,489	Chem Translator of 1 applied
Total Barium	0	0	0	4,100	4,100	150,043	
Total Boron	0	0	0	1,600	1,600	58,553	
Total Cadmium	0	0	0	0.249	0.27	10.0	Chem Translator of 0.908 applied
Total Chromium (III)	0	0	0	75.141	87.4	3,198	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0	0	10	10.4	380	Chem Translator of 0.962 applied
Total Cobalt	0	0	0	19	19.0	695	
Total Copper	0	0	0	9.085	9.46	346	Chem Translator of 0.96 applied
Free Cyanide	0	0	0	5.2	5.2	190	
Dissolved Iron	0	0	0	N/A	N/A	N/A	
Total Iron	0	0	0	1,500	1,500	54,894	WQC = 30 day average; PMF = 1
Total Lead	0	0	0	2.563	3.25	119	Chem Translator of 0.789 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0.770	0.91	33.2	Chem Translator of 0.85 applied
Total Nickel	0	0	0	52.751	52.9	1,936	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	183	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	476	
Total Zinc	0	0	0	119.833	122	4,448	Chem Translator of 0.986 applied
Acrolein	0	0	0	3	3.0	110	
Acrylonitrile	0	0	0	130	130	4,757	
Benzene	0	0	0	130	130	4,757	
Bromoform	0	0	0	370	370	13,540	
Carbon Tetrachloride	0	0	0	560	560	20,494	
Chlorobenzene	0	0	0	240	240	8,783	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	3,500	3,500	128,085	
Chloroform	0	0	0	390	390	14,272	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	3,100	3,100	113,447	
1,1-Dichloroethylene	0	0	0	1,500	1,500	54,894	
1,2-Dichloropropane	0	0	0	2,200	2,200	80,511	
1,3-Dichloropropylene	0	0	0	61	61.0	2,232	
Ethylbenzene	0	0	0	580	580	21,226	
Methyl Bromide	0	0	0	110	110	4,026	
Methyl Chloride	0	0	0	5,500	5,500	201,277	
Methylene Chloride	0	0	0	2,400	2,400	87,830	
1,1,2,2-Tetrachloroethane	0	0	0	210	210	7,685	
Tetrachloroethylene	0	0	0	140	140	5,123	
Toluene	0	0	0	330	330	12,077	

1,2-trans-Dichloroethylene	0	0	0	1,400	1,400	51,234
1,1,1-Trichloroethane	0	0	0	610	610	22,323
1,1,2-Trichloroethane	0	0	0	680	680	24,885
Trichloroethylene	0	0	0	450	450	16,468
Vinyl Chloride	0	0	0	N/A	N/A	N/A
2-Chlorophenol	0	0	0	110	110	4,026
2,4-Dichlorophenol	0	0	0	340	340	12,443
2,4-Dimethylphenol	0	0	0	130	130	4,757
4,6-Dinitro-o-Cresol	0	0	0	16	16.0	586
2,4-Dinitrophenol	0	0	0	130	130	4,757
2-Nitrophenol	0	0	0	1,600	1,600	58,553
4-Nitrophenol	0	0	0	470	470	17,200
p-Chloro-m-Cresol	0	0	0	500	500	18,298
Pentachlorophenol	0	0	0	6.693	6.69	245
Phenol	0	0	0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0	0	91	91.0	3,330
Acenaphthene	0	0	0	17	17.0	622
Anthracene	0	0	0	N/A	N/A	N/A
Benzidine	0	0	0	59	59.0	2,159
Benzo(a)Anthracene	0	0	0	0.1	0.1	3.66
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	219,575
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0	0	910	910	33,302
4-Bromophenyl Phenyl Ether	0	0	0	54	54.0	1,976
Butyl Benzyl Phthalate	0	0	0	35	35.0	1,281
2-Chloronaphthalene	0	0	0	N/A	N/A	N/A
Chrysene	0	0	0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0	0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0	0	160	160	5,855
1,3-Dichlorobenzene	0	0	0	69	69.0	2,525
1,4-Dichlorobenzene	0	0	0	150	150	5,489
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A
Diethyl Phthalate	0	0	0	800	800	29,277
Dimethyl Phthalate	0	0	0	500	500	18,298
Di-n-Butyl Phthalate	0	0	0	21	21.0	769
2,4-Dinitrotoluene	0	0	0	320	320	11,711
2,6-Dinitrotoluene	0	0	0	200	200	7,319
1,2-Diphenylhydrazine	0	0	0	3	3.0	110
Fluoranthene	0	0	0	40	40.0	1,464
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	73.2

