Local Limits Evaluation

Hatfield Township Municipal Authority
NPDES Permit No. PA0026247

3200 Advance Lane
Hatfield Township, Montgomery County

December 2023

→ **The Power of Commitment**

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1. Executive Summary

This narrative provides an explanation of the strategies, information, and calculations used in the evaluation of Local Limits for the Hatfield Township Municipal Authority (HTMA) advanced wastewater treatment facility (AWWTF). The EPA Region 3 Version 5-4 Local Limits spreadsheet (EPA spreadsheet) is included as Appendix 1 of this evaluation and a separate HTMA Local Limits workbook (HTMA workbook) is included as Appendix 2. A process schematic of the facility is included as Appendix 3 to this evaluation. HTMA's previous Local Limits evaluation was approved by EPA on June 5, 2019.

A comparison between proposed and existing limits is shown on Table 1. In general, the limits have changed due to overall changes in wastewater treatment facility flows and loadings, changes to DEP water quality criteria, as well as industrial flows and loadings since the previous Local Limits evaluation. In addition, two areas of the collection system were sampled to represent the nonindustrial loadings, one of which had a large food establishment population which likely contributed to higher than typical pollutant concentrations and loadings.

Table 1. Existing vs. Proposed Local Limits

Pollutant	2019 Existing Local Limit Lbs/Day	2023 Proposed Local Limit Lbs/Day	Comments
Arsenic	0.81	1.09	Based on WQBEL established by PA DEP
Cadmium	0.20	0.23	Less stringent limit due to WQBEL established by PA DEP and higher POTW removal efficiency
Chromium	19.01	11.42	More stringent limit due to difference in 2019 and current Nitrification removal efficiency
Copper	6.15	15.58	Less stringent limit due to WQBEL established by PA DEP vs. 2019 sludge disposal AHL
Cyanide, Total	3.49	—	Remove from list
Lead	2.76	2.21	More stringent limit due to WQBEL established by PA DEP vs. 2019 chronic WQS AHL
Mercury	0.08	0.0024	More stringent limit due to WQBEL established by PA DEP
Nickel	9.58	8.22	More stringent limit due to WQBEL established by PA DEP vs. 2019 based on sludge disposal criteria
Silver	1.63	2.32	Less stringent limit due to differences in removal efficiencies, POTW and stream flows, and Hardness data
Zinc	11.83	20.64	Less stringent limit due to higher WQBEL established by PA DEP, and differences in removal efficiencies and flows
Total Phenolics	4.16	18.66	Less stringent limit due to changes in flows, especially the nearest downstream water intake
Methylene Chloride	1.52	4.70	Less stringent limit due to WQBEL established by PA DEP as compared to the 2019 evaluation
Trichloroethylene	1.56	—	Remove from list
Bis (2-Ethylhexyl) Phthalate	19.32	0.65	More stringent limit due to WQBEL established by PA DEP

The HTMA NPDES Permit No. PA0026247 was issued by Pennsylvania Department of Environmental Protection (PA DEP) on August 17, 2022, with an effective date of September 1, 2022, and an expiration date of August 31, 2027. A copy of this NPDES permit is included as Appendix 4 to this evaluation. The NPDES permit requires HTMA to conduct a reevaluation of its Local Limits within one (1) year of permit issuance and to submit the list of Pollutants of Concern (POC) and a Sampling Plan to EPA within three (3) months of permit issuance. The POC list and Sampling Plan was

provided to EPA on November 17, 2022. An update to the Sampling Plan was provided to EPA on November 29, 2022, which EPA found acceptable on November 30, 2022. The Local Limits reevaluation is due to EPA by August 16, 2023.

2. Pollutants of Concern

2.1 Detection of Pollutants of Concern

The enclosed Appendix 2.1 of the HTMA workbook lists the pollutants that meet the following criteria.

2.1.1 **EPA's 15 Recommended Pollutants of Concern**: Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Zinc, Ammonia Nitrogen, Biochemical Oxygen Demand, and Total Suspended Solids.

2.1.2 **NPDES Permit Limits (including "Report" only parameters) and Water Quality Based Effluent Limits (WQBELs)**: Cadmium, Copper, Lead, Selenium, Zinc, Ammonia Nitrogen, Biochemical Oxygen Demand, Total Suspended Solids, Total Phosphorus, Nitrate-Nitrite Nitrogen, Total Nitrogen, Total Dissolved Solids, Antimony, Chloride, Free Cyanide, Dissolved Iron, and Total Iron.

2.1.3 **Biosolids Disposal and Incineration Title V Permit Limits**: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Zinc, and Beryllium.

2.1.4 **Existing Local Limits (June 2019)**: Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Nickel, Silver, Zinc, Total Phenolics, Methylene Chloride, Trichloroethylene, and Bis (2-Ethylhexyl) Phthalate.

2.1.5 **Detected in Influent, Effluent, Biosolids, or Industrial Discharges**: Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Zinc, Ammonia Nitrogen, Biochemical Oxygen Demand, Total Suspended Solids, Total Phosphorus, Nitrate-Nitrite Nitrogen, Total Nitrogen, Total Dissolved Solids, Aluminum, Antimony, Beryllium, Chloride, Cobalt, Free Cyanide, Dissolved Iron, Total Iron, Total Phenolics, Tin, Vanadium, Bromodichloromethane, Chloroform, Methylene Chloride, Tetrachloroethylene, Toluene, Trichloroethylene, Bis (2-Ethylhexyl) Phthalate, p-Cresol, Diethyl Phthalate, and Phenol.

2.1.6 **Centralized Waste Treatment or Metal Finishing Categorical Standard**: Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Nickel, Silver, Zinc, Antimony, Cobalt, Tin, Vanadium, Bromodichloromethane, Chloroform, Methylene Chloride, Tetrachloroethylene, Toluene, Trichloroethylene, Bis (2-Ethylhexyl) Phthalate, p-Cresol, Diethyl Phthalate, and Phenol.

2.2 Screening for Pollutants of Concern

2.2.1 The EPA screening criteria listed below are used to determine the Pollutants of Concern (POC) specific to HTMA and are identified on the enclosed Appendix 2.2.

- Is the maximum influent concentration greater than the most stringent effluent water quality criteria?
- Is the maximum influent concentration greater than 1/500th of the biosolids criteria?
- Is the maximum effluent concentration greater than ½ of the most stringent effluent water quality criteria?
- Is the maximum influent concentration greater than ¼ of the most stringent inhibition criteria?
- Is the maximum biosolids concentration greater than ½ of the biosolids criteria?

2.2.2 Maximum influent, effluent, and biosolids data are provided on the enclosed Appendix 2.1 from sampling and analysis conducted from August 2018 through June 2023.

2.2.3 NPDES permit limits shown on the enclosed Appendix 2.1 are taken from HTMA's current NPDES permit. WQBELs are identified in the NPDES Permit Fact Sheet in Appendix 5 using PA DEP's Toxics Management Spreadsheet water model, which is found at Appendix 6 of this evaluation. The chronic, acute, and human health water quality criteria shown on Appendix 2.1 are in accordance with 25 Pa Code §93.

2.2.4 The instream Hardness concentration of 168 mg/L is used to calculate the chronic and acute water quality criteria for Cadmium, Copper, Lead, Nickel, Silver, and Zinc. The dissolved metal criteria are converted to total metal criteria using the factors found at 25 Pa Code §93.

2.2.5 A copy of the wastewater treatment facility process diagram is included as Appendix 3. A review of the wastewater treatment plant processes dictates the need for activated sludge and nitrification inhibition criteria, which are found in Appendix G of EPA's 2004 Local Limits Development Guidance manual. Biosolids land application and incineration criteria are also evaluated.

2.3 Pollutants of Concern

Appendix 2.2 summarizes those parameters determined to be POCs for evaluation of Local Limits and include: Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Zinc, Ammonia Nitrogen, Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), Total Phosphorus, Nitrate-Nitrite Nitrogen, Total Nitrogen, Total Dissolved Solids (TDS), Aluminum, Antimony, Beryllium, Chloride, Cobalt, Free Cyanide, Dissolved Iron, Total Iron, Total Phenolics, Tin, Vanadium, Bromodichloromethane, Chloroform, Methylene Chloride, Tetrachloroethylene, Toluene, Trichloroethylene, Bis (2-Ethylhexyl) Phthalate, p-Cresol, Diethyl Phthalate, and Phenol. The screening criteria review eliminated Barium, Boron, Bromide, Manganese, and Sulfate from further review.

This evaluation determines whether a Local Limit is necessary for each of the above pollutants. A more detailed explanation of how the pollutants are selected for evaluation is provided below.

2.3.1 **Arsenic**: Arsenic is one of the EPA 15 pollutants, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment categorical standards.

2.3.2 **Cadmium**: Cadmium is one of the EPA 15 pollutants, has a WQBEL established by PA DEP, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.3 **Chromium**: Chromium is one of the EPA 15 pollutants, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.4 **Copper**: Copper is one of the EPA 15 pollutants, has a WQBEL established by PA DEP, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.5 **Cyanide, Total**: Total Cyanide is one of the EPA 15 pollutants, is an existing local limit, is detected in the sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.6 **Lead**: Lead is one of the EPA 15 pollutants, has a WQBEL established by PA DEP, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing

categorical standards.

2.3.7 **Mercury**: Mercury is one of the EPA 15 pollutants, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment categorical standards.

2.3.8 **Molybdenum**: Molybdenum is one of the EPA 15 pollutants, is subject to sludge disposal criteria, and is detected in the influent, effluent, sludge, and industrial discharges to the sewer system.

2.3.9 **Nickel**: Nickel is one of the EPA 15 pollutants, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.10 **Selenium**: Selenium is one of the EPA 15 pollutants, has a WQBEL established by PA DEP, is subject to sludge disposal criteria, and is detected in the influent, effluent, sludge, industrial discharges to the sewer system.

2.3.11 **Silver**: Silver is one of the EPA 15 pollutants, is an existing local limit, is detected in the influent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.12 **Zinc**: Zinc is one of the EPA 15 pollutants, has a WQBEL established by PA DEP, is subject to sludge disposal criteria, is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.13 **Ammonia Nitrogen**: Ammonia Nitrogen is one of the EPA 15 pollutants, has an NPDES permit limit, and is detected in the influent, effluent, sludge, and industrial discharges to the sewer system.

2.3.14 **Biochemical Oxygen Demand**: BOD_5 is one of the EPA 15 pollutants, has an NPDES permit limit, and is detected in the influent, effluent, and industrial discharges to the sewer system.

2.3.15 **Total Suspended Solids**: TSS is one of the EPA 15 pollutants, has an NPDES permit limit, and is detected in the influent, effluent.

2.3.16 **Total Phosphorus**: Total Phosphorus has an NPDES permit limit and is detected in the influent, effluent, and industrial discharges to the sewer system.

2.3.17 **Nitrate-Nitrite Nitrogen**: Nitrate-Nitrite Nitrogen is subject to reporting under the NPDES permit and is detected in the influent, effluent, and industrial discharges to the sewer system.

2.3.18 **Total Nitrogen**: Total Nitrogen is subject to reporting under the NPDES permit and is detected in the influent, effluent, and industrial discharges to the sewer system.

2.3.19 **Total Dissolved Solids**: TDS has an NPDES permit limit and is detected in the influent, effluent, sludge, and industrial discharges to the sewer system.

2.3.20 **Aluminum**: Aluminum is detected in the influent, effluent, sludge, and industrial discharges to the sewer system.

2.3.21 **Antimony**: Antimony has a WQBEL established by PA DEP, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment categorical standards.

2.3.22 **Beryllium**: Beryllium is subject to sludge disposal criteria and is detected in the sludge and industrial discharges to the sewer system.

2.3.23 **Chloride**: Chloride is subject to reporting under the NPDES permit and is detected in the sludge and industrial discharges to the sewer system.

2.3.24 **Cobalt**: Cobalt is detected in the influent, effluent, sludge, and industrial discharges to the sewer system,

and is subject to Centralized Waste Treatment categorical standards.

2.3.25 **Cyanide, Free**: Free Cyanide has a WQBEL established by PA DEP and is detected in the influent and effluent.

2.3.26 **Iron, Dissolved**: Dissolved Iron has a WQBEL established by PA DEP and is detected in the influent and effluent.

2.3.27 **Iron, Total**: Total Iron has a WQBEL established by PA DEP and is detected in the influent, effluent, and sludge.

2.3.28 **Phenolics, Total**: Total Phenolics is an existing local limit and is detected in the influent, effluent, sludge, and industrial discharges to the sewer system.

2.3.29 **Tin**: Tin is detected in the influent, sludge, and industrial discharges to the sewer system and is subject to Centralized Waste Treatment categorical standards.

2.3.30 **Vanadium**: Vanadium is detected in the influent, sludge, and industrial discharges to the sewer system and is subject to Centralized Waste Treatment categorical standards.

2.3.31 **Bromodichloromethane**: Bromodichloromethane is detected in the influent and sludge and is subject to Metal Finishing categorical standards.

2.3.32 **Chloroform**: Chloroform is detected in the influent, effluent, sludge, and industrial discharges to the sewer system and is subject to Metal Finishing categorical standards.

2.3.33 **Methylene Chloride**: Methylene Chloride is an existing local limit, is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Metal Finishing categorical standards.

2.3.34 **Tetrachloroethylene**: Tetrachloroethylene is detected in the influent, sludge, and industrial discharges to the sewer system, and is subject to Metal Finishing categorical standards.

2.3.35 **Toluene**: Toluene is detected in the influent, effluent, sludge, and industrial discharges to the sewer system, and is subject to Metal Finishing categorical standards.

2.3.36 **Trichloroethylene**: Trichloroethylene is an existing local limit, is detected in the influent, sludge, and industrial discharges to the sewer system, and is subject to Metal Finishing categorical standards.

2.3.37 **Bis (2-Ethylhexyl) Phthalate**: Bis (2-Ethylhexyl) Phthalate is an existing local limit, is detected in the influent, sludge, and industrial discharges to the sewer system, and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.38 **p-Cresol**: p-Cresol is detected in the influent and sludge and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.3.39 **Diethyl Phthalate**: Diethyl Phthalate is detected in the influent, sludge, and industrial discharges to the sewer system, and is subject to Metal Finishing categorical standards.

2.3.40 **Phenol**: Phenol is detected in the influent and sludge and is subject to Centralized Waste Treatment and Metal Finishing categorical standards.

2.4 Sampling Plan

The primary sampling points for this Local Limits evaluation includes the following:

- Raw influent prior to recycle flows
- Primary effluent from primary clarifiers
- Final effluent (post-UV)

- Centrifuge sludge cake
- Collection system, residential and commercial areas (2 sites) for uncontrolled loadings
- Trucked wastewater to headworks (received after the raw influent sample location)
- Trucked-in sludges (received at the solids handling facilities prior to dewatering)

Data for this evaluation is compiled for the period from August 2018 through June 2023. There are some instances in which the most sensitive test method may not have been utilized resulting in a variation of report detection limits (RDLs). RDLs greater than the pollutant averages are considered outliers and are not included in the pollutant averages on the 'Monitoring Data Tab' of the EPA spreadsheet in Appendix 1.

HTMA conducts quarterly local limits and priority pollutant testing on influent, effluent, centrifuge sludge cake, and trucked wastewater, monthly testing of centrifuge sludge cake for metals required under the facility's Title V permit. Pesticides and PCBs are not conducted quarterly on the centrifuge sludge cake, only annually.

Twenty four-hour composite samples were collected from all sampling points except trucked waste, trucked-in sludge, and centrifuge cake for all pollutants with the exception of Total Cyanide, Free Cyanide, Total Phenolics and VOCs, in which grab samples were collected. Recent and future testing of metals, with the exception of Mercury, are analyzed using EPA Method 200.8, and Free Cyanide is tested by OIA 1677. VOCs are analyzed using EPA Method 624 and semivolatiles are analyzed using EPA 625.

Additional sampling was necessary to complete the local limits evaluation for some of the sampling points to meet the minimum 20 data points for influent, effluent, and trucked wastewater. A minimum 10 samples were collected for primary effluent, centrifuge sludge cake, two (2) collection system sites, and trucked-in sludge. Appendix 2.3 is the Sampling Plan utilized during this evaluation.

3. Pollutant Data

3.1 Influent, Effluent, Centrifuge Sludge Cake, Trucked Wastewater, and Trucked-In Sludge Data

Influent, effluent, centrifuge sludge cake, trucked wastewater to influent, and trucked-in sludge to sludge handling facilities are provided on the 'Monitoring Data' tab of the EPA spreadsheet for each POC. Due to the large number of data points for the conventional pollutants, the influent, effluent, and trucked wastewater to influent monthly average concentrations are represented for Ammonia Nitrogen, BOD_5, TSS, Total Phosphorus, Nitrate-Nitrite Nitrogen, and Total Nitrogen on the 'Monitoring Data' tab.

Test data with higher RDLs resulted in some of the data falling outside the 2X standard deviation protocol and initially appeared in Red type. Outliers are also identified on the 'Monitoring Data' tab as those in which the non-detect reporting limits are higher than the overall average pollutant concentration. Therefore, these outliers are eliminated from the averaging calculations by placing an 'X' behind the value in the cell. This latter outlier scenario is in accordance with a local limits review letter dated July 14, 2015 from John Lovell, former Pretreatment Coordinator with EPA Region 3.

Of special note are the additional calculations provided on the 'Monitoring Data' tab. Since HTMA receives trucked wastewater after the influent sample location, the combined Influent and Hauled to Influent concentrations and loadings are calculated. The combined concentrations and loadings are necessary to calculate more realistic POTW removal efficiencies. In addition, Table 18 of the EPA spreadsheet subtracts the nonindustrial and hauled waste to influent loadings from the MAHL to calculate the MAIL. Therefore, if the Hauled Waste to Influent is not part of the MAHL calculations, many of the pollutants may result in negative MAILs.

3.2 Influent to Activated Sludge/Nitrification

Influent to the activated sludge/nitrification treatment processes data are provided on the 'Inhibition Removals' tab of the EPA spreadsheet in Appendix 1 for those pollutants for which activated sludge and nitrification inhibition criteria are available per Appendix G of EPA's 2004 Local Limits Guidance. Again, the combined Influent and Hauled Waste to Influent concentrations and loadings are necessary to calculate more realistic activated sludge/nitrification removal efficiencies.

3.3 Uncontrolled Loadings

Wastewater samples were collected from two (2) locations in the HTMA sewer collection system that does not contain any industrial wastewater discharges, and which are therefore representative of uncontrolled loadings from residential and commercial sources. However, in some cases, the second set of collection system test data shown on the 'Monitoring Data' tab are much higher than the first set of collection system data as the second set of data are from an area in the collection system in which there are more food establishments, thus higher loadings. The test data is provided on the 'Monitoring Data' tab of the EPA spreadsheet under the Non-Industrial heading for each pollutant.

3.4 Removal Criteria

Default POTW removal criteria from Appendix R of EPA's 2004 *Local Limits Guidance* are selected for Cadmium, Total Cyanide, Molybdenum, Selenium, Methylene Chloride, Tetrachloroethylene, and Trichloroethylene on Table 3 of the EPA spreadsheet since the measured POTW removals are uncharacteristically low or negative and are less than the removals prior to activated sludge and nitrification.

Default primary removal criteria from Appendix R of the EPA's 2004 *Local Limits Guidance* are selected for Arsenic, Cadmium, Chromium, Total Cyanide, Lead, Mercury, Nickel, Silver, Free Cyanide, Toluene, and Phenol on Table 8 of the EPA spreadsheet and for Arsenic, Cadmium, Chromium, Total Cyanide, Lead, Nickel, Silver, Chloroform, and Phenol on Table 10 of the EPA spreadsheet.

4. Allowable Headworks Loadings

Allowable headworks loadings (AHLs) are determined for water quality, inhibition, and sludge quality in accordance with EPA guidance.

4.1 Water Quality AHLs

If an NPDES permit limit or WQBEL, contained in the Toxics Management Spreadsheet water model report in Appendix 6 to this evaluation, are available, the chronic, acute, and human health water quality AHLs are not determined for those parameters, since DEP has already performed these calculations as part of the water modeling. User-entered water quality criteria on Tables 4, 5 and 6 of the EPA spreadsheet are in accordance with 25 Pa Code §93 water quality criteria. Further, section 5.2.1 on page 15 of the EPA Spreadsheet User's Manual v5.4 states, "Note that if an allowable headworks loading based on NPDES limits is calculated for a pollutant on Table 3, no allowable headworks loading based on water quality standards is calculated in Tables 4 through 6. Since NPDES limits should protect against violations of water quality standards, calculation of the allowable headworks loading based on water quality standards is not necessary if the allowable headworks loading based on NPDES limits is calculated for a given pollutant."

AHLs are established for Ammonia Nitrogen, BOD_5, TSS, Total Phosphorus and Total Nitrogen based on design capacities for the HTMA AWWTF, which are shown on Table 17 of the EPA spreadsheet.

The most stringent water quality AHLs are selected for each pollutant on Table 7.

4.2 Inhibition AHLs

The minimum activated sludge and nitrification inhibition concentrations from Appendix G of EPA's *Local Limits Guidance* are the default inhibition values used on Tables 8 and 10 of the EPA spreadsheet with the exception of Chromium, Copper, Total Cyanide and Silver, which are based on the 1995 site-specific inhibition study conducted by HTMA and which is included with this evaluation as Appendix 7. Also, since no inhibition to the HTMA AWWTF has occurred, mid-range nitrification inhibition criteria is user-entered for Zinc.

4.3 Sludge Disposal AHLs

Table 14 of the EPA spreadsheet was initially filled-in since EPA typically recommends that the land application criteria be evaluated even though HTMA does not land apply its sludge. However, EPA removed the land application criteria from EPA's initial review of the Local Limits Evaluation. Therefore, this revision has removed the land application criteria and only Table 15 is filled-in since HTMA AWWTF utilizes sewage sludge incineration for ultimate disposal of the sludge generated and accepted at the plant. Table 16 shows the incineration AHLs selected for sludge disposal AHLs.

4.4 AHL Comparison

The most stringent of the calculated water quality, inhibition, and sludge disposal AHLs for each pollutant is selected on Table 17 of the EPA spreadsheet for the maximum allowable headworks loading (MAHL), with the exception of Ammonia Nitrogen, BOD_5, TSS, Total Phosphorus, and Total Nitrogen, which are based on WWTP design criteria at the permitted capacity of 6.98 MGD.

Table 18 of the EPA spreadsheet then subtracts the nonindustrial and hauled waste to influent loadings and applies growth and safety factors to derive the maximum allowable industrial loading (MAIL) for each pollutant. Since the trucked wastewater to the headworks occurs after the influent sampling location, the Influent loadings throughout the spreadsheet are based on a combination of the raw influent and hauled waste to influent as determined on the 'Monitoring Data' tab.

5. Local Limits Selection

5.1 Local Limits Selection

First, a local limit may be established if the average influent loading is greater than 60% of the MAHL (>80% if based on treatment plant design loading). Second, a local limit may be established if the maximum influent loading is greater than 80% of the MAHL (>100% if based on treatment plant design loading). Table 20 shows exceedances of the 60/80% criteria for Mercury and Bis (2-Ethylhexyl) Phthalate, and TSS for exceeding 100% of the MAHL.

While the TSS design capacity of 22,300 Lbs/Day is shown on Table 17 and results in exceeding the 100% of the MAHL on Table 20, thus potentially requiring a limit, as was indicated on Table 19; it is believed that since the maximum influent TSS loading of 23,887 Lbs/Day has not resulted in pass through, interference, or impacts to sludge quality since the previous Local Limits Evaluation, that a local limit is not required. From page 9-9 of the 2004 EPA Local Limits Guidance Manual, if the POTW is not experiencing pass through or interference for a given pollutant (e.g., no NPDES limit or sludge disposal criterion violations, no collection system problems), consider substituting the current influent loading for the MAHL.

Lastly, a pollutant may be selected if there is an existing local limit. HTMA's current local limits consist of Arsenic, Cadmium, Chromium, Copper, Total Cyanide, Lead, Mercury, Nickel, Silver, Zinc, Total Phenolics, Methylene Chloride, Trichloroethylene, and Bis (2-Ethylhexyl) Phthalate, as displayed on Table 19. However, due to the outcome

of the calculations, it is recommended that a local limit for Total Cyanide and Trichloroethylene be removed. Additional information about Total Cyanide and Trichloroethylene is provided in sections 5.3.5 and 5.3.36.

Both 2019 existing MAILs and 2023 proposed MAILs are shown on Table 1. HTMA intends to adopt the pollutant MAILs as Lbs/Day. More specific details on the selection of each MAIL are provided in section 5.3 of this evaluation.

There are instances in which the less stringent MAIL is selected as there has been no indication of pass through or interference at the AWWTF nor have there been any sludge disposal issues. In addition, the SIU loadings are significantly lower than the influent loadings to the AWWTF. Reporting detection limits (RDLs) for pollutants continue to decrease as the sensitivity of instrumentation increases, thus resulting in lower POTW removals, which may account for some of the differences between the 2019 existing MAILs and the 2023 calculated MAILs displayed on Table 19 of the EPA spreadsheet.

5.2 Eliminated Pollutants

The following pollutants included in this evaluation are eliminated as local limits since Table 19 of the EPA spreadsheet did not dictate the need for a local limit for the general reasons listed below. More specific details on the elimination of these pollutants as local limits are provided in section 5.3 of this evaluation.

- Total Cyanide, Molybdenum, Selenium, Ammonia Nitrogen, BOD_5, TSS, Total Phosphorus, Nitrate-Nitrite Nitrogen, Total Nitrogen, Total Dissolved Solids, Aluminum, Antimony, Beryllium, Chloride, Cobalt, Free Cyanide, Dissolved Iron, Total Iron, Tin, Vanadium, Bromodichloromethane, Chloroform, Tetrachloroethylene, Toluene, Trichloroethylene, p-Cresol, Diethyl Phthalate, and Phenol.
- Pollutants are not detected in either the influent or effluent samples.
- Pollutants do not meet the 60/80 criteria.
- Total average industrial loadings are less than 25 percent of the MAIL for all pollutants.

Since local limits for 14 pollutants are currently being enforced, it is decided to maintain 12 of these pollutants as local limits, with the exception of Total Cyanide and Trichloroethylene. Many of these pollutants are contained in the Centralized Waste Treatment and Metal Finishing ELGs that are applicable to several of HTMA's permitted SIUs.

5.3 Pollutant-by-Pollutant Determination

5.3.1 **Arsenic** – Based on the following facts, HTMA will adopt **a new Local Limit for Arsenic**:

- The Arsenic MAHL is based on a WQBEL established by PA DEP. In addition, a higher POTW removal efficiency is used compared to 2019.
- Arsenic does not exceed the 60/80 criteria.
- The Arsenic average influent loading is 5% of the MAHL and the maximum influent loading is 8% of the MAHL.
- The average SIU loading for Arsenic is 1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Arsenic is detected in 5 out of 5 industrial outfalls tested.
- Arsenic is detected in more than half of the non-industrial wastewater samples tested from the collection system.
- Arsenic is an existing Local Limit and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 1.08 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.2 **Cadmium** – Based on the following facts, HTMA will adopt **a new Local Limit for Cadmium**:

- The Cadmium MAHL is based on a WQBEL established by PA DEP, which is less stringent than the chronic WQC used in the 2019 evaluation. Since almost all Influent and Effluent data are non-detect, a reasonable POTW removal cannot be obtained so a literature value from Appendix R of EPA's July 2004 Local Limits Development Guidance document is used.
- Cadmium does not exceed the 60/80 criteria.
- The Cadmium average influent loading is 2% of the MAHL and the maximum influent loading is 3% of the MAHL.
- The average SIU loading for Cadmium is 2% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Cadmium is detected in 5 out of 5 industrial outfalls tested.
- Cadmium is detected in only a few of the non-industrial wastewater samples from the collection system.
- Cadmium is an existing Local Limit, and though the existing MAIL is slightly more stringent than the MAIL determined during this evaluation, the new MAIL of 0.23 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.3 **Chromium** – Based on the following facts, HTMA will adopt **a new Local Limit for Chromium**:

- The Chromium MAHL is based on nitrification inhibition as was the 2019 evaluation. A much lower primary removal efficiency than 2019 is calculated so a literature value from Appendix R of EPA's July 2004 Local Limits Development Guidance document is used, resulting in a lower MAHL.
- Chromium does not exceed the 60/80 criteria.
- The Chromium average influent loading is 1% of the MAHL and the maximum influent loading is 3% of the MAHL.
- The average SIU loading for Chromium is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Chromium is detected in 5 out of 5 industrial outfalls tested.
- Chromium is detected in half of the non-industrial wastewater samples from the collection system.
- Chromium is an existing Local Limit, and though the existing MAIL is less stringent than the MAIL determined during this evaluation, the new MAIL of 11.42 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.4 **Copper** – Based on the following facts, HTMA will adopt **a new Local Limit for Copper**:

- The Copper MAHL is based on a WQBEL established by PA DEP. The previous 2019 evaluation used sludge disposal criteria for the MAHL.
- Copper does not exceed the 60/80 criteria.
- The Copper average influent loading is 15% of the MAHL and the maximum influent loading is 33% of the MAHL.
- The average SIU loading for Copper is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Copper is detected in 5 out of 5 industrial outfalls tested.

- Copper is detected in all non-industrial wastewater samples from the collection system.
- Copper is an existing Local Limit and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 15.58 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.5 **Cyanide, Total** – Based on the following facts, HTMA will not adopt **a Local Limit for Total Cyanide**:

- The Total Cyanide MAHL is based on human health water quality criteria. PA DEP did not establish a permit limit or WQBEL for Total Cyanide as there is no Total Cyanide water quality criteria in 25 Pa Code §93. Since no pass through, interference, or impacts to sludge quality have occurred since the previous Local Limits Evaluation, a local limit will not be adopted.
- Total Cyanide does not exceed the 60/80 criteria.
- The Total Cyanide average influent and maximum influent loadings are both 17% of the MAHL.
- The average SIU loading for Total Cyanide is 8% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Total Cyanide is detected in 4 out of 5 industrial outfalls tested.
- Total Cyanide is not detected in any non-industrial wastewater samples from the collection system.
- Total Cyanide is an existing Local Limit, but a new local limit will not be adopted.
- Total Cyanide will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.6 **Lead** – Based on the following facts, HTMA will adopt **a new Local Limit for Lead**:

- The Lead MAHL is based on a WQBEL established by PA DEP as opposed to the Chronic WQS AHL in 2019.
- Lead does not exceed the 60/80 criteria.
- The Lead average influent loading is 4% of the MAHL and the maximum influent loading is 7% of the MAHL.
- The average SIU loading for Lead is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Lead is detected in 5 out of 5 industrial outfalls tested.
- Lead is detected in all non-industrial wastewater samples from the collection system.
- Lead is an existing Local Limit, and the existing MAIL is less stringent than the MAIL determined during this evaluation. Therefore, the new MAIL of 2.21 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.7 **Mercury** – Based on the following facts, HTMA will adopt a new **Local Limit for Mercury**:

- The Mercury MAHL is based on a WQBEL established by PA DEP. The 2019 Mercury MAHL was based on sludge disposal criteria.
- Mercury exceeds the 60/80 criteria.
- The Mercury average influent loading is 68% of the MAHL and the maximum influent loading is 123% of the MAHL.
- The average SIU loading for Mercury is 13% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.

- Mercury is detected in 5 out of 5 industrial outfalls tested.
- Mercury is detected in less than half of the non-industrial wastewater samples from the collection system.
- Mercury is an existing Local Limit and since the existing MAIL is less stringent than the MAIL determined during this evaluation, the new MAIL of 0.0024 Lbs/Day will be adopted.

5.3.8 **Molybdenum** – Based on the following facts, HTMA will not adopt **a Local Limit for Molybdenum**:

- No MAHLs are determined for Molybdenum since EPA removed the water quality and land application sludge disposal criteria proposed in the initial evaluation.
- Molybdenum is detected in 4 out of 4 industrial outfalls tested.
- Molybdenum is detected in all non-industrial wastewater samples from the collection system.
- Molybdenum is not an existing local limit, and a local limit will not be established.
- Molybdenum will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.9 **Nickel** – Based on the following facts, HTMA will adopt **a new Local Limit for Nickel**:

- The Nickel MAHL is based on a WQBEL established by PA DEP.
- Nickel does not exceed the 60/80 criteria.
- The Nickel average influent loading is 5% of the MAHL and the maximum influent loading is 10% of the MAHL.
- The average SIU loading for Nickel is 2% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Nickel is detected in 5 out of 5 industrial outfalls tested.
- Nickel is detected in all non-industrial wastewater samples from the collection system.
- Nickel is an existing Local Limit, and the existing MAIL is less stringent than the MAIL determined during this evaluation. Therefore, the new MAIL of 8.22 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.10 **Selenium** – Based on the following facts, HTMA will not adopt **a Local Limit for Selenium**:

- The Selenium MAHL is based on a WQBEL established by PA DEP.
- Selenium does not exceed the 60/80 criteria.
- The Selenium average influent loading is 4% of the MAHL and the maximum influent loading is 7% of the MAHL.
- The average SIU loading for Selenium is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Selenium is detected in 1 out of 1 industrial outfalls tested.
- Selenium is detected in all non-industrial wastewater samples from the collection system.
- Selenium is not an existing local limit, and a local limit will not be established.
- Selenium will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.11 **Silver** – Based on the following facts, HTMA will adopt **a new Local Limit for Silver**:

- The Silver MAHL is based on a WQBEL established by PA DEP. The 2019 MAHL was based on acute water quality criteria. The difference in MAHLs is due to changes in removal efficiency, flows and Hardness data.
- Silver does not exceed the 60/80 criteria.
- The Silver average influent loading is <1% of the MAHL and the maximum influent loading is 5% of the MAHL.
- The average SIU loading for Silver is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Silver is detected in 3 out of 5 industrial outfalls tested.
- Silver is detected in almost half of the non-industrial wastewater samples from the collection system.
- Silver is an existing Local Limit, and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 2.32 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.12 **Zinc** – Based on the following facts, HTMA will adopt **a new Local Limit for Zinc**:

- The Zinc MAHL is based on a WQBEL established by PA DEP, which is higher than the 2019 WQBEL established by PA DEP.
- Zinc does not exceed the 60/80 criteria.
- The Zinc average influent loading is 17% of the MAHL and the maximum influent loading is 33% of the MAHL.
- The average SIU loading for Zinc is 2% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Zinc is detected in 5 out of 5 industrial outfalls tested.
- Zinc is detected in all non-industrial wastewater samples from the collection system.
- Zinc is an existing Local Limit, and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 20.64 Lbs/Day will be adopted, as there have been no pass-through, interference, or sludge disposal issues since the previous Local Limits Evaluation.

5.3.13 **Ammonia Nitrogen** – Based on the following facts, HTMA will not adopt **a Local Limit for Ammonia Nitrogen**:

- The Ammonia Nitrogen MAHL is based on a design loading of 40 mg/L × 6.98 MGD × 8.34.
- Ammonia Nitrogen does not exceed the 80/100 criteria.
- The Ammonia Nitrogen average influent loading is 36% of the MAHL and the maximum influent loading is 54% of the MAHL.
- Ammonia Nitrogen is not an existing local limit, and a local limit will not be established.
- Ammonia Nitrogen will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.14 **Biochemical Oxygen Demand** – Based on the following facts, HTMA will not adopt **a Local Limit for BOD_5**:

- The BOD_5 MAHL is based on a design capacity of 22,300 Lbs/Day.
- BOD_5 does not exceed the 80/100 criteria.

- The BOD_5 average influent loading is 57% of the MAHL and the maximum influent loading is 86% of the MAHL.
- BOD_5 is not an existing local limit, and a local limit will not be established.
- BOD_5 will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.15 **Total Suspended Solids** – Based on the following facts, HTMA will not adopt **a Local Limit for TSS**:

- The TSS MAHL is based on a design capacity of 22,300 Lbs/Day.
- TSS does not exceed the 80% criteria but does exceed the 100% criteria.
- The TSS average influent loading is 71% of the MAHL and the maximum influent loading is 107% of the MAHL. However, since the maximum influent loading of 23,887 Lbs/Day has not resulted in pass through or interference, and if the maximum influent loading is substituted for the MAHL, the 80/100 criteria are not exceeded.
- TSS is not an existing local limit, and a local limit will not be established.
- TSS will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.16 **Total Phosphorus** – Based on the following facts, HTMA will not adopt **a Local Limit for Total Phosphorus**:

- The Total Phosphorus MAHL is based on a design loading of 10 mg/L × 6.98 MGD × 8.34.
- Total Phosphorus does not exceed the 80/100 criteria.
- The Total Phosphorus average influent loading is 48% of the MAHL and the maximum influent loading is 71% of the MAHL.
- Total Phosphorus is not an existing local limit, and a local limit will not be established.
- Total Phosphorus will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.17 **Nitrate-Nitrite Nitrogen** – Based on the following facts, HTMA will not adopt **a Local Limit for Nitrate-Nitrite Nitrogen**:

- The Nitrate-Nitrite Nitrogen MAHL is based on an NPDES permit limit.
- Nitrate-Nitrite Nitrogen does not exceed the 80/100 criteria.
- The Nitrate-Nitrite Nitrogen average influent loading is 12% of the MAHL and the maximum influent loading is 25% of the MAHL.
- Nitrate-Nitrite Nitrogen is not an existing local limit, and a local limit will not be established.
- Nitrate-Nitrite Nitrogen will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.18 **Total Nitrogen** – Based on the following facts, HTMA will not adopt **a Local Limit for Total Nitrogen**:

- The Total Nitrogen MAHL is based on a design loading of 60 mg/L × 6.98 MGD × 8.34.
- Total Nitrogen does not exceed the 80/100 criteria.
- The Total Nitrogen average influent loading is 35% of the MAHL and the maximum influent loading is 67% of the MAHL.
- Total Nitrogen is not an existing local limit, and a local limit will not be established.

- Total Nitrogen will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.19 **Total Dissolved Solids** – Based on the following facts, HTMA will not adopt **a Local Limit for TDS**:

- The TDS MAHL is based on an NPDES permit limit.
- TDS does not exceed the 80/100 criteria.
- The TDS average influent loading is 40% of the MAHL and the maximum influent loading is 66% of the MAHL.
- The average SIU loading for TDS is 21% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- TDS is detected in 1 out of 1 industrial outfall tested.
- TDS is not an existing local limit, and a local limit will not be established.
- TDS will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.20 **Aluminum** – Based on the following facts, HTMA will not adopt **a Local Limit for Aluminum**:

- The Aluminum MAHL is based on a WQBEL established by PA DEP.
- Aluminum does not exceed the 60/80 criteria.
- The Aluminum average influent loading is 2% of the MAHL and the maximum influent loading is 3% of the MAHL.
- The average SIU loading for Aluminum is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Aluminum is detected in 4 out of 4 industrial outfalls tested.
- Aluminum is detected in all non-industrial wastewater samples from the collection system.
- Aluminum is not an existing local limit, and a local limit will not be established.
- Aluminum will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.21 **Antimony** – Based on the following facts, HTMA will not adopt **a Local Limit for Antimony**:

- The Antimony MAHL is based on a WQBEL established by PA DEP.
- Antimony does not exceed the 60/80 criteria.
- The Antimony average influent loading is 9% of the MAHL and the maximum influent loading is 20% of the MAHL.
- The average SIU loading for Antimony is 3% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Antimony is detected in 1 out of 1 industrial outfall tested.
- Antimony is detected in all non-industrial wastewater samples from the collection system.
- Aluminum is not an existing local limit, and a local limit will not be established.
- Aluminum will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.22 **Beryllium** – Based on the following facts, HTMA will not adopt **a Local Limit for Beryllium**:

- The Beryllium MAHL is based on sludge disposal criteria for Incineration.
- Beryllium does not exceed the 60/80 criteria.
- The Beryllium average influent and maximum influent loadings are both <1% of the MAHL.
- The average SIU loading for Beryllium is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Beryllium is detected in 1 out of 1 industrial outfall tested.
- Beryllium is not detected in any non-industrial wastewater samples from the collection system.
- Beryllium is not an existing local limit, and a local limit will not be established.
- Beryllium will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.23 **Chloride** – Based on the following facts, HTMA will not adopt **a Local Limit for Chloride**:

- The Chloride MAHL is based on Nitrification inhibition.
- Chloride does not exceed the 60/80 criteria.
- The Chloride average influent loading is 33% of the MAHL and the maximum influent loading is 58% of the MAHL.
- Chloride is detected in all non-industrial wastewater samples from the collection system.
- Chloride is not an existing local limit, and a local limit will not be established.
- Chloride will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.24 **Cobalt** – Based on the following facts, HTMA will not adopt **a Local Limit for Cobalt**:

- The Cobalt MAHL is based on a WQBEL established by PA DEP.
- Cobalt does not exceed the 60/80 criteria.
- The Cobalt average influent loading is 1% of the MAHL and the maximum influent loading is 2% of the MAHL.
- The average SIU loading for Cobalt is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Cobalt is detected in 2 out of 2 industrial outfalls tested.
- Cobalt is detected in most non-industrial wastewater samples from the collection system.
- Cobalt is not an existing local limit, and a local limit will not be established.
- Cobalt will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.25 **Cyanide, Free** – Based on the following facts, HTMA will not adopt **a Local Limit for Free Cyanide**:

- The Free Cyanide MAHL is based on activated sludge inhibition. It is important to note that Free Cyanide is generated in the plant through the recycle flows from the incineration process scrubber and is not necessarily contributed by industrial dischargers to the sewer system. Therefore, a POTW removal efficiency is determined using Primary Effluent and Final Effluent data for the WQBEL AHL calculation on Table 3 of the EPA spreadsheet.
- Free Cyanide does not exceed the 60/80 criteria.

