National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio
for Danbury Township Wastewater Treatment Plant (WWTP)

Public Notice No.: 193703
Public Notice Date: December 27, 2023
Comment Period Ends: January 26, 2024

Ohio EPA Permit No.: 2PG00053*JD
Application No.: OH0053660

Name and Address of Applicant:
Ottawa County Sanitary Engineering Dept.
315 Madison Street
Room 105
Port Clinton OH 43452

Name and Address of Facility Where Discharge Occurs:
Danbury Township WWTP
5783 Von Glahn Road
Lakeside, OH 43440
Ottawa County

Receiving Water: Sandusky Bay

Subsequent Stream Network: Lake Erie

INTRODUCTION

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations (CFR), Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency (Ohio EPA), as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act (CWA) and Ohio Water Pollution Control Law (Ohio Revised Code [ORC] 6111). Decisions to award variances to Water Quality Standards (WQS) or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Antidegradation provisions in Ohio Administrative Code (OAC) Chapter 3745-1 describe the conditions under which water quality may be lowered in surface waters. No antidegradation review was necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the CWA. Many of these have already been established by the United States Environmental Protection Agency (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations (WLAs) are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the WLA for a pollutant to a measure of the effluent quality. The measure of effluent quality is called Projected Effluent Quality (PEQ). This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example, if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

SUMMARY OF PERMIT CONDITIONS

The effluent limits and/or monitoring requirements proposed for all parameters are the same as in the current permit, except those listed below.

Lower effluent limits are proposed for total suspended solids because review of the effluent data shows that the discharge can meet secondary treatment standards for the parameter, and it does not meet the criteria to allow for higher limits for a waste stabilization pond under 40 CFR 133.

The mercury variance is being renewed with a lower variance based limit being proposed.

Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. This satisfies the minimum testing requirements of Ohio Administrative Code (OAC) 3754-33-07(B)(11) and will adequately characterize toxicity in the plant's effluent.

In Part II of the permit, special conditions are included that address sanitary sewer overflow (SSO) reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity (WET) testing; storm water compliance; mercury variance; supplemental effluent data; and outfall signage.

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PROCEDURES FOR PARTICIPATION IN THE FORMULATION OF FINAL DETERMINATIONS

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be emailed to HClerk@epa.ohio.gov or mailed to:

Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted by email to epa.dswcomments@epa.ohio.gov (preferred method) or delivered in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049

The Ohio EPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

For additional information about this fact sheet or the draft permit, contact Justin Williams, 419-373-3022, Justin.Williams@epa.ohio.gov.

INFORMATION REGARDING CERTAIN WATER QUALITY BASED EFFLUENT LIMITS

This draft permit may contain proposed water-quality-based effluent limits (WQBELs) for parameters that **are not** priority pollutants. (See the following link for a list of the priority pollutants: https://epa.ohio.gov/static/Portals/35/pretreatment/Pretreatment_Program_Priority_Pollutant_Detection_Limits.pdf.) In accordance with ORC 6111.03(J)(3), the Director established these WQBELs after considering, to the extent consistent with the Federal Water Pollution Control Act, evidence relating to the technical feasibility and economic reasonableness of removing the polluting properties from those wastes and to evidence relating to conditions calculated to result from that action and their relation to benefits to the people of the state and to

accomplishment of the purposes of this chapter. This determination was made based on data and information available at the time the permit was drafted, which included the contents of the timely submitted NPDES permit renewal application, along with any and all pertinent information available to the Director.

This public notice allows the permittee to provide to the Director for consideration during this public comment period additional site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness for achieving compliance with the proposed final effluent limitations for these parameters. The permittee shall email to epa.dswcomments@epa.ohio.gov (preferred method) or deliver or mail this information to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049

Should the applicant need additional time to review, obtain or develop site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness of achieving compliance with these limitations, a written request for any additional time shall be sent to the above address no later than 30 days after the Public Notice Date on Page 1.

Should the applicant determine that compliance with the proposed WQBELs for parameters other than the priority pollutants is technically and/or economically unattainable, the permittee may submit an application for a variance to the applicable WQS used to develop the proposed effluent limitation in accordance with the terms and conditions set forth in OAC 3745-33-07(D). The permittee shall submit this application to the above address no later than 30 days after the Public Notice Date.

Alternately, the applicant may propose the development of site-specific WQS pursuant to OAC 3745-1-39. The permittee shall submit written notification regarding their intent to develop site specific WQS for parameters that are not priority pollutants to the above address no later than 30 days after the Public Notice Date.

LOCATION OF DISCHARGE/RECEIVING WATER USE CLASSIFICATION

Danbury Township WWTP discharges to Sandusky Bay in Lake Erie. Figure 1 shows the approximate location of the facility.