Hexachlorocyclopentadiene	0	0	0	1	1.0	36.6	
Hexachloroethane	0	0	0	12	12.0	439	
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A	
Isophorone	0	0	0	2,100	2,100	76,851	
Naphthalene	0	0	0	43	43.0	1,574	
Nitrobenzene	0	0	0	810	810	29,643	
n-Nitrosodimethylamine	0	0	0	3,400	3,400	124,426	
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0	0	59	59.0	2,159	
Phenanthrene	0	0	0	1	1.0	36.6	
Pyrene	0	0	0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0	0	26	26.0	951	

**THH**      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

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	205	
Total Arsenic	0	0		0	10	10.0	366	
Total Barium	0	0		0	2,400	2,400	87,830	
Total Boron	0	0		0	3,100	3,100	113,447	
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	146	
Dissolved Iron	0	0		0	300	300	10,979	
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	36,596	
Total Mercury	0	0		0	0.050	0.05	1.83	
Total Nickel	0	0		0	610	610	22,323	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	8.78	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	110	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	

Bromoform	0	0	0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0	0	N/A	N/A	N/A	
Chlorobenzene	0	0	0	100	100.0	3,660	
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	209	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0	0	33	33.0	1,208	
1,2-Dichloropropane	0	0	0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0	0	N/A	N/A	N/A	
Ethylbenzene	0	0	0	68	68.0	2,489	
Methyl Bromide	0	0	0	100	100.0	3,660	
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	2,086	
1,2-trans-Dichloroethylene	0	0	0	100	100.0	3,660	
1,1,1-Trichloroethane	0	0	0	10,000	10,000	365,958	
1,1,2-Trichloroethane	0	0	0	N/A	N/A	N/A	
Trichloroethylene	0	0	0	N/A	N/A	N/A	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	30	30.0	1,098	
2,4-Dichlorophenol	0	0	0	10	10.0	366	
2,4-Dimethylphenol	0	0	0	100	100.0	3,660	
4,6-Dinitro-o-Cresol	0	0	0	2	2.0	73.2	
2,4-Dinitrophenol	0	0	0	10	10.0	366	
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	146,383	
2,4,6-Trichlorophenol	0	0	0	N/A	N/A	N/A	
Acenaphthene	0	0	0	70	70.0	2,562	
Anthracene	0	0	0	300	300	10,979	
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	7,319	
Bis(2-Ethylhexyl)Phthalate	0	0	0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0	0	N/A	N/A	N/A	

Butyl Benzyl Phthalate	0	0		0	0.1	0.1	3.66	
2-Chloronaphthalene	0	0		0	800	800	29,277	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	36,596	
1,3-Dichlorobenzene	0	0		0	7	7.0	256	
1,4-Dichlorobenzene	0	0		0	300	300	10,979	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	21,957	
Dimethyl Phthalate	0	0		0	2,000	2,000	73,192	
Di-n-Butyl Phthalate	0	0		0	20	20.0	732	
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	732	
Fluorene	0	0		0	50	50.0	1,830	
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	146	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	1,244	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	366	
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	732	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	2.56	

**CRL**      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

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	9.16
Benzene	0	0		0	0.58	0.58	88.5
Bromoform	0	0		0	7	7.0	1,069
Carbon Tetrachloride	0	0		0	0.4	0.4	61.1
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	122
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	145
1,2-Dichloroethane	0	0		0	9.9	9.9	1,511
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	137
1,3-Dichloropropylene	0	0		0	0.27	0.27	41.2
Ethylbenzene	0	0		0	N/A	N/A	N/A
Methyl Bromide	0	0		0	N/A	N/A	N/A
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	20	20.0	3,053
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	30.5
Tetrachloroethylene	0	0		0	10	10.0	1,527
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	84.0
Trichloroethylene	0	0		0	0.6	0.6	91.6
Vinyl Chloride	0	0		0	0.02	0.02	3.05
2-Chlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A

2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	0.030	0.03	4.58
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	229
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	0.015
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.15
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.015
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.15
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	1.53
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	4.58
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	48.8
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	0.12	0.12	18.3
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.015
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	7.63
Diethyl Phthalate	0	0		0	N/A	N/A	N/A
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A
2,4-Dinitrotoluene	0	0		0	0.05	0.05	7.63
2,6-Dinitrotoluene	0	0		0	0.05	0.05	7.63
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	4.58
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	0.012
Hexachlorobutadiene	0	0		0	0.01	0.01	1.53
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	15.3
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.15
Isophorone	0	0		0	N/A	N/A	N/A
Naphthalene	0	0		0	N/A	N/A	N/A
Nitrobenzene	0	0		0	N/A	N/A	N/A
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.11
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.76
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	504

Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

**Recommended WQBELs & Monitoring Requirements**

No. Samples/Month: **4**

Pollutants	Mass Limits		Concentration Limits			Units	Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX				
Total Copper	Report	Report	Report	Report	Report	mg/L	0.16	AFC	Discharge Conc > 10% WQBEL (no RP)
Bis(2-Ethylhexyl)Phthalate	0.61	0.95	48.8	76.2	122	µg/L	48.8	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorobutadiene	0.019	0.03	1.53	2.38	3.82	µg/L	1.53	CRL	Discharge Conc ≥ 50% WQBEL (RP)
1,2,4-Trichlorobenzene	Report	Report	Report	Report	Report	µg/L	2.56	THH	Discharge Conc > 25% WQBEL (no RP)

**Other Pollutants without Limits or Monitoring**

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	205	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	87,830	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	58,553	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	10.0	µg/L	Discharge Conc < TQL
Total Chromium (III)	3,198	µg/L	Discharge Conc < TQL
Hexavalent Chromium	186	µg/L	Discharge Conc < TQL
Total Cobalt	695	µg/L	Discharge Conc < TQL
Free Cyanide	146	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	10,979	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	54,894	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	119	µg/L	Discharge Conc < TQL
Total Manganese	36,596	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.83	µg/L	Discharge Conc < TQL
Total Nickel	1,936	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL

Total Selenium	183	µg/L	Discharge Conc < TQL
Total Silver	45.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	8.78	µg/L	Discharge Conc < TQL
Total Zinc	1.41	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	34.2	µg/L	Discharge Conc < TQL
Acrylonitrile	9.16	µg/L	Discharge Conc < TQL
Benzene	88.5	µg/L	Discharge Conc < TQL
Bromoform	1,069	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	61.1	µg/L	Discharge Conc < TQL
Chlorobenzene	3,660	µg/L	Discharge Conc < TQL
Chlorodibromomethane	122	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	128,085	µg/L	Discharge Conc < TQL
Chloroform	209	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	145	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,511	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	1,208	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	137	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	41.2	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	2,489	µg/L	Discharge Conc < TQL
Methyl Bromide	3,660	µg/L	Discharge Conc < TQL
Methyl Chloride	201,277	µg/L	Discharge Conc < TQL
Methylene Chloride	3,053	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	30.5	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,527	µg/L	Discharge Conc < TQL
Toluene	2,086	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	3,660	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	22,323	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	84.0	µg/L	Discharge Conc < TQL
Trichloroethylene	91.6	µg/L	Discharge Conc < TQL
Vinyl Chloride	3.05	µg/L	Discharge Conc < TQL
2-Chlorophenol	1,098	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	366	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	3,660	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	73.2	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	366	µg/L	Discharge Conc < TQL
2-Nitrophenol	58,553	µg/L	Discharge Conc < TQL
4-Nitrophenol	17,200	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	1,824	µg/L	Discharge Conc < TQL
Pentachlorophenol	4.58	µg/L	Discharge Conc < TQL
Phenol	146,383	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	229	µg/L	Discharge Conc ≤ 25% WQBEL

Acenaphthene	622	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	10,979	µg/L	Discharge Conc < TQL
Benzidine	0.015	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.15	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.015	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.15	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.53	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	4.58	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	7,319	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,976	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	3.66	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	29,277	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	18.3	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.015	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	5,855	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	256	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	5,489	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	7.63	µg/L	Discharge Conc < TQL
Diethyl Phthalate	21,957	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	18,298	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	732	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	7.63	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	7.63	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	4.58	µg/L	Discharge Conc < TQL
Fluoranthene	732	µg/L	Discharge Conc < TQL
Fluorene	1,830	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.012	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	36.6	µg/L	Discharge Conc < TQL
Hexachloroethane	15.3	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.15	µg/L	Discharge Conc < TQL
Isophorone	1,244	µg/L	Discharge Conc < TQL
Naphthalene	1,574	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	366	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.11	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.76	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	504	µg/L	Discharge Conc < TQL
Phenanthrene	36.6	µg/L	Discharge Conc < TQL
Pyrene	732	µg/L	Discharge Conc < TQL

Re-run for Hexachlorobutadiene and 1,2,4-Trichlorobenzene after lab pages were forwarded:



## Discharge Information

Instructions Discharge Stream

Facility: **Hamburg Boro STP** NPDES Permit No.: **PA0021601** 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 <sub>7-10</sub>	Q <sub>h</sub>
1.5	162	7						

Discharge Information

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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	<	0.5							
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	<	0.5							

**Recommended WQBELs & Monitoring Requirements**

Model Results

11/14/2024

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No. Samples/Month: 4

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

**Other Pollutants without Limits or Monitoring**

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

Pollutants	Governing WQBEL	Units	Comments
Hexachlorobutadiene	N/A	N/A	Discharge Conc < TQL
1,2,4-Trichlorobenzene	N/A	N/A	Discharge Conc < TQL



Sample Number: 3104862-03	Site: Effluent - Grab	Sample ID: Outfall 001
Collector: KC	Collect Date: 11/02/2023 10:19 am	Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
<b>Inorganics</b>									
Cyanide, Free	3	µg/L	OIA 1677-09	0.5	1	11/06/23	DSM	11/06/23 11:33	DSM
Cyanide, Total	< 5	µg/L	ASTM D 7511-17	5	1	11/13/23	DSM	11/13/23 11:25	DSM
Oil and Grease, as HEM	< 4.9	mg/L	EPA 1664A	4.9	1	11/14/23	AMAA	11/14/23 17:50	AMAA
Phenolics	< 0.005	mg/L	EPA 420.1	0.005	1	11/07/23	ZJH	11/08/23 11:37	ZJH
<b>Volatiles</b>									
VOA, 624, PPL									
Acrolein	< 1.0	µg/L	EPA 624.1	1.0	1	11/03/23	MWS	11/03/23 19:20	LAS
Acrylonitrile	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Bromodichloromethane	3.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Bromoform	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Bromomethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Carbon Tetrachloride	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Chlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Chloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
2-Chloroethyl vinyl ether	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Chloroform	8.0	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Chloromethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Dibromochloromethane	0.9	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,4-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,3-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,2-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,1-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,2-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,1-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
trans-1,2-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,2-Dichloropropane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
trans-1,3-Dichloropropene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Ethyl Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Hexachlorobutadiene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Methylene Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Naphthalene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,1,2,2-Tetrachloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Tetrachloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Toluene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,2,4-Trichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,1,1-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
1,1,2-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Trichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS
Vinyl Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	11/03/23	MWS	11/03/23 19:20	LAS

Sample ID 3I04861-03

Volatiles

VOA, 624, PPL

Acrolein	< 1.0	µg/L	EPA 624.1	1.0	1	10/27/23	MWS	10/27/23	18:34	LAS
Acrylonitrile	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Bromodichloromethane	6.2	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Bromoform	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Bromomethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Carbon Tetrachloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Chlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Chloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
2-Chloroethyl vinyl ether	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Chloroform	14.9	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Chloromethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Dibromochloromethane	1.6	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,4-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,3-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,2-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,1-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,2-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,1-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
trans-1,2-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,2-Dichloropropane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
trans-1,3-Dichloropropene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Ethyl Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Hexachlorobutadiene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Methylene Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Naphthalene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,1,2,2-Tetrachloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Tetrachloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Toluene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,2,4-Trichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,1,1-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
1,1,2-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Trichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS
Vinyl Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/27/23	MWS	10/27/23	18:34	LAS

Sample ID 3I04860-03

Volatiles

VOA, 624, PPL

Acrolein	< 1.0	µg/L	EPA 624.1	1.0	1	10/20/23	MWS	10/20/23	16:09	MWS
Acrylonitrile	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Bromodichloromethane	4.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Bromoform	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Bromomethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Carbon Tetrachloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Chlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Chloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
2-Chloroethyl vinyl ether	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Chloroform	9.4	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Chloromethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Dibromochloromethane	1.2	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,4-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,3-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,2-Dichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,1-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,2-Dichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,1-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
trans-1,2-Dichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,2-Dichloropropane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
trans-1,3-Dichloropropene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Ethyl Benzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Hexachlorobutadiene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Methylene Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Naphthalene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,1,2,2-Tetrachloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Tetrachloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Toluene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,2,4-Trichlorobenzene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,1,1-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
1,1,2-Trichloroethane	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Trichloroethene	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS
Vinyl Chloride	< 0.5	µg/L	EPA 624.1	0.5	1	10/20/23	MWS	10/20/23	16:09	MWS