- The Free Cyanide average influent loading is 4% of the MAHL and the maximum influent loading is 12% of the MAHL.
- Free Cyanide is not detected in most non-industrial wastewater samples from the collection system.
- Free Cyanide is not an existing local limit, and a local limit will not be established.
- Free Cyanide will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.26 **Iron, Dissolved** – Based on the following facts, HTMA will not adopt **a Local Limit for Dissolved Iron**:

- The Dissolved Iron MAHL is based on a WQBEL established by PA DEP.
- Dissolved Iron does not exceed the 60/80 criteria.
- The Dissolved Iron average influent loading is 15% of the MAHL and the maximum influent loading is 26% of the MAHL.
- Dissolved Iron is detected in all non-industrial wastewater samples from the collection system.
- Dissolved Iron is not an existing local limit, and a local limit will not be established.
- Dissolved Iron will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.27 **Iron, Total** – Based on the following facts, HTMA will not adopt **a Local Limit for Total Iron**:

- The Total Iron MAHL is based on a WQBEL established by PA DEP.
- Total Iron does not exceed the 60/80 criteria.
- The Total Iron average influent loading is 12% of the MAHL and the maximum influent loading is 24% of the MAHL.
- Total Iron is detected in all non-industrial wastewater samples from the collection system.
- Total Iron is not an existing local limit, and a local limit will not be established.
- Total Iron will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.28 **Phenolics, Total** – Based on the following facts, HTMA will adopt **a new Local Limit for Total Phenolics**:

- The Total Phenolics MAHL is based on public water supply human health water quality criteria for which PA DEP did not establish a permit limit or WQBEL. The flow changes from the 2019 evaluation, particularly the nearest downstream water intake, account for the higher MAHL.
- Total Phenolics does not exceed the 60/80 criteria.
- The Total Phenolics average influent loading is 5% of the MAHL and the maximum influent loading is 14% of the MAHL.
- The average SIU loading for Total Phenolics is 3% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Total Phenolics is detected in 5 out of 5 industrial outfalls tested.
- Total Phenolics is detected in more than half of the non-industrial wastewater samples from the collection system.
- Total Phenolics is an existing Local Limit, and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 18.66 Lbs/Day will be adopted.

5.3.29 **Tin** – Based on the following facts, HTMA will not adopt **a Local Limit for Tin:**

- No MAHLs are determined for Tin since EPA removed the water quality and inhibition criteria proposed in the initial evaluation.
- Tin is detected in 1 out of 1 industrial outfall tested.
- Tin is detected in more than half of the non-industrial wastewater samples from the collection system.
- Tin is not an existing local limit, and a local limit will not be established.
- Tin will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.30 **Vanadium** – Based on the following facts, HTMA will not adopt **a Local Limit for Vanadium**:

- The Vanadium MAHL is based on chronic water quality criteria for which PA DEP did not establish a permit limit or WQBEL.
- Vanadium does not exceed the 60/80 criteria.
- The Vanadium average influent and maximum influent loadings are both <1% of the MAHL.
- The average SIU loading for Vanadium is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Vanadium is detected in 1 out of 1 industrial outfall tested.
- Vanadium is not detected in the majority of the non-industrial wastewater samples from the collection system.
- Vanadium is not an existing local limit, and a local limit will not be established.
- Vanadium will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.31 **Bromodichloromethane** – Based on the following facts, HTMA will not adopt **a Local Limit for Bromodichloromethane**:

- The Bromodichloromethane MAHL is based on a WQBEL established by PA DEP.
- Bromodichloromethane does not exceed the 60/80 criteria.
- The Bromodichloromethane average influent loading is 6% of the MAHL and the maximum influent loading is 10% of the MAHL.
- The average SIU loading for Bromodichloromethane is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Bromodichloromethane is detected in 1 out of 1 industrial outfall tested.
- Bromodichloromethane is not detected in the majority of the non-industrial wastewater samples from the collection system.
- Bromodichloromethane is not an existing local limit, and a local limit will not be established.
- Bromodichloromethane will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.32 **Chloroform** – Based on the following facts, HTMA will not adopt **a Local Limit for Chloroform**:

- The Chloroform MAHL is based on a WQBEL established by PA DEP.
- Chloroform does not exceed the 60/80 criteria.

- The Chloroform average influent loading is 5% of the MAHL and the maximum influent loading is 10% of the MAHL.
- The average SIU loading for Chloroform is 1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Chloroform is detected in 5 out of 5 industrial outfalls tested.
- Chloroform is detected in most of the non-industrial wastewater samples from the collection system.
- Chloroform is not an existing local limit, and a local limit will not be established.
- Chloroform will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.33 **Methylene Chloride** – Based on the following facts, HTMA will adopt **a new Local Limit for Methylene Chloride**:

- The Methylene Chloride MAHL is based on a WQBEL established by PA DEP.
- Methylene Chloride does not exceed the 60/80 criteria.
- Methylene Chloride average influent loading is <1% of the MAHL and the maximum influent loading is 1% of the MAHL.
- The average SIU loading for Methylene Chloride is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Methylene Chloride is detected in 1 out of 5 industrial outfalls tested.
- Methylene Chloride is not detected in any of the non-industrial wastewater samples from the collection system.
- Methylene Chloride is an existing Local Limit, and though the existing MAIL is more stringent than the MAIL determined during this evaluation, the new MAIL of 4.70 Lbs/Day will be adopted.

5.3.34 **Tetrachloroethylene** – Based on the following facts, HTMA will not adopt **a Local Limit for Tetrachloroethylene**:

- The Tetrachloroethylene MAHL is based on a WQBEL established by PA DEP.
- Tetrachloroethylene does not exceed the 60/80 criteria.
- The Tetrachloroethylene average influent and maximum influent loadings are both <1% of the MAHL.
- The average SIU loading for Tetrachloroethylene is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Tetrachloroethylene is detected in 2 out of 5 industrial outfalls tested.
- Tetrachloroethylene is not detected in any of the non-industrial wastewater samples from the collection system.
- Tetrachloroethylene is not an existing local limit, and a local limit will not be established.
- Tetrachloroethylene will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.35 **Toluene** – Based on the following facts, HTMA will not adopt **a Local Limit for Toluene**:

- The Toluene MAHL is based on a WQBEL established by PA DEP.
- Toluene does not exceed the 60/80 criteria.
- The Toluene average influent and maximum influent loadings are both <1% of the MAHL.

- The average SIU loading for Toluene is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Toluene is detected in 4 out of 5 industrial outfalls tested.
- Toluene is not detected in the majority of the non-industrial wastewater samples from the collection system.
- Toluene is not an existing local limit, and a local limit will not be established.
- Toluene will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.36 **Trichloroethylene** – Based on the following facts, HTMA will not maintain **a Local Limit for Trichloroethylene**:

- The Trichloroethylene MAHL is based on a WQBEL established by PA DEP.
- Trichloroethylene does not exceed the 60/80 criteria.
- The Trichloroethylene average influent loading is 3% of the MAHL and the maximum influent loading is 6% of the MAHL. All of the effluent data are non-detect.
- The average SIU loading for Trichloroethylene is 5% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Trichloroethylene is detected in 3 out of 5 industrial outfalls tested.
- Trichloroethylene is not detected in any of the non-industrial wastewater samples from the collection system.
- In addition, all effluent test data are non-detect and the influent maximum concentration of 0.00058 mg/L is significantly lower than the drinking water MCL of 0.005 mg/L. No other criteria warrant Trichloroethylene being a local limit.
- Therefore, a local limit will not be maintained.
- Trichloroethylene will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.37 **Bis (2-Ethylhexyl) Phthalate** – Based on the following facts, HTMA will adopt **a new Local Limit for Bis (2-Ethylhexyl) Phthalate**:

- The Bis (2-Ethylhexyl) Phthalate MAHL is based on a WQBEL established by PA DEP.
- Bis (2-Ethylhexyl) Phthalate exceeds the 60/80 criteria.
- The Bis (2-Ethylhexyl) Phthalate average influent loading is 80% of the MAHL and the maximum influent loading is 338% of the MAHL. It is important to note that all of the effluent data are non-detect.
- The average SIU loading for Bis (2-Ethylhexyl) Phthalate is 3% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Bis (2-Ethylhexyl) Phthalate is detected in 5 out of 5 industrial outfalls tested.
- Bis (2-Ethylhexyl) Phthalate is detected in the majority of the non-industrial wastewater samples from the collection system.
- Bis (2-Ethylhexyl) Phthalate is an existing Local Limit, and the existing MAIL is less stringent than the MAIL determined during this evaluation. Therefore, the new MAIL of 0.65 Lbs/Day will be adopted.

5.3.38 **p-Cresol** – Based on the following facts, HTMA will not adopt **a Local Limit for p-Cresol**:

- The p-Cresol MAHL is based on chronic water quality criteria for which PA DEP did not establish a permit limit or WQBEL.
- p-Cresol does not exceed the 60/80 criteria.
- The p-Cresol average influent loading and maximum influent loading are both <1% of the MAHL.
- The average SIU loading for p-Cresol is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- p-Cresol is detected in 1 out of 1 industrial outfall tested.
- p-Cresol is detected in the majority of the non-industrial wastewater samples from the collection system.
- p-Cresol is not an existing local limit, and a local limit will not be established.
- p-Cresol will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.39 **Diethyl Phthalate** – Based on the following facts, HTMA will not adopt **a Local Limit for Diethyl Phthalate**:

- The Diethyl Phthalate MAHL is based on a WQBEL established by PA DEP.
- Diethyl Phthalate does not exceed the 60/80 criteria.
- The Diethyl Phthalate average influent loading and maximum influent loading are both <1% of the MAHL.
- The average SIU loading for Diethyl Phthalate is <1% of the MAIL as shown on Appendix 2.4 of the HTMA workbook.
- Diethyl Phthalate is detected in 1 out of 1 industrial outfall tested.
- Diethyl Phthalate is detected in about half of the non-industrial wastewater samples from the collection system.
- Diethyl Phthalate is not an existing local limit, and a local limit will not be established.
- Diethyl Phthalate will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

5.3.40 **Phenol** – Based on the following facts, HTMA will not adopt **a Local Limit for Phenol**:

- The Phenol MAHL is based on Nitrification Inhibition.
- Phenol does not exceed the 60/80 criteria.
- The Phenol average influent loading is <1% of the MAHL and the maximum influent loading is 2% of the MAHL.
- Phenol is detected in about half of the non-industrial wastewater samples from the collection system.
- Phenol is not an existing local limit, and a local limit will not be established.
- Phenol will continue to be monitored in influent, effluent, sludge, and industrial samples, as appropriate.

6. Comparison of Removal Rates

There are multiple parameters that exhibit higher average nonindustrial loadings than influent loadings as shown on Table 21. There are two (2) sets of samples collected from the collection system for use as background loadings, one of which has a large food establishment population which likely contributed to higher than typical pollutant concentrations and loadings. The background loadings are subtracted from the MAHL on Table 18.

7. Influent, Effluent and Sludge Goals

HTMA meets most of the influent, effluent, and sludge goals presented on Tables 22 and 23 of the EPA spreadsheet for the 5 years of data used for this evaluation except for a single (1) influent Mercury sample, two (2) effluent Mercury samples, and seven (7) influent Bis (2-Ethylhexyl) Phthalate samples. HTMA will work with the contract laboratories to make sure the most sensitive test methods are employed. In addition, HTMA requests that only those pollutants for which local limits are adopted will be subject to the annual goal comparison and submission to EPA with the annual pretreatment report.

Appendix 1 – EPA Region 3 PA Version 5-4 Local Limits Spreadsheet

Local Limits Calculation

Table 1 - Unit Operations (X if present)

Activated Sludge Present?	Trickling Filter Present?	Nitrification Present?	Anaerobic Digestion Present?	Sludge Incineration Present?
X		X		X

Placing an "X" in the cell under a treament unit will activate the inhibition calculations for that unit or the sludge incineration calculations.

TABLE 2a - Stream Flow Partial Mix Factors

Q7-10 Stream Flow (MGD) (Q7-10)	Harmonic Mean Stream Flow (MGD) (Qhm)	Drinking Water Intake Stream Flow (MGD) (Qdw)	Chronic Partial Mix Factor (PMFc)	Acute Partial Mix Factor (PMFa)	Threshold Human Health Partial Mix Factor (PMFthh)	Cancer Risk Level Partial Mix Factor (PMFcrl)
0.8424	6.05302	75.582	1	1	1	1

(Aqua Neshaminy WTP Intake)

(Q7-10) 7-day, 10-year low flow for receiving stream in MGD (user entered).
(Qhm) Harmonic mean flow for receiving stream in MGD (user entered).
(Qdw) Flow for receiving stream at nearest downstream drinking water intake (user entered).
(PMFa) Partial mix factor for acute water quality standards (user entered).
(PMFc) Partial mix factor for chronic water quality standards (user entered).
(PMFthh) Partial mix factor for threshold human health water quality standards (user entered).
(PMFcrl) Partial mix factor for cancer risk level water quality standards (user entered).

TABLE 2b - POTW and Receiving Stream Data

POTW Flow (MGD) (Qpotw)	IU Flow (MGD) (Qind)	Sludge Flow to Digester (MGD) (Qdig)	Sludge Flow to Disposal (MTD) (Qsldg)	Stream Flow for Chronic WQS (MGD) (Qstr1)	Stream Flow for Acute WQS (MGD) (Qstr2)	Stream Flow for Threshold Human Health WQS (MGD) (Qstr3)	Stream Flow for Carcinogen Human Health WQS (MGD) (Qstr4)	Receiving Stream Hardness (mg/L) (H)	Hauled Waste Flow to Influent (MGD) (Qhwi)	Hauled Waste Flow to Sludge Processing (MGD) (Qhws)	Sludge Flow to Incineration (MTD) (Qinc)
6.7748	0.1500		10.4227	0.8424	0.8424	0.8424	6.0530	168	0.05345	0.03608	10.4227

(Qpotw) POTW's average flow in MGD (user entered).
(Qind) Average discharge flow of Industrial Users to be regulated through the local limits in MGD (user entered).
(Qdig) Average sludge flow to digester in MGD (user entered).
(Qsldg) Average sludge flow to disposal in dry metric tons per day (user entered).
(Qstr1) Receiving stream (upstream) flow used with chronic water quality standards in MGD (calculated).
Qstr1 = Q7-10 * PMFc (data from Table 2(a), cells B17 and E17); if cell E17 is blank, PMFc assumed to be 1.
(Qstr2) Receiving stream (upstream) flow used with acute water quality standards in MGD (calculated).
Qstr2 = Q7-10 * PMFa (data from Table 2(a), cells B17 and F17); if cell F17 is blank, PMFa assumed to be 1.
(Qstr3) Receiving stream (upstream) flow used with threshold human health water quality standards in MGD (from Table 2(a), cell B17).
(Qstr4) Receiving stream (upstream) flow used with carcinogen human health water quality standards in MGD (calculated).
Qstr4 = Qhm * PMFcrl (data from Table 2(a), cells C17 and G17); if cell G17 is blank, PMFcrl assumed to be 1; if cell C17 is blank, formula below is used:
or Qstr4 = PMFcrl * 7.43 * $(Q7\text{-}10)^{0.6/4}$ (data from Table 2(a), cell G17 and B17)
(H) Receiving stream hardness in mg/l (user entered).
(Qhwi) Hauled waste flow discharged at the influent of the treatment plant in MGD (user entered).
(Qhws) Hauled waste flow discharged directly to the sludge processing units in MGD (user entered).
(Qinc) Average sludge flow to incineration in dry metric tons per day (user entered).

Local Limits Calculation

TABLE 3 - Allowable Headworks Loadings Based on NPDES Effluent Limits

	LOCAL LIMITS CALCULATION DATA				MAXIMUM LOADING		
Pollutant	POTW Flow (MGD) (Qpotw)	NPDES Limit (mg/L) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLnpdes)	User Entered Removal Efficiency (%)	
Arsenic	6.7748	0.01100	Influent/Effluent	51.2318	1.2744		
Cadmium	6.7748	0.00041	User Entered	91.0000	0.25740	91.00	EPA Appendix R
Chromium	6.7748	0.13600	Influent/Effluent	87.1271	59.6933		
Copper	6.7748	0.08950	Influent/Effluent	77.1805	22.1605		
Cyanide, Total	6.7748		Default (activated sludge)	69.0000	-		
Lead	6.7748	0.00611	Influent/Effluent	86.5014	2.55750		
Mercury	6.7748	0.000055	Influent/Effluent	56.5806	0.00716		
Molybdenum	6.7748		User Entered	54.0000	-	54.00	EPA IWWT Database
Nickel	6.7748	0.08310	Influent/Effluent	49.3973	9.2788		
Selenium	6.7748	0.00551	Default (activated sludge)	50.0000	0.62265		
Silver	6.7748	0.00799	Influent/Effluent	82.6122	2.5964		
Zinc	6.7748	0.17300	Influent/Effluent	67.3501	29.9383		
Ammonia	6.7748	1.80000	Influent/Effluent	97.0386	3434.24		
BOD	6.7748	9.10000	Influent/Effluent	98.6203	37266.8170		
TSS	6.7748	30.00000	Influent/Effluent	98.8708	150117.0148		
Phosphorus (T)	6.7748	0.74000	Influent/Effluent	94.7637	798.498		
Nitrate+Nitrite Nitrogen	6.7748	8.20000	User Entered	0.0000	463.3150	0.0000	
Total Nitrogen	6.7748		Influent/Effluent	74.0966	-		
Total Dissolved Solids	6.7748	1000.00000	Influent/Effluent	3.8431	58760.03		
Aluminum	6.7748	0.75000	Influent/Effluent	98.5677	2958.6779		
Antimony	6.7748	0.00618	Influent/Effluent	17.4285	0.42288		
Beryllium	6.7748		Influent/Effluent	9.3201	-		
Chloride	6.7748		User Entered	0.0000	-	0.0000	
Cobalt	6.7748	0.02100	Influent/Effluent	27.6107	1.6391		
Cyanide, Free	6.7748	0.00441	User Entered	99.6500	71.19231	99.650	Site-specific Primary Eff - WWTP Eff
Iron, Dissolved	6.7748	0.33100	Influent/Effluent	64.3191	52.4149		
Iron, Total	6.7748	1.65600	Influent/Effluent	76.0670	390.955		
Phenolics, Total	6.7748		Influent/Effluent	85.5987	-		
Tin	6.7748		Influent/Effluent	79.6208	-		
Vanadium	6.7748		Influent/Effluent	48.1312	-		
Bromodichloromethane	6.7748	0.00167	Influent/Effluent	67.3511	0.2890		
Chloroform	6.7748	0.01000	Influent/Effluent	81.6360	3.0768		
Methylene Chloride	6.7748	0.03520	Default (activated sludge)	62.0000	5.2339		
Tetrachloroethylene	6.7748	0.01760	Default (activated sludge)	80.0000	4.9722		
Toluene	6.7748	0.06290	Influent/Effluent	91.5106	41.8638		
Trichloroethylene	6.7748	0.00106	Default (activated sludge)	89.0000	0.5445		
Bis(2-Ethylhexyl)Phthalate	6.7748	0.00056	Influent/Effluent	96.5148	0.9079		
p-Cresol	6.7748		Influent/Effluent	92.8701	-		
Diethyl Phthalate	6.7748	0.66200	Influent/Effluent	89.9466	372.0563		
Phenol	6.7748	4.41500	Influent/Effluent	98.3955	15546.9160		

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	NPDES permit limit or calculated WQBEL for a particular pollutant in mg/l (user entered)
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rpotw)	Removal efficiency across POTW as percent (Inf/Eff Removal (row 58), Inf/Sldg Removal (row 59), or Daily Removal (row 53) from 'Monitoring Data' worksheet, EPA default for specified treatment process, or user entered (column G)).
(AHLnpdes)	Allowable headworks pollutant loading to the POTW in pounds per day based on NPDES permit limits (lbs/day - calculated).
AHLnpdes =	(8.34 * Ccrit * Qpotw) / (1-Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 4 - Allowable Headworks Loadings Based on Chronic Water Quality Standards

	LOCAL LIMITS CALCULATION DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr1)	Receiving Stream Concentration (mg/L) (Cstr)	Chronic WQS (mg/L) (Ccrit)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLcwq)
Arsenic	6.7748	0.8424		-	51.2318	-
Cadmium	6.7748	0.8424		-	91.0000	-
Chromium	6.7748	0.8424			87.1271	-
Copper	6.7748	0.8424		-	77.1805	-
Cyanide, Total	6.7748	0.8424		0.00520	69.0000	1.0656
Lead	6.7748	0.8424		-	86.5014	-
Mercury	6.7748	0.8424		-	56.5806	-
Molybdenum	6.7748	0.8424			54.0000	-
Nickel	6.7748	0.8424		-	49.3973	-
Selenium	6.7748	0.8424		-	50.0000	-
Silver	6.7748	0.8424			82.6122	-
Zinc	6.7748	0.8424		-	67.3501	-
Ammonia	6.7748	0.8424			97.0386	-
BOD	6.7748	0.8424			98.6203	-
TSS	6.7748	0.8424			98.8708	-
Phosphorus (T)	6.7748	0.8424			94.7637	-
Nitrate+Nitrite Nitrogen	6.7748	0.8424			0.0000	-
Total Nitrogen	6.7748	0.8424			74.0966	-
Total Dissolved Solids	6.7748	0.8424			3.8431	-
Aluminum	6.7748	0.8424			98.5677	-
Antimony	6.7748	0.8424		-	17.4285	-
Beryllium	6.7748	0.8424			9.3201	-
Chloride	6.7748	0.8424			0.0000	-
Cobalt	6.7748	0.8424		-	27.6107	-
Cyanide, Free	6.7748	0.8424		-	99.6500	-
Iron, Dissolved	6.7748	0.8424			64.3191	-
Iron, Total	6.7748	0.8424		-	76.0670	-
Phenolics, Total	6.7748	0.8424			85.5987	-
Tin	6.7748	0.8424			79.6208	-
Vanadium	6.7748	0.8424		0.10000	48.1312	12.2477
Bromodichloromethane	6.7748	0.8424			67.3511	-
Chloroform	6.7748	0.8424		-	81.6360	-
Methylene Chloride	6.7748	0.8424		-	62.0000	-
Tetrachloroethylene	6.7748	0.8424		-	80.0000	-
Toluene	6.7748	0.8424		-	91.5106	-
Trichloroethylene	6.7748	0.8424		-	89.0000	-
Bis(2-Ethylhexyl)Phthalate	6.7748	0.8424		-	96.5148	-
p-Cresol	6.7748	0.8424		0.1600	92.8701	142.5604
Diethyl Phthalate	6.7748	0.8424		-	89.9466	-
Phenol	6.7748	0.8424			98.3955	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr1)	Receiving stream (upstream) flow used with chronic water quality standards in MGD (from Table 2(b), cell F35).
(Cstr)	Receiving stream background concentration in mg/l (user entered)
(Ccrit)	State chronic water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered)
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLcwq)	Allowable headworks pollutant loading to the POTW in pounds per day based on chronic water quality standards (lbs/day - calculated).
AHLcwq =	8.34 * (Ccrit * (Qstr1 + Qpotw) - (Cstr * Qstr1)) / (1-Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 5 - Allowable Headworks Loadings Based on Acute Water Quality Standards

	LOCAL LIMITS CALCULATION DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr2)	Receiving Stream Concentration (mg/L) (Cstr)	Acute WQS (mg/L) (Ccrit)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLawq)
Arsenic	6.7748	0.8424	0	-	51.2318	-
Cadmium	6.7748	0.8424	0	-	91.0000	-
Chromium	6.7748	0.8424	0		87.1271	-
Copper	6.7748	0.8424	0	-	77.1805	-
Cyanide, Total	6.7748	0.8424	0	0.02200	69.0000	4.5084
Lead	6.7748	0.8424	0	-	86.5014	-
Mercury	6.7748	0.8424	0	-	56.5806	-
Molybdenum	6.7748	0.8424	0		54.0000	-
Nickel	6.7748	0.8424	0	-	49.3973	-
Selenium	6.7748	0.8424	0		50.0000	-
Silver	6.7748	0.8424	0	-	82.6122	-
Zinc	6.7748	0.8424	0	-	67.3501	-
Ammonia	6.7748	0.8424	0		97.0386	-
BOD	6.7748	0.8424	0		98.6203	-
TSS	6.7748	0.8424	0		98.8708	-
Phosphorus (T)	6.7748	0.8424	0		94.7637	-
Nitrate+Nitrite Nitrogen	6.7748	0.8424	0		0.0000	-
Total Nitrogen	6.7748	0.8424	0		74.0966	-
Total Dissolved Solids	6.7748	0.8424	0		3.8431	-
Aluminum	6.7748	0.8424	0	-	98.5677	-
Antimony	6.7748	0.8424	0	-	17.4285	-
Beryllium	6.7748	0.8424	0		9.3201	-
Chloride	6.7748	0.8424	0		0.0000	-
Cobalt	6.7748	0.8424	0	-	27.6107	-
Cyanide, Free	6.7748	0.8424	0	-	99.6500	-
Iron, Dissolved	6.7748	0.8424	0		64.3191	-
Iron, Total	6.7748	0.8424	0		76.0670	-
Phenolics, Total	6.7748	0.8424	0		85.5987	-
Tin	6.7748	0.8424	0		79.6208	-
Vanadium	6.7748	0.8424	0	0.51000	48.1312	62.4633
Bromodichloromethane	6.7748	0.8424	0		67.3511	-
Chloroform	6.7748	0.8424	0	-	81.6360	-
Methylene Chloride	6.7748	0.8424	0	-	62.0000	-
Tetrachloroethylene	6.7748	0.8424	0	-	80.0000	-
Toluene	6.7748	0.8424	0	-	91.5106	-
Trichloroethylene	6.7748	0.8424	0	-	89.0000	-
Bis(2-Ethylhexyl)Phthalate	6.7748	0.8424	0	-	96.5148	-
p-Cresol	6.7748	0.8424	0	0.80000	92.8701	712.8021
Diethyl Phthalate	6.7748	0.8424	0	-	89.9466	-
Phenol	6.7748	0.8424	0		98.3955	-

(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr2) Receiving stream (upstream) flow used with acute water quality standards in MGD (from Table 2(b), cell G35).
(Cstr) Receiving stream background concentration in mg/l (from Table 4, column D).
(Ccrit) State acute water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered)
(Rpotw) Removal efficiency across POTW as percent (from Table 3, column E).
(AHLawq) Allowable headworks pollutant loading to the POTW in pounds per day based on acute water quality standards (lbs/day - calculated).
AHLawq = 8.34 * (Ccrit * (Qstr2 + Qpotw) - (Cstr * Qstr2)) / (1-Rpotw/100)
8.34 Unit conversion factor

POTW Name: Hatfield Township Municipal Authority AWWTF

Local Limits Calculation

TABLE 6 - Allowable Headworks Loadings Based on Human Health Water Quality Standards

	LOCAL LIMITS CALCULATION DATA						MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr3 Qstr4 or Qdw)	Receiving Stream Concentration (mg/L) (Cstr)	Human Health WQS (mg/L) (Ccrit)	Select Basis of Standard (from list)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLhhwq)
Arsenic	6.7748	0.8424	0	-	Threshold Human Health	51.2318	-
Cadmium	6.7748	-	0			91.0000	-
Chromium	6.7748	-	0			87.1271	-
Copper	6.7748	-	0			77.1805	-
Cyanide, Total	6.7748	0.8424	0	0.0040	Threshold Human Health	69.0000	0.8197
Lead	6.7748	-	0			86.5014	-
Mercury	6.7748	0.8424	0	-	Threshold Human Health	56.5806	-
Molybdenum	6.7748	-	0			54.0000	-
Nickel	6.7748	0.8424	0	-	Threshold Human Health	49.3973	-
Selenium	6.7748	-	0			50.0000	-
Silver	6.7748	-	0			82.6122	-
Zinc	6.7748	-	0			67.3501	-
Ammonia	6.7748	-	0			97.0386	-
BOD	6.7748	-	0			98.6203	-
TSS	6.7748	-	0			98.8708	-
Phosphorus (T)	6.7748	-	0			94.7637	-
Nitrate+Nitrite Nitrogen	6.7748	75.5820	0	-	Public Water Supply	0.0000	-
Total Nitrogen	6.7748	-	0			74.0966	-
Total Dissolved Solids	6.7748	75.5820	0	-	Public Water Supply	3.8431	-
Aluminum	6.7748	-	0			98.5677	-
Antimony	6.7748	0.8424	0	-	Threshold Human Health	17.4285	-
Beryllium	6.7748	-	0			9.3201	-
Chloride	6.7748	75.5820	0	250.0000	Public Water Supply	0.0000	171713.9280
Cobalt	6.7748	-	0			27.6107	-
Cyanide, Free	6.7748	0.8424	0	-	Threshold Human Health	99.6500	-
Iron, Dissolved	6.7748	0.8424	0	-	Threshold Human Health	64.3191	-
Iron, Total	6.7748	-	0			76.0670	-
Phenolics, Total	6.7748	75.5820	0	0.0050	Public Water Supply	85.5987	23.8470
Tin	6.7748	-	0			79.6208	-
Vanadium	6.7748	-	0			48.1312	-
Bromodichloromethane	6.7748	6.0530	0	-	Cancer Risk Level	67.3511	-
Chloroform	6.7748	0.8424	0	-	Threshold Human Health	81.6360	-
Methylene Chloride	6.7748	6.0530	0	-	Cancer Risk Level	62.0000	-
Tetrachloroethylene	6.7748	6.0530	0	-	Cancer Risk Level	80.0000	-
Toluene	6.7748	0.8424	0	-	Threshold Human Health	91.5106	-
Trichloroethylene	6.7748	6.0530	0	-	Cancer Risk Level	89.0000	-
Bis(2-Ethylhexyl)Phthalate	6.7748	6.0530	0	-	Cancer Risk Level	96.5148	-
p-Cresol	6.7748	-	0			92.8701	-
Diethyl Phthalate	6.7748	0.8424	0	-	Threshold Human Health	89.9466	-
Phenol	6.7748	0.8424	0	-	Threshold Human Health	98.3955	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr3)	Receiving stream (upstream) flow used with threshold human health water quality standards in MGD (from Table 2(b), cell H35).
(Qstr4)	Receiving stream (upstream) flow used with cancer risk level human health water quality standards in MGD (from Table 2(b), cell I35).
(Qdw)	Receiving stream (upstream) flow used with water quality standards based on drinking water supply in MGD (from Table 2(a), cell D17).
(Cstr)	Receiving stream background concentration in mg/l (from Table 4, column D).
(Ccrit)	State human health water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered).
Select Basis of Standard	Select the basis of the standard listed in column E from drop down list. Selection of basis of the standard will determine which flow is entered in column C (Qstr3, Qstr4, or Qdw).
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLhhwq)	Allowable headworks pollutant loading to the POTW in pounds per day based on human health water quality standards (lbs/day - calculated).
AHLhhwq =	8.34 * (Ccrit * (Q + Qpotw) - (Cstr * Q)) / (1-Rpotw/100); where Q is Qstr3, Qstr4, or Qdw
8.34	Unit conversion factor

Local Limits Calculation

TABLE 7 - Comparison of Allowable Headworks Loadings Based on Water Quality

Pollutant	AHL (NPDES) (lbs/day)	AHL (CHRONIC) (lbs/day)	AHL (ACUTE) (lbs/day)	AHL (HUMAN HEALTH) (lbs/day)	AHL (WATER QUALITY) (lbs/day)
Arsenic	1.2744	-	-	-	1.2744
Cadmium	0.2574	-	-	-	0.2574
Chromium	59.6933	-	-	-	59.6933
Copper	22.1605	-	-	-	22.1605
Cyanide, Total	-	1.0656	4.5084	0.8197	0.8197
Lead	2.5575	-	-	-	2.5575
Mercury	0.00716	-	-	-	0.00716
Molybdenum	-	-	-	-	-
Nickel	9.2788	-	-	-	9.2788
Selenium	0.6227	-	-	-	0.6227
Silver	2.5964	-	-	-	2.5964
Zinc	29.9383	-	-	-	29.9383
Ammonia	3434.2439	-	-	-	3434.2439
BOD	37266.8170	-	-	-	37266.8170
TSS	150117.0148	-	-	-	150117.0148
Phosphorus (T)	798.4975	-	-	-	798.4975
Nitrate+Nitrite Nitrogen	463.3150	-	-	-	463.3150
Total Nitrogen	-	-	-	-	-
Total Dissolved Solids	58760.0271	-	-	-	58760.0271
Aluminum	2958.6779	-	-	-	2958.6779
Antimony	0.4229	-	-	-	0.4229
Beryllium	-	-	-	-	-
Chloride	-	-	-	171713.9280	171713.9280
Cobalt	1.6391	-	-	-	1.6391
Cyanide, Free	71.1923	-	-	-	71.1923
Iron, Dissolved	52.4149	-	-	-	52.4149
Iron, Total	390.9546	-	-	-	390.9546
Phenolics, Total	-	-	-	23.8470	23.8470
Tin	-	-	-	-	-
Vanadium	-	12.2477	62.4633	-	12.2477
Bromodichloromethane	0.2890	-	-	-	0.2890
Chloroform	3.0768	-	-	-	3.0768
Methylene Chloride	5.2339	-	-	-	5.2339
Tetrachloroethylene	4.9722	-	-	-	4.9722
Toluene	41.8638	-	-	-	41.8638
Trichloroethylene	0.5445	-	-	-	0.5445
Bis(2-Ethylhexyl)Phthalate	0.9079	-	-	-	0.9079
p-Cresol	-	142.5604	712.8021	-	142.5604
Diethyl Phthalate	372.0563	-	-	-	372.0563
Phenol	15546.9160	-	-	-	15546.9160

AHL (NPDES) = Allowable headworks loading based on NPDES limits, from Table 3, column F.
AHL (CHRONIC) = Allowable headworks loading based on chronic water quality criteria, from Table 4, column G.
AHL (ACUTE) = Allowable headworks loading based on acute water quality criteria, from Table 5, column G.
AHL (HUMAN HEALTH) = Allowable headworks loading based on human health water quality criteria, from Table 6, column H.
AHL (WATER QUALITY) = Allowable headworks loading based on water quality; lowest value from columns B through E for each pollutant.

Local Limits Calculation

TABLE 8 - Allowable Headworks Loadings Based on Activated Sludge Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING		
Pollutant	POTW Flow (MGD) (Qpotw)	Activated Sludge Inhibition Level (mg/L) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Ras)	Allowable Headworks Loading (lbs/day) (AHLasi)	User Entered Removal Efficiency (%)	
Arsenic	6.7748	0.10	User Entered	45.0000	10.2731	45.00	EPA App R
Cadmium	6.7748	1.00	User Entered	15.0000	66.4727	15.00	EPA App R
Chromium	6.7748	1.00	User Entered	27.0000	77.3998	27.00	EPA App R
Copper	6.7748	1.00	Removal Prior to Activated Sludge	58.4928	136.1253	22.00	EPA App R
Cyanide, Total	6.7748	0.30	User Entered	27.0000	23.2199	27.00	EPA App R
Lead	6.7748	1.00	User Entered	57.0000	131.3996	57.00	EPA App R
Mercury	6.7748	0.10	User Entered	10.0000	6.2780	10.00	EPA App R
Molybdenum	6.7748		User Entered	-	-		
Nickel	6.7748	1.00	User Entered	14.0000	65.6998	14.00	EPA App R
Selenium	6.7748		User Entered	-	-		
Silver	6.7748	0.25	User Entered	20.0000	17.6568	20.00	EPA App R
Zinc	6.7748	0.30	Removal Prior to Activated Sludge	56.7479	39.1901	27.00	EPA App R
Ammonia	6.7748	480	Removal Prior to Activated Sludge	28.5693	37968.0833		
BOD	6.7748		Removal Prior to Activated Sludge	-	-		
TSS	6.7748		Removal Prior to Activated Sludge	-	-		
Phosphorus (T)	6.7748		Removal Prior to Activated Sludge	-	-		
Nitrate+Nitrite Nitrogen	6.7748		Removal Prior to Activated Sludge	-	-		
Total Nitrogen	6.7748		Removal Prior to Activated Sludge	-	-		
Total Dissolved Solids	6.7748		Removal Prior to Activated Sludge	-	-		
Aluminum	6.7748		Removal Prior to Activated Sludge	-	-		
Antimony	6.7748		Removal Prior to Activated Sludge	-	-		
Beryllium	6.7748		Removal Prior to Activated Sludge	-	-		
Chloride	6.7748		Removal Prior to Activated Sludge	-	-		
Cobalt	6.7748		Removal Prior to Activated Sludge	-	-		
Cyanide, Free	6.7748	0.10	User Entered	27.0000	7.7400	27.00	EPA App R
Iron, Dissolved	6.7748		Removal Prior to Activated Sludge	-	-		
Iron, Total	6.7748		Removal Prior to Activated Sludge	-	-		
Phenolics, Total	6.7748		Removal Prior to Activated Sludge	-	-		
Tin	6.7748		Removal Prior to Activated Sludge	-	-		
Vanadium	6.7748		Removal Prior to Activated Sludge	-	-		
Bromodichloromethane	6.7748		Removal Prior to Activated Sludge	-	-		
Chloroform	6.7748		Removal Prior to Activated Sludge	-	-		
Methylene Chloride	6.7748		Removal Prior to Activated Sludge	-	-		
Tetrachloroethylene	6.7748		Removal Prior to Activated Sludge	-	-		
Toluene	6.7748	200	User Entered	20.0000	14125.4580	20.00	EPA App R
Trichloroethylene	6.7748		Removal Prior to Activated Sludge	-	-		
Bis(2-Ethylhexyl)Phthalate	6.7748		Removal Prior to Activated Sludge	-	-		
p-Cresol	6.7748		Removal Prior to Activated Sludge	-	-		
Diethyl Phthalate	6.7748		Removal Prior to Activated Sludge	-	-		
Phenol	6.7748	50.0	User Entered	8.0000	3070.7517	8	EPA App R

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Activated sludge threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Ras)	Removal efficiency prior to activated sludge treatment unit as percent (Prior to Act Sl ('Inhibition Removals' worksheet row 58), EPA default, or user entered).
(AHLasi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of activated sludge units (lbs/day - calculated).
AHLasi =	8.34 * (Ccrit * Qpotw) / (1-Rprim/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 9 - Allowable Headworks Loadings Based on Trickling Filter Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING	
Pollutant	POTW Flow (MGD) (Qpotw)	Trickling Filter Inhibition Level (mg/L) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rtf)	Allowable Headworks Loading (lbs/day) (AHLtfi)	User Entered Removal Efficiency (%)
Arsenic	6.7748		Removal Prior to Trickling Filter	-	-	
Cadmium	6.7748		Removal Prior to Trickling Filter	-	-	
Chromium	6.7748	-	Removal Prior to Trickling Filter	-	-	
Copper	6.7748		Removal Prior to Trickling Filter	-	-	
Cyanide, Total	6.7748	-	Removal Prior to Trickling Filter	-	-	
Lead	6.7748		Removal Prior to Trickling Filter	-	-	
Mercury	6.7748		Removal Prior to Trickling Filter	-	-	
Molybdenum	6.7748		Removal Prior to Trickling Filter	-	-	
Nickel	6.7748		Removal Prior to Trickling Filter	-	-	
Selenium	6.7748		Removal Prior to Trickling Filter	-	-	
Silver	6.7748		Removal Prior to Trickling Filter	-	-	
Zinc	6.7748		Removal Prior to Trickling Filter	-	-	
Ammonia	6.7748		Removal Prior to Trickling Filter	-	-	
BOD	6.7748		Removal Prior to Trickling Filter	-	-	
TSS	6.7748		Removal Prior to Trickling Filter	-	-	
Phosphorus (T)	6.7748		Removal Prior to Trickling Filter	-	-	
Nitrate+Nitrite Nitrogen	6.7748		Removal Prior to Trickling Filter	-	-	
Total Nitrogen	6.7748		Removal Prior to Trickling Filter	-	-	
Total Dissolved Solids	6.7748		Removal Prior to Trickling Filter	-	-	
Aluminum	6.7748		Removal Prior to Trickling Filter	-	-	
Antimony	6.7748		Removal Prior to Trickling Filter	-	-	
Beryllium	6.7748		Removal Prior to Trickling Filter	-	-	
Chloride	6.7748		Removal Prior to Trickling Filter	-	-	
Cobalt	6.7748		Removal Prior to Trickling Filter	-	-	
Cyanide, Free	6.7748		Removal Prior to Trickling Filter	-	-	
Iron, Dissolved	6.7748		Removal Prior to Trickling Filter	-	-	
Iron, Total	6.7748		Removal Prior to Trickling Filter	-	-	
Phenolics, Total	6.7748		Removal Prior to Trickling Filter	-	-	
Tin	6.7748		Removal Prior to Trickling Filter	-	-	
Vanadium	6.7748		Removal Prior to Trickling Filter	-	-	
Bromodichloromethane	6.7748		Removal Prior to Trickling Filter	-	-	
Chloroform	6.7748		Removal Prior to Trickling Filter	-	-	
Methylene Chloride	6.7748		Removal Prior to Trickling Filter	-	-	
Tetrachloroethylene	6.7748		Removal Prior to Trickling Filter	-	-	
Toluene	6.7748		Removal Prior to Trickling Filter	-	-	
Trichloroethylene	6.7748		Removal Prior to Trickling Filter	-	-	
Bis(2-Ethylhexyl)Phthalate	6.7748		Removal Prior to Trickling Filter	-	-	
p-Cresol	6.7748		Removal Prior to Trickling Filter	-	-	
Diethyl Phthalate	6.7748		Removal Prior to Trickling Filter	-	-	
Phenol	6.7748		Removal Prior to Trickling Filter	-	-	