This segment of the Sandusky Bay is described by Ohio EPA River Code: 05-500, Hydrologic Unit Code: 04120200 County: Ottawa, Ecoregion: Huron/Erie Lake Plains. The Sandusky Bay is considered part of Lake Erie and is designated for the following uses under Ohio's WQS (OAC 3745-1-31): Exceptional Warmwater Habitat, Superior High Quality Water, Agricultural Water Supply, Industrial Water Supply, Bathing Waters, and Public Water Supply.

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric WQS are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal CWA. Ohio WQS also include aquatic life use designations for waterbodies which cannot meet the CWA goals because of human-caused conditions that cannot be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact Recreation) and wading only (Secondary Contact which are generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for agricultural water supply and industrial water supply.

FACILITY DESCRIPTION

Danbury Township WWTP was constructed in 1983 and last upgraded in 2005. The average design flow is 3.8 million gallons per day (MGD). Danbury Township WWTP serves Danbury Township which includes Lakeside and the Village of Marblehead. Danbury Township WWTP has the following treatment processes (Figure 2):

- Influent Pump Screening
- Bar Screen
- Aerated Grit Removal
- Aerated Lagoons
- 2.0 MGD Actiflow (Alum Addition; Polymer Addition; Clarification with Tube Settlers)
- Chlorination
- Dechlorination

Danbury Township has 100% separate sewers in the collection system.

The Danbury Township WWTP does not have an approved pretreatment program and does not have any industrial users discharging into the treatment system.

Danbury Township WWTP utilizes the following sewage sludge treatment processes:

- Anaerobic Digestion
- Sludge Storage Lagoons

Treated sludge is land applied. Sludge has not been removed from the facility in the last 5 years.

DESCRIPTION OF EXISTING DISCHARGE

In review of the previous five years of compliance data, Danbury Township WWTP had one concentration effluent violation for mercury in 2021. This violation was not caused by a known process error or upset condition.

Table 1 presents the average annual effluent flow rate for Danbury Township WWTP for the previous five years. Danbury Township WWTP has an estimated infiltration/inflow (I/I) rate of 0.04 MGD that does not cause known problems in the collection system.

Table 2 presents the number of SSOs reported by Danbury Township WWTP for the previous five years. SSOs are reported at station 300.

Table 3 presents data characterizing the annual total phosphorus load from Danbury Township WWTP during the previous five years.

Table 4 presents chemical specific data compiled from supplemental effluent testing data submitted as part of the NPDES renewal application and data collected by Ohio EPA.

Table 5 presents a summary of unaltered Discharge Monitoring Report (DMR). Data are presented for the period January 2018 to June 2023, and current permit limits are provided for comparison.

Table 6 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 7 summarizes the results of acute and chronic Whole Effluent Toxicity (WET) tests of the final effluent, using the water flea (*Ceriodaphnia dubia*) and fathead minnow (*Pimephales promelas*) as test organisms.

ASSESSMENT OF IMPACT ON RECEIVING WATERS

Pursuant to Section 303(d) of the Clean Water Act, each state is required to develop and submit a list to US EPA of its impaired and threatened waters (e.g., stream/river segments, lakes). For each water on the list, the state identifies the pollutant(s) causing the impairment, when known.

The Danbury Township WWTP final effluent discharges to the Lake Erie Sandusky Basin Shoreline assessment unit. The *Ohio 2022 Integrated Water Quality and Assessment Report* lists the Sandusky Basin Shoreline as impaired for aquatic life, recreation (*E. coli*), drinking water (algae), and fish consumption (PCBs in fish tissue) uses.

For additional discussion regarding the nutrient-related impairments within these assessment units, please see Attachment 2.

The full Integrated Report is available through the Ohio EPA, Division of Surface Water website at: https://epa.ohio.gov/static/Portals/35/tmdl/2022intreport/Full-2022-IR.pdf

DEVELOPMENT OF WATER-QUALITY-BASED EFFLUENT LIMITS

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

Parameter Selection

Effluent data for the Danbury Township WWTP were used to determine what parameters should undergo WLA. The parameters discharged are identified by the data available to Ohio EPA, DMR data submitted by the permittee, compliance sampling data collected by Ohio EPA, and any other data submitted by the permittee, such as priority pollutant scans required by the NPDES application or by pretreatment, or other special conditions in the NPDES permit. The sources of effluent data used in this evaluation are as follows:

Self-monitoring data (DMR)	January 2018 through June 2023
NPDES renewal application data	2022 & 2023
Ohio EPA compliance sampling data	2022

Statistical Outliers and Other Non-representative Data

The data were examined, and no values were removed from the evaluation. This data is evaluated statistically, and PEQ values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95th percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95th percentile of all data points (see Table 6). See Modeling Guidance #1 for more information on PEQ calculations, available through the Ohio EPA, Division of Surface Water website at: https://www.epa.ohio.gov/portals/35/guidance/model1.pdf

The PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no WLA is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a WLA is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required (see Table 8).