<b>TRC EVALUATION</b>				
Input appropriate values in A3:A9 and D3:D9				
82.6	= Q stream (cfs)	0.5	= CV Daily	
1.5	= Q discharge (MGD)	0.5	= CV Hourly	
30	= no. samples	0.472	= AFC_Partial Mix Factor	
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor	
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)	
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)	
0	= % Factor of Safety (FOS)		= Decay Coefficient (K)	
Source	Reference	AFC Calculations		Reference
TRC	1.3.2.iii	WLA_afc = 5.379		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 2.004		5.1d
				WLA_cfc = 11.081
				LTAMULT_cfc = 0.581
				LTA_cfc = 6.442
Source	Reference	Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635		
WLA_afc	$(.019/e^{-k \cdot AFC\_tc}) + [(AFC\_Yc \cdot Qs \cdot .019/Qd) e^{-k \cdot AFC\_tc}] \dots$			
	$\dots + Xd + (AFC\_Yc \cdot Qs \cdot Xs/Qd)] \cdot (1-FOS/100)$			
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2+1))-2.326 \cdot LN(cvh^2+1) \cdot 0.5)$			
LTA_afc	$wla\_afc \cdot LTAMULT\_afc$			
WLA_cfc	$(.011/e^{-k \cdot CFC\_tc}) + [(CFC\_Yc \cdot Qs \cdot .011/Qd) e^{-k \cdot CFC\_tc}] \dots$			
	$\dots + Xd + (CFC\_Yc \cdot Qs \cdot Xs/Qd)] \cdot (1-FOS/100)$			
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2/no\_samples+1))-2.326 \cdot LN(cvd^2/no\_samples+1) \cdot 0.5)$			
LTA_cfc	$wla\_cfc \cdot LTAMULT\_afc$			
AML_MULT	$EXP(2.326 \cdot LN((cvd^2/no\_samples+1) \cdot 0.5)-0.5 \cdot LN(cvd^2/no\_samples+1))$			
AVG MON LIMIT	$MIN(BAT\_BPJ, MIN(LTA\_afc, LTA\_cfc) \cdot AML\_MULT)$			
INST MAX LIMIT	$1.5 \cdot ((av\_mon\_limit/AML\_MULT)/LTAMULT\_afc)$			
	$(0.011/EXP(-K \cdot CFC\_tc/1440)) + (((CFC\_Yc \cdot Qs \cdot 0.011)/(1.547 \cdot Qd)) \dots$			
	$\dots \cdot EXP(-K \cdot CFC\_tc/1440)) + Xd + (CFC\_Yc \cdot Qs \cdot Xs/1.547 \cdot Qd)] \cdot (1-FOS/100)$			

The 0.472 PMFa shown above was derived from the attached TMS simulation.



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: Hamburg Borough Municipal Authority Permit No.: PA0021601

Pollutant(s) identified by DEP that may require WQBELs: Bis(2-Ethylhexyl)Phthalate and Hexachlorobutadiene

Is the permittee aware of the source(s) of the pollutant(s)?  Yes  No  Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)?  Yes  No

If Yes, describe prior studies and results:

Does the permittee believe they can achieve proposed WQBELs now?  Yes  No  Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.  
**Hamburg's WWTP does not have any industrial sources for nearly 20 years. All flow is domestic with the exception of Niagara, a water bottling facility. Contributions from this facility should not contain the parameters of concern. All other sources would be uncontrollable.**

Estimated date by which the permittee could achieve the proposed WQBELs: \_\_\_\_\_  Uncertain

Will the permittee conduct additional sampling for the parameters Hexachlorobutadiene and 1,2,4-Trichlorobenzene to supplement the application?  Yes  No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have been collected, please attach them to this survey.

<input type="checkbox"/> Discharge pollutant concentration coefficient(s) of variability providing there are at least 10 sample results	Year(s) Studied:
<input type="checkbox"/> Discharge and stream Total Hardness concentrations beyond what was already provided in the application	Year(s) Studied:
<input type="checkbox"/> Background / ambient pollutant concentrations	Year(s) Studied:
<input type="checkbox"/> Chemical translator(s), for Total Copper	Year(s) Studied:
<input type="checkbox"/> Slope of receiving water	Year(s) Studied:
<input type="checkbox"/> Velocity, width, and depth of receiving waters at design low-flow (Q7-10) conditions	Year(s) Studied:
<input type="checkbox"/> Acute and/or chronic partial mix factors (mixing at design low-flow (Q7-10) conditions)	Year(s) Studied:
<input type="checkbox"/> Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.