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Trickling filter threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rtf)	Removal efficiency prior to trickling filter treatment unit as percent (Prior to Trick Fil ('Inhibition Removals' worksheet row 59), EPA default, or user entered).
(AHLtfi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of trickling filter units (lbs/day - calculated).
AHLtfi =	8.34 * (Ccrit * Qpotw) / (1-Rprim/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 10 - Allowable Headworks Loadings Based on Nitrification Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING		
Pollutant	POTW Flow (MGD) (Qpotw)	Nitrification Inhibition Level (mg/L) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rn)	Allowable Headworks Loading (lbs/day) (AHLni)	User Entered Removal Efficiency (%)	
Arsenic	6.7748	1.50	User Entered	45.0000	154.0959	45.00	EPA App R
Cadmium	6.7748	5.20	User Entered	15.0000	345.6583	15.00	EPA App R
Chromium	6.7748	0.165	User Entered	27.0000	12.7710	27.00	EPA App R
Copper	6.7748	0.83	Removal Prior to Nitrification	58.4928	112.9840	22.00	EPA App R
Cyanide, Total	6.7748	0.34	User Entered	27.0000	26.3159	27.00	EPA App R
Lead	6.7748	0.50	User Entered	57.0000	65.6998	57.00	EPA App R
Mercury	6.7748		Removal Prior to Nitrification	-	-		
Molybdenum	6.7748		Removal Prior to Nitrification	-	-		
Nickel	6.7748	0.25	User Entered	14.0000	16.4250	14.00	EPA App R
Selenium	6.7748		Removal Prior to Nitrification	-	-		
Silver	6.7748	0.066	User Entered	20.0000	4.6614	20.00	EPA App R
Zinc	6.7748	0.25	Removal Prior to Nitrification	56.7479	32.6584	27.00	EPA App R
Ammonia	6.7748		Removal Prior to Nitrification	-	-		
BOD	6.7748		Removal Prior to Nitrification	-	-		
TSS	6.7748		Removal Prior to Nitrification	-	-		
Phosphorus (T)	6.7748		Removal Prior to Nitrification	-	-		
Nitrate+Nitrite Nitrogen	6.7748		Removal Prior to Nitrification	-	-		
Total Nitrogen	6.7748		Removal Prior to Nitrification	-	-		
Total Dissolved Solids	6.7748		Removal Prior to Nitrification	-	-		
Aluminum	6.7748		Removal Prior to Nitrification	-	-		
Antimony	6.7748		Removal Prior to Nitrification	-	-		
Beryllium	6.7748		Removal Prior to Nitrification	-	-		
Chloride	6.7748	180	Removal Prior to Nitrification	45.9160	18804.6799		
Cobalt	6.7748		Removal Prior to Nitrification	-	-		
Cyanide, Free	6.7748		Removal Prior to Nitrification	-	-		
Iron, Dissolved	6.7748		Removal Prior to Nitrification	-	-		
Iron, Total	6.7748		Removal Prior to Nitrification	-	-		
Phenolics, Total	6.7748		Removal Prior to Nitrification	-	-		
Tin	6.7748		Removal Prior to Nitrification	-	-		
Vanadium	6.7748		Removal Prior to Nitrification	-	-		
Bromodichloromethane	6.7748		Removal Prior to Nitrification	-	-		
Chloroform	6.7748	10.0	User Entered	14.0000	656.9980	14.00	EPA App R
Methylene Chloride	6.7748		Removal Prior to Nitrification	-	-		
Tetrachloroethylene	6.7748		Removal Prior to Nitrification	-	-		
Toluene	6.7748		Removal Prior to Nitrification	-	-		
Trichloroethylene	6.7748		Removal Prior to Nitrification	-	-		
Bis(2-Ethylhexyl)Phthalate	6.7748		Removal Prior to Nitrification	-	-		
p-Cresol	6.7748		Removal Prior to Nitrification	-	-		
Diethyl Phthalate	6.7748		Removal Prior to Nitrification	-	-		
Phenol	6.7748	4.00	User Entered	8.0000	245.6601	8.00	EPA App R

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Nitrification threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rn)	Removal efficiency prior to nitrification treatment unit as percent (Prior to Nitrif ('Inhibition Removals' worksheet row 60), Prior to Act Sl (row 58), Prior to Trick Fil (row 59), EPA default, or user entered).
(AHLni)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of nitrification units (lbs/day - calculated).
AHLni =	(8.34 * Ccrit * Qpotw) / (1-Rsec/100)
8.34	Unit conversion factor

POTW Name: Hatfield Township Municipal Authority AWWTF

Local Limits Calculation

TABLE 11 - Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (Conservative Pollutants)

Does hauled waste discharged to sludge processing units flow though digesters?	Yes	No
		X

	LOCAL LIMITS CALCULATIONS DATA									MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Sludge Flow to Digester (MGD) (Qdig)	Anaerobic Digester Inhibition Level (mg/L) (Ccrit)	Allowable Digester Loading (lbs/day) (ALdig)	Hauled Waste to Sludge Concentration (mg/L) (Chws)	Hauled Waste to Sludge Flow (MGD) (Qhws)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLadi)
Arsenic	6.7748	-	-	-	-	0.03608	-	-	51.2318	-
Cadmium	6.7748	-	-	-	-	0.03608	-	-	91.0000	-
Chromium	6.7748	-	-	-	-	0.03608	-	-	87.1271	-
Copper	6.7748	-	-	-	-	0.03608	-	-	77.1805	-
Cyanide, Total	6.7748	-		-	-	0.03608	-	-	-	-
Lead	6.7748	-	-	-	-	0.03608	-	-	86.5014	-
Mercury	6.7748	-		-	-	0.03608	-	-	-	-
Molybdenum	6.7748	-		-	-	0.03608	-	-	-	-
Nickel	6.7748	-	-	-	-	0.03608	-	-	49.3973	-
Selenium	6.7748	-		-	-	0.03608	-	-	-	-
Silver	6.7748	-	-	-	-	0.03608	-	-	82.6122	-
Zinc	6.7748	-	-	-	-	0.03608	-	-	67.3501	-
Ammonia	6.7748	-		-	-	0.03608	-	-	-	-
BOD	6.7748	-		-	-	0.03608	-	-	-	-
TSS	6.7748	-		-	-	0.03608	-	-	-	-
Phosphorus (T)	6.7748	-		-	-	0.03608	-	-	-	-
Nitrate+Nitrite Nitrogen	6.7748	-		-	-	0.03608	-	-	-	-
Total Nitrogen	6.7748	-		-	-	0.03608	-	-	-	-
Total Dissolved Solids	6.7748	-		-	-	0.03608	-	-	-	-
Aluminum	6.7748	-		-	-	0.03608	-	-	-	-
Antimony	6.7748	-		-	-	0.03608	-	-	-	-
Beryllium	6.7748	-		-	-	0.03608	-	-	-	-
Chloride	6.7748	-		-	-	0.03608	-	-	-	-
Cobalt	6.7748	-		-	-	0.03608	-	-	-	-
Cyanide, Free	6.7748	-		-	-	0.03608	-	-	-	-
Iron, Dissolved	6.7748	-		-	-	0.03608	-	-	-	-
Iron, Total	6.7748	-		-	-	0.03608	-	-	-	-
Phenolics, Total	6.7748	-		-	-	0.03608	-	-	-	-
Tin	6.7748			-	-	0.03608	-	-	-	-
Vanadium	6.7748	-		-	-	0.03608	-	-	-	-
Bromodichloromethane	6.7748	-		-	-	0.03608	-	-	-	-
Chloroform	6.7748	-		-	-	0.03608	-	-	-	-
Methylene Chloride	6.7748	-		-	-	0.03608	-	-	-	-
Tetrachloroethylene	6.7748	-		-	-	0.03608	-	-	-	-
Toluene	6.7748	-		-	-	0.03608	-	-	-	-
Trichloroethylene	6.7748	-		-	-	0.03608	-	-	-	-
Bis(2-Ethylhexyl)Phthalate	6.7748	-		-	-	0.03608	-	-	-	-
p-Cresol	6.7748			-	-	0.03608	-	-	-	-
Diethyl Phthalate	6.7748	-		-	-	0.03608	-	-	-	-
Phenol	6.7748	-		-	-	0.03608	-	-	-	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qdig)	Average sludge flow to digester in MGD (from Table 2(b), cell D35).
(Ccrit)	Anaerobic digester threshold inhibition level in mg/l (EPA default or user entered).
(ALdig)	Allowable pollutant loading in the digester in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
ALdig =	8.34 * Ccrit * Qdig
(Chws)	Average pollutant concentration of waste hauled directly to the anaerobic digesters in mg/l (from 'Monitoring Data' worksheet, row 53).
(Qhws)	Average flow of waste hauled directly to digester in MGD (from Table 2(b), cell L35).
(Lhws)	Average pollutant loading of waste hauled directly to the anaerobic digesters in pounds per day (lbs/d - calculated).
Lhws =	8.34 * Chws * Qhws
(ALtp)	Allowable pollutant loading to the digesters from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp =	ALdig - Lhws
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLadi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
AHLadi =	ALtp / (Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 12 - Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (Non-Conservative Pollutants)

	LOCAL LIMITS CALCULATIONS DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Average Influent Concentration (mg/L) (Cinf)	Average Influent Load (lbs/day) (Linf)	Digester Pollutant Concentration (mg/L) (Cdig)	Anaerobic Digester Inhibition Level (mg/L) (Ccrit))	Allowable Headworks Loading (lbs/day) (AHLadi)
Arsenic	6.7748	0.00088	0.0495	-	-	-
Cadmium	6.7748	0.00008	0.0043	-	-	-
Chromium	6.7748	0.00215	0.1216	-	-	-
Copper	6.7748	0.04511	2.5487	-	-	-
Cyanide, Total	6.7748	0.00250	0.1413	-	-	-
Lead	6.7748	0.00118	0.0667	-	-	-
Mercury	6.7748	0.00008	0.0045	-		-
Molybdenum	6.7748	0.00371	0.2093			-
Nickel	6.7748	0.00827	0.4674	-	-	-
Selenium	6.7748	0.00041	0.0232			-
Silver	6.7748	0.00043	0.0244	-	-	-
Zinc	6.7748	0.07416	4.1903	-	-	-
Ammonia	6.7748	14.0914	796.1915	-	-	-
BOD	6.7748	199.9444	11297.2274			-
TSS	6.7748	226.7091	12809.4790			-
Phosphorus (T)	6.7748	4.1996	237.2868			-
Nitrate+Nitrite Nitrogen	6.7748	0.9695	54.7760			-
Total Nitrogen	6.7748	20.8050	1175.5206			-
Total Dissolved Solids	6.7748	398.9500	22541.4059			-
Aluminum	6.7748	0.31141	17.5952			-
Antimony	6.7748	0.00063	0.0355			-
Beryllium	6.7748	0.00006	0.0032			-
Chloride	6.7748	107.74737	6087.9237	-		-
Cobalt	6.7748	0.00034	0.0192			-
Cyanide, Free	6.7748	0.00486	0.2748	-		-
Iron, Dissolved	6.7748	0.12594	7.1157			-
Iron, Total	6.7748	0.46460	26.2508			-
Phenolics, Total	6.7748	0.02030	1.1470			-
Tin	6.7748	0.00137	0.0772			-
Vanadium	6.7748	0.00049	0.0277			-
Bromodichloromethane	6.7748	0.00031	0.0173			-
Chloroform	6.7748	0.00267	0.1507	-	-	-
Methylene Chloride	6.7748	0.00024	0.0138			-
Tetrachloroethylene	6.7748	0.00017	0.0095		-	-
Toluene	6.7748	0.00041	0.0231	-		-
Trichloroethylene	6.7748	0.00027	0.0153		-	-
Bis(2-Ethylhexyl)Phthalate	6.7748	0.01269	0.7167			-
p-Cresol	6.7748	0.00215	0.1217			-
Diethyl Phthalate	6.7748	0.00153	0.0863			-
Phenol	6.7748	0.01317	0.7442	-		-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Cinf)	POTW's average influent concentration in mg/l (from 'Monitoring Data' worksheet, row 53 or user entered).
(Linf)	POTW's average influent loading in pounds per day (lbs/day - calculated).
Linf =	8.34 * Cinf * Qpotw
8.34	Unit conversion factor
(Cdig)	Average pollutant concentration in sludge sent to the digester in mg/l (from 'Inhibition Removals' worksheet row 53 or user entered).
(Ccrit)	Anaerobic digester threshold inhibition level in mg/l (EPA default or user entered).
(AHLadi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
AHLadi =	Linf * (Ccrit/Cdig)

POTW Name: Hatfield Township Municipal Authority AWWTF

Local Limits Calculation

TABLE 13 - Comparison of Allowable Headworks Loadings Based on Inhibition

Has the POTW Experienced Inhibition or Construction Within the Data Time Frame?	Yes	No
		X

Pollutant	AHL (ACT. SLUDGE) (lbs/day)	AHL (TRICK. FILTER) (lbs/day)	AHL (NITRIF) (lbs/day)	AHL (DIG. - CONSERV.) (lbs/day)	AHL (DIG. - NON-CONS.) (lbs/day)	Most Stringent (INHIBITION) (lbs/day)	Monitoring Data Maximum Influent Concentration (Cmaxin - mg/L)	(Inf + HW) Other Maximum Influent Concentration (Cmaxino - mg/L)	(Inf + HW) Maximum Influent Loading (Lmaxin - lbs/d)	AHL (INHIBITION) (lbs/d)
Arsenic	10.2731	-	154.0959	-	-	10.2731	0.001400	0.001674	0.094571	10.2731
Cadmium	66.4727	-	345.6583	-	-	66.4727	0.000090	0.000128	0.007225	66.4727
Chromium	77.3998	-	12.7710	-	-	12.7710	0.005700	0.007617	0.430383	12.7710
Copper	136.1253	-	112.9840	-	-	112.9840	0.088000	0.127448	7.201026	112.9840
Cyanide, Total	23.2199	-	26.3159	-	-	23.2199	0.002500	0.002520	0.142369	23.2199
Lead	131.3996	-	65.6998	-	-	65.6998	0.002000	0.002963	0.167388	65.6998
Mercury	6.2780	-	-	-	-	6.2780	0.000140	0.000156	0.008802	6.2780
Molybdenum	-	-	-	-	-	-	0.008000	0.015416	0.871041	-
Nickel	65.6998	-	16.4250	-	-	16.4250	0.016000	0.017262	0.975353	16.4250
Selenium	-	-	-	-	-	-	0.000680	0.000767	0.043325	-
Silver	17.6568	-	4.6614	-	-	4.6614	0.002400	0.002486	0.140463	4.6614
Zinc	39.1901	-	32.6584	-	-	32.6584	0.141000	0.175714	9.92816	32.6584
Ammonia	37968.0833	-	-	-	-	37968.0833	20.80000	22.13333	1250.574	37968.0833
BOD	-	-	-	-	-	-	308.0000	340.8047	19256.09	-
TSS	-	-	-	-	-	-	353.0000	422.7671	23887.12	-
Phosphorus (T)	-	-	-	-	-	-	6.320000	7.266744	410.5843	-
Nitrate+Nitrite Nitrogen	-	-	-	-	-	-	1.950000	2.029842	114.6898	-
Total Nitrogen	-	-	-	-	-	-	40.00000	41.31518	2334.384	-
Total Dissolved Solids	-	-	-	-	-	-	662.0000	681.7238	38518.65	-
Aluminum	-	-	-	-	-	-	0.729000	1.801976	101.8150	-
Antimony	-	-	-	-	-	-	0.001400	0.001487	0.084006	-
Beryllium	-	-	-	-	-	-	0.000060	0.000072	0.004059	-
Chloride	-	-	18804.6799	-	-	18804.6799	190.0000	193.9369	10957.79	18804.6799
Cobalt	-	-	-	-	-	-	0.000510	0.000609	0.034388	-
Cyanide, Free	7.7400	-	-	-	-	7.7400	0.014000	0.016130	0.911384	7.7400
Iron, Dissolved	-	-	-	-	-	-	0.200000	0.239448	13.52923	-
Iron, Total	-	-	-	-	-	-	0.960000	1.638500	92.57824	-
Phenolics, Total	-	-	-	-	-	-	0.055000	0.058629	3.312656	-
Tin	-	-	-	-	-	-	0.002200	0.002492	0.140798	-
Vanadium	-	-	-	-	-	-	0.001100	0.001573	0.088898	-
Bromodichloromethane	-	-	-	-	-	-	0.000500	0.000501	0.028295	-
Chloroform	-	-	656.9980	-	-	656.9980	0.005400	0.005401	0.305154	656.9980
Methylene Chloride	-	-	-	-	-	-	0.001000	0.001001	0.056573	-
Tetrachloroethylene	-	-	-	-	-	-	0.000350	0.000374	0.021113	-
Toluene	14125.4580	-	-	-	-	14125.4580	0.001100	0.001573	0.088898	14125.4580
Trichloroethylene	-	-	-	-	-	-	0.000580	0.000581	0.032816	-
Bis(2-Ethylhexyl)Phthalate	-	-	-	-	-	-	0.054000	0.054379	3.072496	-
p-Cresol	-	-	-	-	-	-	0.014000	0.014051	0.793923	-
Diethyl Phthalate	-	-	-	-	-	-	0.005500	0.005520	0.311875	-
Phenol	3070.7517	-	245.6601	-	-	245.6601	0.075000	0.077367	4.371369	245.6601

AHL (ACT. SLUDGE) = Allowable Headworks Loading based on inhibition of the activated sludge treatment units from Table 8, column F.
AHL (TRICK. FILTER) = Allowable Headworks Loading based on inhibition of the trickling filter treatment units from Table 9, column F.
AHL (NITRIF.) = Allowable Headworks Loading based on inhibition of the nitrification treatment units from Table 10, column F.
AHL (DIG. - CONSERV.) = Allowable Headworks Loading based on inhibition of the anaerobic digester treatment units for conservative pollutants from Table 11 column F.
AHL (DIG. - NON-CONS.) = Allowable Headworks Loading based on inhibition of the anaerobic digester treatment units for non-conservative pollutants from Table 12, column G.
Most Stringent (INHIBITION) Lowest value for each pollutant from columns B through F.
(Cmaxin) Maximum Influent Concentration (from 'Monitoring Data' worksheet, row 54).
(Cmaxino) Maximum Influent Concentration observed at treatment plant but not listed (or eliminated from) 'Monitoring Data' worksheet (user entered).
(Lmaxin) Maximum Influent Loading (calculated).
Lmaxin = 8.34 * Cmaxin * Qpotw; where Cmaxin is the greater of Cmaxin and Cmaxino.
8.34 Unit conversion factor
(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
AHL (INHIBITION) = Highest value for each pollutant from column G or J.
Red Bold in column K indicates that the allowable headworks loading is based on the maximum influent loading.

Local Limits Calculation

TABLE 14 - Allowable Headworks Loadings Based on Land Application Sludge Disposal

	LOCAL LIMITS CALCULATIONS DATA									MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Sludge Flow to Disposal (MTD) (Qsldg)	Land Application Standard (mg/kg) (Cslcrit)	Allowable Sludge Loading (lbs/day) (ALlas)	Hauled Waste to Sludge Concentration (mg/L) (Chws)	Hauled Waste to Sludge Flow (MGD) (Qhws)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLlas)
Arsenic	6.7748	10.4227		-	4.415774	0.03608	1.32874	-	51.2318	-
Cadmium	6.7748	10.4227		-	0.613086	0.03608	0.18448	-	91.0000	-
Chromium	6.7748	10.4227		-	34.17011	0.03608	10.28203	-	87.1271	-
Copper	6.7748	10.4227		-	437.4325	0.03608	131.62659	-	77.1805	-
Cyanide, Total	6.7748	10.4227		-	0.015800	0.03608	0.00475	-	69.0000	-
Lead	6.7748	10.4227		-	14.82268	0.03608	4.46025	-	86.5014	-
Mercury	6.7748	10.4227		-	0.242718	0.03608	0.07304	-	56.5806	-
Molybdenum	6.7748	10.4227		-	0.130111	0.03608	0.03915	-	54.0000	-
Nickel	6.7748	10.4227		-	17.65982	0.03608	5.31397	-	49.3973	-
Selenium	6.7748	10.4227		-	3.098324	0.03608	0.93231	-	50.0000	-
Silver	6.7748	10.4227		-	0.043700	0.03608	0.01315	-	82.6122	-
Zinc	6.7748	10.4227		-	420.0812	0.03608	126.40546	-	67.3501	-
Ammonia	6.7748	10.4227		-	-	0.03608	-	-	97.0386	-
BOD	6.7748	10.4227		-	-	0.03608	-	-	98.6203	-
TSS	6.7748	10.4227		-	-	0.03608	-	-	98.8708	-
Phosphorus (T)	6.7748	10.4227		-	-	0.03608	-	-	94.7637	-
Nitrate+Nitrite Nitrogen	6.7748	10.4227		-	-	0.03608	-	-	0.0000	-
Total Nitrogen	6.7748	10.4227		-	-	0.03608	-	-	74.0966	-
Total Dissolved Solids	6.7748	10.4227		-	-	0.03608	-	-	3.8431	-
Aluminum	6.7748	10.4227		-	445.0000	0.03608	133.90370	-	98.5677	-
Antimony	6.7748	10.4227		-	0.020890	0.03608	0.00629	-	17.4285	-
Beryllium	6.7748	10.4227		-	0.105443	0.03608	0.03173	-	9.3201	-
Chloride	6.7748	10.4227		-	144.1000	0.03608	43.36073	-	0.0000	-
Cobalt	6.7748	10.4227		-	0.067778	0.03608	0.02039	-	27.6107	-
Cyanide, Free	6.7748	10.4227		-	0.256790	0.03608	0.07727	-	99.6500	-
Iron, Dissolved	6.7748	10.4227		-	1.793333	0.03608	0.53963	-	64.3191	-
Iron, Total	6.7748	10.4227		-	435.5556	0.03608	131.06180	-	76.0670	-
Phenolics, Total	6.7748	10.4227		-	0.568889	0.03608	0.17118	-	85.5987	-
Tin	6.7748	10.4227		-	0.039111	0.03608	0.01177	-	79.6208	-
Vanadium	6.7748	10.4227		-	0.154200	0.03608	0.04640	-	48.1312	-
Bromodichloromethane	6.7748	10.4227		-	0.001500	0.03608	0.00045	-	67.3511	-
Chloroform	6.7748	10.4227		-	0.053700	0.03608	0.01616	-	81.6360	-
Methylene Chloride	6.7748	10.4227		-	0.002250	0.03608	0.00068	-	62.0000	-
Tetrachloroethylene	6.7748	10.4227		-	0.002250	0.03608	0.00068	-	80.0000	-
Toluene	6.7748	10.4227		-	3.917778	0.03608	1.17889	-	91.5106	-
Trichloroethylene	6.7748	10.4227		-	0.001500	0.03608	0.00045	-	89.0000	-
Bis(2-Ethylhexyl)Phthalate	6.7748	10.4227		-	0.187333	0.03608	0.05637	-	96.5148	-
p-Cresol	6.7748	10.4227		-	5.400000	0.03608	1.62490	-	92.8701	-
Diethyl Phthalate	6.7748	10.4227		-	0.008100	0.03608	0.00244	-	89.9466	-
Phenol	6.7748	10.4227		-	0.168889	0.03608	0.05082	-	98.3955	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qsldg)	Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(Cslcrit)	Applicable sludge standard in mg/kg dry sludge (exceptional quality standard for land application or user entered).
(ALlas)	Allowable pollutant loading in the sludge to disposal in pounds per day based on land application of sludge (lbs/day - calculated).
ALlas =	0.0022 * Cslcrit * Qsldg
(Chws)	Average pollutant concentration of waste hauled directly to the anaerobic digesters in mg/l (from 'Monitoring Data' worksheet, row 53).
(Qhws)	Average flow of waste hauled to sludge processing units in MGD (from Table 2(b), cell L35).
(Lhws)	Average pollutant loading of waste hauled to sludge processing units in pounds per day (lbs/d - calculated).
Lhws =	8.34 * Chws * Qhws
(ALtp)	Allowable pollutant loading in the sludge from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp =	ALlas - Lhws
(Rpotw)	Removal efficiency across POTW as a percent (from Table 3, column E).
(AHLlas)	Allowable headworks pollutant loading to the POTW in pounds per day based on land application sludge disposal (lbs/day - calculated).
AHLlas =	ALtp / (Rpotw/100)
0.0022	Unit conversion factor
8.34	Unit conversion factor

Local Limits Calculation

TABLE 15 - Allowable Headworks Loadings Based on Incineration Sludge Disposal

	LOCAL LIMITS CALCULATIONS DATA												MAXIMUM LOADING
Pollutant	Sludge Flow to Incineration (MTD) (Qinc)	Incinerator Dispersion Factor ($\mu g/m^3/g/sec$) (DF)	Incinerator Control Efficiency (%) (CE)	Risk Specific Concentration ($\mu g/m^3$) (RSC)	National Ambient Air Quality Standard ($\mu g/m^3$) (NAAQS)	National Emission Standard (g/d) (NESHAP)	Incineration Standard (mg/kg) (Cslcrit)	Sludge Flow to Disposal (MTD) (Qsldg)	Allowable Sludge Loading (lbs/day) (ALis)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLis)
Arsenic	10.4227	9.90	99.90	0.023	-	-	19258.6636	10.4227	441.6000	1.3287	440.2713	51.2318	859.3706
Cadmium	10.4227	9.90	99.89	0.057	-	-	43389.0839	10.4227	994.9091	0.1845	994.7246	91.0000	1093.1040
Chromium	10.4227	9.90	99.77	0.071	-	-	25848.1118	10.4227	592.6957	10.2820	582.4136	87.1271	668.4643
Copper	10.4227	9.90	-	-	-	-	-	10.4227	-	131.6266	-	77.1805	-
Cyanide, Total	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0048	-	69.0000	-
Lead	10.4227	9.90	99.97	-	0.15	-	41866.6599	10.4227	960.0000	4.4603	955.5397	86.5014	1104.6518
Mercury	10.4227	9.90	8.30	-	-	3200	334.8115	10.4227	7.6772	0.0730	7.6042	56.5806	13.4395
Molybdenum	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0392	-	54.0000	-
Nickel	10.4227	9.90	99.60	2.00	-	-	418666.5992	10.4227	9600.0000	5.3140	9594.6860	49.3973	19423.4964
Selenium	10.4227	9.90	-	-	-	-	-	10.4227	-	0.9323	-	50.0000	-
Silver	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0131	-	82.6122	-
Zinc	10.4227	9.90	-	-	-	-	-	10.4227	-	126.4055	-	67.3501	-
Ammonia	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	97.0386	-
BOD	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	98.6203	-
TSS	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	98.8708	-
Phosphorus (T)	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	94.7637	-
Nitrate+Nitrite Nitrogen	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	0.0000	-
Total Nitrogen	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	74.0966	-
Total Dissolved Solids	10.4227	9.90	-	-	-	-	-	10.4227	-	-	-	3.8431	-
Aluminum	10.4227	9.90	-	-	-	-	-	10.4227	-	133.9037	-	98.5677	-
Antimony	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0063	-	17.4285	-
Beryllium	10.4227	9.90	97.60	-	-	10.0	39.9768	10.4227	0.9167	0.0317	0.8849	9.3201	9.4950
Chloride	10.4227	9.90	-	-	-	-	-	10.4227	-	43.3607	-	0.0000	-
Cobalt	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0204	-	27.6107	-
Cyanide, Free	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0773	-	99.6500	-
Iron, Dissolved	10.4227	9.90	-	-	-	-	-	10.4227	-	0.5396	-	64.3191	-
Iron, Total	10.4227	9.90	-	-	-	-	-	10.4227	-	131.0618	-	76.0670	-
Phenolics, Total	10.4227	9.90	-	-	-	-	-	10.4227	-	0.1712	-	85.5987	-
Tin	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0118	-	79.6208	-
Vanadium	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0464	-	48.1312	-
Bromodichloromethane	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0005	-	67.3511	-
Chloroform	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0162	-	81.6360	-
Methylene Chloride	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0007	-	62.0000	-
Tetrachloroethylene	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0007	-	80.0000	-
Toluene	10.4227	9.90	-	-	-	-	-	10.4227	-	1.1789	-	91.5106	-
Trichloroethylene	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0005	-	89.0000	-
Bis(2-Ethylhexyl)Phthalate	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0564	-	96.5148	-
p-Cresol	10.4227	9.90	-	-	-	-	-	10.4227	-	1.6249	-	92.8701	-
Diethyl Phthalate	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0024	-	89.9466	-
Phenol	10.4227	9.90	-	-	-	-	-	10.4227	-	0.0508	-	98.3955	-

(Qinc) Average sludge flow to incineration in dry metric tons per day (from Table 2(b), cell M35).
(DF) Incinerator dispersion factor in $ug/m^3/g/sec$ (user entered in cell C749, from cell C749 for all other cells in this column).
(CE) Incinerator control efficiency for the pollutant as a percent (user entered).
(RSC) Risk specific concentration limit in ug/m^3 (from 40 CFR 503.43(d) - Table 1 for arsenic, cadmium, and nickel; Table 2 for chromium; chromium user entered).
(NAAQS) National ambient air quality standard in ug/m^3 (from 40 CFR 50.12 for lead).
(NESHAP) National emission standard in g/d (from 40 CFR 61.52(b) for mercury and 40 CFR 61.32(a) for beryllium).
(Cslcrit) Applicable sludge standard in mg/kg dry sludge (calculated based on RSC, NAAQS, or NESHAP - see individual cells for formulas or Appendix T of EPA local limits guidance manual).
86400 Unit conversion factor
(Qsldg) Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(ALis) Allowable pollutant loading in the sludge to disposal in pounds per day based on incineration of sludge (lbs/day - calculated).
ALis = 0.0022 * Cslcrit * Qsldg
(Lhws) Average pollutant loading of waste hauled to sludge processing units in pounds per day (from Table 14, column H).
(ALtp) Allowable pollutant loading in the sludge from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp = ALis - Lhws
(Rpotw) Removal efficiency across POTW as a percent (from Table 3, column E).
(AHLis) Allowable headworks pollutant loading to the POTW in pounds per day based on incineration sludge disposal (lbs/day - calculated).
AHLis = ALtp / (Rpotw/100)
0.0022 Unit conversion factor

Local Limits Calculation

TABLE 16 - Comparison of Allowable Headworks Loadings Based on Sludge Disposal

Pollutant	AHL (LAND APPL.) (lbs/day)	AHL (INCINERATION) (lbs/day)	Allowable Headworks Loading (SLUDGE) (lbs/d)
Arsenic	-	859.3706	859.3706
Cadmium	-	1093.1040	1093.1040
Chromium	-	668.4643	668.4643
Copper	-	-	-
Cyanide, Total	-	-	-
Lead	-	1104.6518	1104.6518
Mercury	-	13.4395	13.4395
Molybdenum	-	-	-
Nickel	-	19423.4964	19423.4964
Selenium	-	-	-
Silver	-	-	-
Zinc	-	-	-
Ammonia	-	-	-
BOD	-	-	-
TSS	-	-	-
Phosphorus (T)	-	-	-
Nitrate+Nitrite Nitrogen	-	-	-
Total Nitrogen	-	-	-
Total Dissolved Solids	-	-	-
Aluminum	-	-	-
Antimony	-	-	-
Beryllium	-	9.4950	9.4950
Chloride	-	-	-
Cobalt	-	-	-
Cyanide, Free	-	-	-
Iron, Dissolved	-	-	-
Iron, Total	-	-	-
Phenolics, Total	-	-	-
Tin	-	-	-
Vanadium	-	-	-
Bromodichloromethane	-	-	-
Chloroform	-	-	-
Methylene Chloride	-	-	-
Tetrachloroethylene	-	-	-
Toluene	-	-	-
Trichloroethylene	-	-	-
Bis(2-Ethylhexyl)Phthalate	-	-	-
p-Cresol	-	-	-
Diethyl Phthalate	-	-	-
Phenol	-	-	-

AHL (LAND APPL.) = Allowable Headworks Loading based on land application sludge disposal from Table 14, column K.
AHL (INCINERATION) = Allowable Headworks Loading based on incineration sludge disposal from Table 15, column N.
Allowable Headworks (SLUDGE) Lowest value for each pollutant from column B and C.

Local Limits Calculation

TABLE 17 - Comparison of Allowable Headworks Loadings

Pollutant	AHL (WATER QUALITY) (lbs/day)	AHL (INHIBITION) (lbs/d)	AHL (SLUDGE) (lbs/d)	Design Loading (lbs/d)	Maximum Allowable Headworks Loading (MAHL - lbs/d)
Arsenic	1.2744	10.2731	859.3706	-	1.2744
Cadmium	0.2574	66.4727	1093.1040	-	0.2574
Chromium	59.6933	12.7710	668.4643	-	12.7710
Copper	22.1605	112.9840	-	-	22.1605
Cyanide, Total	0.8197	23.2199	-	-	0.8197
Lead	2.5575	65.6998	1104.6518	-	2.5575
Mercury	0.00716	6.2780	13.4395	-	0.00716
Molybdenum	-	-	-	-	-
Nickel	9.2788	16.4250	19423.4964	-	9.2788
Selenium	0.6227	-	-	-	0.6227
Silver	2.5964	4.6614	-	-	2.5964
Zinc	29.9383	32.6584	-	-	29.9383
Ammonia	3434.2439	37968.0833	-	2,329	2328.5280
BOD	37266.8170	-	-	22,300	22300.0000
TSS	150117.0148	-	-	22,300	22300.0000
Phosphorus (T)	798.4975	-	-	582	582.1320
Nitrate+Nitrite Nitrogen	463.3150	-	-		463.3150
Total Nitrogen	-	-	-	3,493	3492.7920
Total Dissolved Solids	58760.0271	-	-	-	58760.0271
Aluminum	2958.6779	-	-	-	2958.6779
Antimony	0.4229	-	-	-	0.4229
Beryllium	-	-	9.4950	-	9.4950
Chloride	171713.9280	18804.6799	-	-	18804.6799
Cobalt	1.6391	-	-	-	1.6391
Cyanide, Free	71.1923	7.7400	-	-	7.7400
Iron, Dissolved	52.4149	-	-	-	52.4149
Iron, Total	390.9546	-	-	-	390.9546
Phenolics, Total	23.8470	-	-	-	23.8470
Tin	-	-	-	-	-
Vanadium	12.2477	-	-	-	12.2477
Bromodichloromethane	0.2890	-	-	-	0.2890
Chloroform	3.0768	656.9980	-	-	3.0768
Methylene Chloride	5.2339	-	-	-	5.2339
Tetrachloroethylene	4.9722	-	-	-	4.9722
Toluene	41.8638	14125.4580	-	-	41.8638
Trichloroethylene	0.5445	-	-	-	0.5445
Bis(2-Ethylhexyl)Phthalate	0.9079	-	-	-	0.9079
p-Cresol	142.5604	-	-	-	142.5604
Diethyl Phthalate	372.0563	-	-	-	372.0563
Phenol	15546.9160	245.6601	-	-	245.6601

AHL (WATER QUALITY) = Allowable Headworks Loading based on protection of water quality from Table 7, column F.
AHL (INHIBITION) = Allowable Headworks Loading based on prevention of inhibition from Table 13, column K.
AHL (SLUDGE) = Allowable Headworks Loading based on protection of sludge quality from Table 16, column D.
Design Loading of POTW treatment plant (user entered).
MAHL Maximum allowable headworks loading is the lowest value for each pollutant from columns B through E.

POTW Name: Hatfield Township Municipal Authority AWWTF

Local Limits Calculation

TABLE 18 - Calculation of Local Limit

	LOCAL LIMITS CALCULATIONS DATA									LOCAL LIMITS		
Pollutant	Maximum Allowable Headworks (MAHL - lbs/d)	Safety Factor (%) (SF)	Growth Allowance (%) (GA)	Nonindustrial Concentration (mg/L) (Cback)	Nonindustrial Flow (MGD) (Qback)	Nonindustrial Loading (lbs/day) (Lback)	Hauled Waste to Influent Concentration (mg/L) (Chwi)	Hauled Waste to Influent Flow (MGD) (Qhwi)	Hauled Waste to Influent Loading (lbs/day) (Lhwi)	Allowable Industrial Loading (MAIL - lbs/day)	Calculated Local Limit (mg/L) (Cind)	Basis of Limitation
Arsenic	1.27444	5	5	0.00097	6.57135	0.05319	0.01630	0.05345	0.00726	1.08654	0.86854	Water Quality
Cadmium	0.25740	5	5	0.00009	6.57135	0.00492	0.00181	0.05345	0.00081	0.2259	0.18060	Water Quality
Chromium	12.77096	5	5	0.00048	6.57135	0.02622	0.09893	0.05345	0.04410	11.42355	9.13153	Inhibition
Copper	22.16045	5	5	0.06675	6.57135	3.65824	1.59250	0.05345	0.70989	15.5763	12.45106	Water Quality
Cyanide, Total	0.81971	5	5	0.00250	6.57135	0.13701	0.00250	0.05345	0.00111	0.59961	0.47930	Water Quality
Lead	2.55750	5	5	0.00122	6.57135	0.06701	0.05144	0.05345	0.02293	2.21182	1.76804	Water Quality
Mercury	0.00716	5	5	0.000068	6.57135	0.00370	0.000743	0.05345	0.00033	0.00241	0.00192	Water Quality
Molybdenum	-	5	5	0.00141	6.57135	0.07738	0.22096	0.05345	0.09850	-	-	-
Nickel	9.27876	5	5	0.00200	6.57135	0.10961	0.05209	0.05345	0.02322	8.21805	6.56919	Water Quality
Selenium	0.62265	5	5	0.00050	6.57135	0.02723	0.00430	0.05345	0.00192	0.53124	0.42465	Water Quality
Silver	2.59636	5	5	0.00023	6.57135	0.01243	0.00249	0.05345	0.00111	2.32319	1.85706	Water Quality
Zinc	29.93831	5	5	0.09860	6.57135	5.40378	2.03174	0.05345	0.90570	20.6350	16.4948	Water Quality
Ammonia	2328.52800	5	5	25.05500	6.57135	1373.1408	109.2261	0.05345	48.6901	673.8444	538.6446	Design
BOD	22300.00000	5	5	278.25000	6.57135	15249.5077	2996.7600	0.05345	1335.8747	3484.6176	2785.4657	Design
TSS	22300.00000	5	5	152.00000	6.57135	8330.3690	6617.7800	0.05345	2950.0276	8789.6034	7026.0619	Design
Phosphorus (T)	582.13200	5	5	5.76950	6.57135	316.1978	89.5773	0.05345	39.9312	167.7898	134.1246	Design
Nitrate+Nitrite Nitrogen	463.31502	5	5	0.64737	6.57135	35.4791	5.7816	0.05345	2.57730	378.9272	302.8994	Water Quality
Total Nitrogen	3492.79200	5	5	40.78500	6.57135	2235.2243	123.4684	0.05345	55.0389	853.2496	682.0540	Design
Total Dissolved Solids	58760.02705	5	5	287.89474	6.57135	15778.0880	1434.6667	0.05345	639.5357	36466.4006	29149.8007	Water Quality
Aluminum	2958.67786	5	5	0.22842	6.57135	12.5186	65.3833	0.05345	29.1461	2621.1453	2095.2401	Water Quality
Antimony	0.42288	5	5	0.00043	6.57135	0.02334	0.00411	0.05345	0.00183	0.35543	0.28411	Water Quality
Beryllium	9.49495	5	5	0.000060	6.57135	0.00329	0.00069	0.05345	0.00031	8.54186	6.82803	Sludge
Chloride	18804.67994	5	5	89.68421	6.57135	4915.1484	499.0000	0.05345	222.4407	11786.6228	9421.7608	Inhibition
Cobalt	1.63911	5	5	0.00028	6.57135	0.01561	0.00604	0.05345	0.00269	1.45690	1.16459	Water Quality
Cyanide, Free	7.73998	5	5	0.00278	6.57135	0.15230	0.03746	0.05345	0.01670	6.79698	5.43324	Inhibition
Iron, Dissolved	52.41492	5	5	0.14126	6.57135	7.74194	1.95158	0.05345	0.86996	38.5615	30.8246	Water Quality
Iron, Total	390.95456	5	5	0.50000	6.57135	27.4025	41.6720	0.05345	18.5763	305.8803	244.5086	Water Quality
Phenolics, Total	23.84701	5	5	0.04917	6.57135	2.69458	0.24339	0.05345	0.10850	18.65923	14.91545	Water Quality
Tin	-	5	5	0.00510	6.57135	0.27951	0.01351	0.05345	0.00602	-	-	-
Vanadium	12.24770	5	5	0.00045	6.57135	0.02442	0.03439	0.05345	0.01533	10.98318	8.77952	Water Quality
Bromodichloromethane	0.28901	5	5	0.00028	6.57135	0.01526	0.00010	0.05345	0.00004	0.24480	0.19569	Water Quality
Chloroform	3.07677	5	5	0.00290	6.57135	0.15910	0.000068	0.05345	0.000030	2.60997	2.08630	Water Quality
Methylene Chloride	5.23385	5	5	0.00015	6.57135	0.00822	0.00015	0.05345	0.000067	4.70218	3.75874	Water Quality
Tetrachloroethylene	4.97216	5	5	0.00015	6.57135	0.00822	0.00027	0.05345	0.00012	4.46660	3.57043	Water Quality
Toluene	41.86378	5	5	0.00018	6.57135	0.00981	0.03287	0.05345	0.01465	37.6529	30.0983	Water Quality
Trichloroethylene	0.54447	5	5	0.00010	6.57135	0.00548	0.00010	0.05345	0.00004	0.48450	0.38729	Water Quality
Bis(2-Ethylhexyl)Phthalate	0.90786	5	5	0.00287	6.57135	0.15749	0.01636	0.05345	0.00729	0.65229	0.52141	Water Quality
p-Cresol	142.56043	5	5	0.02266	6.57135	1.24192	0.00081	0.05345	0.00036	127.0621	101.5684	Water Quality
Diethyl Phthalate	372.05633	5	5	0.00195	6.57135	0.10690	0.00048	0.05345	0.00022	334.7436	267.5808	Water Quality
Phenol	245.66014	5	5	0.02510	6.57135	1.37573	0.12100	0.05345	0.05394	219.6645	175.5911	Inhibition

(MAHL)	Maximum allowable headworks loading (from Table 17, column F).
(SF)	Safety factor as a percent (user entered).
(GA)	Growth allowance as a percent (user entered).
(Cback)	Average nonindustrial background concentration for a particular pollutant in mg/l (from 'Monitoring Data' worksheet row 53 or user entered).
(Qback)	Average nonindustrial background flow in MGD (calculated).
Qback =	Qpotw - Qind - Qhwi (values from Table 2(b), cells B35, C35, and K35)
(Lback)	Average nonindustrial background loading to the POTW for a particular pollutant in pounds per day (calculated).
Lback =	8.34 * Cback * Qback
8.34	Unit conversion factor
(Chwi)	Average concentration for a particular pollutant in mg/l for hauled waste discharged at the POTW influent (from 'Monitoring Data' worksheet, row 53).
(Qhwi)	Average flow in MGD for hauled waste discharged at the POTW influent (from Table 2(b), cell K35).
(Lhwi)	Average loading to the POTW for a particular pollutant in pounds per day for hauled waste discharged at the POTW influent (calculated).
Lhwi =	8.34 * Chwi * Qhwi
(MAIL)	Maximum Allowable Industrial Load (calculated).
MAIL =	MAHL - (MAHL * SF/100) - (MAHL * GA/100) - Lback - Lhwi
(Cind)	Industrial allowable local limit for a given pollutant in mg/l (calculated).
Cind =	MAIL/(8.34 * Qind)
(Qind)	Average discharge flow of Industrial Users to be regulated through the local limits in MGD (from Table 2(b), cell C35).
Basis of Limitation	An identification of the lowest allowable headworks loading from Table 17 columns B through E.
	Red Bold in column C or D indicates a safety factor or growth allowance of less than 10%.