Wasteload Allocation

For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio WQS (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not break down in the receiving water. By rule, mixing zones are not authorized for pollutants, such as mercury, which have been designated as bioaccumulative chemicals of concern (BCCs). For BCCs, the WLA is set equal to the respective WQS value.

The methodology employed generally depends on whether the facility is considered a direct discharger to a (1) free-flowing receiving water/stream or (2) non-flowing receiving water/Lake.

For free flowing streams, WLAs for both average and maximum criteria are performed using the following general equation:

Discharger WLA = (Downstream Flow x WQS) - (Upstream Flow x Background Concentration).

Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations.

WLAs for direct discharges to lakes are performed using the following equation for average criteria:

Discharger WLA = (11 x WQS) – (10 x Background Concentration).

Allocations are developed using a percentage of stream design flow as specified in Table 9, and allocations cannot exceed the Inside Mixing Zone Maximum (IMZM) criteria.

The data used in the WLA are listed in Table 8 and Table 9. The WLA results to maintain all applicable criteria are presented in Table 10.

Whole Effluent Toxicity Wasteload Allocation

Whole effluent toxicity (WET) is the total toxic effect of an effluent on aquatic life measured directly with a toxicity test. Acute WET measures short term effects of the effluent while chronic WET measures longer term and potentially more subtle effects of the effluent.

WQS for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free froms" are translated into toxicity units (i.e., TUa and TUc) by the associated WQS Implementation Rule (OAC 3745-2-09). The translation results in a numeric value of 0.3 TUa and 1.0 TUc. WLAs can then be calculated using these values as if they were water quality criteria.

There are two separate reasonable potential procedures in Ohio - one for the Lake Erie watershed and one for the Ohio River watershed. Dischargers in the Ohio River watershed are assessed using OAC 3745-33-07(B). Dischargers in the Lake Erie watershed are assessed in accordance with the "Great Lakes Water Quality Initiative Implementation Procedures" contained in 40 CFR Part 132, Appendix F, Procedure 6.

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TUc) and 7Q10 flow for the average and the acute toxicity unit (TUa) and 1Q10 flow for the maximum. WET WLAs are based on meeting the values of 0.3 TUa and 1.0 TUc downstream of the discharge and include any available dilution. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. WLAs for acute toxicity are capped at 1.0 TUa unless the discharger demonstrates that an Area-of-Initial-Mixing (AIM) exists under OAC 3745-1-06, or that one of the factors in OAC 3745-33-07(B)(5)-(9) allows a higher TUa limit to be granted. For the purposes of establishing WET limitations, the values of 1.0 TUa and 1.0 TUc are the most restrictive limitations that can be applied in NPDES permits [OAC 3745-33-07(B)(10)].

For Danbury Township WWTP, the WLA values for outfall 001 are 1.0 TUa and 11.0 TUc.

The chronic toxicity unit (TUc) is defined as 100 divided by the estimate of the effluent concentration which causes a 25% reduction in growth or reproduction of test organisms (IC25):

$$TUc = 100/IC25$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations except when the following equation is more restrictive (Ceriodaphnia dubia only):

TUc = 100/geometric mean of No Observed Effect Concentration and Lowest Observed Effect Concentration

The acute toxicity unit (TUa) is defined as 100 divided by the concentration in water having 50% chance of causing death to aquatic life (LC50) for the most sensitive test species:

$$TUa = 100/LC50$$

This equation applies outside the mixing zone for all designated waters. Based on the above, a value of 1.0 TUa is the lowest value that can be calculated using the equation. TUa values between 0.2 and 1.0 are based on an interpolation of toxic effects where an LC50 cannot be identified.

REASONABLE POTENTIAL/EFFLUENT LIMITS/MANAGEMENT DECISIONS

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 10. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 6, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [($PEQ_{avg} \div PEL_{avg}$) X 100, or ($PEQ_{max} \div PEL_{max}$) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 11.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 12 presents the final effluent limits and monitoring requirements proposed for Danbury Township WWTP outfall 001 and the basis for their recommendation. Unless otherwise indicated, the monitoring frequencies proposed in the permit are continued from the existing permit.

5-Day Carbonaceous Biochemical Oxygen Demand

The limits proposed for 5-day carbonaceous biochemical oxygen demand is based on plant design criteria. The CBOD5 limits are more stringent than the Secondary Treatment Standards in 40 CFR Part 133.

Total Residual Chlorine

The existing daily effluent limit for total residual chlorine is proposed to continue as a plant design value which is based on protection of the inside mixing zone maximum (IMZM) and outside mixing zone maximum (OMZM) PELs. The most stringent daily maximum criterion is applied and is to be met anytime chlorine is being utilized for effluent disinfection. The limit has been evaluated using the WLA procedures and determined to be protective of WQS for chlorine toxicity.

The effluent limit for chlorine is less than the quantification level of 0.050 mg/L. However, a pollutant minimization program is not required because the dosing rate of dechlorination chemicals ensures that the water quality-based effluent limit is being met.

Total Suspended Solids

The limits recommended for total suspended solids are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned treatment works. The facility does not meet the criteria to allow for higher limits for a waste stabilization pond under 40 CFR 133. The criteria to allow for higher limits is to indicate that secondary standard values cannot be achieved 90 percent of the time. A review of the discharge monitoring data shows that the facility can meet the secondary TSS limits greater than 90 percent of the time.

Dissolved Oxygen, Oil and Grease, pH, and *Escherichia Coli*
Limits proposed for oil and grease, pH, and *Escherichia coli* are based on WQS (OAC 3745-1-35 and 37). Bathing waters recreation *E. coli* standards apply to the Sandusky Bay.

Although the current WLA would allow slightly higher limits for *E. coli*, anti-backsliding provisions in the OAC prevent the imposition of less stringent limits than those in the existing permit unless specific conditions have been satisfied. In the case of the Danbury Township WWTP, none of those conditions have been satisfied, so the existing limits are proposed to continue. The anti-backsliding provisions of OAC 3745-33-05(F) require that an anti-degradation review must be completed before an existing permit limit can be made less stringent. The rule requires other conditions to be satisfied as well.

Cadmium, Chromium, Copper, Lead, Nickel, Free Cyanide, Total Filterable Residue, and Zinc
The Ohio EPA risk assessment (Table 11) places cadmium, chromium, copper, lead, nickel, free cyanide, total filterable residue, and zinc in groups 2 and 3. This placement, as well as the data in Table 5 and Table 6, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring is proposed to document that these pollutants continue to remain at low levels.

Antimony, Arsenic, Bromodichloromethane, Bromoform, Carbon Disulfide, Chloroform, Dibromochloromethane, Methyl Bromide, Methyl Chloride, Methyl Ethyl Ketone, Toluene, and Selenium
The Ohio EPA risk assessment (Table 11) places antimony, arsenic, bromodichloromethane, bromoform, carbon disulfide, chloroform, dibromochloromethane, methyl bromide, methyl chloride, methyl ethyl ketone, toluene, and selenium in groups 2 and 3. This placement, as well as the data in Table 5 and Table 6, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. No new monitoring is proposed. Data collected as part of the next renewal application will provide information for these pollutants for future reasonable potential analysis.

Flow Rate and Temperature
Monitoring for these parameters is proposed to continue in order to evaluate the performance of the treatment plant.

Total Kjeldahl Nitrogen and Nitrite + Nitrate
Based on best technical judgment, monitoring is proposed for total kjeldahl nitrogen and nitrite + nitrate. The purpose of the monitoring is to maintain a nutrient data set for use in the future total maximum daily loads (TMDL) study.

Total Phosphorus
Phosphorus is limited based on provisions of OAC 3745-33-06(C).

Dissolved Orthophosphate
Monitoring for dissolved orthophosphate (as P) by ORC 6111.03. This monitoring will further develop nutrient datasets that are used in stream and watershed assessments and studies. Because Ohio EPA monitoring, as well as other in-stream monitoring, for dissolved orthophosphate is taken by grab sample, grab samples are proposed for orthophosphate to maintain consistent data. The grab samples must be filtered within 15 minutes of collection using a 0.45-micron filter. The filtered sample must be analyzed within 48 hours.

Mercury
The Ohio EPA risk assessment (Table 11) places mercury in group 5. This placement, as well as the data in Table 5 and Table 6, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality.

The Danbury Township WWTP permit was renewed in November 2018 to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from January 2018 through June 2023, and the new application information, the Danbury Township WWTP has determined that the facility will not meet the 30-day average permit limit of 1.3 ng/l. However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/l. The permittee's application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the Danbury Township WWTP is eligible for renewal of the mercury variance under OAC 3745-1-38(H).