Local Limits Calculation

Table 19 - Comparison of Existing and Calculated Local Limits

POTW Adopting MAIL	POTW Adopting Uniform Concentration
X	

Pollutant	Existing Allowable Industrial Loading (lbs/d) (MAILex)	Calculated Allowable Industrial Loading (lbs/d) (MAIL)	Calculated Uniform Concentration Limit (mg/L) (Cind)	Existing Local Limit (mg/L) (Cind-ex)	Proposed Local Limit (lbs/d)	Other Issues?	Basis of "Need Limit?"		
							Existing Limit	Avg Inf Loading	Max Inf Loading
Arsenic	0.81	**1.08654**	0.86854		1.09				
Cadmium	0.20	**0.22593**	0.18060		0.23				
Chromium	19.01	11.42355	9.13153		11.42				
Copper	6.15	**15.57627**	12.45106		15.58				
Cyanide, Total	3.49	0.59961	0.47930						
Lead	2.76	2.21182	1.76804		2.21				
Mercury	0.08	0.00241	0.00192		0.0024				
Molybdenum		-	-						
Nickel	9.58	8.21805	6.56919		8.22				
Selenium		0.53124	0.42465						
Silver	1.63	**2.32319**	1.85706		2.32				
Zinc	11.83	**20.63501**	16.49481		20.64				
Ammonia		673.84439	538.64460						
BOD		3484.61764	2785.46574						
TSS		8789.60339	7026.06186			**Need Limit?**			**X**
Phosphorus (T)		167.78985	134.12458						
Nitrate+Nitrite Nitrogen		378.92716	302.89941						
Total Nitrogen		853.24958	682.05402						
Total Dissolved Solids		36466.40065	29149.80068						
Aluminum		2621.14532	2095.24006						
Antimony		0.35543	0.28411						
Beryllium		8.54186	6.82803						
Chloride		11786.62277	9421.76081						
Cobalt		1.45690	1.16459						
Cyanide, Free		6.79698	5.43324						
Iron, Dissolved		38.56153	30.82457						
Iron, Total		305.88032	244.50865						
Phenolics, Total	4.16	**18.65923**	14.91545		18.66				
Tin		-	-						
Vanadium		10.98318	8.77952						
Bromodichloromethane		0.24480	0.19569						
Chloroform		2.60997	2.08630						
Methylene Chloride	1.52	**4.70218**	3.75874		4.70				
Tetrachloroethylene		4.46660	3.57043						
Toluene		37.65295	30.09828						
Trichloroethylene	1.56	0.48450	0.38729						
Bis(2-Ethylhexyl)Phthalate	19.32	0.65229	0.52141		0.65				
p-Cresol		127.06210	101.56843						
Diethyl Phthalate		334.74358	267.58080						
Phenol		219.66446	175.59109						

(MAILex) = Existing Maximum Allowable Industrial Load from previously approved local limits evaluation (user entered).
(MAIL) = Calculated Maximum Allowable Industrial Load (from Table 18, column K).
(Cind) = Newly calculated local limit for a given pollutant in mg/l (from Table 18, column L).
(Cind-ex) = Existing local limit for a given pollutant in mg/l from previously approved local limits evaluation (user entered).
Brown bold in column C or D indicates that the calculated allowable industrial loading or local limit is less stringent than the existing loading or limit.
Green bold in column C or D indicates that the calculated allowable industrial loading or local limit is new or more stringent than the existing loading or limit.
Red bold in column F indicates that the proposed local limit is less stringent than the calculated limit.
"Need Limit?" in column G and "X" in "Existing Limit" column (column H) indicates that a local limit exists but no limit was proposed based on the new evaluation.
"Need Limit?" in column G and "X" in "Avg Inf Loading" column (column I) indicates that the average influent loading is greater than 60% of the MAHL (80% for Ammonia, BOD, TSS, Phosphorus, and Nitrogen if the MAHL is based on the design loading) (from Table 20 column D).
"Need Limit?" in column G and "X" in "Max Inf Loading" column (column J) indicates that the maximum influent loading is greater than 80% of the MAHL (100% for Ammonia, BOD, TSS, Phosphorus, and Nitrogen if the MAHL is based on the design loading) (from Table 20 column F).
"EPA Public Notice" in column G Indicates that the newly proposed local limit is less stringent that the existing local limit and therefore EPA would need to publish a public notice in the local paper prior to approval.

Local Limits Calculation

TABLE 20 - Comparison of Allowable Headworks Loadings And Current Influent Loadings

Pollutant	Maximum Allowable Headworks Loading (MAHL - lbs/d)	Average Influent Loading (Linav - lbs/day)	Average Percent Loaded (%)	Maximum Influent Loading (Linmax - lbs/d)	Maximum Percent Loaded (%)
Arsenic	1.27444	0.056808	4.45748	0.09457	7.42059
Cadmium	0.25740	0.005085	1.97566	0.00722	2.80690
Chromium	12.77096	0.165693	1.29742	0.43038	3.37001
Copper	22.16045	3.258643	14.70477	7.20103	32.49494
Cyanide, Total	0.81971	0.142369	17.36827	0.14237	17.36827
Lead	2.55750	0.089601	3.50345	0.16739	6.54497
Mercury	0.00716	0.004851	**67.78409**	0.00880	**122.97872**
Molybdenum	-	0.307838	-	0.87104	-
Nickel	9.27876	0.490618	5.28753	0.97535	10.5117
Selenium	0.62265	0.025084	4.02851	0.04332	6.95812
Silver	2.59636	0.025488	0.98170	0.14046	5.41001
Zinc	29.93831	5.095980	17.02160	9.92816	33.16205
Ammonia	2328.52800	844.8816	36.2839	1250.57374	53.7066
BOD	22300.00000	12633.1021	56.6507	19256.08839	86.3502
TSS	22300.00000	15759.5066	70.6704	23887.11734	**107.1171**
Phosphorus (T)	582.13200	277.2179	47.6211	410.58434	70.5311
Nitrate+Nitrite Nitrogen	463.31502	57.3533	12.3789	114.68980	24.7542
Total Nitrogen	3492.79200	1230.5595	35.2314	2334.38364	66.8343
Total Dissolved Solids	58760.02705	23180.9415	39.4502	38518.64528	65.5525
Aluminum	2958.67786	46.7413	1.57980	101.81496	3.44123
Antimony	0.42288	0.03735	8.83272	0.08401	19.8651
Beryllium	9.49495	0.00352	0.03711	0.00406	0.04275
Chloride	18804.67994	6242.3019	33.1955	10957.78881	58.2716
Cobalt	1.63911	0.02193	1.33810	0.03439	2.09798
Cyanide, Free	7.73998	0.29148	3.7659	0.91138	11.7750
Iron, Dissolved	52.41492	7.98566	15.2355	13.52923	25.8118
Iron, Total	390.95456	44.8270	11.4660	92.57824	23.6801
Phenolics, Total	23.84701	1.25548	5.2647	3.31266	13.8913
Tin	-	0.08318	-	0.14080	-
Vanadium	12.24770	0.04303	0.35132	0.08890	0.72584
Bromodichloromethane	0.28901	0.01731	5.98802	0.02830	9.79055
Chloroform	3.07677	0.15076	4.90000	0.30515	9.91800
Methylene Chloride	5.23385	0.01387	0.26492	0.05657	1.08091
Tetrachloroethylene	4.97216	0.00967	0.19442	0.02111	0.42462
Toluene	41.86378	0.03772	0.09009	0.08890	0.21235
Trichloroethylene	0.54447	0.01530	2.81007	0.03282	6.0271
Bis(2-Ethylhexyl)Phthalate	0.90786	0.72402	**79.7500**	3.07250	**338.4329**
p-Cresol	142.56043	0.12204	0.08561	0.79392	0.55690
Diethyl Phthalate	372.05633	0.08655	0.02326	0.31187	0.08382
Phenol	245.66014	0.79818	0.32491	4.37137	1.77944

(MAHL) Maximum Allowable Headworks Loading (from Table 17 column B).
(Linav) Average influent loading from 'Monitoring Data' worksheet row 57.
Average Percent Loaded = (Linav)/(MAHL)*100
(Linmax) Maximum Influent Concentration converted to a loading using the POTW flow (from Table 2(b), cell B35).
Linmax = 8.34 * (Cinmax) * (Qpotw)
(Cinmax) Maximum Influent Concentration (from 'Monitoring Data' worksheet row 54)
(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
8.34 Unit conversion factor
Maximum Percent Loaded = (Linmax)/(MAHL)*100

Green bold indicates that the average percent loaded is greater than 60% or the maximum percent loaded is greater than 80% for all pollutants except for Ammonia, BOD, TSS, Phosphorus, and Nitrogen where the MAHL for these pollutants is based on the design loading.
Where the MAHL for Ammonia, BOD, TSS, Phosphorus, and Nitrogen is based on the design loading, **green bold** indicates that the average percent loaded is greater than 80%.
Red bold indicates that the percent loaded (average or maximum) is greater than 100%.

Local Limits Calculation

TABLE 21 - Comparison of Removal Rates

Pollutant	Removal Prior to Activated Sludge (%) (Ras)	Removal Prior to Trickling Filter (%) (Rtf)	Removal Prior to Nitrification (%) (Rn)	Overall Removal (%) (Rpotw)	Average Influent Loading (lbs/d) (Linav)	Average Nonindustrial Loading (lbs/day) (Lback)
Arsenic	45.00	-	45.00	51.23	0.05681	0.05319
Cadmium	15.00	-	15.00	91.00	0.00509	0.00492
Chromium	27.00	-	27.00	87.13	0.16569	0.02622
Copper	58.49	-	58.49	77.18	3.25864	**3.65824**
Cyanide, Total	27.00	-	27.00	69.00	0.14237	0.13701
Lead	57.00	-	57.00	86.50	0.08960	0.06701
Mercury	10.00	-	-	56.58	0.00485	0.00370
Molybdenum	-	-	-	54.00	0.30784	0.07738
Nickel	14.00	-	14.00	49.40	0.49062	0.10961
Selenium	-	-	-	50.00	0.02508	**0.02723**
Silver	20.00	-	20.00	82.61	0.02549	0.01243
Zinc	56.75	-	56.75	67.35	5.09598	**5.40378**
Ammonia	28.57	-	-	97.04	844.8816	**1373.1408**
BOD	-	-	-	98.62	12633.1021	**15249.5077**
TSS	-	-	-	98.87	15759.5066	8330.3690
Phosphorus (T)	-	-	-	94.76	277.2179	**316.1978**
Nitrate+Nitrite Nitrogen	-	-	-	0.00	57.3533	35.4791
Total Nitrogen	-	-	-	74.10	1230.5595	**2235.2243**
Total Dissolved Solids	-	-	-	3.84	23180.9415	15778.0880
Aluminum	-	-	-	98.57	46.7413	12.5186
Antimony	-	-	-	17.43	0.03735	0.02334
Beryllium	-	-	-	9.32	0.00352	0.00329
Chloride	-	-	-	0.00	6242.3019	4915.1484
Cobalt	-	-	-	27.61	0.02193	0.01561
Cyanide, Free	27.00	-	-	99.65	0.29148	0.15230
Iron, Dissolved	-	-	-	64.32	7.98566	7.74194
Iron, Total	-	-	-	76.07	44.8270	27.4025
Phenolics, Total	-	-	-	85.60	1.25548	**2.69458**
Tin	-	-	-	79.62	0.08318	**0.27951**
Vanadium	-	-	-	48.13	0.04303	0.02442
Bromodichloromethane	-	-	-	67.35	0.01731	0.01526
Chloroform	-	-	14.00	81.64	0.15076	**0.15910**
Methylene Chloride	-	-	-	62.00	0.01387	0.00822
Tetrachloroethylene	-	-	-	80.00	0.00967	0.00822
Toluene	20.00	-	-	91.51	0.03772	0.00981
Trichloroethylene	-	-	-	89.00	0.01530	0.00548
Bis(2-Ethylhexyl)Phthalate	-	-	-	96.51	0.72402	0.15749
p-Cresol	-	-	-	92.87	0.12204	**1.24192**
Diethyl Phthalate	-	-	-	89.95	0.08655	**0.10690**
Phenol	8.00	-	8.00	98.40	0.79818	**1.37573**

(Ras) Removal efficiency prior to activated sludge treatment unit as percent (from Table 8, column E).
(Rtf) Removal efficiency prior to trickling filter treatment unit as percent (from Table 9, column E).
(Rn) Removal efficiency prior to nitrification treatment unit as percent (from Table 10, column E).
(Rpotw) Removal efficiency across POTW as percent (from Table 3, column E).
(Linav) Average influent loading (from Table 20, column C).
(Lback) Average nonindustrial background loading to the POTW for a particular pollutant in pounds per day (from Table 18, column G).
Red bold indicates that the overall removal is less than one or more of the other removals, or the average nonindustrial loading is greater than the average influent loading.

POTW Name: Hatfield Township Municipal Authority AWWTF

Local Limits Calculation

TABLE 22 - Calculation of Influent, Effluent, and Sludge Goals

Pollutant	Maximum Allowable Headworks Loading (MAHL - lbs/d)	POTW Flow (MGD) (Qpotw)	Influent Goal (mg/L) (MAHC)	Allowable Headworks Loading (WATER QUALITY) (AHLwq - lbs/day)	Removal Efficiency (%) (Rpotw)	Effluent Goal (mg/L)	Allowable Headworks Loading (SLUDGE) (AHLs - lbs/day)	Sludge Flow to Disposal (MTD) (Qsldg)	Sludge Goal (mg/kg)
Arsenic	1.2744	6.7748	0.0226	1.2744	51.23	0.0110	859.3706	10.4227	19200.72
Cadmium	0.2574	6.7748	0.0046	0.2574	91.00	0.00041	1093.1040	10.4227	43381.04
Chromium	12.7710	6.7748	0.2260	59.6933	87.13	0.1360	668.4643	10.4227	25399.70
Copper	22.1605	6.7748	0.3922	22.1605	77.18	0.0895	-	10.4227	-
Cyanide, Total	0.8197	6.7748	0.0145	0.8197	69.00	0.0045	-	10.4227	-
Lead	2.5575	6.7748	0.0453	2.5575	86.50	0.0061	1104.6518	10.4227	41672.14
Mercury	0.0072	6.7748	0.00013	0.0072	56.58	0.000055	13.4395	10.4227	331.6264
Molybdenum	-	6.7748	-	-	54.00	-	-	10.4227	-
Nickel	9.2788	6.7748	0.1642	9.2788	49.40	0.0831	19423.4964	10.4227	418434.85
Selenium	0.6227	6.7748	0.0110	0.6227	50.00	0.0055	-	10.4227	-
Silver	2.5964	6.7748	0.0460	2.5964	82.61	0.0080	-	10.4227	-
Zinc	29.9383	6.7748	0.5299	29.9383	67.35	0.1730	-	10.4227	-
Ammonia	2328.5280	6.7748	41.2115	3434.2439	97.04	1.8000	-	10.4227	-
BOD	22300.0000	6.7748	394.6775	37266.8170	98.62	9.1000	-	10.4227	-
TSS	22300.0000	6.7748	394.6775	150117.0148	98.87	30.0000	-	10.4227	-
Phosphorus (T)	582.1320	6.7748	10.3029	798.4975	94.76	0.7400	-	10.4227	-
Nitrate+Nitrite Nitrogen	463.3150	6.7748	8.2000	463.3150	0.00	8.2000	-	10.4227	-
Total Nitrogen	3492.7920	6.7748	61.8173	-	74.10	-	-	10.4227	-
Total Dissolved Solids	58760.0271	6.7748	1039.9668	58760.0271	3.84	1000.0000	-	10.4227	-
Aluminum	2958.6779	6.7748	52.3643	2958.6779	98.57	0.7500	-	10.4227	-
Antimony	0.4229	6.7748	0.0075	0.4229	17.43	0.0062	-	10.4227	-
Beryllium	9.4950	6.7748	0.1680	-	9.32	-	9.4950	10.4227	38.5931
Chloride	18804.6799	6.7748	332.8154	171713.9280	0.00	3039.0860	-	10.4227	-
Cobalt	1.6391	6.7748	0.0290	1.6391	27.61	0.0210	-	10.4227	-
Cyanide, Free	7.7400	6.7748	0.1370	71.1923	99.65	0.0044	-	10.4227	-
Iron, Dissolved	52.4149	6.7748	0.9277	52.4149	64.32	0.3310	-	10.4227	-
Iron, Total	390.9546	6.7748	6.9193	390.9546	76.07	1.6560	-	10.4227	-
Phenolics, Total	23.8470	6.7748	0.4221	23.8470	85.60	0.0608	-	10.4227	-
Tin	-	6.7748	-	-	79.62	-	-	10.4227	-
Vanadium	12.2477	6.7748	0.2168	12.2477	48.13	0.1124	-	10.4227	-
Bromodichloromethane	0.2890	6.7748	0.0051	0.2890	67.35	0.0017	-	10.4227	-
Chloroform	3.0768	6.7748	0.0545	3.0768	81.64	0.0100	-	10.4227	-
Methylene Chloride	5.2339	6.7748	0.0926	5.2339	62.00	0.0352	-	10.4227	-
Tetrachloroethylene	4.9722	6.7748	0.0880	4.9722	80.00	0.0176	-	10.4227	-
Toluene	41.8638	6.7748	0.7409	41.8638	91.51	0.0629	-	10.4227	-
Trichloroethylene	0.5445	6.7748	0.0096	0.5445	89.00	0.0011	-	10.4227	-
Bis(2-Ethylhexyl)Phthalate	0.9079	6.7748	0.0161	0.9079	96.51	0.00056	-	10.4227	-
p-Cresol	142.5604	6.7748	2.5231	142.5604	92.87	0.1799	-	10.4227	-
Diethyl Phthalate	372.0563	6.7748	6.5849	372.0563	89.95	0.6620	-	10.4227	-
Phenol	245.6601	6.7748	4.3478	15546.9160	98.40	4.4150	-	10.4227	-

(MAHL)	Maximum allowable headworks loading (from Table 18 column B).
(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(MAHC)	Maximum Allowable Headworks Concentration - influent concentration necessary to meet effluent, sludge, and inhibition goals (calculated).
MAHC =	MAHL/(Qpotw * 8.34)
8.34	Unit conversion factor
(AHLwq)	Allowable Headworks Loading based on protection of water quality from Table 7, column F.
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(Effluent Goal)	Discharge concentration necessary to meet NPDES limit or water quality standards (calculated)
Effluent Goal =	(AHLwq) * (1-Rpotw/100)/(8.34 * Qpotw)
(AHLs)	Allowable Headworks Loading based on protection of sludge quality from Table 16, column D.
(Qsldg)	Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(Sludge Goal)	Sludge standard used in headworks calculations for sludge protection (calculated)
Sludge Goal =	AHLs * (Rpotw/100) / (0.0022 * Qsldg)
0.0022	Unit conversion factor

Local Limits Calculation

Table 23 - Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data

Pollutant	Influent Goal (mg/L) (MAHC)	Number of Influent Measurements	Number of Influent Exceedances	Influent Evaluation	Effluent Goal (mg/L)	Number of Effluent Measurements	Number of Effluent Exceedances	Effluent Evaluation	Sludge Goal (mg/kg)	Number of Sludge Measurements	Number of Sludge Exceedances	Sludge Evaluation
Arsenic	0.0226	19	0	OK	0.0110	31	0	OK	19200.71583	60	0	OK
Cadmium	0.0046	21	0	OK	0.0004	34	0	OK	43381.03845	60	0	OK
Chromium	0.2260	20	0	OK	0.1360	30	0	OK	25399.70094	62	0	OK
Copper	0.3922	23	0	OK	0.0895	260	0	OK	-	61	0	-
Cyanide, Total	0.0145	21	0	OK	0.0045	37	0	OK	-	19	0	-
Lead	0.0453	22	0	OK	0.0061	33	0	OK	41672.14346	60	0	OK
Mercury	0.0001	20	1	?	0.0001	32	2	?	331.6263713	72	0	OK
Molybdenum	-	20	0	-	-	21	0	-	-	56	0	-
Nickel	0.1642	18	0	OK	0.0831	33	0	OK	418434.8512	60	0	OK
Selenium	0.0110	18	0	OK	0.0055	24	0	OK	-	61	0	-
Silver	0.0460	20	0	OK	0.0080	32	0	OK	-	57	0	-
Zinc	0.5299	21	0	OK	0.1730	38	0	OK	-	59	0	-
Ammonia	41.2115	1734	0	OK	1.8000	1734	0	OK	-	0	0	-
BOD	394.6775	1734	0	OK	9.1000	1734	0	OK	-	0	0	-
TSS	394.6775	1734	0	OK	30.0000	1734	0	OK	-	0	0	-
Phosphorus (T)	10.3029	1734	0	OK	0.7400	1734	0	OK	-	0	0	-
Nitrate+Nitrite Nitrogen	8.2000	1734	0	OK	8.2000	1734	0	OK	-	0	0	-
Total Nitrogen	61.8173	20	0	OK	-	26	0	-	-	0	0	-
Total Dissolved Solids	1039.9668	20	0	OK	1000.0000	265	0	OK	-	4	0	-
Aluminum	52.3643	22	0	OK	0.7500	68	0	OK	-	24	0	-
Antimony	0.0075	22	0	OK	0.0062	29	0	OK	-	14	0	-
Beryllium	0.1680	19	0	OK	-	21	0	-	38.5931236	14	0	OK
Chloride	332.8154	19	0	OK	3039.0860	279	0	OK	-	10	0	-
Cobalt	0.0290	20	0	OK	0.0210	20	0	OK	-	10	0	-
Cyanide, Free	0.1370	19	0	OK	0.0044	21	0	OK	-	0	0	-
Iron, Dissolved	0.9277	24	0	OK	0.3310	68	0	OK	-	0	0	-
Iron, Total	6.9193	40	0	OK	1.6560	67	0	OK	-	30	0	-
Phenolics, Total	0.4221	20	0	OK	0.0608	20	0	OK	-	19	0	-
Tin	-	20	0	-	-	12	0	-	-	10	0	-
Vanadium	0.2168	20	0	OK	0.1124	26	0	OK	-	10	0	-
Bromodichloromethane	0.0051	20	0	OK	0.0017	30	0	OK	-	8	0	-
Chloroform	0.0545	22	0	OK	0.0100	31	0	OK	-	8	0	-
Methylene Chloride	0.0926	19	0	OK	0.0352	33	0	OK	-	13	0	-
Tetrachloroethylene	0.0880	19	0	OK	0.0176	21	0	OK	-	8	0	-
Toluene	0.7409	20	0	OK	0.0629	21	0	OK	-	12	0	-
Trichloroethylene	0.0096	19	0	OK	0.0011	34	0	OK	-	15	0	-
Bis(2-Ethylhexyl)Phthalate	0.0161	20	7	!!	0.0006	25	0	OK	-	18	0	-
p-Cresol	2.5231	20	0	OK	0.1799	15	0	OK	-	12	0	-
Diethyl Phthalate	6.5849	20	0	OK	0.6620	15	0	OK	-	10	0	-
Phenol	4.3478	20	0	OK	4.4150	27	0	OK	-	14	0	-

(Influent Goal)	Influent concentration necessary to meet effluent, sludge, and inhibition goals (from Table 21, column D).
(Effluent Goal)	Discharge concentration necessary to meet NPDES limit or water quality standards (from Table 21, column G).
(Sludge Goal)	Sludge concentration necessary to meet sludge disposal goals (from Table 21, column J).
Number of Measurements	As listed in columns C, G, and K; the total number of measurements used in the local limits evaluation, from the 'Monitoring Data' sheet row 52.
Number of Exceedances	As listed in columns D, H, and L; the number of sample results for that pollutant and monitoring point in the 'Monitoring Data' sheet that exceed the listed goal.
Evaluation = OK	All of the monitoring data is below the goal.
Evaluation = ?	25% or less of all of the monitoring data is above the goal.
Evaluation = !!	More than 25% and less than or equal to 50% of all of the monitoring data is above the goal.
Evaluation = !!!!	More than 50% and less than or equal to 75% of all of the monitoring data is above the goal.
Evaluation = !!!!!!	More than 75% of all of the monitoring data is above the goal.
Evaluation = "-"	There is no goal or no monitoring data was used in the evaluation.

Appendix 2 – HTMA Local Limits Background Workbook

Appendix 2.1 Final Detection of Pollutants of Concern

Parameter	2018-2023 Maximum Influent mg/L	2018-2023 Maximum Effluent mg/L	Maximum Biosolids mg/kg	NPDES Maximum Permit Limit mg/L	Maximum WQBEL (Estab. By DEP) mg/L	Chronic Water Quality Criteria mg/L	Acute Water Quality Criteria mg/L	Human Health Water Quality Criteria mg/L	Activated Sludge Inhibition Criteria[1] mg/L	Nitrification Inhibition Criteria[1] mg/L	Biosolids Disposal Criteria[2] (Land Application) mg/kg	Biosolids Disposal Criteria (Incineration) mg/kg	Notes[4]
Arsenic	0.00140	0.00097	10.90	—	—	0.1500	0.3400	0.0100	0.10	1.50	41.0	10,900	a c d e f
Cadmium	0.00009	0.00009	2.320	Report	0.00041	0.00040	0.00361	—	1.00	5.20	39.0	27,014	a b c d e f
Chromium, Total	0.00570	0.00130	59.00	—	—	—	—	—	1.00	0.165	—	14,421	a c d e f
Copper	0.08800	0.02000	790.0	Report	0.08950	0.01453	0.02282	—	1.00	0.83	1,500	—	a b c d e f
Cyanide-Total	0.00250	0.00250	2.700	—	—	0.00520	—	—	0.10	0.34	—	—	a d e f
Lead	0.00200	0.00110	34.00	Report	0.00611	0.00616	0.15803	—	1.00	0.50	300	7,109	a b c d e f
Mercury	0.00014	0.00011	2.000	—	—	0.00091	0.00165	0.00005	0.10	—	17.0	351.45	a c d e f
Molybdenum	0.00800	0.01330	22.80	—	—	—	—	—	—	—	75.0	—	a c e f
Nickel	0.01600	0.00690	38.00	—	—	0.08090	0.72769	0.6100	1.00	0.25	420	236,967	a c d e f
Selenium	0.00068	0.00092	7.830	Report	0.00551	0.00499	—	—	—	—	100	—	a b c e f
Silver	0.00240	0.000085	4.180	—	—	—	0.00924	—	0.25	0.066	—	—	a d e f
Zinc	0.14100	0.04620	790.0	Report	0.17300	0.18596	0.18596	—	0.30	0.25	2,800	—	a b c d e f
Ammonia Nitrogen	20.8	1.48	—	11.0	—	—	—	—	480	—	—	—	a b e
BOD5	308	3.48	—	36.0	—	—	—	—	—	—	—	—	a b e f
TSS	353	4.61	—	60.0	—	—	—	—	—	—	—	—	a b e f
Phosphorus, Total	6.32	0.45	—	2.00	—	—	—	—	—	—	—	—	b e
Nitrogen, Nitrate-Nitrite	1.95	6.80	—	16.4	—	—	—	—	—	—	—	—	b e
Nitrogen, Total	40.0	8.30	—	Report	—	—	—	—	—	—	—	—	b e
Total Dissolved Solids	662	650	700.0	1,500	—	—	—	500.00	—	—	—	—	b e
Aluminum	0.72900	0.02800	9,600	—	—	—	0.7500	—	—	—	—	—	e
Antimony	0.00140	0.00110	5.500	Report	0.00618	0.2200	1.1000	0.0056	—	—	—	—	b e f
Beryllium	0.00006	0.00006	0.3050	—	—	—	—	—	—	—	—	34.115	c e
Chloride	190.00	250.00	620.0	Report	—	—	—	250.00	—	180	—	—	b e
Cobalt	0.00051	0.00053	4.200	—	—	0.0190	0.0950	—	—	—	—	—	e f
Cyanide-Free	0.01400	0.00336	—	Report	0.00441	0.0052	0.0220	0.0040	0.10	—	—	—	b e
Iron-Dissolved	0.20000	0.09800	—	Report	0.33100	—	—	0.3000	—	—	—	—	b e
Iron-Total	0.96000	0.32700	56,000	Report	1.65600	1.5000	—	—	—	—	—	—	b e
Phenolics-Total	0.05500	0.01300	56.00	—	—	—	—	0.0050	—	—	—	—	d e
Tin	0.00220	0.00030	34.00	—	—	—	—	—	—	—	—	—	e f
Vanadium	0.00110	0.000395	13.00	—	—	0.1000	0.5100	—	—	—	—	—	e f
Bromodichloromethane	0.00050	0.00010	0.00205	—	—	—	—	0.00095	—	—	—	—	e f

Appendix 2.1 Final Detection of Pollutants of Concern

Parameter	2018-2023 Maximum Influent mg/L	2018-2023 Maximum Effluent mg/L	Maximum Biosolids mg/kg	NPDES Maximum Permit Limit mg/L	Maximum WQBEL (Estab. By DEP) mg/L	Chronic Water Quality Criteria mg/L	Acute Water Quality Criteria mg/L	Human Health Water Quality Criteria mg/L	Activated Sludge Inhibition Criteria[1] mg/L	Nitrification Inhibition Criteria[1] mg/L	Biosolids Disposal Criteria[2] (Land Application) mg/kg	Biosolids Disposal Criteria (Incineration) mg/kg	Notes[4]						
Chloroform	0.00540	0.00100	0.00305	—	—	0.3900	1.9000	0.0057	—	10.0	—	—					e	f	
Methylene Chloride	0.00100	0.00095	0.00790	—	—	2.4000	12.000	0.0200	—	—	—	—				d	e	f	
Tetrachloroethylene	0.00035	0.00010	0.00255	—	—	0.1400	0.7000	0.0100	—	—	—	—					e	f	
Toluene	0.00110	0.00020	33.00	—	—	0.3300	1.7000	0.0570	200	—	—	—					e	f	
Trichloroethylene	0.00058	0.00010	0.00240	—	—	0.4500	2.3000	0.0006	—	—	—	—				d	e	f	
Bis(2-Ethylhexyl)Phthalate	0.05400	0.00050	6.500	—	—	0.9100	4.5000	0.00032	—	—	—	—				d	e	f	
p-Cresol	0.01400	0.000175	140.0	—	—	0.1600	0.8000	—	—	—	—	—					e	f	
Diethyl Phthalate	0.00550	0.000175	0.4300	—	—	0.8000	4.0000	0.6000	—	—	—	—					e	f	
Phenol	0.07500	0.000285	16.000	—	—	—	—	4.0000	50.0	4.00	—	—					e	f	

Notes: [1] Per "Appendix G - Literature Inhibition Values" of EPA's *Local Limits Development Guidance (July 2004) for* activated sludge and nitrification.

[2] Land Application Criteria are used for those parameters that are not included under the biosolids disposal criteria for incineration.

[3] Biosolids criteria for incineration calculated per "Appendix T - Sludge AHL Equations Using Flow (in metric units)" of EPA's *Local Limits Development Guidance (July 2004)* .

[4] Parameter Required By:

1/2 Non-Detect (a) EPA's 15 Recommended POC (b) NPDES Permit Limits, including WQBELs (c) Biosolids Disposal Permit (Air Permit for Incineration)

(d) Existing Local Limit (June 2019) (e) Detected in Influent, Effluent, Biosolids or IU Discharge (f) Centralized Waste Treatment or Metal Finishing Categorical Standard

Appendix 2.2 Screening for Pollutants of Concern Evaluated

Parameter	Influent > Effluent Criteria?	Influent >1/500 Biosolids Criteria?	Effluent >1/2 Effluent Criteria?	Influent >1/4 Inhibition?	Biosolids >1/2 Biosolids Criteria	Disregard
Arsenic	No	No	No	No	No	Note 1
Cadmium	No	No	No	No	No	Note 1
Chromium, Total	NA	No	NA	No	No	Note 1
Copper	Yes	No	Yes	No	Yes	
Cyanide-Total	No	NA	No	No	NA	Note 1
Lead	No	No	No	No	No	Note 1
Mercury	Yes	No	Yes	No	No	
Molybdenum	NA	No	NA	NA	No	Note 2
Nickel	No	No	No	No	No	Note 1
Selenium	No	No	No	NA	No	Note 1
Silver	No	NA	No	No	NA	Note 1
Zinc	No	No	No	Yes	No	
Ammonia Nitrogen	Yes	NA	No	No	NA	
BOD5	Yes	NA	No	NA	NA	
TSS	Yes	NA	No	NA	NA	
Phosphorus, Total	Yes	NA	No	NA	NA	
Nitrogen, Nitrate-Nitrite	No	NA	No	NA	NA	Note 2
Nitrogen, Total	NA	NA	NA	NA	NA	Note 2
Total Dissolved Solids	No	NA	No	NA	NA	Note 2
Aluminum	No	NA	No	NA	NA	Note 2
Antimony	No	NA	No	NA	NA	Note 2
Beryllium	NA	No	NA	NA	No	Note 1
Chloride	No	NA	Yes	Yes	NA	
Cobalt	No	NA	No	NA	NA	Note 2
Cyanide-Free	Yes	NA	Yes	No	NA	
Iron-Dissolved	No	NA	No	NA	NA	Note 2
Iron-Total	No	NA	No	NA	NA	Note 2
Phenolics-Total	Yes	NA	Yes	NA	NA	
Tin	NA	NA	NA	NA	NA	Note 2
Vanadium	No	NA	No	NA	NA	Note 2
Bromodichloromethane	No	NA	No	No	NA	Note 2
Chloroform	No	NA	No	No	NA	Note 2
Methylene Chloride	No	NA	No	NA	NA	Note 2
Tetrachloroethylene	No	NA	No	NA	NA	Note 2
Toluene	No	NA	No	NA	NA	Note 2
Trichloroethylene	No	NA	No	NA	NA	Note 2
Bis(2-Ethylhexyl)Phthalate	Yes	NA	Yes	NA	NA	
p-Cresol	No	NA	No	NA	NA	Note 2
Diethyl Phthalate	No	NA	No	NA	NA	Note 2
Phenol	No	NA	No	NA	NA	Note 2

Note 1: Recommended by EPA / Existing Local Limit

Note 2: Often detected in Influent, Effluent or Truck Wastewater

Appendix 2.3 Sampling Plan

Revised 2023-06-13

Parameter	Raw Influent [2]		Primary Effluent [3]		Final Effluent [2]		Centrifuge Cake [4]		Collection System (2 Sites) [1]		Trucked Wastewater to Headworks [2]		Trucked-In Sludge to Centrifuge [4]		Recommended Test Method (Wastewater)	Sample Type [5]	Target RDL mg/L
	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need			
Arsenic	21	0	10	0	34	0	63	0	20	0	31	0	30	0	EPA 200.8	24-HC	0.0030
Cadmium	23	0	10	0	41	0	63	0	20	0	31	0	30	0	EPA 200.8	24-HC	0.0002
Chromium, Total	21	0	10	0	34	0	63	0	20	0	31	0	30	0	EPA 200.8	24-HC	0.0040
Copper	23	0	10	0	266	0	62	0	20	0	31	0	40	0	EPA 200.8	24-HC	0.0040
Cyanide-Total	21	0	10	0	40	0	20	0	20	0	20	0	10	0	EPA 335.4	Grab	0.0100
Lead	23	0	10	0	41	0	62	0	20	0	31	0	30	0	EPA 200.8	24-HC	0.0010
Mercury	21	0	10	0	34	0	73	0	20	0	20	0	40	0	EPA 245.1	24-HC	0.0002
Molybdenum	21	0	10	0	22	0	60	0	20	0	31	0	10	0	EPA 200.8	24-HC	0.0040
Nickel	21	0	10	0	34	0	63	0	20	0	31	0	30	0	EPA 200.8	24-HC	0.0040
Selenium	23	0	10	0	31	0	63	0	20	0	26	0	40	0	EPA 200.8	24-HC	0.0050
Silver	21	0	10	0	34	0	60	0	20	0	31	0	10	0	EPA 200.8	24-HC	0.0004
Zinc	23	0	10	0	40	0	62	0	20	0	31	0	40	0	EPA 200.8	24-HC	0.0050
Ammonia Nitrogen	1734	0	10	0	1734	0	0	0	20	0	51	0	0	0	EPA 350.1 et al	24-HC	0.02
BOD5	1734	0	10	0	1734	0	0	0	20	0	51	0	0	0	SM 5210 B	24-HC	3.00
TSS	1734	0	10	0	1734	0	0	0	20	0	51	0	0	0	SM 2540 D	24-HC	2.00
Phosphorus, Total	1734	0	10	0	1734	0	0	0	20	0	51	0	0	0	SM 4500 P B/F	24-HC	0.01
Nitrogen, Nitrate-Nitrite	1734	0	10	0	1734	0	0	0	20	0	70	0	0	0	EPA 353.2 et al	24-HC	0.05
Nitrogen, Total	21	0	10	0	28	0	0	0	20	0	20	0	0	0	Calc	—	
Total Dissolved Solids	21	0	10	0	271	0	4	0	20	0	19	0	0	0	SM 2540 C	24-HC	2.00
Aluminum	23	0	10	0	73	0	26	0	20	0	31	0	10	0	EPA 200.8	24-HC	0.0100
Antimony	23	0	10	0	30	0	15	0	20	0	26	0	10	0	EPA 200.8	24-HC	0.0020
Beryllium	21	0	10	0	23	0	62	0	20	0	26	0	40	0	EPA 200.8	24-HC	0.0010
Chloride	21	0	10	0	287	0	10	0	20	0	20	0	10	0	EPA 300.0 et al	24-HC	0.50
Cobalt	21	0	10	0	21	0	10	0	20	0	31	0	10	0	EPA 200.8	24-HC	0.0010
Cyanide-Free	21	0	10	0	24	0	0	0	20	0	20	0	10	0	OIA-1677	Grab	0.0010
Iron-Dissolved	24	0	10	0	71	0	0	0	20	0	20	0	10	0	EPA 200.8	24-HC	0.0200
Iron-Total	41	0	10	0	72	0	31	0	20	0	26	0	10	0	EPA 200.8	24-HC	0.0200
Phenolics-Total	21	0	10	0	40	0	20	0	20	0	20	0	10	0	EPA 420.4	Grab	0.0050
Tin [1]	20	0	10	0	12	0	10	0	20	0	21	0	10	0	EPA 200.8	24-HC	

Appendix 2.3 Sampling Plan

Revised 2023-06-13

Parameter	Raw Influent [2]		Primary Effluent [3]		Final Effluent [2]		Centrifuge Cake [4]		Collection System (2 Sites) [1]		Trucked Wastewater to Headworks [2]		Trucked-In Sludge to Centrifuge [4]		Recommended Test Method (Wastewater)	Sample Type [5]	Target RDL mg/L
	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need	Have	Need			
Vanadium	21	0	10	0	26	0	10	0	20	0	22	0	10	0	EPA 200.8	24-HC	
Bromodichloromethane	21	0	10	0	30	0	13	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Chloroform	23	0	10	0	31	0	13	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Methylene Chloride	21	0	10	0	33	0	20	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Tetrachloroethylene	21	0	10	0	34	0	13	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Toluene	21	0	10	0	33	0	13	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Trichloroethylene	21	0	10	0	34	0	20	0	20	0	20	0	10	0	EPA 624.1	Grab	0.0005
Bis(2-Ethylhexyl)Phthalate	21	0	10	0	34	0	20	0	20	0	20	0	10	0	EPA 625.1	24-HC	0.0050
p-Cresol [1]	21	0	10	0	29	0	13	0	20	0	20	0	10	0	EPA 625.1	24-HC	0.0100
Diethyl Phthalate	21	0	10	0	29	0	15	0	20	0	20	0	10	0	EPA 625.1	24-HC	0.0050
Phenol	21	0	10	0	27	0	15	0	20	0	20	0	10	0	EPA 625.1	24-HC	0.0100

[1] Number of samples may be increased after initial testing if the pollutants meet EPA's screening criteria.

[2] Recommend minimum 20 plant influent, final effluent, collection system, and truck waste wastewater samples for all parameters.

[3] Recommend minimum 10 samples from primary clarifier effluent for inhibition calculations.

[4] Recommend minimum 10 samples from centrifuge cake and truck waste sludge for all parameters.