Danbury Township WWTP submitted information supporting the renewal of the variance. The calculation of the PEQ_{avg} value from 2018 to 2023 compared to the PEQ_{avg} calculated at the time the original variance was issued shows a reduction from 3.6 ng/L to 1.7 ng/L. In determining an appropriate variance-based mercury limit, Ohio EPA calculates a value that the permittee can achieve approximately 95 % of the time. The PEQ_{avg} and PEQ_{max}. were both evaluated to determine if they fit the dataset. In this case, the PEQ_{max} appears to be the "best fit" and, therefore, the most appropriate variance-based effluent limit with a value of 2.7 ng/L. The Pollutant Minimization Program (PMP) schedule developed from the original variance continues to be implemented, and further reductions in mercury may be possible

Ohio EPA has reviewed the mercury variance application and has determined that it meets the requirements of the OAC. A condition in Part II of the NPDES permit lists the provisions of the mercury variance, and includes the following requirements:

- A variance-based monthly average effluent limit of 2.7 ng/L, which was developed from sampling data submitted by the permittee;
- A requirement that the permittee make reasonable progress to meet the WQBEL for mercury by implementing the plan of study, which has been developed as part of the PMP;
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration is less than or equal to 12 ng/l as specified in the plan of study;
- A summary of the elements of the plan of study;
- A requirement to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied, and whether compliance with the monthly average WQBEL for mercury has been achieved.

Whole Effluent Toxicity Reasonable Potential
Evaluating the acute and chronic toxicity results in Table 7, and Attachment 1, under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, gives a chronic PEQ of 2.6 TU_c for *Ceriodaphnia dubia* and 2.3 TU_c for *Pimephales promelas*. Reasonable potential is not demonstrated for chronic toxicity, since this value does not exceed the WLA value of 11.0 TU_c. All acute values were less than 1.0 TU_a, therefore a PEQ was not calculated. Based on a weight of evidence evaluation, reasonable potential is not demonstrated for acute toxicity. While this indicates that the plant's effluent does not currently pose a toxicity problem, annual chronic toxicity testing with the determination of acute endpoints is proposed to continue.

Additional Monitoring Requirements
Additional monitoring requirements proposed at the final effluent, influent and upstream/downstream stations are included for all facilities in Ohio and vary according to the type and size of the discharge. In addition to permit compliance, this data is used to assist in the evaluation of effluent quality and treatment plant performance and for designing plant improvements and conducting future stream studies.

Sludge
Limits and monitoring requirements proposed for the disposal of sewage sludge by the following management practices are based on OAC 3745-40: land application, removal to sanitary landfill or transfer to another facility with an NPDES permit.

OTHER REQUIREMENTS

Sanitary Sewer Overflow Reporting
Provisions for reporting SSOs are again proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports; telephone notification of Ohio EPA and the local health department, and 5-day follow up written reports for certain high risk SSOs; and preparation of an annual report that is submitted to Ohio EPA and made available to the public. Many of these provisions were already required under the "Noncompliance Notification", "Records Retention", and "Facility Operation and Quality Control" general conditions in Part III of Ohio NPDES permits.

Operator Certification and Operator of Record
Operator certification requirements have been included in Part II of the permit in accordance with rules effective on August 15, 2018 (OAC 3745-7). These rules require the Danbury Township WWTP to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001. These rules also require the permittee to designate one or more operator of record to oversee the technical operation of the treatment works and sewerage system.

Outfall Signage
Part II of the permit includes requirements for the permittee to place and maintain a sign at each outfall to the Sandusky Bay providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

NPDES Renewal Application Supplemental Effluent Data
The permittee must submit supplemental effluent data as part of the next NPDES permit renewal application. A minimum of three samples must be tested for 101 parameters, each collected within four and one-half years of the application submission date. The complete list of parameters to be analyzed is contained in Table 2 of "Appendix J to Part 122 - NPDES Permit Testing Requirements for Publicly Owned Treatment Works (§122.21(j))." Existing effluent data may be used, if available, in lieu of sampling performed solely for the purpose of the renewal application. See Part II of the permit for details.

Part III
Part III of the permit details standard conditions that include monitoring, reporting requirements, compliance responsibilities, and general requirements.

Storm Water Compliance
To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed on 1/12/2023. The certification number is 2GRN00601*BG. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than 1/11/2028, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