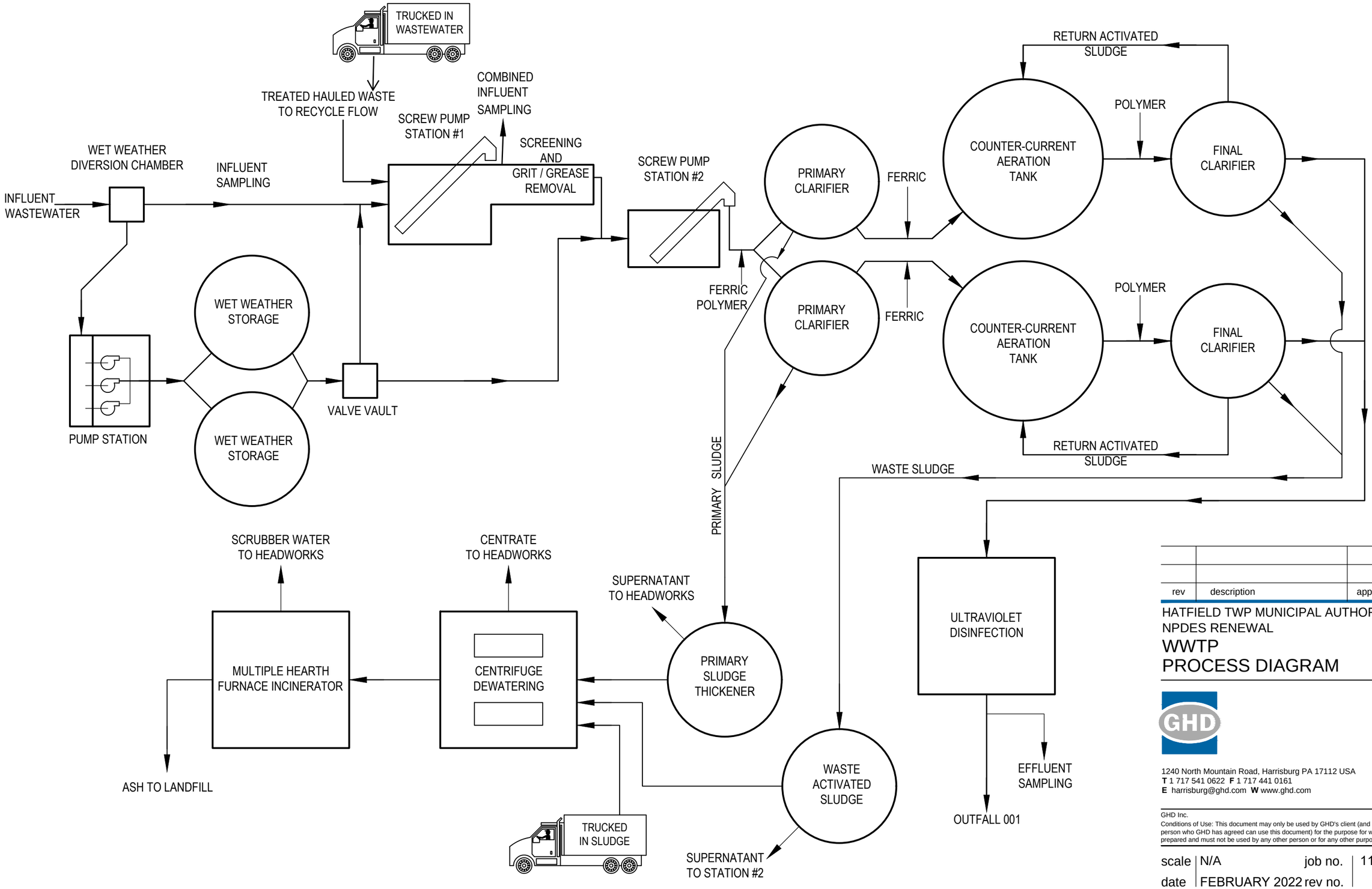
[5] 24-HC represents 24-hour composite samples.

Appendix 2.4 HTMA 2018-2023 IU Data

Parameter	AL Finishing @ 0.004887 MGD				Brooks Instrument @ 0.00700 MGD				Lucerne Dairy @ 0.070452 MGD				Penn Color @ 0.03075 MGD			
	Metal Finishing Subpart A				Metal Finishing Subpart A				Dairy Subpart B				Plastics Molding Subparts A, B, C			
	Avg	Avg Lb/d	Max	Max Lb/d	Avg	Avg Lb/d	Max	Max Lb/d	Avg	Avg Lb/d	Max	Max Lb/d	Avg	Avg Lb/d	Max	Max Lb/d
Flow	0.003747	—	0.00711	—	0.006994	—	0.011923	—	0.060031	—	0.0790	—	0.031571	—	0.035222	—
Arsenic	0.0049	0.00020	0.0200	0.00083	0.0017	0.00014	0.0068	0.00057	0.0047	0.00177	0.0200	0.00751	0.0018	0.00069	0.0036	0.00135
Cadmium	0.0047	0.00020	0.0500	0.00209	0.00029	0.000024	0.0011	0.000092	0.00090	0.00034	0.0050	0.00188	0.00084	0.00032	0.0038	0.00143
Chromium	0.4566	0.01904	1.5000	0.06255	0.0023	0.00019	0.0234	0.00195	0.0076	0.00284	0.0150	0.00563	0.0484	0.01815	0.2000	0.07506
Copper	0.5582	0.02328	0.8170	0.03407	0.1169	0.00975	2.1100	0.17597	0.0431	0.01618	0.0720	0.02702	0.1468	0.05509	0.2200	0.08257
Cyanide-Total	0.0154	0.00064	0.0980	0.00409	0.0071	0.00059	0.0300	0.00250	0.0050	0.00189	0.0054	0.00203	0.0052	0.00196	0.0100	0.00375
Lead	0.0753	0.00314	0.3540	0.01476	0.0031	0.00026	0.0323	0.00269	0.0044	0.00165	0.0150	0.00563	0.0028	0.00105	0.0044	0.00165
Mercury	0.00017	0.0000072	0.0002	0.0000083	0.00058	0.000048	0.0087	0.00073	0.00035	0.00013	0.00079	0.00030	0.00012	0.000043	0.00022	0.000083
Molybdenum					0.0029	0.00024	0.0035	0.00029	0.0062	0.00233	0.0062	0.00233	0.0103	0.00387	0.0130	0.00488
Nickel	0.7908	0.03298	2.4000	0.10008	0.0046	0.00039	0.0253	0.00211	0.0068	0.00255	0.0152	0.00570	0.0135	0.00507	0.0478	0.01794
Selenium																
Silver	0.0061	0.00025	0.0100	0.00042	0.0013	0.00011	0.0050	0.00042	0.0036	0.00134	0.0200	0.00751	0.00117	0.00044	0.0050	0.00188
Zinc	0.1928	0.00804	0.5320	0.02218	0.1626	0.01356	1.5000	0.12510	0.2156	0.08090	0.3580	0.13436	0.7678	0.28815	1.6000	0.60048
TDS																
Aluminum	115.40	4.8122	230.00	9.5910	0.0904	0.00754	0.1700	0.01418	0.2627	0.09860	0.3500	0.13136	0.6073	0.22790	2.6000	0.97578
Antimony																
Beryllium																
Cobalt													0.0148	0.00555	0.0290	0.01088
Phenolics-Total	0.0484	0.00202	0.0870	0.00363	0.0245	0.00204	0.1000	0.00834	0.1856	0.06964	1.3000	0.48789	0.4836	0.18149	3.6000	1.35108
Tin																
Vanadium																
BDCM													0.0032	0.00119	0.0040	0.00150
Chloroform	0.0036	0.00015	0.0050	0.00021	0.0046	0.00039	0.0097	0.00081	0.0165	0.00618	0.0310	0.01163	0.0050	0.00188	0.0099	0.00372
Methylene Chloride	0.00030	0.000013	0.00030	0.000013	0.0010	0.000080	0.0020	0.00017	0.0033	0.00122	0.0060	0.00225	0.00407	0.00153	0.0060	0.00225
Tetrachloroethylene	0.00024	0.000010	0.00030	0.000013	0.00071	0.000059	0.0015	0.00013	0.0027	0.00101	0.0060	0.00225	0.0053	0.00199	0.0100	0.00375
Toluene	0.00015	0.0000061	0.00023	0.000010	0.00061	0.000051	0.0010	0.000083	0.0015	0.00057	0.0050	0.00188	0.0083	0.00313	0.0400	0.01501
Trichloroethylene	0.00041	0.000017	0.0013	0.000052	0.0015	0.00012	0.0050	0.00042	0.0024	0.00088	0.0050	0.00188	0.0424	0.01590	0.1400	0.05254
BEHP	0.0062	0.00026	0.0096	0.00040	0.0031	0.00026	0.0120	0.00100	0.0022	0.00082	0.0040	0.00150	0.0057	0.00215	0.0170	0.00638
p-Cresol																
Diethyl Phthalate					0.0072	0.00060	0.0197	0.00164								

Parameter	RES/Clean Earth @ 0.035 MGD CWT Subpart D				2023 LL mg/L	2023 LL Lbs/Day	IU Avg Lbs/Day	% IU Avg	IU Max Lbs/Day	% IU Max	Permitted IU Flow 0.148089
	Avg	Avg Lb/d	Max	Max Lb/d							
Flow	0.031613	—	0.040029	—			0.133956		0.173283		
Arsenic	0.0302	0.00881	0.2500	0.07298	0.87	**1.0865**	0.01161	1.07	0.08323	7.66	
Cadmium	0.0093	0.00270	0.0260	0.00759	0.18	**0.2259**	0.00357	1.58	0.01307	5.78	
Chromium	0.0207	0.00605	0.5030	0.14683	9.13	**11.424**	0.04628	0.41	0.29202	2.56	
Copper	0.0260	0.00760	0.3640	0.10625	12.45	**15.5763**	0.11191	0.72	0.42588	2.73	
Cyanide-Total	0.1439	0.04199	1.0500	0.30650	0.48	0.5996	0.04708	7.85	0.31886	53.18	
Lead	0.0119	0.00349	0.1000	0.02919	1.77	**2.2118**	0.00959	0.43	0.05393	2.44	
Mercury	0.00029	0.000085	0.0029	0.00085	0.0019	**0.0024**	0.00032	13.08	0.00196	81.31	
Molybdenum	0.5998	0.17507	4.3900	1.28144	2.10	*2.6251*	0.18150	6.91	1.28894	49.10	
Nickel	0.2814	0.08214	2.9400	0.85819	6.57	**8.2181**	0.12313	1.50	0.98402	11.97	
Selenium	0.0106	0.00310	0.0504	0.01471	0.42	0.5312	0.00310	0.58	0.01471	2.77	
Silver	0.0094	0.00274	0.0230	0.00671	1.86	**2.3232**	0.00488	0.21	0.01693	0.73	
Zinc	0.1822	0.05317	1.6000	0.46704	16.49	**20.635**	0.44381	2.15	1.34916	6.54	
TDS	26,127	7,626	60,052	17,529	29149.48	36466	7,626	20.91	17,529	48.07	
Aluminum					2095.12	2621	5.14622	0.20	10.71231	0.41	
Antimony	0.0354	0.01034	0.2500	0.07298	0.28	0.3554	0.01034	2.91	0.07298	20.53	
Beryllium	0.00071	0.00021	0.0050	0.00146	6.83	8.5419	0.00021	0.002	0.00146	0.02	
Cobalt	0.0105	0.00307	0.1620	0.04729	1.16	1.4569	0.00862	0.591	0.05817	3.99	
Phenolics-Total	0.7692	0.22454	2.9000	0.84651	14.92	**18.6592**	0.47973	2.57	2.69745	14.46	
Tin	0.0123	0.00360	0.3790	0.11063	6388.49	*7992.0*	0.00360	0.00005	0.11063	0.0014	
Vanadium	0.0208	0.00607	0.2700	0.07881	8.78	10.983	0.00607	0.06	0.07881	0.72	
BDCM					0.20	0.2448	0.00119	0.48	0.00150	0.61	
Chloroform	0.0263	0.00767	0.2000	0.05838	2.09	2.6100	0.01626	0.62	0.07475	2.86	
Methylene Chloride	0.0287	0.00839	0.2000	0.05838	3.76	**4.7022**	0.01123	0.24	0.06306	1.34	
Tetrachloroethylene	0.0259	0.00757	0.2000	0.05838	3.57	4.4666	0.01064	0.24	0.06452	1.44	
Toluene	0.0262	0.00765	0.2000	0.05838	30.10	37.653	0.01141	0.03	0.07536	0.20	
Trichloroethylene	0.0252	0.00736	0.2000	0.05838	0.39	0.4845	0.02427	5.01	0.11327	23.38	
BEHP	0.0500	0.01459	4.0000	1.16760	0.52	**0.6523**	0.01807	2.77	1.17688	180.42	
p-Cresol	0.0086	0.00252	0.0510	0.01489	101.57	127.06	0.00252	0.0020	0.01489	0.0117	
Diethyl Phthalate					267.58	334.74	0.00060	0.00018	0.00164	0.00049	

Appendix 3 – HTMA AWWTF Process Schematic



rev	description	app'd	date

HATFIELD TWP MUNICIPAL AUTHORITY
NPDES RENEWAL

WWTP
PROCESS DIAGRAM

1240 North Mountain Road, Harrisburg PA 17112 USA
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scale	N/A	job no.	11226030
date	FEBRUARY 2022	rev no.	

Appendix 4 – HTMA NPDES Permit No. PA0026247

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED TREATMENT WORKS (POTWs)

NPDES PERMIT NO: PA0026247

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

Hatfield Township Municipal Authority
3200 Advance Lane
Colmar, PA 18915-9766

is authorized to discharge from a facility known as **Hatfield Township STP**, located at **3200 Advance Lane, Colmar, PA 18915, Hatfield Township, Montgomery County**, to **West Branch Neshaminy Creek (WWF, MF)** in Watershed(s) **2-F** in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

THIS PERMIT SHALL BECOME EFFECTIVE ON SEPTEMBER 1, 2022

THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON AUGUST 31, 2022

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.

2. Failure to comply with the terms, conditions or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (40 CFR 122.41(a))

3. A complete application for renewal of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. (40 CFR 122.41(b), 122.21(d))

   In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. (25 Pa. Code §§ 92a.7(b), (c))

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED August 17, 2022 **ISSUED BY** Thomas L. Magge

Thomas L. Magge
Environmental Program Manager
Southeast Regional Office

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40º 16' 32.47" , **Longitude** 75º 15' 8.80" , **River Mile Index** 2.8 , **Stream Code** 02868

Receiving Waters: West Branch Neshaminy Creek (WWF, MF)

Type of Effluent: Treated Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	1073	1609	XXX	18	27 Wkly Avg	36	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	536	804	XXX	9.1	14 Wkly Avg	18	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	1746	2620	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Dissolved Solids	58213	XXX	XXX	1000	XXX	1500	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000*	4/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	4/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite as N Nov 1 - Jun 30	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Nitrate-Nitrite as N Jul 1 - Oct 31	483	XXX	XXX	8.2	XXX	16.4	1/day	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	322	XXX	XXX	5.5	XXX	11	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	107	XXX	XXX	1.8	XXX	3.6	1/day	24-Hr Composite
Total Kjeldahl Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	58	XXX	XXX	1.0	XXX	2	1/day	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	43	XXX	XXX	0.74	XXX	1.48	1/day	24-Hr Composite
Antimony, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Cadmium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Copper, Total	Report	Report Daily Max	XXX	Report	Report	XXX	1/week	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Selenium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Chloride	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Bromide	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Hardness, Total (as CaCO3)	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit**	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit**	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit**	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit**	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 001

*Shall not exceed in more than 10% of samples; See Part C.I. Other Requirements No. G.
**See Part C.V. Whole Effluent Toxicity condition

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 002 **, Latitude** 40º 16' 33.00" **, Longitude** 75º 15' 8.00" **, River Mile Index** 2.8 **, Stream Code** 02868

Receiving Waters: West Branch Neshaminy Creek (WWF, MF)

Type of Effluent: Stormwater from Hatfield Township STP property

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 002

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. C. For Outfall 003 **, Latitude** 40º 16' 30.97" **, Longitude** 75º 15' 8.32" **, River Mile Index** 2.8 **, Stream Code** 02868

Receiving Waters: West Branch Neshaminy Creek (WWF, MF)

Type of Effluent: Stormwater from Hatfield Township STP property

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 003

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. D. For Outfall 004 **, Latitude** 40º 16' 28.00" **, Longitude** 75º 15' 8.00" **, River Mile Index** 2.8 **, Stream Code** 02868

Receiving Waters: West Branch Neshaminy Creek (WWF, MF)

Type of Effluent: Stormwater from Hatfield Township STP property

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS (Continued)

Additional Requirements

1. The permittee may not discharge:

   a. Floating solids, scum, sheen or substances that result in observed deposits in the receiving water. (25 Pa Code § 92a.41(c))

   b. Oil and grease in amounts that cause a film or sheen upon or discoloration of the waters of this Commonwealth or adjoining shoreline, or that exceed 15 mg/l as a daily average or 30 mg/l at any time (or lesser amounts if specified in this permit). (25 Pa. Code § 92a.47(a)(7), § 95.2(2))

   c. Substances in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. (25 Pa Code § 93.6(a))

   d. Foam or substances that produce an observed change in the color, taste, odor or turbidity of the receiving water, unless those conditions are otherwise controlled through effluent limitations or other requirements in this permit. For the purpose of determining compliance with this condition, DEP will compare conditions in the receiving water upstream of the discharge to conditions in the receiving water approximately 100 feet downstream of the discharge to determine if there is an observable change in the receiving water. (25 Pa Code § 92a.41(c))

2. The monthly average percent removal of BOD_5 or $CBOD_5$ and TSS must be at least 85% for POTW facilities on a concentration basis except where 25 Pa. Code 92a.47(g) and (h) are applicable to facilities with combined sewer overflows (CSOs) or as otherwise specified in this permit. (25 Pa. Code § 92a.47(a)(3))

3. If the permit requires the reporting of average weekly statistical results, the maximum weekly average concentration and maximum weekly average mass loading shall be reported, regardless of whether the results are obtained for the same or different weeks.

4. The permittee shall monitor the sewage effluent discharge(s) for the effluent parameters identified in the Part A limitations table(s) during all bypass events at the facility, using the sample types that are specified in the limitations table(s). Where the required sample type is “composite”, the permittee must commence sample collection within one hour of the start of the bypass, wherever possible. The results shall be reported on the Daily Effluent Monitoring supplemental form (3800-FM-BCW0435) and be incorporated into the calculations used to report self-monitoring data on Discharge Monitoring Reports (DMRs).

Footnotes

(1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured and recorded.

(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.

Supplemental Information

(1) The hydraulic design capacity of 10.68 million gallons per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.

(2) The effluent limitations for Outfall 001 were determined using an effluent discharge rate of 6.98 MGD.

(3) The organic design capacity of 22300 lbs BOD_5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an “organic overload” condition exists, as defined in 25 Pa. Code Chapter 94.

(4) Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

II. DEFINITIONS

At Outfall (XXX) means a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified.

Average refers to the use of an arithmetic mean, unless otherwise specified in this permit. (40 CFR 122.41(l)(4)(iii))

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollutant loading to surface waters of the Commonwealth. The term also includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The term includes activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this Commonwealth before, during and after earth disturbance activities. (25 Pa. Code § 92a.2)

Bypass means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))

Calendar Week is defined as the seven consecutive days from Sunday through Saturday, unless the permittee has been given permission by DEP to provide weekly data as Monday through Friday based on showing excellent performance of the facility and a history of compliance. In cases when the week falls in two separate months, the month with the most days in that week shall be the month for reporting.

Clean Water Act means the Federal Water Pollution Control Act, as amended (33 U.S.C.A. §§ 1251 to 1387).

Composite Sample (for all except GC/MS volatile organic analysis) means a combination of individual samples (at least eight for a 24-hour period or four for an 8-hour period) of at least 100 milliliters (mL) each obtained at spaced time intervals during the compositing period. The composite must be flow-proportional; either the volume of each individual sample is proportional to discharge flow rates, or the sampling interval is proportional to the flow rates over the time period used to produce the composite. (EPA Form 2C)

Composite Sample (for GC/MS volatile organic analysis) consists of at least four aliquots or grab samples collected during the sampling event (not necessarily flow proportioned). The samples must be combined in the laboratory immediately before analysis and then one analysis is performed. (EPA Form 2C)

Daily Average Temperature means the average of all temperature measurements made, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar day or during the operating day if flows are of a shorter duration.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Daily Maximum Discharge Limitation means the highest allowable "daily discharge."

Discharge Monitoring Report (DMR) means the DEP or EPA supplied form(s) for the reporting of self-monitoring results by the permittee. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Estimated Flow means any method of liquid volume measurement based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

Geometric Mean means the average of a set of n sample results given by the n^{th} root of their product.

Grab Sample means an individual sample of at least 100 mL collected at a randomly selected time over a period not to exceed 15 minutes. (EPA Form 2C)

Hauled-In Wastes means any waste that is introduced into a treatment facility through any method other than a direct connection to the sewage collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act. (40 CFR 122.2)

Immersion Stabilization (i-s) means a calibrated device is immersed in the wastewater until the reading is stabilized.

Indirect Discharger means a non-domestic discharger introducing pollutants to a Publicly Owned Treatment Works (POTW) or other treatment works. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Industrial User means a source of Indirect Discharge. (40 CFR 403.3)

Instantaneous Maximum Effluent Limitation means the highest allowable discharge of a concentration or mass of a substance at any one time as measured by a grab sample. (25 Pa. Code § 92a.2)

Measured Flow means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.

Monthly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (25 Pa. Code § 92a.2)

Municipality means a city, town, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code § 92a.2)

Municipal Waste means garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility. (25 Pa. Code § 271.1)

Publicly Owned Treatment Works (POTW) means a treatment works as defined by §212 of the Clean Water Act, owned by a state or municipality. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. The term also includes sewers, pipes or other conveyances if they convey wastewater to a POTW providing treatment. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. (25 Pa Code § 92a.2, 40 CFR 122.2)

Residual Waste means garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under the Clean Streams Law. (25 Pa Code § 287.1)

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))

Stormwater means the runoff from precipitation, snow melt runoff, and surface runoff and drainage. (25 Pa. Code § 92a.2)

Stormwater Associated With Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, and as defined at 40 CFR §122.26(b)(14)(i) – (ix) and (xi) and 25 Pa. Code § 92a.2.

Toxic Pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains may, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in these organisms or their offspring. (25 Pa. Code § 92a.2)

Weekly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

III. SELF-MONITORING, REPORTING AND RECORDKEEPING

A. Representative Sampling

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR 122.41(j)(1)). Representative sampling includes the collection of samples, where possible, during periods of adverse weather, changes in treatment plant performance and changes in treatment plant loading. If possible, effluent samples must be collected where the effluent is well mixed near the center of the discharge conveyance and at the approximate mid-depth point, where the turbulence is at a maximum and the settlement of solids is minimized. (40 CFR 122.48, 25 Pa. Code § 92a.61)

2. Records Retention (40 CFR 122.41(j)(2))

   Except for records of monitoring information required by this permit related to the permittee's sludge use and disposal activities which shall be retained for a period of at least 5 years, all records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records), copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained by the permittee for 3 years from the date of the sample measurement, report or application, unless a longer retention period is required by the permit. The 3-year period shall be extended as requested by DEP or the EPA Regional Administrator.

3. Recording of Results (40 CFR 122.41(j)(3))

   For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

   a. The exact place, date and time of sampling or measurements.
   b. The person(s) who performed the sampling or measurements.
   c. The date(s) the analyses were performed.
   d. The person(s) who performed the analyses.
   e. The analytical techniques or methods used; and the associated detection level.
   f. The results of such analyses.

4. Test Procedures

   a. Facilities that test or analyze environmental samples used to demonstrate compliance with this permit shall be in compliance with laboratory accreditation requirements of Act 90 of 2002 (27 Pa. C.S. §§ 4101-4113) and 25 Pa. Code Chapter 252, relating to environmental laboratory accreditation.

   b. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be those approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, unless the method is specified in this permit or has been otherwise approved in writing by DEP. (40 CFR 122.41(j)(4), 122.44(i)(1)(iv))

   c. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be sufficiently sensitive. A method is sufficiently sensitive when 1) the method minimum level is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or 2) the method has the lowest minimum level of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, for the measured pollutant or pollutant parameter; or 3) the method is specified in this permit or has been otherwise approved in writing by DEP for the measured pollutant or pollutant parameter. Permittees have the option of providing matrix or sample-specific minimum levels rather than the published levels. (40 CFR 122.44(i)(1)(iv))

5. Quality/Assurance/Control

In an effort to assure accurate self-monitoring analyses results:

a. The permittee, or its designated laboratory, shall participate in the periodic scheduled quality assurance inspections conducted by DEP and EPA. (40 CFR 122.41(e), 122.41(i)(3))

b. The permittee, or its designated laboratory, shall develop and implement a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (40 CFR 122.41(j)(4))

B. Reporting of Monitoring Results

1. The permittee shall effectively monitor the operation and efficiency of all wastewater treatment and control facilities, and the quantity and quality of the discharge(s) as specified in this permit. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.44, 92a.61(i) and 40 CFR §§ 122.41(e), 122.44(i)(1))

2. The permittee shall use DEP's electronic Discharge Monitoring Report (eDMR) system to report the results of compliance monitoring under this permit (see www.dep.pa.gov/edmr). Permittees that are not using the eDMR system as of the effective date of this permit shall submit the necessary registration and trading partner agreement forms to DEP's Bureau of Clean Water (BCW) within 30 days of the effective date of this permit and begin using the eDMR system when notified by DEP BCW to do so. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(l)(4))

3. Submission of a physical (paper) copy of a Discharge Monitoring Report (DMR) is acceptable under the following circumstances:

   a. For a permittee that is not yet using the eDMR system, the permittee shall submit a physical copy of a DMR to the DEP regional office that issued the permit during the interim period between the submission of registration and trading partner agreement forms to DEP and DEP's notification to begin using the eDMR system.

   b. For any permittee, as a contingency a physical DMR may be mailed to the DEP regional office that issued the permit if there are technological malfunction(s) that prevent the successful submission of a DMR through the eDMR system. In such situations, the permittee shall submit the DMR through the eDMR system within 5 days following remedy of the malfunction(s).

4. DMRs must be completed in accordance with DEP's published DMR instructions (3800-FM-BCW0463). DMRs must be received by DEP no later than 28 days following the end of the monitoring period. DMRs are based on calendar reporting periods and must be received by DEP in accordance with the following schedule:

   - Monthly DMRs must be received within 28 days following the end of each calendar month.
   - Quarterly DMRs must be received within 28 days following the end of each calendar quarter, i.e., January 28, April 28, July 28, and October 28.
   - Semiannual DMRs must be received within 28 days following the end of each calendar semiannual period, i.e., January 28 and July 28.
   - Annual DMRs must be received by January 28, unless Part C of this permit requires otherwise.

5. The permittee shall complete all Supplemental Reporting forms (Supplemental DMRs) attached to this permit, or an approved equivalent, and submit the signed, completed forms as attachments to the DMR, through DEP's eDMR system. DEP's Supplemental Laboratory Accreditation Form (3800-FM-BCW0189) must be completed and submitted to DEP with the first DMR following issuance of this permit, and anytime thereafter when changes to laboratories or methods occur. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(l)(4))

6. The completed DMR Form shall be signed and certified by either of the following applicable persons, as defined in 25 Pa. Code § 92a.22:

- For a corporation - by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the NPDES form originates.
- For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
- For a municipality, state, federal or other public agency - by a principal executive officer or ranking elected official.

If signed by a person other than the above and for co-permittees, written notification of delegation of DMR signatory authority must be submitted to DEP in advance of or along with the relevant DMR form. (40 CFR § 122.22(b))

7. If the permittee monitors any pollutant at monitoring points as designated by this permit, using analytical methods described in Part A III.A.4. herein, more frequently than the permit requires, the results of this monitoring shall be incorporated, as appropriate, into the calculations used to report self-monitoring data on the DMR. (40 CFR 122.41(l)(4)(ii))

C. Reporting and Notification Requirements

1. Planned Changes to Physical Facilities – The permittee shall give notice to DEP as soon as possible but no later than 30 days prior to planned physical alterations or additions to the permitted facility. A permit under 25 Pa. Code Chapter 91 may be required for these situations prior to implementing the planned changes. A permit application, or other written submission to DEP, can be used to satisfy the notification requirements of this section.

   Notice is required when:

   a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b). (40 CFR 122.41(l)(1)(i))

   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this permit. (40 CFR 122.41(l)(1)(ii))

   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

   d. The planned change may result in noncompliance with permit requirements. (40 CFR 122.41(l)(2))

2. Planned Changes to Waste Stream – Under the authority of 25 Pa. Code § 92a.24(a) and 40 CFR 122.42(b), the permittee shall provide notice to DEP and EPA as soon as possible but no later than 45 days prior to any planned changes in the volume or pollutant concentration of its influent waste stream as a result of indirect discharges or hauled-in wastes, as specified in paragraphs 2.a. and 2.b., below. Notice shall be provided on the “Planned Changes to Waste Stream” Supplemental Report (3800-FM-BCW0482), available on DEP’s website. The permittee shall provide information on the quality and quantity of waste introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW (40 CFR 122.42(b)(3)). The Report shall be sent via Certified Mail or other means to confirm DEP’s receipt of the notification. DEP will determine if the submission of a new application and receipt of a new or amended permit is required.

   a. Introduction of New Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(1))

      New pollutants are defined as parameters that meet one or more of the following criteria:

(i) Any pollutants that were not detected in the facilities' influent waste stream as reported in the permit application; and have not been approved to be included in the permittee's influent waste stream by DEP in writing.

(ii) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants (40 CFR 122.42(b)(1)).

The permittee shall provide notification of the introduction of new pollutants in accordance with paragraph 2 above. The permittee may not authorize the introduction of new pollutants until the permittee receives DEP's written approval.

b. Increased Loading of Approved Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(2))

Approved pollutants are defined as parameters that meet one or more of the following criteria:

(i) Were detected in the facilities' influent waste stream as reported in the permittee's permit application; or have been previously approved to be included in the permittee's influent waste stream by DEP in writing.

(ii) Have an effluent limitation or monitoring requirement in this permit.

The permittee shall provide notification of the introduction of increased influent loading (lbs/day) of approved pollutants in accordance with paragraph 2 above when (1) the cumulative increase in influent loading (lbs/day) exceeds 20% of the maximum loading reported in the permit application, or a loading previously approved by DEP and/or EPA, or (2) may cause an exceedance in the effluent of Effluent Limitation Guidelines (ELGs) or limitations in Part A of this permit, or (3) may cause interference or pass through at the POTW (as defined at 40 CFR 403.3), or (4) may cause exceedances of the applicable water quality standards in the receiving stream. Unless specified otherwise in this permit, if DEP does not respond to the notification within 30 days of its receipt, the permittee may proceed with the increase in loading. The acceptance of increased loading of approved pollutants may not result in an exceedance of ELGs or effluent limitations, may not result in a hydraulic or organic overload condition as defined in 25 Pa. Code § 94.1, and may not cause exceedances of the applicable water quality standards in the receiving stream.

3. Reporting Requirements for Hauled-In Wastes

a. Receipt of Residual Waste

(i) The permittee shall document the receipt of all hauled-in residual wastes (including but not limited to wastewater from conventional oil and gas wells, food processing waste, and landfill leachate), as defined at 25 Pa. Code § 287.1, that are received for processing at the treatment facility. The permittee shall report hauled-in residual wastes on a monthly basis to DEP on the "Hauled In Residual Wastes" Supplemental Report (3800-FM-BCW0450) as an attachment to the DMR. If no residual wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report. The information used to develop the Report shall be retained by the permittee for five years from the date of receipt and must be made available to DEP or EPA upon request.

(1) The dates that residual wastes were received.

(2) The volume (gallons) of wastes received.

(3) The manifest number or the license plate number of the vehicle transporting the waste to the treatment facility.

(4) The permit number(s) of the well(s) where residual wastes were generated, if applicable.

(5) The name and address of the generator of the residual wastes.

(6) The type of wastewater.

The transporter of residual waste must maintain these and other records as part of the daily operational record (25 Pa. Code § 299.219). If the transporter is unable to provide this information or the permittee has not otherwise received the information from the generator, the residual wastes shall not be accepted by the permittee until such time as the permittee receives such information from the transporter or generator.

(ii) In accordance with 40 CFR Part 435, Subpart C, the permittee shall not accept wastewater pollutants associated with production, field exploration, drilling, well completion, or well treatment for unconventional oil and gas extraction (including, but not limited to, drilling muds, drill cuttings, produced sand, produced water). Unconventional oil and gas means crude oil and natural gas produced by a well drilled into a shale and/or tight formation (including, but not limited to, shale gas, shale oil, tight gas, and tight oil). This prohibition does not apply to wastewater generated from stripper wells as defined at 40 CFR Part 435, Subpart F.

(iii) If the generator is required to complete a chemical analysis of residual wastes in accordance with 25 Pa. Code § 287.51, the permittee must receive and maintain on file a chemical analysis of the residual wastes it receives. The chemical analysis must conform to the Bureau of Waste Management's Form 26R. Each load of residual waste received must be covered by a chemical analysis if the generator is required to complete it.

b. Receipt of Municipal Waste

(i) The permittee shall document the receipt of all hauled-in municipal wastes (including but not limited to septage and liquid sewage sludge), as defined at 25 Pa. Code § 271.1, that are received for processing at the treatment facility. The permittee shall report hauled-in municipal wastes on a monthly basis to DEP on the "Hauled In Municipal Wastes" Supplemental Report (3800-FM-BCW0437) as an attachment to the DMR. If no municipal wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report:

(1) The dates that municipal wastes were received.

(2) The volume (gallons) of wastes received.

(3) The BOD_5 concentration (mg/l) and load (lbs) for the wastes received.

(4) The location(s) where wastes were disposed of within the treatment facility.

(ii) Sampling and analysis of hauled-in municipal wastes must be completed to characterize the organic strength of the wastes, unless composite sampling of influent wastewater is performed at a location downstream of the point of entry for the wastes. The influent BOD_5 characterization for the treatment facility, as reported in the annual Municipal Wasteload Management Report per 25 Pa. Code Chapter 94, must be representative of the hauled-in municipal wastes received.

4. Unanticipated Noncompliance or Potential Pollution Reporting

   a. Immediate Reporting - The permittee shall immediately report any incident causing or threatening pollution in accordance with the requirements of 25 Pa. Code §§ 91.33 and 92a.41(b).

      (i) If, because of an accident, other activity or incident a toxic substance or another substance which would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property, the permittee shall immediately notify DEP by telephone of the location and nature of the danger. Oral notification to the Department is required as soon as possible, but no later than 4 hours after the permittee becomes aware of the incident causing or threatening pollution.

      (ii) If reasonably possible to do so, the permittee shall immediately notify downstream users of the waters of the Commonwealth to which the substance was discharged. Such notice shall include the location and nature of the danger.

      (iii) The permittee shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution and, in addition, within 15 days from the incident, shall remove the residual substances contained thereon or therein from the ground and from the affected waters of this Commonwealth to the extent required by applicable law.

   b. The permittee shall report any noncompliance which may endanger health or the environment in accordance with the requirements of 40 CFR 122.41(l)(6). These requirements include the following obligations:

      (i) 24 Hour Reporting - The permittee shall orally report any noncompliance with this permit which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

         (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

         (2) Any upset which exceeds any effluent limitation in the permit; and

         (3) Violation of the maximum daily discharge limitation for any of the pollutants listed in the permit as being subject to the 24-hour reporting requirement.

      (ii) Written Report - A written submission shall also be provided within 5 days of the time the permittee becomes aware of any noncompliance which may endanger health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

      (iii) Waiver of Written Report - DEP may waive the written report on a case-by-case basis if the associated oral report has been received within 24 hours from the time the permittee becomes aware of the circumstances which may endanger health or the environment. Unless such a waiver is expressly granted by DEP, the permittee shall submit a written report in accordance with this paragraph. (40 CFR 122.41(l)(6)(iii))

5. Other Noncompliance

   The permittee shall report all instances of noncompliance not reported under paragraph C.4 of this section or specific requirements of compliance schedules, at the time DMRs are submitted, on the Non-Compliance Reporting Form (3800-FM-BCW0440). The reports shall contain the information listed in paragraph C.4.b.(ii) of this section. (40 CFR 122.41(l)(7))

D. Annual Fee (25 Pa. Code § 92a.62)

Permittees shall pay an annual fee in accordance with 25 Pa. Code § 92a.62. As of the effective date of this permit, the facility covered by the permit is classified in the **Major Sewage Facility >=5 MGD** fee category, which has an annual fee of **$5,000.**

Invoices for annual fees will be mailed to permittees approximately three months prior to the due date. In the event that an invoice is not received, the permittee is nonetheless responsible for payment. Permittees may contact the DEP at 717-787-6744 with questions related to annual fees. The fee identified above is subject to change if DEP publishes changes to 25 Pa. Code § 92a.62.

Payment for annual fees shall be remitted to DEP at the address below or through DEP's electronic payment system (www.depgreenport.state.pa.us/NPDESpay) by the due date specified on the invoice. Checks, if used for payment, should be made payable to the Commonwealth of Pennsylvania.

PA Department of Environmental Protection
Bureau of Clean Water
Re: Chapter 92a Annual Fee
P.O. Box 8466
Harrisburg, PA 17105-8466

PART B

I. MANAGEMENT REQUIREMENTS

A. Compliance

1. The permittee shall comply with all conditions of this permit. If a compliance schedule has been established in this permit, the permittee shall achieve compliance with the terms and conditions of this permit within the time frames specified in this permit. (40 CFR 122.41(a)(1))

2. The permittee shall submit reports of compliance or noncompliance, or progress reports as applicable, for any interim and final requirements contained in this permit. Such reports shall be submitted no later than 14 days following the applicable schedule date or compliance deadline. (25 Pa. Code § 92a.51(c), 40 CFR 122.47(a)(4))

B. Permit Modification, Termination, or Revocation and Reissuance

1. This permit may be modified, terminated, or revoked and reissued during its term in accordance with 25 Pa. Code § 92a.72 and 40 CFR 122.41(f).

2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. (40 CFR 122.41(f))

3. In the absence of DEP action to modify or revoke and reissue this permit, the permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time specified in the regulations that establish those standards or prohibitions. (40 CFR 122.41(a)(1))

C. Duty to Provide Information

1. The permittee shall furnish to DEP, within a reasonable time, any information which DEP may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (40 CFR 122.41(h))

2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this permit. (40 CFR 122.41(h))

3. Other Information - Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to DEP, it shall promptly submit the correct and complete facts or information. (40 CFR 122.41(l)(8))

4. The permittee shall provide the following information in the annual Municipal Wasteload Management Report, required under the provisions of Title 25 Pa. Code Chapter 94:

   a. The requirements identified in 25 Pa. Code § 94.12.

   b. The identity of any indirect discharger(s) served by the POTW which are subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act; the POTW shall also specify the total volume of discharge and estimated concentration of each pollutant discharged into the POTW by the indirect discharger.

   c. A “Solids Management Inventory” if specified in Part C of this permit.

   d. The total volume of hauled-in residual and municipal wastes received during the year, by source.

   e. The Annual Report requirements for permittees required to implement an industrial pretreatment program listed in Part C, as applicable.

D. General Pretreatment Requirements

1. Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to Pretreatment Standards will be required to establish a POTW Pretreatment Program unless specifically exempted by the Approval Authority. A POTW with a design flow of 5 MGD or less may be required to develop a POTW Pretreatment Program if the Approval Authority finds that the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of sludge, or other circumstances warrant in order to prevent interference or pass through. (40 CFR 403.8)

2. Each POTW with an approved Pretreatment Program pursuant to 40 CFR 403.8 shall develop and enforce specific limits to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b), and shall continue to develop these limits as necessary and effectively enforce such limits. This condition applies, for example, when there are planned changes to the waste stream as identified in Part A III.C.2. If the permittee is required to develop or continue implementation of a Pretreatment Program, detailed requirements will be contained in Part C of this permit.

3. For all POTWs, where pollutants contributed by indirect dischargers result in interference or pass through, and a violation is likely to recur, the permittee shall develop and enforce specific limits for indirect dischargers and other users, as appropriate, that together with appropriate facility or operational changes, are necessary to ensure renewed or continued compliance with this permit or sludge use or disposal practices. Where POTWs do not have an approved Pretreatment Program, the permittee shall submit a copy of such limits to DEP when developed. (25 Pa. Code § 92a.47(d))

E. Proper Operation and Maintenance

1. The permittee shall employ operators certified in compliance with the Water and Wastewater Systems Operators Certification Act (63 P.S. §§ 1001-1015.1).

2. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls including appropriate quality assurance procedures. This provision also includes the operation of backup or auxiliary facilities or similar systems that are installed by the permittee, only when necessary to achieve compliance with the terms and conditions of this permit. (40 CFR 122.41(e))

F. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge, sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

G. Bypassing

1. Bypassing Not Exceeding Permit Limitations - The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions in paragraphs two, three and four of this section. (40 CFR 122.41(m)(2))

2. Other Bypassing - In all other situations, bypassing is prohibited and DEP may take enforcement action against the permittee for bypass unless:

   a. A bypass is unavoidable to prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This

condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance. (40 CFR 122.41(m)(4)(i)(B))

c. The permittee submitted the necessary notice required in paragraph G.4 below. (40 CFR 122.41(m)(4)(i)(C))

3. DEP may approve an anticipated bypass, after considering its adverse effects, if DEP determines that it will meet the conditions listed in paragraph G.2 above. (40 CFR 122.41(m)(4)(ii))

4. Notice

a. Anticipated Bypass – If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the bypass. (40 CFR 122.41(m)(3)(i))

b. Unanticipated Bypass – The permittee shall submit oral notice of any other unanticipated bypass within 24 hours, regardless of whether the bypass may endanger health or the environment or whether the bypass exceeds effluent limitations. The notice shall be in accordance with Part A III.C.4.b.

H. Sanitary Sewer Overflows (SSOs)

An SSO is an overflow of wastewater, or other untreated discharge from a separate sanitary sewer system (which is not a combined sewer system), which results from a flow in excess of the carrying capacity of the system or from some other cause prior to reaching the headworks of the sewage treatment facility. SSOs are not authorized under this permit. The permittee shall immediately report any SSO to DEP in accordance with Part A III.C.4 of this permit.

I. Termination of Permit Coverage (25 Pa. Code § 92a.74 and 40 CFR 122.64)

1. Notice of Termination (NOT) – If the permittee plans to cease operations or will otherwise no longer require coverage under this permit, the permittee shall submit DEP's NPDES Notice of Termination (NOT) for Permits Issued Under Chapter 92a (3800-BCW-0410), signed in accordance with Part A III.B.6 of this permit, at least 30 days prior to cessation of operations or the date by which coverage is no longer required.

2. Where the permittee plans to cease operations, NOTs must be accompanied with an operation closure plan that identifies how tankage and equipment will be decommissioned and how pollutants will be managed.

3. The permittee shall submit the NOT to the DEP regional office with jurisdiction over the county in which the operation is located.

II. PENALTIES AND LIABILITY

A. Violations of Permit Conditions

Any person violating Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative and/or criminal penalties as set forth in 40 CFR 122.41(a)(2).