Figure 1. Location of Danbury Township WWTP

Figure 2. Diagram of Wastewater Treatment System

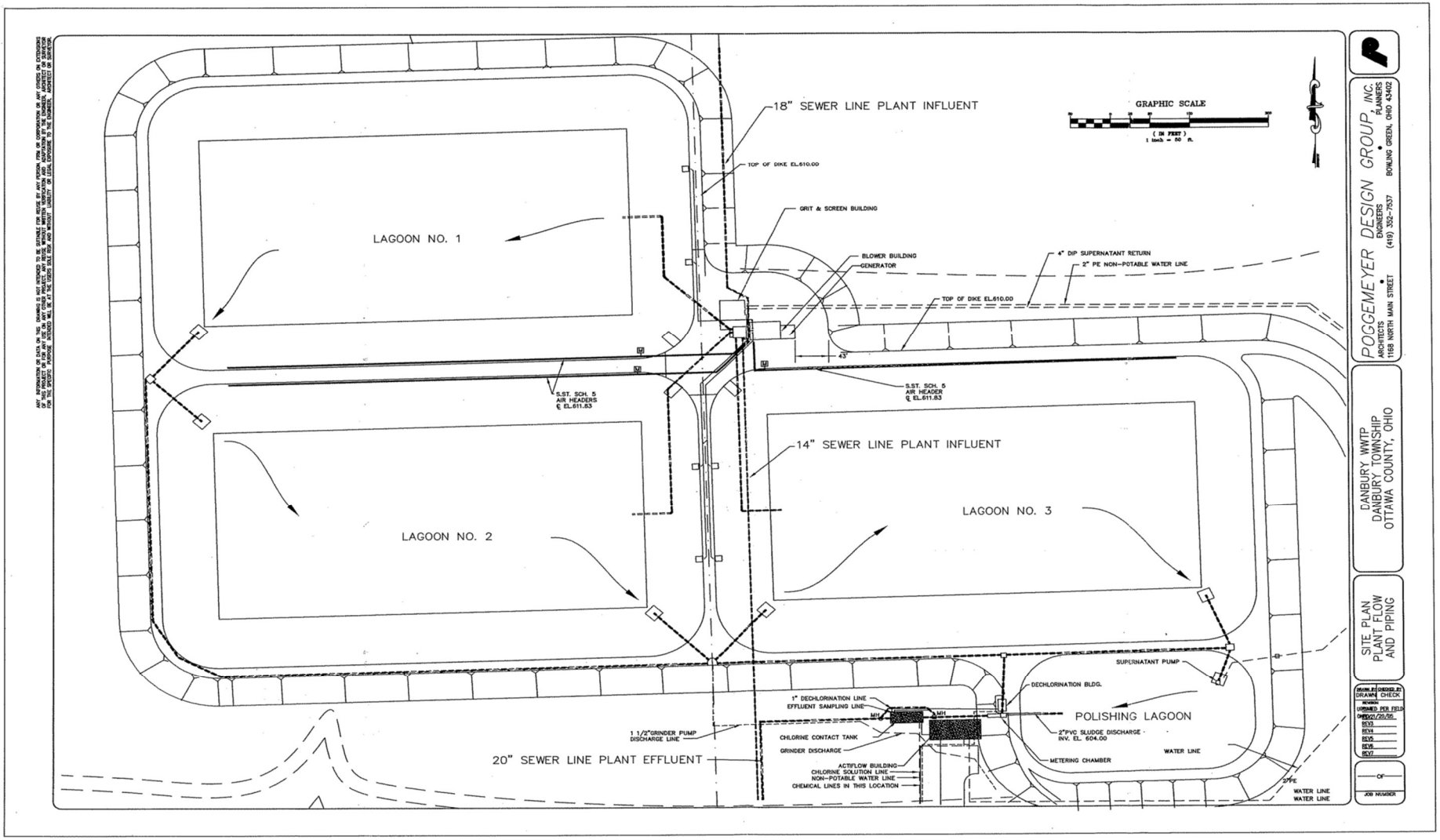

Table 1. Average Annual Effluent Flow Rates

Flow Rate (Million Gallons per Day)					
Year	# obs	Average	Median	95th Percentile	Maximum
2018	365	1.29	1.07	2.57	4.71
2019	365	1.42	1.30	2.51	2.82
2020	366	1.24	1.18	2.09	2.80
2021	365	1.03	0.90	1.93	2.41
2022	365	0.88	0.86	1.85	2.66
2023[a]	151	1.01	1.10	2.20	2.43

[a] data set ends 5/31/23

Table 2. Sanitary Sewer Overflows Discharges

Year	Occurrences
2018	4
2019	0
2020	0
2021	1
2022	0
2023 [a]	0

[a] data set ends 5/31/23

Table 3. Calculated Annual Total Phosphorus Loadings

Year	n	Median Phosphorus (mg/L)	Median Flow (MGD)	Median Loading (kg/day)
2018	47	0.42	1.07	1.7
2019	47	0.39	1.30	1.9
2020	46	0.43	1.18	1.9
2021	47	0.42	0.90	1.4
2022	47	0.44	0.86	1.4
2023 [a]	23	0.53	1.10	2.2

[a] = data set ends on 5/31/23
MGD = million gallons per day
n = number of samples

Table 4. Effluent Characterization Using Ohio EPA and Supplemental Effluent Data

PARAMETER	Ohio EPA 10/4/2022	Ohio EPA 11/1/2022	Form 2A 12/14/2022	Form 2A 1/4/2023	Form 2A 1/18/2023
Total Filterable Residue (mg/L)	564	546	NT	NT	NT
Acetone	1.18	1.64	NT	NT	NT
Antimony	0.303	0.395	AA (8.0)	AA (8.0)	AA (8.0)
Arsenic	0.693	1.06	AA (8.0)	AA (8.0)	AA (8.0)
Cadmium	0.047	AA (0.02)	AA (1.0)	AA (1.0)	AA (1.0)
Chromium	0.751	0.782	AA (4.0)	AA (4.0)	AA (4.0)
Copper	1.15	1.49	AA (4.0)	AA (4.0)	AA (4.0)
Lead	AA (0.09)	AA (0.09)	AA (5.0)	AA (5.0)	AA (5.0)
Nickel	1.35	1.6	AA (4.0)	AA (4.0)	AA (4.0)
Selenium	0.856	1.24	AA (8.0)	AA (8.0)	AA (8.0)
Zinc	AA (8.9)	AA (8.9)	AA (10)	AA (10)	AA (10)
Nitrate + Nitrite (mg/L)	14	17.1	NT	NT	NT
Bromoform	2.5	0.511	AA (1.0)	AA (1.0)	AA (1.0)
Carbon Disulfide	AA (0.292)	0.294	NT	NT	NT
Chlorodibromomethane	7.76	1.36	AA (1.0)	AA (1.0)	AA (1.0)
Chloroform	2.44	0.394	AA (1.0)	AA (1.0)	AA (1.0)
Dichlorobromomethane	6.11	0.932	AA (1.0)	AA (1.0)	AA (1.0)
Iodomethane	AA (0.29)	2.22	NT	NT	NT
Methyl bromide	AA (0.24)	0.77	AA (1.0)	AA (1.0)	AA (1.0)
Methyl chloride	AA (0.079)	162	AA (1.0)	AA (1.0)	AA (1.0)
Methyl ethyl ketone	AA (0.51)	0.844	NT	NT	NT
Toluene	0.236	AA (0.234)	AA (1.0)	AA (1.0)	AA (1.0)
Trihalomethanes (unspecified mix)	18.8	2.8	NT	NT	NT

AA = not-detected (analytical method detection limit)

Table 5. Effluent Characterization Using Self-Monitoring Data

Parameter	Unit	Current Limits		# Obs	Percentiles		Data Range
		30 Day	Daily		50th	95th	
Water Temperature	°C	Monitoring Only		1330	12	27	0 - 29
Dissolved Oxygen	mg/L	--	6.0[m]	1330	11.5	7.58**	6.12 - 17.7
Total Suspended Solids	kg/day	575	805[w]	256	23.8	94.6	1.6 - 261
Total Suspended Solids	mg/L	40	56[w]	256	6	16	2 - 44
Oil and Grease	mg/L	--	10	128	--	--	< 5
Nitrogen, Ammonia	mg/L	Monitoring Only		256	.635	8.08	.07 - 13.6
Nitrogen Kjeldahl, Total	mg/L	Monitoring Only		53	< 4	8.6	0 - 10.1
Nitrite Plus Nitrate, Total	mg/L	Monitoring Only		64	10.9	18.9	1.15 - 24.1
Phosphorus, Total	kg/day	14.4	21.6[w]	256	1.74	4.24	.351 - 7.74
Phosphorus, Total	mg/L	1.0	1.5[w]	256	.42	.61	.08 - .88
Orthophosphate, Dissolved	mg/L	Monitoring Only		64	.09	.447	0 - .57
Nickel, TR	µg/L	Monitoring Only		5	< 4	3.2	0 - 4
Zinc, TR	µg/L	Monitoring Only		5	< 1	8	0 - 10
Cadmium, TR	µg/L	Monitoring Only		5	--	--	< 1
Lead, TR	µg/L	Monitoring Only		5	--	--	< 5
Chromium, TR	µg/L	Monitoring Only		5	--	--	< 4
Copper, TR	µg/L	Monitoring Only		5	--	--	< 4
E. coli	#/100 mL	126	189[w]	358	1	11.2	1 - 100
Flow Rate	MGD	Monitoring Only		1946	1.05	2.36	.006 - 4.71
Chlorine, Total Residual	mg/L	--	0.038	631	.02	.03	0 - .03
Mercury, Total	kg/day	0.000052	0.0245	54	< .00000108	.00000917	0 - .000025
Mercury, Total	ng/L	3.56	1700	54	< .5	1.78	0 - 5.99
Cyanide, Free (Low-Level)	µg/L	Monitoring Only		54	< 2	2.54	0 - 4.1
Acute Toxicity, Ceriodaphnia dubia	TUa	Monitoring Only		5	--	--	< .2
Chronic Toxicity, Ceriodaphnia dubia	TUc	Monitoring Only		5	< 1	.912	0 - 1.14
Acute Toxicity, Pimephales promelas	TUa	Monitoring Only		5	--	--	< .2
Chronic Toxicity, Pimephales promelas	TUc	Monitoring Only		5	< 1	1	0 - 1
pH, Maximum	S.U.	--	9.0	1330	7.38	8.08	6.78 - 8.81
pH, Minimum	S.U.	--	6.5[m]	1330	7.29	6.9*	6.72 - 8.53