Any person or municipality, who violates any provision of this permit; any rule, regulation or order of DEP; or any condition or limitation of any permit issued pursuant to the Clean Streams Law, is subject to criminal and/or civil penalties as set forth in Sections 602, 603 and 605 of the Clean Streams Law.

B. Falsifying Information

Any person who does any of the following:

- Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, or

- Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or noncompliance)

Shall, upon conviction, be punished by a fine and/or imprisonment as set forth in 18 Pa.C.S.A § 4904 and 40 CFR 122.41(j)(5) and (k)(2).

C. Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance pursuant to Section 309 of the Clean Water Act or Sections 602, 603 or 605 of the Clean Streams Law.

Nothing in this permit shall be construed to preclude the institution of any legal action or to relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act and the Clean Streams Law.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

III. OTHER RESPONSIBILITIES

A. Right of Entry

Pursuant to Sections 5(b) and 305 of Pennsylvania's Clean Streams Law, and Title 25 Pa. Code Chapter 92a and 40 CFR 122.41(i), the permittee shall allow authorized representatives of DEP and EPA, upon the presentation of credentials and other documents as may be required by law:

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; (40 CFR 122.41(i)(1))

2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (40 CFR 122.41(i)(2))

3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and (40 CFR 122.41(i)(3))

4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location. (40 CFR 122.41(i)(4))

B. Transfer of Permits

1. Transfers by modification. Except as provided in paragraph 2 of this section, a permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (40 CFR 122.61(a))

2. Automatic transfers. As an alternative to transfers under paragraph 1 of this section, any NPDES permit may be automatically transferred to a new permittee if:

   a. The current permittee notifies DEP at least 30 days in advance of the proposed transfer date in paragraph 2.b. of this section; (40 CFR 122.61(b)(1))

b. The notice includes the appropriate DEP transfer form signed by the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and (40 CFR 122.61(b)(2))

c. DEP does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue this permit, the transfer is effective on the date specified in the agreement mentioned in paragraph 2.b. of this section. (40 CFR 122.61(b)(3))

d. The new permittee is in compliance with existing DEP issued permits, regulations, orders and schedules of compliance, or has demonstrated that any noncompliance with the existing permits has been resolved by an appropriate compliance action or by the terms and conditions of the permit (including compliance schedules set forth in the permit), consistent with 25 Pa. Code § 92a.51 (relating to schedules of compliance) and other appropriate Department regulations. (25 Pa. Code § 92a.71)

3. In the event DEP does not approve transfer of this permit, the new owner or operator must submit a new permit application.

C. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. (40 CFR 122.41(g))

D. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit. (40 CFR 122.41(b))

E. Other Laws

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

PART C

I. OTHER REQUIREMENTS

A. No storm water from pavements, area ways, roofs, foundation drains or other sources shall be directly admitted to the sanitary sewers associated with the herein approved discharge except for those stormwater flows within the treatment facility that are directed back through the wastewater treatment process.

B. The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance or replacement of all sewers or sewerage structures associated with the herein approved discharge in, along, or across private property, with full rights of ingress, egress and regress.

C. Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with 25 Pa. Code, Chapters 271, 273, 275, 283, and 285 (related to permits and requirements for landfilling, land application, incineration, and storage of sewage sludge), Federal Regulation 40 CFR 257, Pennsylvania Clean Streams Law, Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments. The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport, and disposal of solid waste materials generated as a result of wastewater treatment.

D. The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts.

   Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR.

E. The attention of the permittee is directed to the fact that effluent is discharged to a location with little or no assimilative capacity or dilution during critical periods. If the effluent creates a health hazard or nuisance, the permittee shall, upon notice from DEP, provide such additional treatment as may be required by DEP. In such an event, the permittee shall have the right to appeal or otherwise contest the additional treatment required by DEP.

F. Notification of the designation of the responsible operator must be submitted to the permitting agency by the permittee within 60 days after the effective date of the permit and from time to time thereafter as the operator is replaced.

G. The seasonal effluent limitations for fecal coliform are based on Chapter 92a (Section 92a.47(4) and (5)) of DEP's regulations and Delaware River Basin Commission's (DRBC's) Water Quality Regulations at Section 4.30.4.A. DEP's regulations govern the summer limits for fecal coliform while the winter limits are based on DRBC's regulations. The DRBC regulations state that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. For reporting purposes, a copy of the guidelines on the 10 percent rule is enclosed with the permit.

II. POTW PRETREATMENT PROGRAM IMPLEMENTATION

A. General Requirement – The permittee shall operate and implement a POTW pretreatment program in accordance with the federal Clean Water Act, the Pennsylvania Clean Streams Law, and the federal General Pretreatment Regulations at 40 CFR Part 403. The program shall also be implemented in accordance with

the permittee's approved pretreatment program and any modifications thereto submitted by the permittee and approved by the Approval Authority.

B. Annual Report and Other Requirements – The permittee shall submit a Pretreatment Annual Report by March 31 of each year to EPA that describes the permittee's pretreatment activities for the previous calendar year. The Pretreatment Annual Report shall include a description of pretreatment activities in all municipalities from which wastewater is received at the permittee's POTW. The Pretreatment Annual Report shall include the following information, at minimum:

1. Industrial Listing – The Annual Report shall contain an updated industrial listing providing the names and addresses of all current Significant Industrial Users (SIUs) and Non-Significant Categorical Industrial Users (NSCIUs), as defined in 40 CFR 403.3, and the categorical standard, if any, applicable to each. The listing must: (1) identify any users that are subject to reduced reporting requirements under 40 CFR 403.12(e)(3); (2) identify which users are NSCIUs; (3) identify any users that have been granted a monitoring waiver in accordance with 40 CFR 403.12(e)(2) as well as the pollutants for which the waiver was granted and the date of the last POTW sampling event for each pollutant; and (4) identify any categorical industrial users that have been given mass-based limits in place of concentration-based categorical limits in accordance with 40 CFR 403.6(c)(5) or concentration-based limits in place of mass-based categorical limits in accordance with 40 CFR 403.6(c)(6).

   In addition, the Annual Report shall contain a summary of any hauled-in wastes accepted at the POTW including the source of the wastes (domestic, commercial or industrial) and the receiving location for acceptance of the wastes. For each industrial source (whether or not classified as an SIU), the report shall indicate (1) the name and address of the industrial source; (2) the average daily amount of wastewater received; (3) a brief description of the type of process operations conducted at the industrial facility; (4) whether the source facility is a categorical industrial user (including NSCIU), significant industrial users, or non-significant industrial user; and (5) any controls imposed on the user.

2. Control Mechanism Issuance – The Annual Report shall contain a summary of SIU control mechanism issuance, including a list of issuance, effective, and expiration dates for each SIU control mechanism. For each general control mechanism issued, provide the names of all SIUs covered by the general control mechanism and an explanation of how the users meet the criteria of 40 CFR 403.8(f)(1)(iii)(A) for issuance of a general control mechanism.

3. Sampling and Inspection – The Annual Report shall contain a summary of the number and types of inspections and sampling events of SIUs by the permittee, including a list of all SIUs either not sampled or not inspected, and the reason that the sampling and/or inspection was not conducted. For any user subject to reduced reporting under 40 CFR 403.12(e)(3), the list shall include the date of the last POTW sampling event and the date of the last POTW inspection of the user. In addition, the report shall include a summary of the number of self-monitoring events conducted by each SIU and the number required to be conducted, including a list of all SIUs that did not submit the required number of reports and the reason why the reports were not submitted. For NSCIUs, the report shall provide the date of the compliance certification required under 40 CFR 403.12(q).

4. Industrial User Compliance and POTW Enforcement – The Annual Report shall contain a summary of the number and type of violations of pretreatment standards and requirements, including local limits, and the actions taken by the permittee to obtain compliance, including compliance schedules, penalty assessments and actions for injunctive relief. The report shall state whether each SIU was in significant noncompliance, as that term is defined in 40 CFR Section 403.8(f)(2)(viii), and include the parameter(s) in violation, the period of violation, the actions taken by the POTW in response to the violations, and the compliance status at the end of the reporting period. A copy of the publication of users meeting the significant noncompliance criteria shall be included. In addition, the report shall provide a list of users previously designated as NSCIUs that have violated (to any extent) any pretreatment standard or requirement during the year and the date and description of the violation(s).

5. Summary of POTW Operations – The Annual Report shall contain a summary of any interference, pass-through, or permit violations by the POTW and indicate the following: (1) which, if any, permit violations may be attributed to industrial users; (2) which IU(s) are responsible for such violations; and (3) the actions taken to address these events. The report shall also include all sampling and analysis of POTW

treatment plant influent, effluent, and sludge conducted during the year for local limit and priority pollutants identified pursuant to Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d).

6. Pretreatment Program Changes – The Annual Report shall contain a summary of any changes made or proposed to the approved program during the period covered by the report and the date of submission to the Approval Authority.

A summary of pretreatment activities shall be incorporated into the permittee's Annual Municipal Wasteload Management Report required by 25 Pa. Code Chapter 94 and referenced in Part B I.C.4 of this permit.

C. Routine Monitoring – The permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for all pollutants for which local limits have been established, and an annual priority pollutant scan for influent and sludge.

D. Notification of Pass Through or Interference – The permittee shall notify EPA and DEP, in writing, of any instance of pass through or interference, as defined at 40 CFR 403.3(p) and (k), respectively, known or suspected to be related to a discharge from an IU into the POTW. The notification shall be attached to the DMR submitted to EPA and DEP and shall describe the incident, including the date, time, length, cause (including responsible user if known), and the steps taken by the permittee and IU (if identified) to address the incident. A copy of the notification shall also be sent to the EPA at the address provided below.

E. Headworks Analysis – The permittee shall submit to EPA a reevaluation of its local limits based on a headworks analysis of its treatment plant within one (1) year of permit issuance, and provide a revised submission within three (3) months of receipt of comments from EPA or DEP unless a longer period of time is granted in writing by EPA or DEP. In order to ensure that the permittee's discharge complies with water quality standards, the reevaluation of local limits shall consider, at a minimum, all water quality standards under 25 Pa. Code Chapter 93 applicable to the pollutants included in the reevaluation, unless the POTW is subject to an effluent limitation for the pollutant in Part A of this permit. The list of pollutants to be evaluated, as well as a sampling plan for collection of necessary data, shall be submitted to EPA within three (3) months of permit issuance. Unless otherwise approved in writing, the list of pollutants shall include arsenic, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, zinc, BOD_5, TSS, ammonia, any pollutants for which a local limit currently exists, any pollutant limited in this permit, as well as any other pollutants that have been identified in the POTW through monitoring or the receipt of indirect discharges and hauled-in wastes in quantities that have the potential to cause pass through and/or interference. For example, facilities receiving residual waste from oil and gas operations should include pollutants such as Total Dissolved Solids (TDS), specific ions such as chlorides and sulfates, specific radionuclides, metals such as barium and strontium, and other pollutants that could reasonably be expected to be present. Within four (4) months of acceptance of the headworks analysis by the Approval Authority, the permittee shall adopt the revised local limits and, if necessary to ensure that the limits are enforceable throughout the service area, notify all contributing municipalities of the need to adopt the revised local limits.

F. Changes to Pretreatment Program – EPA and DEP may require the permittee to submit for approval changes to its pretreatment program if any one or more of the following conditions is present:

1. The program is not implemented in accordance with 40 CFR Part 403;

2. Problems such as interference, pass through or sludge contamination develop or continue;

3. The POTW proposes to introduce new pollutants or an increased loading of approved pollutants as described in Part A III.C.2 of this permit;

4. Federal, State, or local requirements change;

5. Changes are needed to assure protection of waters of the Commonwealth.

Program modification is necessary whenever there is a significant change in the operation of the pretreatment program that differs from the information contained in the permittee's submission, as approved under 40 CFR 403.11.

G. Procedure for Pretreatment Program Changes – Upon submittal by the permittee, and written notice of approval by the Approval Authority to the permittee of any changes to the permittee's approved pretreatment program, such changes are effective and binding upon the permittee unless the permittee objects within 30 days of receipt of the written notice of approval. Any objection must be submitted in writing to EPA and DEP.

H. Correspondence – The Approval Authority shall be EPA at the following address:

Pretreatment Coordinator (3WD41)
U.S. Environmental Protection Agency
Four Penn Center
1600 John F Kennedy Blvd
Philadelphia, Pennsylvania 19103-2852

III. SOLIDS MANAGEMENT

A. The permittee shall manage and properly dispose of sewage sludge and/or biosolids by performing sludge wasting that maintains an appropriate mass balance of solids within the treatment system. The wasting rate must be developed and implemented considering the specific treatment process type, system loadings, and seasonal variation while maintaining compliance with effluent limitations. Holding excess sludge within clarifiers or in the disinfection process is not permissible.

B. The permittee shall submit the Supplemental Reports entitled, "Supplemental Report – Sewage Sludge/Biosolids Production and Disposal" (Form No. 3800-FM-BCW0438) and "Supplemental Report – Influent & Process Control" (Form No. 3800-FM-BCW0436), as attachments to the DMR on a monthly basis. When applicable, the permittee shall submit the Supplemental Reports entitled, "Supplemental Report – Hauled In Municipal Wastes" (Form No. 3800-FM-BCW0437) and "Supplemental Report – Hauled In Residual Wastes" (Form No. 3800-FM-BCW0450), as attachments to the DMR.

C. By March 31 of each year, the permittee shall submit a "Sewage Sludge Management Inventory" that summarizes the amount of sewage sludge and/or biosolids produced and wasted during the calendar year from the system. The "Sewage Sludge Management Inventory" may be submitted with the Municipal Wasteload Management Report required by Chapter 94. This summary shall include the expected sewage sludge production (estimated using the methodology described in the U.S. EPA handbook, "Improving POTW Performance Using the Composite Correction Approach" (EPA-625/6-84-008)), compared with the actual amount disposed during the year. Sludge quantities shall be expressed as dry weight in addition to gallons or other appropriate units.

IV. SITE-SPECIFIC CRITERIA STUDY (SSCS)

A. The water quality-based effluent limitations (WQBELs) for Total Copper in Part A of this permit are based on a site-specific criterion (SSC) for Copper using a Water Effects Ratio (WER) study conducted in **2013**. This WER-based criterion will not be used to develop WQBELs in subsequent permits. If the permittee wishes to pursue use of an SSC for subsequent permit renewals the permittee must complete a SSCS using the Biotic Ligand Model (BLM). Any SSC must be approved in accordance with 25 Pa. Code § 93.8d. If the permittee chooses not to proceed with a BLM SSCS per the below schedule, WQBELs for Total Copper will be developed based on statewide Copper criteria and discharge and surface water characteristics for the subsequent reissuance of this permit.

If the permittee chooses to complete a BLM-based SSCS, the permittee shall comply with the following schedule:

1. Submit a proposed Work Plan to DEP within 12 months of the permit effective date.

2. Begin the BLM SSCS within 3 months of Work Plan approval.

3. Submit quarterly progress reports throughout the term of the BLM SSCS.

4. Submit a completed SSCS Report within 3 months of BLM SSCS completion.

B. Site-Specific Data Collection Studies

The WQBELs were developed by DEP using the default or model-derived estimates for the parameters listed below in DEP's Toxics Management Spreadsheet (TMS). The permittee shall collect site-specific data for all of the parameters listed below and submit the data to DEP with the SSCS Report referenced in paragraph C or, if an SSCS is not completed, as part of the next permit renewal application.

1. Discharge pollutant concentration coefficients of variability using DEP's *Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics* (391-2000-024).

2. Background / ambient pollutant concentrations using DEP's *Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances* (391-2000-022).

3. Chemical translator(s) using EPA's *The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion* (EPA 823-B-96-007) or other EPA guidance.

4. The slope and width of the receiving waters for the reach of stream modeled by DEP using the TMS as measured in the field.

5. The velocity of the receiving waters for the reach of stream modeled by DEP using the TMS as measured through a time of travel study that provides an estimate of velocity under design stream flow conditions.

6. The acute and chronic partial mix factors for the reach of stream modeled by DEP using the TMS as determined through a mixing study that provides an estimate of mixing under design stream flow conditions.

C. If an SSCS Work Plan is submitted by the permittee, the permittee shall implement the Work Plan and submit an SSCS Report to DEP **according to the schedule in Paragraph A**. One copy of the SSCS Report must be submitted to the Clean Water Program in the appropriate DEP regional office, and two copies of the SSCS Report must be submitted to DEP's Bureau of Clean Water, Water Quality Division. The submission of the SSCS Report electronically is acceptable. The permittee shall attach to the SSCS Report printouts of the TMS using the site-specific data along with all other assumptions and data used by DEP to establish the final WQBELs.

D. Following receipt of an SSCS Report, DEP will review the report and solicit input from EPA and evaluate changes to the final WQBELs, including application of a criteria modifier determined by the permittee's study if applicable. This process may be coordinated with DEP's review of the permit renewal application that must be submitted no later than 180 days prior to the expiration date of this permit.

E. If DEP and/or EPA disagree with the Report, DEP will provide written comments and/or request the collection of additional information. The permittee shall respond to the comments, provide additional information, and revise the Report as necessary in accordance with the schedule provided by DEP or an alternative agreed upon schedule.

F. If DEP and EPA agree with the Report, DEP will notify the permittee in writing that the Report is approved and indicate the proposed changes to the final WQBELs. This process may be completed at the time a draft permit for reissuance is published in the *Pennsylvania Bulletin* for a 45-day comment period.

V. WHOLE EFFLUENT TOXICITY (WET)

A. General Requirements

1. The permittee shall conduct Chronic WET tests as specified in this section. The permittee shall collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran, *Ceriodaphnia dubia* and chronic survival and growth data for the fathead minnow, *Pimephales promelas*.

2. Samples shall be collected at Outfall 001 in accordance with paragraph E.

3. The permittee shall perform testing using the following dilution series: 23%, 46%, 91%, 96%, and 100% effluent, with a control, where 91% is the facility-specific Target In-Stream Waste Concentration (TIWC).

4. The determination of whether a test endpoint passes or fails shall be made using DEP's WET Analysis Spreadsheet (available at www.dep.pa.gov/wett) by comparing replicate data for the control with replicate data for the TIWC dilution or any dilution greater than the TIWC.

5. The permittee shall submit only valid WET test results to DEP.

B. Test Frequency and Reporting

1. WET testing shall be conducted annually, at a minimum, during the period January 1 – December 31. Annual WET tests must be completed at least 6 months apart, and shall start in the year the permit becomes effective if the permit effective date is prior to October 1.

2. A complete WET test report shall be submitted to the DEP regional office that issued the permit within 45 days of test completion. A complete WET test report submission shall include the information contained in paragraph H, below. The permittee shall continue annual WET monitoring, at a minimum, during the permit renewal review period and during any period of administrative extension of this permit.

3. If a test failure is determined for any endpoint during annual monitoring, the permittee shall initiate a re-test for the species with the failure within 45 days of test completion. All endpoints for the species shall be evaluated in the re-test. The results of the re-test shall be submitted to the DEP regional office that issued the permit.

4. If a passing result is determined for all endpoints in a re-test, the permittee may resume annual monitoring.

5. If there is a failure for one or more endpoints in a re-test, the permittee shall initiate or continue quarterly WET testing for both species until there are four consecutive passing results for all endpoints. The results of all tests shall be submitted to the DEP regional office that issued the permit. In addition, the permittee shall initiate a Phase I Toxicity Reduction Evaluation (TRE) as specified in paragraph C, below.

6. The permittee must report the results of each test endpoint that has a WET reporting requirement in Part A of this permit on the Discharge Monitoring Report (DMR). Test results shall be reported on the DMR in terms of acute or chronic Toxicity Units (TUa or TUc), where TUa is used for acute tests and TUc is used for chronic tests. If DEP's WET Analysis Spreadsheet indicates a passing result for an endpoint, report the value obtained from the expression "1/TIWC". If the Spreadsheet indicates a failure, report the value obtained from the expression "> 1/TIWC". If a dilution higher than the TIWC dilution is used for the comparison with the control, report the value obtained from the expression "1/dilution". For example, an acute test endpoint failure at a TIWC dilution of 50% would be reported as "> 2.0 TUa" (1/0.5).

7. The permittee shall attach the WET Analysis Spreadsheet for the latest four consecutive WET tests to the NPDES permit renewal application that is submitted to DEP at least 180 days prior to the permit expiration date.

C. Phase I Toxicity Reduction Evaluation (TRE)

1. The Phase I TRE trigger is one WET endpoint failure followed by a re-test that confirms the failure for the same species. When the TRE process is triggered, quarterly WET testing shall be initiated for both species until there are four consecutive passing results for all endpoints. The Phase I TRE may include a Toxicity Identification Evaluation (TIE) if the permittee cannot immediately identify the possible causes of the effluent toxicity and the possible sources of the causative agents.

2. The permittee shall, within one year following the Phase I TRE trigger, submit a Phase I TRE report to the DEP regional office that issued the permit. The Phase I TRE shall be conducted in accordance with

EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. If a TIE is conducted as part of the Phase I TRE, it shall conform to EPA's guidance, "Methods for Aquatic Toxicity Identification Evaluations Phase I" (EPA/600/6-91/003), "Phase II" (EPA/600/R-92/080), "Phase III" (EPA/600/R-92/081) and other relevant EPA guidance. The Phase I TRE report shall be submitted with the fourth quarterly WET test report that is completed following the Phase I TRE trigger. The TRE shall include all activities undertaken to identify the cause(s) and source(s) of toxicity and any control efforts.

3. If all four quarterly WET tests produce passing results for all endpoints during the Phase I TRE process, performance of a Phase II TRE is not required, and annual WET testing in accordance with paragraph B.1 may resume.

4. If the four WET tests produce at least one failing result during the Phase I TRE process, the permittee shall continue quarterly WETT monitoring for both species and initiate a Phase II TRE in accordance with paragraph D. In this case, the Phase I TRE must include a schedule for completion of the Phase II TRE. The schedule must include interim milestones and a final completion date not to exceed two years from the initiation of the Phase II TRE. The permittee shall implement the Phase II TRE in accordance with the schedule unless DEP issues written approval to modify the schedule or cease performance of the Phase II TRE.

5. Re-tests during the TRE process are required for invalid tests but are optional and at the discretion of the permittee for valid tests. The results of all re-tests must be submitted to the DEP regional office that issued the permit along with the required elements in paragraph H.

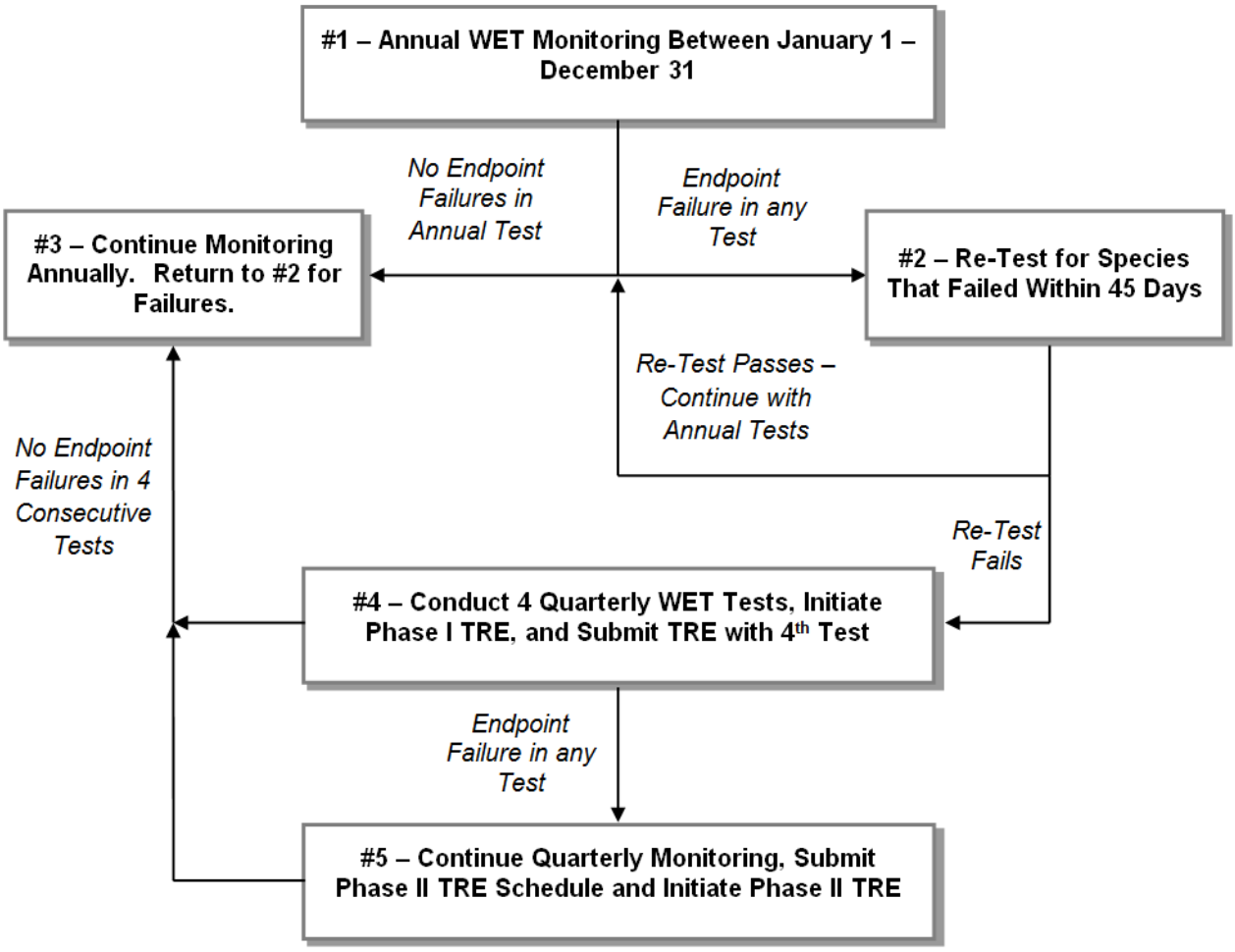
D. Phase II Toxicity Reduction Evaluation (TRE)

1. The Phase II TRE trigger is one WET endpoint failure during performance of the Phase I TRE. A Phase II TRE, if required, shall conform to EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. A Phase II TRE evaluates the possible control options to reduce or eliminate the effluent toxicity and the implementation of controls.

2. Once initiated, the Phase II TRE must continue until the source(s) of toxicity are controlled as evidenced by four consecutive WET test passing results for all endpoints, and a final TRE report must be submitted on or before the date specified in the schedule, unless otherwise approved by DEP in writing.

3. If four consecutive quarterly WET tests produce passing results for all endpoints during the Phase II TRE process, annual WET testing in accordance with paragraph B.1 may be initiated or resume.

An overview of the process described in paragraphs B, C and D is presented below:



E. Sample Collection

For each acute testing event, a 24-hour flow-proportioned composite sample shall be collected. For each chronic testing event, three 24-hour flow-proportioned, composite samples shall be collected over a seven day exposure period. The samples must be collected at a frequency of not greater than every two hours and must be flow-proportioned. The samples must be collected at the permit compliance sampling location. Samples must be analyzed within 36 hours from the end of the compositing period and must be placed on ice and held at ≤ 6°C. Refer to the sample handling and preservation regulations set forth in 40 CFR 136, 25 Pa. Code Chapter 252, The NELAC Institute (TNI) Standard, and the appropriate EPA methods.

F. Test Conditions and Methods

Laboratories must be accredited by the DEP Laboratory Accreditation Program in order to perform and report WET tests for NPDES permit compliance. Laboratories must be either State or NELAP accredited.

1. Acute tests shall be completed in accordance with EPA's "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA-821-R-02-012, latest edition). Forty eight (48) hour static non-renewal tests shall be used.

2. Chronic tests shall be completed in accordance with EPA's "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA-821-R-02-013, latest edition). Seven (7) day tests shall be used with renewal every 24 hours.

3. The quality assurance and control (QA/QC) requirements and test acceptability standards specified in EPA's test methods and the requirements set forth in 25 Pa Code Chapter 252 or the TNI Standard must be followed.

4. If the permittee or its accredited laboratory determines that QA/QC requirements and/or test acceptability standards have not been met, a re-test shall be initiated within 45 days. Original test data must be maintained by the laboratory and be submitted to DEP upon request. The justification for a re-test must be clearly documented and kept on file with the sample results.

G. Chemical Analyses

Chemical analyses must follow the requirements of the EPA methods and applicable State and/or Federal regulations.

1. Chemical analysis on effluent samples shall include pH, Conductivity, Total Alkalinity, Total Hardness, Total Residual Chlorine, Total Ammonia (Unionized Ammonia), Dissolved Oxygen and temperature. Chemical analyses as described in the EPA Methods (above) shall be performed for each sampling event, including each new batch of dilution water and each testing event.

2. In addition to the chemical analyses required above, those parameters listed in Part A of the NPDES permit for the outfall(s) tested shall be analyzed concurrently with the WET test by using the method(s) specified in the permit.

H. WET Report Elements

WET test reports that are submitted to DEP must include the requirements identified in 25 Pa. Code § 252.401(j)(1) – (15) or in the TNI Standard, or equivalent, as well as the following information:

1. A general test description, including the origin and age of test organisms, dates and results of reference toxicant tests, light and temperature regimes, and other documentation that QA and test acceptability criteria as specified in EPA's methods and DEP's QA Summaries have been met.

2. A description of sample collection procedures and sampling location.

3. Name(s) of individual(s) collecting and transporting samples, including sample renewals, and the date(s) and time(s) of sample collection.

4. All chemical and physical data including laboratory quantitation limits and observations made on the species. The hardness shall be reported for each test condition.

5. Copies of raw data sheets and/or bench sheets with data entries and signatures.

6. When effluents are dechlorinated, dechlorination procedures must be described and if applicable a thiosulfate control used in addition to the normal dilution water control. If the thiosulfate control results are significantly different from the normal control, as determined using DEP's WET Analysis Spreadsheet, the thiosulfate control shall be used in the spreadsheet for comparison with the TIWC condition. The WET report must specify which control was used to determine whether the test result is pass or fail.

7. A description of all observations or test conditions that may have affected the test outcome.

8. Control charts for the species tested regarding age, temperature test range, mortality data and all reference toxicant tests.

9. A completed WET test summary report (3800-FM-BCW0485).

10. A DEP WET Analysis Spreadsheet printout that provides control and TIWC replicate data and displays the outcome of the test (pass or fail) for each endpoint tested.

WETT reports shall be submitted to the DEP regional office that issued the permit and, for discharges to the Delaware River basin, the Delaware River Basin Commission (DRBC).

VI. REQUIREMENTS APPLICABLE TO STORMWATER OUTFALLS

A. The permittee is authorized to discharge non-polluting stormwater from its site, alone or in combination with other wastewaters, through the following outfalls: 002, 003 and 004

Monitoring requirements and effluent limitations for these outfalls are specified in Part A of this permit, if applicable.

B. Preparedness, Prevention and Contingency (PPC) Plan

1. The permittee shall develop and implement a PPC Plan in accordance with 25 Pa. Code § 91.34 following the guidance contained in DEP's "Guidelines for the Development and Implementation of Environmental Emergency Response Plans" (DEP ID 400-2200-001), its NPDES-specific addendum and the minimum requirements below.

   a. The PPC Plan must identify all potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the facility.

   b. The PPC Plan must describe preventative measures and BMPs that will be implemented to reduce or eliminate pollutants from coming into contact with stormwater resulting from routine site activities and spills.

   c. The PPC Plan must address actions that will be taken in response to on-site spills or other pollution incidents.

   d. The PPC Plan must identify areas which, due to topography or other factors, have a high potential for soil erosion, and identify measures to limit erosion. Where necessary, erosion and sediment control measures must be developed and implemented in accordance with 25 Pa. Code Chapter 102 and DEP's "Erosion and Sediment Pollution Control Manual" (DEP ID 363-2134-008).

   e. The PPC Plan must address security measures to prevent accidental or intentional entry which could result in an unintentional discharge of pollutants.

   f. The PPC Plan must include a plan for training employees and contractors on pollution prevention, BMPs, and emergency response measures.

   g. If the facility is subject to SARA Title III, Section 313, the PPC Plan must identify releases of "Water Priority Chemicals" within the previous three years. Water Priority Chemicals are those identified in EPA's "Guidance for the Determination of Appropriate Methods for the Detection of Section 313 Water Priority Chemicals" (EPA 833-B-94-001, April 1994). The Plan must include an evaluation of all activities that may result in the stormwater discharge of Water Priority Chemicals.

   h. Spill Prevention Control and Countermeasure (SPCC) plans may be used to meet the requirements of this section if the minimum requirements are addressed.

2. The permittee shall review and if necessary update the PPC Plan on an annual basis, at a minimum, and when one or more of the following occur:

   a. Applicable DEP or federal regulations are revised, or this permit is revised.

   b. The PPC Plan fails in an emergency.

   c. The facility's design, industrial process, operation, maintenance, or other circumstances change in a manner that materially increases the potential for fires, explosions or releases of toxic or hazardous constituents; or which changes the response necessary in an emergency.

   d. The list of emergency coordinators or equipment changes.

e. When notified in writing by DEP.

The permittee shall maintain all PPC Plan updates on-site, make the updates available to DEP upon request.

C. Minimum Required BMPs

In addition to BMPs identified in the PPC Plan, the permittee shall implement the following minimum BMPs relating to stormwater pollution prevention:

1. If applicable, post-construction stormwater BMPs that are required under 25 Pa. Code Chapter 102 must be maintained.

2. Manage sludge in accordance with all applicable permit requirements.

3. Store chemicals in secure and covered areas on impervious surfaces away from storm drains.

4. For new facilities and upgrades, design wastewater treatment facilities to avoid, to the maximum extent practicable, stormwater commingling with sanitary wastewater, sewage sludge, and biosolids.

5. Efficiently use herbicides for weed control. Where practicable, use the least toxic herbicide that will achieve pest management objectives. Do not apply during windy conditions.

6. Do not wash parts or equipment over impervious surfaces that wash into storm drains.

7. Implement infiltration techniques, including infiltration basins, trenches, dry wells, porous pavement, etc., wherever practicable.

D. Routine Inspections.

Areas contributing to a stormwater discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. BMPs in the PPC Plan and required by this permit shall be inspected on a semiannual basis, at a minimum, to determine whether they are adequate and properly implemented in accordance with the terms of this permit or whether additional control measures are needed. Documentation of inspections shall be maintained on-site and be made available to DEP upon request.

E. Stormwater Sampling Requirements

If stormwater sampling is required in Part A of this permit, the following requirements apply:

1. All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

2. Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is not possible, a grab sample can be taken during the first hour of the discharge, in which case the discharger shall provide an explanation of why a grab sample during the first 30 minutes was not possible.

F. Stormwater Benchmark Values

1. A benchmark value is the concentration of a pollutant in stormwater discharges that serves as a threshold for the determination of whether existing site BMPs are effective in controlling stormwater pollution. In the event that stormwater discharge concentrations for a parameter exceeds the benchmark value(s) identified below at the same outfall for two or more consecutive monitoring periods, the

permittee shall develop a corrective action plan to reduce the concentrations of the parameters in stormwater discharges.

Parameter	Benchmark Value (mg/L)
Chemical Oxygen Demand	120
Total Suspended Solids	100

2. The permittee shall submit the corrective action plan to DEP within 90 days of the end of the monitoring period triggering the need for the plan and shall implement the plan immediately upon submission or at a later time if authorized by DEP in writing. The permittee shall, in developing the plan, evaluate alternatives to reduce stormwater concentrations and select one or more BMPs or control measures for implementation, unless the permittee can demonstrate in the plan that (1) the exceedances are solely attributable to natural background sources; (2) no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice; or (3) further pollutant reductions are not necessary to prevent stormwater discharges from causing or contributing to an exceedance of applicable water quality standards.

Appendix 5 – NPDES Permit Fact Sheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026247**
Facility Type	**Sewage**	APS ID	**1057761**
Major / Minor	**Major**	Authorization ID	**1386700**

NPDES PERMIT FACT SHEET ADDENDUM

Applicant and Facility Information

Applicant Name	**Hatfield Township Municipal Authority**	Facility Name	**Hatfield Township STP**
Applicant Address	3200 Advance Lane	Facility Address	3200 Advance Lane
	Colmar, PA 18915-9766		Colmar, PA 18915-9766
Applicant Contact	Peter Dorney	Facility Contact	Peter Dorney
Applicant Phone	(215) 822-9300	Facility Phone	(215) 822-9300
Client ID	52144	Site ID	454144
SIC Code	4952	Municipality	Hatfield Township
SIC Description	Trans. & Utilities - Sewerage Systems	County	Montgomery
Date Published in PA Bulletin	05/07/2022	EPA Waived?	No
Comment Period End Date	06/06/2022	If No, Reason	Major Facility, Pretreatment

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated Sewage

Internal Review and Recommendations

Draft permit was issued on April 20, 2022.

Received comment from EPA on May 18, 2022.

See the below comment:

Sara,

According to our Memorandum of Agreement, the Environmental Protection Agency (EPA) Region III has received the draft National Pollutant Discharge Elimination System (NPDES) permit for:

Hatfield Township STP
NPDES Number: PA0026247
EPA Received: April 21, 2022
30-day response due date: May 21,2022

This is a major permit that discharges to the West Branch Neshaminy Creek, and is affected by the Neshaminy Creek Sediment TMDL. EPA has performed a limited review of the draft permit based on the wasteload allocation (WLA) requirements of the approved Neshaminy Creek TMDL, WET, site specific copper criteria requirements, and Pretreatment requirements. EPA has completed its review and based on additional email correspondence (5/13-18/2022) and a phone conversation on 5/18/22, offers the following comment:

Approve	Return	Deny	Signatures	Date
X			Sara Abraham Sara Reji Abraham, E.I.T. / Project Manager	August 16, 2022
X			Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	08/16/2022
X			Thomas Magge Thomas L. Magge / Program Manager	08/17/2022

Internal Review and Recommendations

1. The EPA Region 3 office has moved, and the pretreatment coordinator mailing address in the permit will need to be updated. Please revise Part C.II.H. of the permit with this address:

   Pretreatment Coordinator (3WD41)

   U.S. Environmental Protection Agency

   Four Penn Center

   1600 John F Kennedy Blvd

   Philadelphia, Pennsylvania 19103-2852

Please address the above and provide us with any changes to the draft permit and/or fact sheet, if necessary. Please contact Dana Hales on my staff via telephone at 215-814-2928 or via electronic mail at hales.dana@epa.gov.

Thank you,
Jen Fulton

According to EPA comments the Part C. II. H of the permit is revised to incorporate the correct EPA address.

Comments are also received from the consultant on June 3, 2022 and revised on June 8, 2022 on behalf of the permittee. Department sent out response letter on July 12, 2022 via email.

See the below comments:

225 Grandview Avenue
Suite 403
Camp Hill, PA 17011 www.ghd.com

Reference: 11226030

June 3, 2022

Sara Reji Abraham, EIT via ELECTRONIC MAIL PA DEP
Clean Water Program
Southeast Regional Office 2 East Main
Street Norristown, PA 19401

Hatfield Township Municipal Authority Hatfield Township,
Montgomery County NPDES Permit No. PA0026247
Draft Permit Comments

Dear Ms. Abraham,

Draft NPDES Permit No. PA0026247 was received via email by the Hatfield Township Municipal Authority on April 20, 2022. The draft permit was published in the May 7, 2022 edition of the *Pennsylvania Bulletin*, which triggered the 30-day comment period. Therefore, comments are due to DEP by June 3, 2022.

The Authority offers the following comments on draft permit No. PA0026247.

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2. Page 17, Part A.III.C.3.a(ii) – The Authority does accept hauled-in wastes and requires the haulers to identify the

Internal Review and Recommendations

origin of the hauled-in wastes. **Please clarify why 40 CFR §435 is included in the NPDES permit when it does not apply to the Authority. However, if DEP can demonstrate this provision applies to the Authority, we request that DEP insert the word "knowingly" between the words "not" and "accept" on the first line of this permit condition.**

3. Page 18, Part A.III.C.4.a - **We request that DEP add, "Such reporting shall be based upon the Authority having knowledge of or becoming aware of such incident."**
4. Page 25, Part C.I.A – This paragraph prohibits stormwater from entering the sanitary sewer system, however, there are a few areas within the treatment facility boundary in which stormwater runoff enters a manhole or trench drain that is directed to the headworks of the treatment facility, as well as some of the older building roof drains, which drain back to the headworks. **We request that DEP add the following statement to the end of this paragraph, "except for those stormwater flows within the treatment facility that are directed back through the wastewater treatment process."**
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6. Page 28 – As of May 2, 2022, the address for US EPA Region 3 is Four Penn Center, 1600 John F Kennedy Blvd, Philadelphia, PA 19103-2852. **We request that DEP make this correction in the final NPDES permit.**
7. Pages 28-29, Part C.IV – **We request that DEP reconsider the use of requiring only the Biotic Ligand Model. As we understand, use of the BLM results in disproportionately more stringent effluent limits as compared to the WER method that is hardness dependent. Before being issued a final NPDES permit that includes the use of BLM, we request that DEP provide the Authority all guidance, procedures, and studies on the justification, use, and impact of the BLM. By way of example, DEP's website does not contain any useful guidance but provides a reference to an EPA webpage that directs users to an older version of BLM.**

The Authority offers the following comments on the draft Fact Sheet.

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    - Bromide MDL is reported at <0.4 mg/L not <2.5 µg/L.
    - If the TMS was run without the WER factor of 6, Copper limits for MDL and IMAX result in the same value. Most other TMS determinations result in an MDL × 1.6 = IMAX. Can DEP explain why the Copper MDL and IMAX are identical?
    - Since more than (10) sample results exist for the metals proposed for monitoring in the draft NPDES permit, data was input into DEP's TOXCONC spreadsheet resulting in the long-term average monthly effluent concentrations (AMEC) and CVs on the table below. The TOXCONC report is attached for your information. Not all Copper data could be entered onto the TOXCONC spreadsheet since the spreadsheet only allows 150 data sets and Copper is analyzed weekly. That being said, effluent Copper

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data is fairly consistent.

- Any non-detect data entered into the TOXCONC spreadsheet is shown as ND per the instructions even if the RL/MDL is greater than DEP's Target QL, which is why the maximum Lead value reported of <1.07 µg/L is higher than the Lead AMEC of 0.26 µg/L.
- The following AMECs and CVs from the TOXCONC spreadsheet are entered into the Toxics Management Spreadsheet (TMS) as opposed to using the maximum concentrations. As a result, Lead was eliminated and no effluent permit limits are proposed for any of the parameters, only monitoring. An updated TMS is attached for your information.

Parameter	Coefficient of Variation (Daily)	AMEC, µg/L	Daily Maximum, µg/L
Antimony	0.19	0.63	0.71
Cadmium	0.01	0.15	0.155
Copper	0.35	19.6	21.8
Free Cyanide	0.27	2.07	2.30
Dissolved Iron	0.31	73.5	89.0
Total Iron	0.40	280	327
Lead	0.57	0.26	<1.07
Selenium	0.23	0.73	0.77
Zinc	0.40	46.3	51.4

We reserve the right to submit additional comments, if applicable. Please do not hesitate to contact us if you have any questions.

Regards

Judy Musselman, BCES QEP
Senior Environmental Scientist

717.585.6359
judy.musselman@ghd.com

Copy to: Pete Dorney, HTMA
Steve Hann, Hamburg, Rubin, Mullin, Maxwell & Lupin, PC

225 Grandview Avenue
Suite 403
Camp Hill, PA 17011 www.ghd.com

Reference: 11226030

June 3, 2022 **Revised June 8, 2022**

Internal Review and Recommendations

Sara Reji Abraham, EIT via ELECTRONIC MAIL PA DEP
Clean Water Program
Southeast Regional Office 2 East Main
Street Norristown, PA 19401

Hatfield Township Municipal Authority Hatfield Township,
Montgomery County NPDES Permit No. PA0026247
Draft Permit Comments

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Internal Review and Recommendations

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Internal Review and Recommendations

Regards

Judy Musselman, BCES QEP
Senior Environmental Scientist

717.585.6359
judy.musselman@ghd.com

Copy to: Pete Dorney, HTMA
Steve Hann, Hamburg, Rubin, Mullin, Maxwell & Lupin, PC

The attachments, TOXCONC report and TMS reports submitted with the comments are in the file.

Below is the response letter we sent to the consultant and authority:

July 12, 2022

Ms. Judy Musselman, BCES QEP Senior
Environmental Scientist GHD
225 Grandview Avenue Camp Hill, PA 17011

Re: Draft NPDES Permit – Comments Hatfield Township
STP
Permit No. PA0026247 Authorization ID No. 1386700
Hatfield Township, Montgomery County Dear Ms. Musselman:

We have reviewed the draft permit comments you submitted on June 3, 2022 and revised on June 8, 2022 on behalf of Hatfield Township Municipal Authority and offering the following responses:

1. Page 6 – Coordinates for Stormwater Outfall 003 will be revised as requested in the final permit

2. Page 17, Part A.III. C.3.a(ii) – The language in this section is in consistent with 40 CFR Part 435.33. This is a standard boiler plate language in the permit and will stay as it is.

3. Page 18, Part A.III. C.4.a. – This is a standard boiler plate language in the permit. The explanations in the subsections (i) and (ii) address this comment and the requested addition is not necessary.

4. Page 25, Part C.I.A – This condition will be revised to incorporate the requested language in the final permit.

5. Page 25, Part C.I.E – This condition will be revised to incorporate the requested language in the final permit.

6. Page 28 – The referenced address will be revised in the final permit.

7. Pages 28-29, Part C.IV – The development of site-specific criteria is not a requirement. Permittees who choose to request the development of site-specific criteria may do so in accordance with 25 Pa. Code § 93.8d, which includes the following provisions at § 93.8d(c);

Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), as amended and updated, including: ‘‘Guidance on the

Internal Review and Recommendations

Determination and Use of Water-Effect Ratios for Metals'' (February 1994); and the ''Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health'' (2000). Other guidance approved by the department, which is based on EPA-approved or scientifically defensible methodologies, may be used. The development of new or updated site-specific criteria for copper in freshwater systems shall be performed using the biotic ligand model (BLM).

The Department's website currently provides the following link (www.hydroqual.com/wr_blm.html) to HydroQual's website that includes an older version of the BLM Model. An updated version is also available at the following link (Biotic Ligand Model - Windward Environmental LLC) to Windward Environmental' s website that includes the most recent version (BLM 3.41.2.45) of the BLM Model.

The Department offers the following more detailed guidance:

- EPA's Aquatic Life Criteria – Copper website: https://www.epa.gov/wqc/aquatic-life- criteria-copper
- EPA's *Aquatic Life Ambient Freshwater Quality Criteria – Copper*: https://www.epa.gov/sites/default/files/2019-02/documents/al-freshwater-copper-2007- revision.pdf
- PA Dept. of Env. Protection Data Collection Protocols: https://www.dep.pa.gov/Business/Water/CleanWater/WaterQuality/Pages/Data- Collection-Protocols.aspx

Consistent with Part C.IV and if the permittee chooses to continue to request site-specific criteria for copper for use in the development of future permit effluent limitations, a workplan is requested within 12 months of the permit effective date. The Department will review the workplan to ensure the plan is consistent with the guidance and will result in site-specific criteria that would otherwise be consistent with 25 Pa. Code § 93.8d and other regulatory requirements. These regulatory requirements generally include an update to Water Quality Standards and subsequent approval of the site-specific criterion by EPA.

8. Page 1 – The referenced statement will be revised as requested in the final fact sheet.

9. Page 1 – The fact sheet merely stating the current wastewater chemicals used at the facility. As long as it doesn't fall under the definition of chemical additive, it may be replaced with another product.

10. Page 1- The missing industrial user's name "Republic Environmental Systems" will be incorporated in the final fact sheet.

11. Page 4 -We have a National Hydrography Dataset (NHD) locator tool that we used to locate the exact discharge location on the receiving stream. This NHD locator tool identified the discharge location coordinates on the receiving stream as 40º 16' 32.12" and -75º 15' 8.06" based on the Outfall coordinates provided in the application. That is what shows in the draft fact sheet (this could be a little different from the draft permit) and it will stay as it is.

12. Pages 12-32:

(i) Bromide is reported as < 2.5 mg/l in the DMRs, and it is used in the TMS calculation.

(ii) That is the way TMS calculate the limits, when the actual calculated WQBEL is below the criteria (calculation is in the background). Here the AML is recommended based on CFC (which is more stringent) and the MDL is calculated using the multiplier and this value was also used for the IMAX to be protective of the AFC criterion. The IMAX calculation using the normal process (using multiplier) might not be protective of the AFC criterion. This is explained in Section I.D of the SOP for "Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers".

Internal Review and Recommendations

(iii) We acknowledge the Authority's effort in running TMS using the AMECs and CVs for metals. However, it makes no difference in the limits/monitoring requirements established in the draft permit. Please see the attached updated TMS report.

(iv) Please see the attached TOXCONC spreadsheet we prepared for Lead. The AMEC and CV are different compared to the calculation provided with your comment letter.

(v) Based on the attached updated TMS report, the recommended WQBELS and Monitoring Requirements are similar to the requirements of the TMS report incorporated in the draft fact sheet. Please note that since Free Cyanide has only 9 samples, the AMEC and CV provided are not used in the TMS calculation. Therefore, no revisions are necessary to the effluent limitations and monitoring requirements established in the draft permit.

If you have any questions, please contact me at saabraham@pa.gov or 484.250.5195.

Sincerely,

Sara Abraham

Sara Reji Abraham, E.I.T. Project Manager
Clean Water Program

cc: Mr. Dorney – Hatfield Township Municipal Authority

The updated TMS spreadsheet and TOXCONC spreadsheet for Lead sent out with the response letter are in the file.

According to the comments submitted by the consultant and as per the phone conversation with EPA, the following clarifications are made in the fact sheet:

(i) The Hatfield Twp STP does not employ Equalization, rather the tanks are used for Extreme Wet Weather High Flow Storage.

(ii) "Republic Environmental Systems" is an industrial user connected to the sewer system. This name was missing in the draft fact sheet.

(iii) The draft fact sheet states in the **Anti-Backsliding** section: The current WET limits are eliminated based on the review of the submitted WET reports. New monitoring data constitutes new information and RP is not demonstrated and hence the anti-backsliding exception applies here.
Based on the phone conversation with Dana Hales of EPA on 05/18/2022, the section 402 (o) (2) of the Clean Water Act is referenced here in this fact sheet addendum to justify the removal of WQBELs for WET.

No other comments are received.

Finalizing the permit incorporating all the changes discussed above in this fact sheet.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026247**
Facility Type	**Municipal**	APS ID	**1057761**
Major / Minor	**Major**	Authorization ID	**1386700**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Hatfield Township Municipal Authority**	Facility Name	**Hatfield Township STP**
Applicant Address	3200 Advance Lane	Facility Address	3200 Advance Lane
	Colmar, PA 18915-9766		Colmar, PA 18915-9766
Applicant Contact	Peter Dorney	Facility Contact	Peter Dorney
Applicant Phone	(215) 822-9300	Facility Phone	(215) 822-9300
Client ID	52144	Site ID	454144
Ch 94 Load Status	Not Overloaded	Municipality	Hatfield Township
Connection Status	No Limitations	County	Montgomery
Date Application Received	February 7, 2022	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment

Purpose of Application: Permit Renewal

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated sewage from Hatfield Township STP to West Branch Neshaminy Creek via Outfall 001 and stormwater via Outfalls 002, 003, and 004.

The following are the Municipalities served by the facility: Hatfield Twp., Hatfield Boro, Hilltown twp., Franconia twp. and Montgomery Twp.

The treatment plant includes influent pumping, equalization (2), mechanical screening, grit and grease removal, primary clarification (2), counter current aeration reactors (2), final clarification (2), and UV disinfection prior to discharge.

The following wastewater chemicals are used at the facility: Ferric Chloride (38%), Polymer Zeta Lyte 2240 CH, Potassium Permanganate, Liquid Polymer Zeta Lyte 1-A, Liquid Caustic Soda, 22-25% and Activated Carbon.

No upgrades are proposed over the next five years.

The following industrial users are connected to the sewer system:

1. A.L. Finishing Co, Inc.
2. Brooks Instrument, LLC
3. Cobham Advanced Electronic Solutions
4. Laboratory Testing, Inc.
5. Lucerne Dairy Plant
6. Parker-Hannifin Corp. Precision Fluidics Div.
7. Penn Color, Inc.
8. Mid-Atlantic Packaging Inc.
9. Tuscan/Lehigh Dairies, Inc.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	April 18, 2022
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	04/18/2022

Summary of Review

Discharge is in compliance with the permit limitations based on the review of eDMRs. According to Operations the facility is well operated and maintained.

A permit amendment issued on May 28, 2015 and the subsequent renewal issued on August 21, 2017 incorporated a site-specific criterion based on a streamlined WER study for Copper. According to DEP SOP, a Part C condition is established in the draft permit that requires site-specific data collection and provide an option to conduct a new site-specific criteria study (SSCS). The new SSCC for Copper must be conducted using the Biotic Ligand Model.

The permit was amended in 2015 for a rerate of the facility to an annual average design flow of 6.98 MGD and a maximum monthly flow hydraulic design capacity of 10.68 MGD. There are no significant differences in flow, stream designation, influent characteristics, treatment system etc. The recommended effluent limitations are mostly similar to the existing permit limitations.

Influent monitoring for CBOD5, TSS and BOD5 are recommended to continue in the draft permit to check compliance with the 85% removal requirement and Chapter 94 requirement.

A reasonable potential analysis was performed on the most recent effluent data using the Toxic Management Spreadsheet (TMS).

Sludge use and disposal description and location(s): The facility accepts outside sludges, septage and other hauled wastes. Sludges are blended and dewatered with centrifuges, centrifuge cake is incinerated, and incinerator ash is disposed offsite in an approved landfill. Infrequent liquid sludge disposal at other WWTP also occurs when incinerator shut down for maintenance, as needed.

There is an approved pretreatment program for the facility. Similar to the existing permit the requirement for pretreatment program implementation is included in the draft permit.

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.

Act 14 Notifications:

Hatfield Township - August 27, 2021
Montgomery County - August 25, 2021

Permit Conditions:

A. No Stormwater
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Small Stream Discharge
F. Operator Notification
G. Fecal Coliform Reporting
H. Pretreatment Program Implementation
I. Solids Management
J. Site-Specific Criteria Study

Summary of Review
K. WET Condition L. Stormwater Outfalls Requirement

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	6.98
Latitude	40º 16' 32.12"	Longitude	-75º 15' 8.06"
Quad Name	Telford	Quad Code	1643
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	West Branch Neshaminy Creek (WWF, MF)	Stream Code	2868
NHD Com ID	25484888	RMI	2.8
Drainage Area	17 mi^2		
Q_{7-10} Flow (cfs)	1.12	Q_{7-10} Basis	Previous fact sheet*
Elevation (ft)	264		
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	algae, flow regime modification, nutrients, organic enrichment, siltation		
Source(s) of Impairment	agriculture, municipal point source discharges, urban runoff/storm sewers		
TMDL Status	Final,04/09/2003	Name	Neshaminy Creek

*Based on a drainage area of 17.0 mi^2 the Q7-10 flow at Hatfield twp. STP is estimated as 1.12 cfs (from previous fact sheet)

The site-specific design conditions used in the TMS model are:

Discharge flow = 6.98 MGD
Discharge hardness = 153 mg/l
Discharge pH = 7.2
Stream hardness = 168 mg/l
Stream pH = 7

For Discharge Point: RMI = 2.8
Elevation = 264 ft
DA = 17 mi^2

For End of Reach 1 : RMI = 0.0
Elevation = 245 ft
Drainage Area = 19.8 mi^2
Q_{7-10} Flow = 1.304 (this flow is proportionately calculated from 1.12 cfs/17mi^2)

1.304 cfs × 0.646 = 0.842 MGD

Treatment Facility Summary

Treatment Facility Name: Hatfield Township STP

WQM Permit No.	Issuance Date
4615403	08/04/2015

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia And Phosphorus	Activated Sludge	Ultraviolet	6.98

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
10.68	22300	Not Overloaded	Centrifugation	incinerator

Compliance History

DMR Data for Outfall 001 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
Flow (MGD) Average Monthly	7.14	4.84	5.01	5.45	7.37	6.47	5.58	6.77	6.02	10.54	10.93	10.34
Flow (MGD) Daily Maximum	15.68	6.65	7.73	13.68	25.27	15.59	7.94	13.26	17.15	6.83	24.04	24.38
pH (S.U.) Minimum	6.8	6.9	6.8	6.9	6.9	6.9	7.0	6.8	6.8	6.7	6.6	6.7
pH (S.U.) Instantaneous Maximum	7.3	7.4	7.3	7.3	7.4	7.6	7.6	7.5	7.6	7.2	7.3	7.3
DO (mg/L) Minimum	8.8	8.4	8.2	7.9	7.8	6.8	7.6	7.9	8.1	8.5	9.0	9.0
CBOD5 (lbs/day) Average Monthly	< 182	< 116	< 126	< 155	< 196	< 170	< 140	< 173	< 154	< 172	< 312	< 312
CBOD5 (lbs/day) Raw Sewage Influent Average Monthly	8896	8660	8088	7206	7430	7528	8603	9274	8114	8810	9635	9647
CBOD5 (lbs/day) Weekly Average	< 244	< 154	< 169	< 313	< 342	< 297	< 150	< 241	< 208	< 202	< 477	< 445
CBOD5 (mg/L) Average Monthly	< 3.0	< 3	< 3	< 3.2	< 3.1	< 3.0	< 3.0	< 3.0	< 3.0	< 3	< 3	< 3
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	160	224	200	183	146	161	188	176	180	157	110	123
CBOD5 (mg/L) Weekly Average	< 3.0	< 3	< 3	4	< 3	< 3	< 3	< 3	< 3.0	< 3	< 3	< 5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	11228	11450	11165	9966	10215	10118	10801	11904	10606	11511	13035	12591
BOD5 (mg/L) Raw Sewage Influent Average Monthly	204	297	273	255	198	215	239	225	236	207	151	168

TSS (lbs/day) Average Monthly	245	91	83	197	307	188	120	155	178	177	485	626
TSS (lbs/day) Raw Sewage Influent Average Monthly	11123	12030	11018	9898	11348	12126	14300	13657	12927	13278	15805	11817
TSS (lbs/day) Weekly Average	351	208	184	506	591	387	123	240	323	205	1111	847
TSS (mg/L) Average Monthly	4	2	2	3	4	3	3	3	3	3	5	5
TSS (mg/L) Raw Sewage Influent Average Monthly	204	313	259	254	213	257	311	260	283	236	189	158
TSS (mg/L) Weekly Average	4	3	3	6	5	4	3	3	4	4	7	7
Total Dissolved Solids (lbs/day) Average Monthly	26637	12923	13859	10581	39557	19581	16896	19217	19707	21434	35607	53419
Total Dissolved Solids (mg/L) Average Monthly	446	353	328	292	560	400	403	376	433	405	442	853
Fecal Coliform (CFU/100 ml) Geometric Mean	20	7	12	42	71	58	48	17	12	6	5	10
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	121	35	185	548	517	214	411	210	34	11	25	152
UV Transmittance (%) Minimum	74.4	67.6	71.2	69.9	67.8	65.3	67.2	67.2	69.5	70.5	72.5	77
Nitrate-Nitrite (lbs/day) Average Monthly	333	208	189	204	239	209	201	282	282	333	330	356
Nitrate-Nitrite (mg/L) Average Monthly	5.8	5.4	4.6	4.8	4.2	4.0	4.3	5.04	5.9	6	3.8	4.7
Total Nitrogen (lbs/day) Average Monthly	476	267	246	186	227	215	199	311	< 380	437	837	404
Total Nitrogen (mg/L) Average Monthly	4.84	8.5	6.2	5.65	6.4	4.92	5.8	6.1	< 7.3	6.45	9.8	5.6
Ammonia (lbs/day) Average Monthly	< 29	< 15	< 8	< 15	< 14	< 11	< 14	< 13	< 11	< 11	< 154	< 126
Ammonia (mg/L) Average Monthly	< 0.5	< 0.4	< 0.2	< 0.3	< 0.2	< 0.2	< 0.3	< 0.2	< 0.2	< 0.2	< 1.8	< 1.2

TKN (lbs/day) Average Monthly	53	38	40	21	39	42	38	< 51	< 52	58	658	72
TKN (mg/L) Average Monthly	0.54	1.2	1.0	0.65	1.1	0.95	1.1	< 1	< 1.0	0.85	7.7	1
Total Phosphorus (lbs/day) Average Monthly	19	15	9	18	21	22	15	15	17	14	17	19
Total Phosphorus (mg/L) Average Monthly	0.31	0.38	0.22	0.40	0.34	0.41	0.327	0.28	0.35	0.25	0.17	0.2
Total Aluminum (mg/L) Average Monthly	< 0.025	0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.024	< 0.025	0.054	< 0.025
Total Copper (lbs/day) Average Monthly	0.9	0.6	0.5	0.5	0.7	0.5	0.5	0.5	0.8	0.9	0.9	0.9
Total Copper (lbs/day) Daily Maximum	1	0.6	0.5	0.8	1	0.7	0.5	0.7	1	1	1	1
Total Copper (mg/L) Average Monthly	0.015	0.015	0.011	0.0117	0.0104	0.0097	0.012	0.01	0.018	0.017	0.0115	0.015
Total Copper (mg/L) Daily Maximum	0.019	0.017	0.12	0.013	0.014	0.012	0.013	0.014	0.02	0.02	0.014	0.017
Dissolved Iron (mg/L) Average Monthly	0.034	0.049	0.060	0.052	0.075	0.066	0.055	0.052	0.089	0.044	0.049	0.037
Total Iron (mg/L) Average Monthly	0.200	0.21	0.21	0.11	0.24	0.18	0.16	0.180	0.31	0.18	0.41	0.160
Sulfate (mg/L) Average Monthly	32	40	36	49	37	33	41	29	44	31	31	35.0
Chloride (mg/L) Average Monthly	186	115	105	133	103	114	115	138	150	165	157	430
Bromide (mg/L) Average Monthly	< 2.5	< 2.5	< 0.4	1.9	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	1.9	1.4
Total Hardness (mg/L) Average Monthly	140	170	150	140	150	130	150	140	160	140	140	270
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		GG			1.1			GG			GG	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		GG			1.1			GG			GG	

Chronic WET - Pimephales Survival (TUc) Daily Maximum		GG			1.1			GG			GG	
Chronic WET - Pimephales Growth (TUc) Daily Maximum		GG			1.1			GG			GG	

DMR Data for Outfall 002 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
pH (S.U.) Annual Average		7.5										
CBOD5 (mg/L) Annual Average		3										
COD (mg/L) Annual Average		30										
TSS (mg/L) Annual Average		27										
Oil and Grease (mg/L) Annual Average		< 1.5										
Fecal Coliform (CFU/100 ml) Annual Average		546										
TKN (mg/L) Annual Average		0.5										
Total Phosphorus (mg/L) Annual Average		0.16										
Dissolved Iron (mg/L) Annual Average		< 0.041										

DMR Data for Outfall 003 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
pH (S.U.) Annual Average		7.3										
CBOD5 (mg/L) Annual Average		4										

COD (mg/L) Annual Average		30										
TSS (mg/L) Annual Average		85										
Oil and Grease (mg/L) Annual Average		< 1.5										
Fecal Coliform (CFU/100 ml) Annual Average		> 24196										
TKN (mg/L) Annual Average		0.88										
Total Phosphorus (mg/L) Annual Average		0.54										
Dissolved Iron (mg/L) Annual Average		< 0.041										

DMR Data for Outfall 004 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
pH (S.U.) Annual Average		7.3										
CBOD5 (mg/L) Annual Average		6										
COD (mg/L) Annual Average		45										
TSS (mg/L) Annual Average		82										
Oil and Grease (mg/L) Annual Average		< 1.5										
Fecal Coliform (CFU/100 ml) Annual Average		> 24196										
TKN (mg/L) Annual Average		0.74										
Total Phosphorus (mg/L) Annual Average		0.24										
Dissolved Iron (mg/L) Annual Average		0.052										

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 6.98
Latitude 40º 16' 32.47" **Longitude** -75º 15' 8.80"
Wastewater Description: Treated Sewage Effluent

Technology-Based Limitations

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

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

*TRC limit is not required since UV disinfection is provided. And no chlorine equipment is available at the facility for back up.

Water Quality-Based Limitations

The following limitations apply:

Parameters	Monthly Ave. Conc (mg/l)	Weekly Ave Conc. (mg/l)	Inst. Max. (mg/l)	Basis
$CBOD_5$ (5/1 to 10/31)	9.1	14	18	Existing/previous WQM*
$CBOD_5$ (11/1 to 4/30)	18	27	36	Existing (seasonal limit) *
Dissolved Oxygen	6.0			Existing/previous WQM*
Total Suspended Solids	30	45	60	Existing/DRBC
TDS	1000		1500	Existing/DRBC**
NH_3 –N (05/01 to 10/31)	1.8		3.6	Existing/previous WQM*
NH_3 –N (11/1 to 4/30)	5.5		11	Existing (seasonal limit) *
Nitrate-Nitrite as N (07/01 to 10/31)	8.2		16.4	Existing***
Nitrate-Nitrite as N (11/01 to 6/30)	Reprot			Existing***
TKN	Report			Existing
Total N	Report			Existing

Chloride	Report			Existing
Bromide	Report			Existing
Sulfate	Report			Existing
Total P (4/1 to 10/31)	0.74		1.48	Existing****
Total P (11/1 to 3/31)	1.0		2.0	Existing****
UV Transmittance (%)			Report (Daily Minimum)	Existing/SOP
Fecal Coliform (# / 100ml)	200 (Geo.Mean)		1000	Ch. 92a /DRBC
E. Coli			Report	Ch. 92a*****
PH	6.0 to 9.0 std. units at all times			Ch. 93

*These limits were previously calculated using WQM model. Recommended existing limitations.

** DRBC Regulation 3.10.4.D.2 includes an end-of-pipe TDS limit of 1,000 ppm. 25 Pa Code 93.7 includes TDS criteria, applicable at PWS intakes, of 500 mg/l as a monthly average, and a maximum of 750 mg/l. There is a statewide osmotic pressure criterion of 50 mosm (~1,500 mg/l TDS). No public water supply nearby, downstream of the point of discharge. Recommended existing limitations.

As the constituents of TDS, Chloride, Bromide and Sulfate are in the existing permit. There is no PWS downstream and no water quality criterion for Bromide therefore, the frequency of monitoring is reduced for these parameters to once per quarter in the draft permit.

*** The facility has an existing nitrite-nitrate limit of 8.2 mg/l, effective July thru October. The nitrite-nitrate limit is based on protection of the PWS use of Neshaminy Creek during the critical period of July thru October. Most sewage facilities that discharge in the Neshaminy Creek basin historically had a combined effluent limit for ammonia and nitrite-nitrate equal to 11 mg/l effective during the critical period. During the 2015 rerate of this facility (design flow increased from 6.43 MGD to 6.98 MGD), it was agreed to keep the same mass-based limit and lower the concentration accordingly. The revised limits are in effect since then. Recommended existing limitations.

**** The nutrient TMDL for Neshaminy Creek was withdrawn and EPA is expected to develop a new TMDL to include stringent limits for total phosphorus. Therefore, no increase in existing phosphorus load can be allowed until a revised TMDL is developed to address the impairment. Using the statistical methods outlined in EPA's *Technical Support Document for Water Quality-based Toxics Control*, the Phosphorus limit was calculated for this discharge in 2011. During the 2015 rerate of this facility, it was agreed to keep the same mass-based limit and lower the concentration accordingly. The revised limits are in effect since then. Recommended existing limitations.

***** E. Coli monitoring is included in the draft permit according to the DEP SOP guidance (Chapter 92.a.61). This is a new requirement and is consistent with the requirements of other similar discharges in the area.

Monitoring for Total Hardness is also continued in the draft permit for data collection.

A "Reasonable Potential Analysis" determined the following parameters were candidates for limitations or monitoring:

Parameter	Limit (mg/l)	SBC	Model
Total Antimony	Report	Average Monthly	Toxic Management Spreadsheet (TMS)
Total Cadmium	Report	Average Monthly	TMS
*Total Copper	Report	Average Monthly	TMS
**Free Cyanide	4.41	Average Monthly	TMS
Dissolved Iron	Report	Average Monthly	TMS
Total Iron	Report	Average Monthly	TMS
Total Lead	Report	Average Monthly	TMS
Total Selenium	Report	Average Monthly	TMS
Total Zinc	Report	Average Monthly	TMS

* The copper monitoring contained in the existing permit is based on site-specific copper criteria recommended in a Determination of Copper Water Effect Ratio (WER) for West Branch Neshaminy Creek and Hatfield Township Municipal Authority (HTMA) (Tetra Tech, Inc., October 14, 2013). Effluent and stream samples were obtained in August and September 2013, under low flow conditions in the receiving water. Whole Effluent Toxicity (WET) testing was conducted on these samples following EPA's streamlined procedure for evaluating the WER for copper. The study results yielded WERs of 6.2 (dissolved copper) and 6.0 (total recoverable copper). Applying the total recoverable WER in the TMS model run, the governing WQBEL is calculated as 89.5 ug/l and recommended a reporting requirement for Total Copper.

According to DEP SOP, a Part C condition is established in the draft permit that requires the permittee to do site specific data collection and provides an option to conduct a new site-specific criteria study (SSCS). Any new SSCS for Copper must be conducted using the Biotic Ligand Model (BLM).

** Application reported four results for Free Cyanide. All of them are below the most stringent criterion. Three reported concentrations are below the 50% of the calculated WQBEL. The quantitation levels (QLs) used for analyses are above the recommended target QL. The reported concentration values are less than the reporting limit but greater than the method detection limit. Monitoring is included in the draft permit to collect more data and this will be reevaluated at the next permit renewal. We request the permittee to use the recommended TQL for future analyses.

Total Antimony, Total Cadmium, Dissolved Iron Total Iron, Total Lead, Total Selenium and Total Zinc are also recommended to be monitored based on the TMS model run.

Total Aluminum monitoring is eliminated from the permit because there is no reasonable potential to exceed the water quality criteria and the facility doesn't use any Aluminum containing chemicals in their treatment.

Best Professional Judgment (BPJ) Limitations

N/A

Anti-Backsliding

The current WET limits are eliminated based on the review of the submitted WET reports.
New monitoring data constitutes new information and RP is not demonstrated and hence the anti-backsliding exception applies here.

See the below attached TMS model report:

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Discharge Information

Instructions | Discharge | Stream

Facility: **Hatfield Twp STP** NPDES Permit No.: **PA0026247** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
6.98	153	7.2						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		690									
	Chloride (PWS)	mg/L		510									
	Bromide	mg/L	<	2.5									
	Sulfate (PWS)	mg/L		58.3									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		25									
	Total Antimony	µg/L		0.71									
	Total Arsenic	µg/L		0.97									
	Total Barium	µg/L		60									
	Total Beryllium	µg/L	<	0.12									
	Total Boron	µg/L		160									
	Total Cadmium	µg/L		0.155									
	Total Chromium (III)	µg/L		1.3									
	Hexavalent Chromium	µg/L	<	1									
	Total Cobalt	µg/L		0.53									
	Total Copper	µg/L		21.8								6	
	Free Cyanide	µg/L		2.3									
	Total Cyanide	µg/L		5.6									
	Dissolved Iron	µg/L		89									
	Total Iron	µg/L		327									
	Total Lead	µg/L		1.07									
	Total Manganese	µg/L		67.7									
	Total Mercury	µg/L	<	0.079									
	Total Nickel	µg/L		6.9									
	Total Phenols (Phenolics) (PWS)	µg/L		13									
	Total Selenium	µg/L		0.77									
	Total Silver	µg/L	<	0.17									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		51.4									
	Total Molybdenum	µg/L		12.4									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.3									
	Benzene	µg/L	<	0.05									
	Bromoform	µg/L	<	0.1									

Group 3	Carbon Tetrachloride	µg/L	<	0.1									
	Chlorobenzene	µg/L		0.1									
	Chlorodibromomethane	µg/L	<	0.1									
	Chloroethane	µg/L	<	0.1									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L	<	0.9									
	Dichlorobromomethane	µg/L	<	0.2									
	1,1-Dichloroethane	µg/L	<	0.1									
	1,2-Dichloroethane	µg/L	<	0.3									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.1									
	1,4-Dioxane	µg/L		2.3									
	Ethylbenzene	µg/L	<	0.1									
	Methyl Bromide	µg/L	<	0.1									
	Methyl Chloride	µg/L	<	0.3									
	Methylene Chloride	µg/L		0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.05									
	Tetrachloroethylene	µg/L	<	0.2									
	Toluene	µg/L		0.2									
	1,2-trans-Dichloroethylene	µg/L	<	0.1									
	1,1,1-Trichloroethane	µg/L	<	0.1									
	1,1,2-Trichloroethane	µg/L	<	0.2									
	Trichloroethylene	µg/L	<	0.2									
	Vinyl Chloride	µg/L	<	0.3									
Group 4	2-Chlorophenol	µg/L	<	5.5									
	2,4-Dichlorophenol	µg/L	<	5.5									
	2,4-Dimethylphenol	µg/L	<	5.5									
	4,6-Dinitro-o-Cresol	µg/L	<	2.2									
	2,4-Dinitrophenol	µg/L	<	2.2									
	2-Nitrophenol	µg/L	<	5.5									
	4-Nitrophenol	µg/L	<	5.5									
	p-Chloro-m-Cresol	µg/L	<	5.5									
	Pentachlorophenol	µg/L	<	5.5									
	Phenol	µg/L	<	1.1									
	2,4,6-Trichlorophenol	µg/L	<	5.5									
Group 5	Acenaphthene	µg/L	<	0.27									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.27									
	Benzidine	µg/L	<	6.9									
	Benzo(a)Anthracene	µg/L	<	0.25									
	Benzo(a)Pyrene	µg/L	<	0.27									
	3,4-Benzofluoranthene	µg/L	<	0.3									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.22									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.54									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.54									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.54									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.54									
	Butyl Benzyl Phthalate	µg/L	<	1.1									
	2-Chloronaphthalene	µg/L	<	1.1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.54									
	Chrysene	µg/L	<	0.22									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.32									
	1,2-Dichlorobenzene	µg/L	<	0.54									
	1,3-Dichlorobenzene	µg/L	<	0.54									
	1,4-Dichlorobenzene	µg/L	<	0.54									
	3,3-Dichlorobenzidine	µg/L	<	0.86									
	Diethyl Phthalate	µg/L	<	0.54									
	Dimethyl Phthalate	µg/L	<	0.58									
	Di-n-Butyl Phthalate	µg/L	<	1.2									
	2,4-Dinitrotoluene	µg/L	<	0.54									

	2,6-Dinitrotoluene	µg/L	<	0.54									
	Di-n-Octyl Phthalate	µg/L	<	0.55									
	1,2-Diphenylhydrazine	µg/L	<	5.5									
	Fluoranthene	µg/L	<	0.23									
	Fluorene	µg/L	<	0.23									
	Hexachlorobenzene	µg/L	<	0.58									
	Hexachlorobutadiene	µg/L	<	0.23									
	Hexachlorocyclopentadiene	µg/L	<	3.2									
	Hexachloroethane	µg/L	<	0.54									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.32									
	Isophorone	µg/L	<	0.54									
	Naphthalene	µg/L	<	0.32									
	Nitrobenzene	µg/L	<	0.54									
	n-Nitrosodimethylamine	µg/L	<	0.54									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.54									
	n-Nitrosodiphenylamine	µg/L	<	0.54									
	Phenanthrene	µg/L	<	0.22									
	Pyrene	µg/L	<	0.25									
	1,2,4-Trichlorobenzene	µg/L	<	0.3									
Group 6	Aldrin	µg/L	<	0.011									
	alpha-BHC	µg/L	<	0.034									
	beta-BHC	µg/L	<	0.0494									
	gamma-BHC	µg/L	<	0.011									
	delta BHC	µg/L	<	0.034									
	Chlordane	µg/L	<	0.57									
	4,4-DDT	µg/L	<	0.023									
	4,4-DDE	µg/L	<	0.045									
	4,4-DDD	µg/L	<	0.022									
	Dieldrin	µg/L	<	0.022									
	alpha-Endosulfan	µg/L		0.0056									
	beta-Endosulfan	µg/L	<	0.022									
	Endosulfan Sulfate	µg/L	<	0.022									
	Endrin	µg/L	<	0.0215									
	Endrin Aldehyde	µg/L	<	0.021									
	Heptachlor	µg/L	<	0.0215									
	Heptachlor Epoxide	µg/L	<	0.0107									
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.4									
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Hatfield Twp STP, NPDES Permit No. PA0026247, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **West Branch Neshaminy Creek** No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	002868	2.8	264	17			Yes
End of Reach 1	002868	0	245	19.8			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.8	0.1	1.12									168	7		
End of Reach 1	0	0.1	1.304												

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.8														
End of Reach 1	0														

Model Results

Hatfield Twp STP, NPDES Permit No. PA0026247, Outfall 001

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☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): 154.41 Analysis pH: 7.18

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	828	
Total Antimony	0	0		0	1,100	1,100	1,214	
Total Arsenic	0	0		0	340	340	375	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	23,178	
Total Boron	0	0		0	8,100	8,100	8,940	
Total Cadmium	0	0		0	3.072	3.32	3.66	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	813.240	2,574	2,840	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	105	
Total Copper	0	0		0	121.420	126	140	Chem Translator of 0.96 and Criteria Modifier of 6 applied
Free Cyanide	0	0		0	22	22.0	24.3	
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	103.291	142	157	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.82	Chem Translator of 0.85 applied
Total Nickel	0	0		0	676.212	678	748	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	6.791	7.99	8.82	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	71.7	
Total Zinc	0	0		0	169.324	173	191	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.31	

Acrylonitrile	0	0		0	650	650	717	
Benzene	0	0		0	640	640	706	
Bromoform	0	0		0	1,800	1,800	1,987	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,090	
Chlorobenzene	0	0		0	1,200	1,200	1,324	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	19,867	
Chloroform	0	0		0	1,900	1,900	2,097	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,556	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,278	
1,2-Dichloropropane	0	0		0	11,000	11,000	12,141	
1,3-Dichloropropylene	0	0		0	310	310	342	
Ethylbenzene	0	0		0	2,900	2,900	3,201	
Methyl Bromide	0	0		0	550	550	607	
Methyl Chloride	0	0		0	28,000	28,000	30,904	
Methylene Chloride	0	0		0	12,000	12,000	13,245	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,104	
Tetrachloroethylene	0	0		0	700	700	773	
Toluene	0	0		0	1,700	1,700	1,876	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,505	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,311	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,753	
Trichloroethylene	0	0		0	2,300	2,300	2,539	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	618	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,876	
2,4-Dimethylphenol	0	0		0	660	660	728	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	88.3	
2,4-Dinitrophenol	0	0		0	660	660	728	
2-Nitrophenol	0	0		0	8,000	8,000	8,830	
4-Nitrophenol	0	0		0	2,300	2,300	2,539	
p-Chloro-m-Cresol	0	0		0	160	160	177	
Pentachlorophenol	0	0		0	10.419	10.4	11.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	508	
Acenaphthene	0	0		0	83	83.0	91.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	331	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.55	
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	33,112	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,967	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	298	
Butyl Benzyl Phthalate	0	0		0	140	140	155	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	905	
1,3-Dichlorobenzene	0	0		0	350	350	386	
1,4-Dichlorobenzene	0	0		0	730	730	806	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,415	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,759	
Di-n-Butyl Phthalate	0	0		0	110	110	121	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,766	
2,6-Dinitrotoluene	0	0		0	990	990	1,093	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.6	
Fluoranthene	0	0		0	200	200	221	
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	11.0	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.52	
Hexachloroethane	0	0		0	60	60.0	66.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	11,037	
Naphthalene	0	0		0	140	140	155	
Nitrobenzene	0	0		0	4,000	4,000	4,415	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	18,763	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	331	
Phenanthrene	0	0		0	5	5.0	5.52	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	143	
Aldrin	0	0		0	3	3.0	3.31	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.05	
Chlordane	0	0		0	2.4	2.4	2.65	
4,4-DDT	0	0		0	1.1	1.1	1.21	
4,4-DDE	0	0		0	1.1	1.1	1.21	
4,4-DDD	0	0		0	1.1	1.1	1.21	
Dieldrin	0	0		0	0.24	0.24	0.26	
alpha-Endosulfan	0	0		0	0.22	0.22	0.24	
beta-Endosulfan	0	0		0	0.22	0.22	0.24	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.095	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.57	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.55	
Toxaphene	0	0		0	0.73	0.73	0.81	

☑ *CFC* CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): 154.41 Analysis pH: 7.18

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	243	
Total Arsenic	0	0		0	150	150	166	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,525	
Total Boron	0	0		0	1,600	1,600	1,766	
Total Cadmium	0	0		0	0.333	0.37	0.41	Chem Translator of 0.891 applied
Total Chromium (III)	0	0		0	105.786	123	136	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.5	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.0	
Total Copper	0	0		0	77.889	81.1	89.5	Chem Translator of 0.96 and Criteria Modifier of 6 applied
Free Cyanide	0	0		0	5.2	5.2	5.74	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,656	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.025	5.53	6.11	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.	Chem Translator of 0.85 applied
Total Nickel	0	0		0	75.106	75.3	83.1	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	5.51	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	14.3	
Total Zinc	0	0		0	170.709	173	191	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.31	
Acrylonitrile	0	0		0	130	130	143	
Benzene	0	0		0	130	130	143	
Bromoform	0	0		0	370	370	408	
Carbon Tetrachloride	0	0		0	560	560	618	
Chlorobenzene	0	0		0	240	240	265	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,863	
Chloroform	0	0		0	390	390	430	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,422	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,656	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,428	
1,3-Dichloropropylene	0	0		0	61	61.0	67.3	
Ethylbenzene	0	0		0	580	580	640	
Methyl Bromide	0	0		0	110	110	121	
Methyl Chloride	0	0		0	5,500	5,500	6,070	

Methylene Chloride	0	0		0	2,400	2,400	2,649	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	232	
Tetrachloroethylene	0	0		0	140	140	155	
Toluene	0	0		0	330	330	364	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,545	
1,1,1-Trichloroethane	0	0		0	610	610	673	
1,1,2-Trichloroethane	0	0		0	680	680	751	
Trichloroethylene	0	0		0	450	450	497	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	121	
2,4-Dichlorophenol	0	0		0	340	340	375	
2,4-Dimethylphenol	0	0		0	130	130	143	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	17.7	
2,4-Dinitrophenol	0	0		0	130	130	143	
2-Nitrophenol	0	0		0	1,600	1,600	1,766	
4-Nitrophenol	0	0		0	470	470	519	
p-Chloro-m-Cresol	0	0		0	500	500	552	
Pentachlorophenol	0	0		0	7.994	7.99	8.82	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	100	
Acenaphthene	0	0		0	17	17.0	18.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	65.1	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11	
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	6,622	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,004	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	59.6	
Butyl Benzyl Phthalate	0	0		0	35	35.0	38.6	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	177	
1,3-Dichlorobenzene	0	0		0	69	69.0	76.2	
1,4-Dichlorobenzene	0	0		0	150	150	166	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	883	
Dimethyl Phthalate	0	0		0	500	500	552	
Di-n-Butyl Phthalate	0	0		0	21	21.0	23.2	
2,4-Dinitrotoluene	0	0		0	320	320	353	
2,6-Dinitrotoluene	0	0		0	200	200	221	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.31	

Fluoranthene	0	0		0	40	40.0	44.1	
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	2.21	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.1	
Hexachloroethane	0	0		0	12	12.0	13.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,318	
Naphthalene	0	0		0	43	43.0	47.5	
Nitrobenzene	0	0		0	810	810	894	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,753	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	65.1	
Phenanthrene	0	0		0	1	1.0	1.1	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	28.7	
Aldrin	0	0		0	0.1	0.1	0.11	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.005	
4,4-DDT	0	0		0	0.001	0.001	0.001	
4,4-DDE	0	0		0	0.001	0.001	0.001	
4,4-DDD	0	0		0	0.001	0.001	0.001	
Dieldrin	0	0		0	0.056	0.056	0.062	
alpha-Endosulfan	0	0		0	0.056	0.056	0.062	
beta-Endosulfan	0	0		0	0.056	0.056	0.062	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.04	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.004	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.004	
Toxaphene	0	0		0	0.0002	0.0002	0.0002	

☑ ***THH*** CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	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	6.18	
Total Arsenic	0	0		0	10	10.0	11.0	
Total Barium	0	0		0	2,400	2,400	2,649	

Total Boron	0	0		0	3,100	3,100	3,422	
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	4.41	
Dissolved Iron	0	0		0	300	300	331	
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	1,104	
Total Mercury	0	0		0	0.050	0.05	0.055	
Total Nickel	0	0		0	610	610	673	
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	0.26	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.31	
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	110	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	36.4	
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	75.1	
Methyl Bromide	0	0		0	100	100.0	110	
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	62.9	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	110	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,037	
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	33.1	

2,4-Dichlorophenol	0	0		0	10	10.0	11.0	
2,4-Dimethylphenol	0	0		0	100	100.0	110	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.21	
2,4-Dinitrophenol	0	0		0	10	10.0	11.0	
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	4,415	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	77.3	
Anthracene	0	0		0	300	300	331	
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	221	
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	0.11	
2-Chloronaphthalene	0	0		0	800	800	883	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,104	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.73	
1,4-Dichlorobenzene	0	0		0	300	300	331	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	662	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,207	
Di-n-Butyl Phthalate	0	0		0	20	20.0	22.1	
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	22.1	
Fluorene	0	0		0	50	50.0	55.2	
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	4.41	
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	37.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.0	

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	22.1	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.077	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	4.64	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	22.1	
beta-Endosulfan	0	0		0	20	20.0	22.1	
Endosulfan Sulfate	0	0		0	20	20.0	22.1	
Endrin	0	0		0	0.03	0.03	0.033	
Endrin Aldehyde	0	0		0	1	1.0	1.1	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 13.158 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	

Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.11	
Benzene	0	0		0	0.58	0.58	1.02	
Bromoform	0	0		0	7	7.0	12.3	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.7	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.41	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	10.0	
Dichlorobromomethane	0	0		0	0.95	0.95	1.67	
1,2-Dichloroethane	0	0		0	9.9	9.9	17.4	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.58	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.48	
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	35.2	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.35	
Tetrachloroethylene	0	0		0	10	10.0	17.6	
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	0.97	
Trichloroethylene	0	0		0	0.6	0.6	1.06	
Vinyl Chloride	0	0		0	0.02	0.02	0.035	
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	0.053	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.64	

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	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.018	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.053	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.56	
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	0.21	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
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	0.088	
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	0.088	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.088	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.053	
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	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.018	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.18	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
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	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.009	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	5.81	
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	
Aldrin	0	0		0	0.0000008	8.00E-07	0.000001	
alpha-BHC	0	0		0	0.0004	0.0004	0.0007	
beta-BHC	0	0		0	0.008	0.008	0.014	
gamma-BHC	0	0		0	N/A	N/A	N/A	

Chlordane	0	0		0	0.0003	0.0003	0.0005	
4,4-DDT	0	0		0	0.00003	0.00003	0.00005	
4,4-DDE	0	0		0	0.00002	0.00002	0.00004	
4,4-DDD	0	0		0	0.0001	0.0001	0.0002	
Dieldrin	0	0		0	0.000001	0.000001	0.000002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.00001	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.00005	
Toxaphene	0	0		0	0.0007	0.0007	0.001	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Antimony	Report	Report	Report	Report	Report	µg/L	6.18	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	0.41	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	89.5	CFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.26	0.4	4.41	6.89	11.0	µg/L	4.41	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	331	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,656	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	6.11	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	5.51	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	173	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
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	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	11.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	2,649	µg/L	Discharge Conc ≤ 10% WQBEL

Total Beryllium	N/A	N/A	No WQS
Total Boron	1,766	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	136	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	11.5	µg/L	Discharge Conc < TQL
Total Cobalt	21.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Manganese	1,104	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.055	µg/L	Discharge Conc < TQL
Total Nickel	83.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	7.99	µg/L	Discharge Conc < TQL
Total Thallium	0.26	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.11	µg/L	Discharge Conc < TQL
Benzene	1.02	µg/L	Discharge Conc < TQL
Bromoform	12.3	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.7	µg/L	Discharge Conc < TQL
Chlorobenzene	110	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	1.41	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,863	µg/L	Discharge Conc < TQL
Chloroform	10.0	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1.67	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	17.4	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	36.4	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.58	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.48	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	75.1	µg/L	Discharge Conc < TQL
Methyl Bromide	110	µg/L	Discharge Conc < TQL
Methyl Chloride	6,070	µg/L	Discharge Conc < TQL
Methylene Chloride	35.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	0.35	µg/L	Discharge Conc < TQL
Tetrachloroethylene	17.6	µg/L	Discharge Conc < TQL
Toluene	62.9	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	110	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	673	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.97	µg/L	Discharge Conc < TQL
Trichloroethylene	1.06	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.035	µg/L	Discharge Conc < TQL
2-Chlorophenol	33.1	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	11.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	110	µg/L	Discharge Conc < TQL

4,6-Dinitro-o-Cresol	2.21	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	11.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,766	µg/L	Discharge Conc < TQL
4-Nitrophenol	519	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.053	µg/L	Discharge Conc < TQL
Phenol	4,415	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2.64	µg/L	Discharge Conc < TQL
Acenaphthene	18.8	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	331	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.018	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.053	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	221	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.56	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	59.6	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.11	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	883	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.21	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	177	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	7.73	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	166	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.088	µg/L	Discharge Conc < TQL
Diethyl Phthalate	662	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	552	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	22.1	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.088	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.088	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.053	µg/L	Discharge Conc < TQL
Fluoranthene	22.1	µg/L	Discharge Conc < TQL
Fluorene	55.2	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.018	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.1	µg/L	Discharge Conc < TQL
Hexachloroethane	0.18	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL

Isophorone	37.5	µg/L	Discharge Conc < TQL
Naphthalene	47.5	µg/L	Discharge Conc < TQL
Nitrobenzene	11.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.009	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	5.81	µg/L	Discharge Conc < TQL
Phenanthrene	1.1	µg/L	Discharge Conc < TQL
Pyrene	22.1	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.077	µg/L	Discharge Conc < TQL
Aldrin	0.000001	µg/L	Discharge Conc < TQL
alpha-BHC	0.0007	µg/L	Discharge Conc < TQL
beta-BHC	0.014	µg/L	Discharge Conc < TQL
gamma-BHC	0.95	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0005	µg/L	Discharge Conc < TQL
4,4-DDT	0.00005	µg/L	Discharge Conc < TQL
4,4-DDE	0.00004	µg/L	Discharge Conc < TQL
4,4-DDD	0.0002	µg/L	Discharge Conc < TQL
Dieldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.062	µg/L	Discharge Conc ≥ 25% WQBEL
beta-Endosulfan	0.062	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	22.1	µg/L	Discharge Conc < TQL
Endrin	0.033	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.1	µg/L	Discharge Conc < TQL
Heptachlor	0.00001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.00005	µg/L	Discharge Conc < TQL
Toxaphene	0.0002	µg/L	Discharge Conc < TQL

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 16' 33.00"	**Longitude**	-75º 15' 8.00"
Wastewater Description:	Stormwater		

Outfall No.	003	**Design Flow (MGD)**	0
Latitude	40º 16' 31.00"	**Longitude**	-75º 15' 7.00"
Wastewater Description:	Stormwater		

Outfall No.	004	**Design Flow (MGD)**	0
Latitude	40º 16' 28.00"	**Longitude**	-75º 15' 8.00"
Wastewater Description:	Stormwater		

The current stormwater parameters pH, CBOD5, COD, TSS, Oil & Grease, Fecal Coliform, TKN, TP and Dissolved Iron are recommended to continue for the stormwater outfalls 002, 003 and 004. For TSS and COD, benchmark values are also incorporated in Part C condition in the draft permit.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: Annually according to the current permit

The dilution series used for the tests was: 100%, 96%, 91%, 46%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 91%.

WET Summary and Evaluation

Facility Name	Hatfield Twp STP
Permit No.	PA0026247
Design Flow (MGD)	6.98
Q_{7-10} Flow (cfs)	1.12
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	9/4/18	7/23/19	7/21/20220	8/17/21
Pimephales	Growth	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	9/4/18	7/23/19	7/21/20	8/17/21
Pimephales	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	9/3/18	7/23/19	8/25/20	8/17/21
Ceriodaphnia	Survival	Pass	Pass	Pass	Pass

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	Endpoint	9/3/18	7/23/19	8/25/20	8/17/21
Ceriodaphnia	Reproduction	Pass	Pass	Pass	Pass

Reasonable Potential? NO

Permit Recommendations

Test Type	Chronic
TIWC	91 % Effluent
Dilution Series	23, 46, 91, 96, 100 % Effluent
Permit Limit	None
Permit Limit Species	

Based on the review of the WET test reports, test of significant toxicity (TST) was performed using DEP's WET Analysis Spreadsheet. There is no reasonable potential, and no WET limits are recommended. The standard WET condition based on the DEP WET SOP is incorporated in Part C of the draft permit.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
CBOD5 Nov 1 - Apr 30	1073	1609	XXX	18	27 Wkly Avg	36	1/day	24-Hr Composite
CBOD5 May 1 - Oct 31	536	804	XXX	9.1	14 Wkly Avg	18	1/day	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	1746	2620	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids	58213	XXX	XXX	1000	XXX	1500	1/week	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	4/week	Grab
E. Coli (No./100 ml)						Report	1/month	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite Nov 1 - Jun 30	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Nitrate-Nitrite Jul 1 - Oct 31	483	XXX	XXX	8.2	XXX	16.4	1/day	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	322	XXX	XXX	5.5	XXX	11	1/day	24-Hr Composite
Ammonia May 1 - Oct 31	107	XXX	XXX	1.8	XXX	3.6	1/day	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	58	XXX	XXX	1.0	XXX	2	1/day	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	43	XXX	XXX	0.74	XXX	1.48	1/day	24-Hr Composite
Total Antimony	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Cadmium	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report	XXX	1/week	24-Hr Composite
Free Cyanide	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Selenium	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Sulfate	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Chloride	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

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

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Appendix 6 – PA DEP Toxics Management Spreadsheet

Discharge Information

Instructions | Discharge | Stream

Facility: **Hatfield Township Municipal Authority AWWTF** NPDES Permit No.: **PA0026247** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
6.98	153	7.2						14.812

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		690									
	Chloride (PWS)	mg/L		510									
	Bromide	mg/L	<	0.4									
	Sulfate (PWS)	mg/L		58.3									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		25									
	Total Antimony	µg/L		0.71									
	Total Arsenic	µg/L		0.97									
	Total Barium	µg/L		60									
	Total Beryllium	µg/L	<	0.12									
	Total Boron	µg/L		160									
	Total Cadmium	µg/L		0.155									
	Total Chromium (III)	µg/L		1.3									
	Hexavalent Chromium	µg/L	<	1									
	Total Cobalt	µg/L		0.53									
	Total Copper	µg/L		20.2								6	
	Free Cyanide	µg/L		2.3									
	Total Cyanide	µg/L		5.6									
	Dissolved Iron	µg/L		79.9									
	Total Iron	µg/L		327									
	Total Lead	µg/L		1.07									
	Total Manganese	µg/L		67.7									
	Total Mercury	µg/L	<	0.079									
	Total Nickel	µg/L		6.9									
	Total Phenols (Phenolics) (PWS)	µg/L		13									
	Total Selenium	µg/L		0.77									
	Total Silver	µg/L	<	0.17									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		48.8									
	Total Molybdenum	µg/L		12.4									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L											
	Acrylonitrile	µg/L	<	0.3									
	Benzene	µg/L	<	0.05									
	Bromoform	µg/L	<	0.1									
	Carbon Tetrachloride	µg/L	<	0.1									

Group 3	Chlorobenzene	µg/L	<	0.1									
	Chlorodibromomethane	µg/L	<	0.1									
	Chloroethane	µg/L	<	0.1									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L		0.9									
	Dichlorobromomethane	µg/L	<	0.2									
	1,1-Dichloroethane	µg/L	<	0.1									
	1,2-Dichloroethane	µg/L	<	0.3									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.1									
	1,4-Dioxane	µg/L		2.3									
	Ethylbenzene	µg/L	<	0.1									
	Methyl Bromide	µg/L	<	0.1									
	Methyl Chloride	µg/L	<	0.3									
	Methylene Chloride	µg/L		0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.05									
	Tetrachloroethylene	µg/L	<	0.2									
	Toluene	µg/L		0.2									
	1,2-trans-Dichloroethylene	µg/L	<	0.1									
	1,1,1-Trichloroethane	µg/L	<	0.1									
	1,1,2-Trichloroethane	µg/L	<	0.2									
	Trichloroethylene	µg/L	<	0.2									
	Vinyl Chloride	µg/L	<	0.3									
Group 4	2-Chlorophenol	µg/L	<	5.5									
	2,4-Dichlorophenol	µg/L	<	5.5									
	2,4-Dimethylphenol	µg/L	<	5.5									
	4,6-Dinitro-o-Cresol	µg/L	<	2.2									
	2,4-Dinitrophenol	µg/L	<	2.2									
	2-Nitrophenol	µg/L	<	5.5									
	4-Nitrophenol	µg/L	<	5.5									
	p-Chloro-m-Cresol	µg/L	<	5.5									
	Pentachlorophenol	µg/L	<	5.5									
	Phenol	µg/L	<	1.1									
	2,4,6-Trichlorophenol	µg/L	<	5.5									
Group 5	Acenaphthene	µg/L	<	0.27									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.27									
	Benzidine	µg/L	<	6.9									
	Benzo(a)Anthracene	µg/L	<	0.25									
	Benzo(a)Pyrene	µg/L	<	0.27									
	3,4-Benzofluoranthene	µg/L	<	0.3									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.22									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.54									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.54									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.54									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.54									
	Butyl Benzyl Phthalate	µg/L	<	1.1									
	2-Chloronaphthalene	µg/L	<	1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.54									
	Chrysene	µg/L	<	0.22									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.32									
	1,2-Dichlorobenzene	µg/L	<	0.54									
	1,3-Dichlorobenzene	µg/L	<	0.54									
	1,4-Dichlorobenzene	µg/L	<	0.54									
	3,3-Dichlorobenzidine	µg/L	<	0.86									
	Diethyl Phthalate	µg/L	<	0.54									
	Dimethyl Phthalate	µg/L	<	0.58									
	Di-n-Butyl Phthalate	µg/L	<	1.2									
	2,4-Dinitrotoluene	µg/L	<	0.54									
	2,6-Dinitrotoluene	µg/L	<	0.54									

	Di-n-Octyl Phthalate	µg/L	<	0.55									
	1,2-Diphenylhydrazine	µg/L	<	5.5									
	Fluoranthene	µg/L	<	0.23									
	Fluorene	µg/L	<	0.23									
	Hexachlorobenzene	µg/L	<	0.58									
	Hexachlorobutadiene	µg/L	<	0.23									
	Hexachlorocyclopentadiene	µg/L	<	3.2									
	Hexachloroethane	µg/L	<	0.54									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.32									
	Isophorone	µg/L	<	0.54									
	Naphthalene	µg/L	<	0.32									
	Nitrobenzene	µg/L	<	0.54									
	n-Nitrosodimethylamine	µg/L	<	0.54									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.54									
	n-Nitrosodiphenylamine	µg/L	<	0.54									
	Phenanthrene	µg/L	<	0.22									
	Pyrene	µg/L	<	0.25									
	1,2,4-Trichlorobenzene	µg/L	<	0.3									
Group 6	Aldrin	µg/L	<	0.011									
	alpha-BHC	µg/L	<	0.034									
	beta-BHC	µg/L	<	0.0494									
	gamma-BHC	µg/L	<	0.011									
	delta BHC	µg/L	<	0.034									
	Chlordane	µg/L	<	0.57									
	4,4-DDT	µg/L	<	0.023									
	4,4-DDE	µg/L	<	0.045									
	4,4-DDD	µg/L	<	0.022									
	Dieldrin	µg/L	<	0.022									
	alpha-Endosulfan	µg/L		0.0056									
	beta-Endosulfan	µg/L	<	0.022									
	Endosulfan Sulfate	µg/L	<	0.022									
	Endrin	µg/L	<	0.0215									
	Endrin Aldehyde	µg/L	<	0.021									
	Heptachlor	µg/L	<	0.0215									
	Heptachlor Epoxide	µg/L	<	0.0107									
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.4									
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

Hatfield Township Municipal Authority AWWTF, NPDES Permit No. PA0026247, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **West Branch Neshaminy Creel**

No. Reaches to Model: **1**

- ● Statewide Criteria
- ○ Great Lakes Criteria
- ○ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	002868	2.8	264	17			Yes
End of Reach 1	002868	0	245	19.8			Yes

Q ***7-10***

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.8	0.057	1.12									168	7		
End of Reach 1	0	0.057	1.304												

Q ***h***

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.8														
End of Reach 1	0														

Model Results

Hatfield Township Municipal Authority AWWTF, NPDES Permit No. PA0026247, Outfall 001

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

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.8	1.12		1.12	10.798	0.001	0.74	39.973	54.045	0.403	0.424	0.848
0	1.30		1.304								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.8	8.20		8.20	10.798	0.001	0.908	39.973	44.017	0.523	0.327	14.812
0	9.37		9.37								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): 154.41 Analysis pH: 7.18

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	828	
Total Antimony	0	0		0	1,100	1,100	1,214	
Total Arsenic	0	0		0	340	340	375	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	23,178	
Total Boron	0	0		0	8,100	8,100	8,940	
Total Cadmium	0	0		0	3.072	3.32	3.66	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	813.240	2,574	2,840	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	105	
Total Copper	0	0		0	121.420	126	140	Chem Translator of 0.96 and Criteria Modifier of 6 applied
Free Cyanide	0	0		0	22	22.0	24.3	

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	103.291	142	157	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.82	Chem Translator of 0.85 applied
Total Nickel	0	0		0	676.212	678	748	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	6.791	7.99	8.82	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	71.7	
Total Zinc	0	0		0	169.324	173	191	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.31	
Acrylonitrile	0	0		0	650	650	717	
Benzene	0	0		0	640	640	706	
Bromoform	0	0		0	1,800	1,800	1,987	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,090	
Chlorobenzene	0	0		0	1,200	1,200	1,324	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	19,867	
Chloroform	0	0		0	1,900	1,900	2,097	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,556	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,278	
1,2-Dichloropropane	0	0		0	11,000	11,000	12,141	
1,3-Dichloropropylene	0	0		0	310	310	342	
Ethylbenzene	0	0		0	2,900	2,900	3,201	
Methyl Bromide	0	0		0	550	550	607	
Methyl Chloride	0	0		0	28,000	28,000	30,904	
Methylene Chloride	0	0		0	12,000	12,000	13,245	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,104	
Tetrachloroethylene	0	0		0	700	700	773	
Toluene	0	0		0	1,700	1,700	1,876	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,505	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,311	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,753	
Trichloroethylene	0	0		0	2,300	2,300	2,539	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	618	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,876	
2,4-Dimethylphenol	0	0		0	660	660	728	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	88.3	
2,4-Dinitrophenol	0	0		0	660	660	728	
2-Nitrophenol	0	0		0	8,000	8,000	8,830	
4-Nitrophenol	0	0		0	2,300	2,300	2,539	
p-Chloro-m-Cresol	0	0		0	160	160	177	
Pentachlorophenol	0	0		0	10.419	10.4	11.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	508	

Acenaphthene	0	0		0	83	83.0	91.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	331	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.55	
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	33,112	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,967	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	298	
Butyl Benzyl Phthalate	0	0		0	140	140	155	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	905	
1,3-Dichlorobenzene	0	0		0	350	350	386	
1,4-Dichlorobenzene	0	0		0	730	730	806	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,415	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,759	
Di-n-Butyl Phthalate	0	0		0	110	110	121	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,766	
2,6-Dinitrotoluene	0	0		0	990	990	1,093	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.6	
Fluoranthene	0	0		0	200	200	221	
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	11.0	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.52	
Hexachloroethane	0	0		0	60	60.0	66.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	11,037	
Naphthalene	0	0		0	140	140	155	
Nitrobenzene	0	0		0	4,000	4,000	4,415	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	18,763	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	331	
Phenanthrene	0	0		0	5	5.0	5.52	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	143	
Aldrin	0	0		0	3	3.0	3.31	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.05	
Chlordane	0	0		0	2.4	2.4	2.65	
4,4-DDT	0	0		0	1.1	1.1	1.21	
4,4-DDE	0	0		0	1.1	1.1	1.21	

4,4-DDD	0	0		0	1.1	1.1	1.21	
Dieldrin	0	0		0	0.24	0.24	0.26	
alpha-Endosulfan	0	0		0	0.22	0.22	0.24	
beta-Endosulfan	0	0		0	0.22	0.22	0.24	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.095	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.57	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.55	
Toxaphene	0	0		0	0.73	0.73	0.81	

☑ ***CFC*** CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): 154.41 Analysis pH: 7.18

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	243	
Total Arsenic	0	0		0	150	150	166	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,525	
Total Boron	0	0		0	1,600	1,600	1,766	
Total Cadmium	0	0		0	0.333	0.37	0.41	Chem Translator of 0.891 applied
Total Chromium (III)	0	0		0	105.786	123	136	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.5	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.0	
Total Copper	0	0		0	77.889	81.1	89.5	Chem Translator of 0.96 and Criteria Modifier of 6 applied
Free Cyanide	0	0		0	5.2	5.2	5.74	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,656	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.025	5.53	6.11	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.	Chem Translator of 0.85 applied
Total Nickel	0	0		0	75.106	75.3	83.1	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	5.51	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	14.3	
Total Zinc	0	0		0	170.709	173	191	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.31	
Acrylonitrile	0	0		0	130	130	143	
Benzene	0	0		0	130	130	143	
Bromoform	0	0		0	370	370	408	
Carbon Tetrachloride	0	0		0	560	560	618	

Chlorobenzene	0	0		0	240	240	265	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,863	
Chloroform	0	0		0	390	390	430	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,422	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,656	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,428	
1,3-Dichloropropylene	0	0		0	61	61.0	67.3	
Ethylbenzene	0	0		0	580	580	640	
Methyl Bromide	0	0		0	110	110	121	
Methyl Chloride	0	0		0	5,500	5,500	6,070	
Methylene Chloride	0	0		0	2,400	2,400	2,649	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	232	
Tetrachloroethylene	0	0		0	140	140	155	
Toluene	0	0		0	330	330	364	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,545	
1,1,1-Trichloroethane	0	0		0	610	610	673	
1,1,2-Trichloroethane	0	0		0	680	680	751	
Trichloroethylene	0	0		0	450	450	497	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	121	
2,4-Dichlorophenol	0	0		0	340	340	375	
2,4-Dimethylphenol	0	0		0	130	130	143	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	17.7	
2,4-Dinitrophenol	0	0		0	130	130	143	
2-Nitrophenol	0	0		0	1,600	1,600	1,766	
4-Nitrophenol	0	0		0	470	470	519	
p-Chloro-m-Cresol	0	0		0	500	500	552	
Pentachlorophenol	0	0		0	7.994	7.99	8.82	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	100	
Acenaphthene	0	0		0	17	17.0	18.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	65.1	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11	
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	6,622	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,004	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	59.6	
Butyl Benzyl Phthalate	0	0		0	35	35.0	38.6	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	

Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	177	
1,3-Dichlorobenzene	0	0		0	69	69.0	76.2	
1,4-Dichlorobenzene	0	0		0	150	150	166	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	883	
Dimethyl Phthalate	0	0		0	500	500	552	
Di-n-Butyl Phthalate	0	0		0	21	21.0	23.2	
2,4-Dinitrotoluene	0	0		0	320	320	353	
2,6-Dinitrotoluene	0	0		0	200	200	221	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.31	
Fluoranthene	0	0		0	40	40.0	44.1	
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	2.21	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.1	
Hexachloroethane	0	0		0	12	12.0	13.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,318	
Naphthalene	0	0		0	43	43.0	47.5	
Nitrobenzene	0	0		0	810	810	894	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,753	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	65.1	
Phenanthrene	0	0		0	1	1.0	1.1	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	28.7	
Aldrin	0	0		0	0.1	0.1	0.11	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.005	
4,4-DDT	0	0		0	0.001	0.001	0.001	
4,4-DDE	0	0		0	0.001	0.001	0.001	
4,4-DDD	0	0		0	0.001	0.001	0.001	
Dieldrin	0	0		0	0.056	0.056	0.062	
alpha-Endosulfan	0	0		0	0.056	0.056	0.062	
beta-Endosulfan	0	0		0	0.056	0.056	0.062	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.04	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.004	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.004	
Toxaphene	0	0		0	0.0002	0.0002	0.0002	

☑ ***THH*** CCT (min): 0.848 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	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	6.18	
Total Arsenic	0	0		0	10	10.0	11.0	
Total Barium	0	0		0	2,400	2,400	2,649	
Total Boron	0	0		0	3,100	3,100	3,422	
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	4.41	
Dissolved Iron	0	0		0	300	300	331	
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	1,104	
Total Mercury	0	0		0	0.050	0.05	0.055	
Total Nickel	0	0		0	610	610	673	
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	0.26	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.31	
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	110	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	36.4	
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	75.1	
Methyl Bromide	0	0		0	100	100.0	110	
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	62.9	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	110	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,037	
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	33.1	
2,4-Dichlorophenol	0	0		0	10	10.0	11.0	
2,4-Dimethylphenol	0	0		0	100	100.0	110	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.21	
2,4-Dinitrophenol	0	0		0	10	10.0	11.0	
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	4,415	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	77.3	
Anthracene	0	0		0	300	300	331	
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	221	
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	0.11	
2-Chloronaphthalene	0	0		0	800	800	883	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,104	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.73	
1,4-Dichlorobenzene	0	0		0	300	300	331	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	662	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,207	
Di-n-Butyl Phthalate	0	0		0	20	20.0	22.1	
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	22.1	

Fluorene	0	0		0	50	50.0	55.2	
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	4.41	
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	37.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.0	
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	22.1	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.077	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	4.64	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	22.1	
beta-Endosulfan	0	0		0	20	20.0	22.1	
Endosulfan Sulfate	0	0		0	20	20.0	22.1	
Endrin	0	0		0	0.03	0.03	0.033	
Endrin Aldehyde	0	0		0	1	1.0	1.1	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 14.812 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	

Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.11	
Benzene	0	0		0	0.58	0.58	1.02	
Bromoform	0	0		0	7	7.0	12.3	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.7	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.41	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	10.0	
Dichlorobromomethane	0	0		0	0.95	0.95	1.67	
1,2-Dichloroethane	0	0		0	9.9	9.9	17.4	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.58	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.48	
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	35.2	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.35	
Tetrachloroethylene	0	0		0	10	10.0	17.6	
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	0.97	
Trichloroethylene	0	0		0	0.6	0.6	1.06	
Vinyl Chloride	0	0		0	0.02	0.02	0.035	
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	0.053	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.64	
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	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.018	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.053	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.56	
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	0.21	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
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	0.088	
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	0.088	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.088	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.053	
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	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.018	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.18	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
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	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.009	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	5.81	

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	
Aldrin	0	0		0	0.0000008	8.00E-07	0.000001	
alpha-BHC	0	0		0	0.0004	0.0004	0.0007	
beta-BHC	0	0		0	0.008	0.008	0.014	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.0005	
4,4-DDT	0	0		0	0.00003	0.00003	0.00005	
4,4-DDE	0	0		0	0.00002	0.00002	0.00004	
4,4-DDD	0	0		0	0.0001	0.0001	0.0002	
Dieldrin	0	0		0	0.000001	0.000001	0.000002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.00001	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.00005	
Toxaphene	0	0		0	0.0007	0.0007	0.001	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Antimony	Report	Report	Report	Report	Report	µg/L	6.18	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	0.41	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	89.5	CFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.26	0.4	4.41	6.89	11.0	µg/L	4.41	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	331	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,656	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	6.11	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	5.51	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	173	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
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	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	11.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	2,649	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,766	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	136	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	11.5	µg/L	Discharge Conc < TQL
Total Cobalt	21.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Manganese	1,104	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.055	µg/L	Discharge Conc < TQL
Total Nickel	83.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	7.99	µg/L	Discharge Conc < TQL
Total Thallium	0.26	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.11	µg/L	Discharge Conc < TQL
Benzene	1.02	µg/L	Discharge Conc < TQL
Bromoform	12.3	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.7	µg/L	Discharge Conc < TQL
Chlorobenzene	110	µg/L	Discharge Conc < TQL
Chlorodibromomethane	1.41	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,863	µg/L	Discharge Conc < TQL
Chloroform	10.0	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1.67	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	17.4	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	36.4	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.58	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.48	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	75.1	µg/L	Discharge Conc < TQL
Methyl Bromide	110	µg/L	Discharge Conc < TQL
Methyl Chloride	6,070	µg/L	Discharge Conc < TQL
Methylene Chloride	35.2	µg/L	Discharge Conc ≤ 25% WQBEL

1,1,2,2-Tetrachloroethane	0.35	µg/L	Discharge Conc < TQL
Tetrachloroethylene	17.6	µg/L	Discharge Conc < TQL
Toluene	62.9	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	110	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	673	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.97	µg/L	Discharge Conc < TQL
Trichloroethylene	1.06	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.035	µg/L	Discharge Conc < TQL
2-Chlorophenol	33.1	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	11.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	110	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.21	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	11.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,766	µg/L	Discharge Conc < TQL
4-Nitrophenol	519	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.053	µg/L	Discharge Conc < TQL
Phenol	4,415	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2.64	µg/L	Discharge Conc < TQL
Acenaphthene	18.8	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	331	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.018	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.053	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	221	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.56	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	59.6	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.11	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	883	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.21	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	177	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	7.73	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	166	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.088	µg/L	Discharge Conc < TQL
Diethyl Phthalate	662	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	552	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	22.1	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.088	µg/L	Discharge Conc < TQL

2,6-Dinitrotoluene	0.088	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.053	µg/L	Discharge Conc < TQL
Fluoranthene	22.1	µg/L	Discharge Conc < TQL
Fluorene	55.2	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.018	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.1	µg/L	Discharge Conc < TQL
Hexachloroethane	0.18	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL
Isophorone	37.5	µg/L	Discharge Conc < TQL
Naphthalene	47.5	µg/L	Discharge Conc < TQL
Nitrobenzene	11.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.009	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	5.81	µg/L	Discharge Conc < TQL
Phenanthrene	1.1	µg/L	Discharge Conc < TQL
Pyrene	22.1	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.077	µg/L	Discharge Conc < TQL
Aldrin	0.000001	µg/L	Discharge Conc < TQL
alpha-BHC	0.0007	µg/L	Discharge Conc < TQL
beta-BHC	0.014	µg/L	Discharge Conc < TQL
gamma-BHC	0.95	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0005	µg/L	Discharge Conc < TQL
4,4-DDT	0.00005	µg/L	Discharge Conc < TQL
4,4-DDE	0.00004	µg/L	Discharge Conc < TQL
4,4-DDD	0.0002	µg/L	Discharge Conc < TQL
Dieldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.062	µg/L	Discharge Conc ≤ 25% WQBEL
beta-Endosulfan	0.062	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	22.1	µg/L	Discharge Conc < TQL
Endrin	0.033	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.1	µg/L	Discharge Conc < TQL
Heptachlor	0.00001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.00005	µg/L	Discharge Conc < TQL
Toxaphene	0.0002	µg/L	Discharge Conc < TQL

Appendix 7 – 1995 Site-Specific Inhibition Study

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HTMA SITE-SPECIFIC BIOLOGICAL INHIBITION STUDY

Introduction

The U.S. EPA has demonstrated wide inhibition concentration ranges for many pollutants it has evaluated in establishing inhibition guidance for wastewater treatment plant biological processes.

Therefore, in order to determine the appropriate biological inhibition concentrations for use in HTMA's local limits development process this site-specific study was undertaken to evaluate certain pollutants governed by inhibition criteria.

The pollutants evaluated in this Study were: boron, silver, and chromium (total). (NOTE: some preliminary data for copper is also included with this report).

This study implemented methodology referenced in EPA Manual - "Guidance for Preventing Interference at POTWs" (Sept 1987) for evaluating inhibitory effects of industrial wastewaters and Standard Methods for the Examination of Water and Wastewater (18th edition).

Procedure

The HTMA used three methods to determine the applicable inhibition concentrations for each pollutant. In each method serial dilutions were performed consisting of the incremental addition of the subject pollutant (contained in a laboratory stock solution) to the test sample(s) at various increasing concentrations in order to determine the concentration at which any toxic effects could be detected. Initially, the Guidance manual was used to select ranges of suspected inhibition. Each pollutant was evaluated individually and under representative treatment plant (alkalinity / pH) conditions.

First, activated sludge oxygen-uptake respirometry (OUR) testing was performed on aeration reactor biomass to evaluate an acute

toxicity inhibition condition. The subject pollutant was introduced into activated sludge samples at various known concentrations. Respiration rates were then observed and an inhibition concentration value was then determined for "acute" criteria.

Second, 5-day BOD testing was performed using primary effluent as both bacterial seed and nutrient source. Bacteria present in the primary effluent via recycle flows would be present and representative of those present in the activated sludge. Although this bacteria source is likely to be less concentrated in population than in the aeration reactor, we nevertheless believe that this method provides the first indication of a chronic inhibition condition which could affect the BOD reducing bacteria in the activated sludge process.

BOD samples containing the materials discussed above were "spiked" with concentrations of the subject pollutant resulting in varying known concentrations of the pollutant in each test sample. Impairment of BOD removal was then examined in order to determine the concentration inhibition was observed. This procedure was used to establish a "chronic" inhibition value.

Third, a performance test was performed in order to evaluate any inhibition of the nitrification process. Nitrifying bacteria are generally considered to be the wastewater biological process most sensitive to the presence of toxicants. Activated sludge (containing RAS/biomass and primary effluent/food) prior to the aeration process was "spiked" with varying concentrations of the subject pollutant resulting in samples of known concentration in the test samples.

The samples were then aerated and the reduction in ammonia-nitrogen concentration was then examined in order to evaluate conversion of ammonia to nitrate/nitrite thus establishing concentrations which may affect the nitrifying bacteria.

Methodology

1. Acute Toxicity Test (OUR) - As per Standard Methods, two YSI D.O. meters with stirring probes with two 300 ml BOD bottles were used. A control sample with a "spiked" sample was tested simultaneously against time. Control samples were spiked with a volume of BOD standard solution (glucose/glutamic acid with BOD equivalent of 200 mg/l) and DI water. The study sample was spiked with the same volume of the BOD standard solution but in place of the DI water an equal volume of the stock pollutant standard solution was added. The remaining volume of the bottle was then filled with activated sludge. After initial D.O.s stabilized the timer was started. When D.O.s depleted

to the 1.0 to 2.5 range the final D.O. was recorded against time to establish the uptake against the control sample.

2. Chronic Toxicity Test (5-day BOD) - As per Standard Methods, 300ml BOD bottles were filled with saturated dilution water, seed solution (primary effluent), and nutrient source (primary effluent and DI water in the control samples and primary effluent and pollutant stock solution in the test samples. Samples were inhibited for nitrification. Samples were then incubated and D.O. measured after 5 days. Test samples exhibiting an oxygen demand 10% less than the control would be considered inhibitory. Primary effluent was used as the seed source for this test as it was the most suitably viable bacterial media for conducting this site-specific BOD test.

3. Nitrification Toxicity Test - Viable activated sludge was settled for 30 minutes at which time the clear supernatent was removed. The volume was then replaced with primary effluent as the ammonia-nitrogen source. The solution (MLSS) was then mixed and resettled to establish initial concentration of ammonia. The MLSS was then added to six 1 liter beakers. One sample was used as the control. The remaining five were then spiked with varying concentrations of the study pollutant. Test beakers were then continuously aerated and ammonia-nitrification was then evaluated by measuring the reduction in the ammonia concentration using the Hach Nessler or Lachat automated Quik-Chem tests. This was performed after approximately 24 hours. Any test sample results with ammonia concentrations higher than the control sample would be considered toxic to the nitrifying bacteria.

Test Results - (Example Test-Run Data Tables)

1. Chromium - OUR (mg O2/l/hr)

		Concentration Cr mg/l (from K2Cr2O7)			
Run	Control	1.32	1.48	1.65	2.5
1	15.5	15.5			
2	12.6		12.5 x		
3	12.6			12.2 x	
4	14.1				13.7 x

x - indicates possible toxicity

Oxygen Uptake Rate values in mg O2/l/hr appear on the table. An uptake value lower than the corresponding control sample indicates possible toxicity. Lowest possible inhibition concentration is 1.48 mg/l chromium.

2. Silver - BOD (5-day) mg/l

	Concentration Ag mg/l (from AgNO3)				
Control	0.0165	0.033	0.0495	0.066	0.099
98 mg/l	98 mg/l				
96		96			
93			89		
88				81 x	
85					73 x

x - indicates possible toxicity

BOD mg/l values appear on the table, with the control samples indicating oxygen demand after incubation. The corresponding test samples indicate the demand from the resulting pollutant exposure.

BOD values 10% less than that of the control could indicate possible toxic condition. Ag concentration of 0.066 mg/l in this example demonstrated 9% lower demand than the control.

3. Boron - Nitrification

	SAMPLES					
	Control	#1	#2	#3	#4	#5
Alkalinity-Start	190	190	190	190	190	190
NH3-N (Start)	29	29	29	29	29	29
pH	7.6	7.6	7.6	7.6	7.6	7.6
Boron added mg/l	0	10	20	30	40	50
Alkalinity-End	10	10	10	10	10	10
NH3-N (End)	0.8	0.8	0.8	0.8	0.8	0.8

Complete reduction of Ammonia Nitrogen (conversion to Nitrate-Nitrite) indicates that boron (from H3BO3) is not inhibitory to HTMA nitrifying bacteria up to 50 mg/l.

Summary of Test Results

INHIBITION CONCENTRATIONS mg/l

METAL	CHRONIC (BOD)		ACUTE OUR		NITRIFICATION (NH3-N)	
	EPA	HTMA	EPA	HTMA	EPA	HTMA
Boron	.05-10	66.0	.05-10	49.5	N/A	> 50.0
Chromium	0.1-20	0.165	0.1-20	1.48	.25-1.0	1.0
Silver	.03-5.0	0.066	.03-5.0	3.3	.25-1.0	1.0
Copper*	0.1-1.0	0.83	0.1-1.0	3.4	05-0.5	> 75.0

NOTE: Concentrations listed are additional to any concentrations which may be present in the background (influent to the biological process). The lowest site-specific value determined for the constituent (most stringent) is intended to be utilized as the site-specific governing criteria for local limits development.

Additionally, EPA guidance concentrations are metals on soluble basis. HTMA's results are based on total recoverable.

Data established from a minimum of three runs per test per pollutant.

* - Copper results are preliminary

Summary

While this study does not address the effects of toxics synergism, flow, and loading, we nevertheless feel that the data developed by this study provides an indication of the concentrations of certain pollutants which can be present in the HTMA biological system without detrimental effects under normal operating conditions.

This information is useful to the HTMA in comparing its results with guidance criteria established by EPA in order to select more accurate inhibition criteria for the local limits development process from the ranges available from literature (attached).

OCT 95

TABLE 2-1
METAL, CYANIDE AND INORGANIC COMPOUND CONCENTRATIONS INHIBITING BIOLOGICAL PROCESSES
(in mg/l)

Pollutant	Biological Process			
	Activated Sludge	Nitrification	Aerobic Fixed Film	Anaerobic Digestion
Ammonia	≥480	N/A	N/A	1,500-3,000
Arsenic	0.04 - 0.4	N/A	290	0.1 - 1
Boron	0.05 - 10	N/A	N/A	2
Cadmium	0.5 - 10	5-9	5-20	0.02 - 1
Calcium	2,500	N/A	N/A	N/A
Chloride	N/A	180	N/A	20,000
Chromium (Tot.)	0.1 - 20	0.25 - 1	50	1.5 - 50
Copper	0.1 - 1	0.05 - 0.5	25 - 50	0.5 - 100
Cyanide	0.05 - 20	0.3 - 20	N/A	0.10 - 4
Iodine	10	N/A	N/A	N/A
Iron	5 - 500	N/A	N/A	5
Lead	0.1 - 10	0.5 - 1.7	N/A	50 - 250
Manganese	10	N/A	N/A	N/A
Magnesium	N/A	50	N/A	1,000
Mercury	0.1 - 5.0	2 - 12.5	N/A	1,400
Nickel	1 - 5	0.25 - 5	N/A	2 - 200
Silver	0.03 - 5	0.25	N/A	N/A
Sodium	N/A	N/A	N/A	3,500
Sulfide	>50	N/A	N/A	50 - 100
Tin	N/A	N/A	N/A	9
Vanadium	20	N/A	N/A	N/A
Zinc	0.30 - 20	0.01 - 1	N/A	1 - 10

N/A - Not Available

Sources: U.S. EPA (1981a), Russell, et al. (1983), Geating (1981) and U.S. EPA (1986a).

CYANIDE – NITRIFICATION INHIBITION EXAMINATION, Oct. 1995

Stock Cn solution – 300 mg/l, (750.8 mg KCN per liter).

10-17-95

		Dilutions, mg/l				
Start-10 AM	**Control**	**1**	**2**	**3**	**4**	**5**
Alkalinity	**130**	**130**	**130**	**130**	**130**	**130**
NH3-N	**11.0**	**11.0**	**11.0**	**11.0**	**11.0**	**11.0**
CN, ml	**0**	**1**	**2**	**4**	**8**	**16**
CN mg/l	**0**	**0.3**	**0.6**	**1.2**	**2.4**	**4.8**
3:00 PM						
NH3-N	**0.8**	**0.8**	**//////// 1.5**	**6.0**	**6.6**	**7.5**
END-8 AM 10/18						
NH3-N	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**
Alkalinity	**56**	**56**	**56**	**56**	**56**	**64**


GHD