Parameter	Unit	Current Limits		# Obs	Percentiles		Data Range
		30 Day	Daily		50th	95th	
Residue, Total Filterable	mg/L	Monitoring Only		108	578	664	494 - 766
CBOD 5 day	kg/day	259	403[w]	256	12.6	34	1.06 - 63.6
CBOD 5 day	mg/L	18	28[w]	256	2.84	5.27	.33 - 7.99

* = For minimum pH, 5th percentile shown in place of 50th percentile.
** = For dissolved oxygen, 5th percentile shown in place of 95th percentile.
[w] = weekly average.
[m] = minimum

Table 6. Projected Effluent Quality for Outfall 001

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	80	80	0.4	0.59
Ammonia (Winter)	mg/L	68	68	15.2	22.8
Acetone	µg/L	2	2	4.5	6.2
Antimony	µg/L	2	2	1.10	1.50
Arsenic - TR	µg/L	2	2	2.94	4.03
Bromodichloromethane	µg/L	5	2	10.26	14.05
Bromoform (Tribromomethane)	µg/L	2	2	6.94	9.50
Cadmium - TR	µg/L	2	1	0.13	0.18
Carbon disulfide	µg/L	2	1	0.82	1.11
Chloroform (Trichloromethane)	µg/L	5	2	4.10	5.6
Chromium - TR	µg/L	2	2	2.2	2.96
Copper - TR	µg/L	2	2	4.13	5.66
Cyanide - free	µg/L	55	7	2.4	3.8
Dibromochloromethane	µg/L	5	2	13.03	17.85
Total Filterable Residue	mg/L	112	112	627	671
Lead - TR	µg/L	10	0	--	--
Mercury	ng/L	65	30	1.7	2.7
Methyl bromide (Bromomethane)	µg/L	5	1	1.7	2.3
Methyl chloride (Chloromethane)	µg/L	5	1	271.998	372.6
Methyl ethyl ketone	µg/L	2	1	2.341256	3.2072
Iodomethane	µg/L	2	1	6.2	8.4
Nickel - TR	µg/L	10	3	4.96	6.8
Nitrate-N + Nitrite-N	mg/L	67	67	20.3	31.2
Nitrogen, Total Kjeldahl	mg/L	55	23	7.95	12.7
Phosphorus	mg/L	264	264	0.52	0.62
Selenium - TR	µg/L	2	2	3.44	4.71
Toluene	µg/L	2	1	0.65	0.90
Zinc - TR	µg/L	8	1	13.9	19
Chlorine, Total Residual	mg/L	670	650	0.019	0.03

MDL = analytical method detection limit
PEQ = projected effluent quality
* Per OAC 3745-2-04(E)(3), ammonia PEQ is based on data collected during the following months:
Summer – June through September
Winter – December through February

Table 7. Summary of Acute and Chronic Toxicity Results

Date	*Ceriodaphnia Dubia*		*Pimephales promelas*	
	TU_a	TU_c	TU_a	TU_c
10/16/2018	AA	AA	AA	AA
10/22/2019	AA	AA	AA	AA
10/20/2020	AA	AA	AA	1.0
10/17/2021	AA	1.14	AA	AA
10/18/2022	AA	AA	AA	1.0

AA = non-detection; analytical method detection limit of 0.2 TU_a, 1.0 TU_c
TU_a = acute toxicity unit
TU_c = chronic toxicity unit

Table 8. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum Aquatic Life	
		Wildlife	Human Health	Agri-culture	Aquatic Life		
Acetone	µg/L	--	--	--	--	--	--
Antimony	µg/L	--	780	--	190	900	1800
Arsenic - TR	µg/L	--	580	100	150	340	680
Bromodichloromethane	µg/L	--	180[c]	--	340	3100	6200
Bromoform (Tribromomethane)	µg/L	--	890[c]	--	230	1100	2200
Cadmium - TR	µg/L	--	730	50	3.7	8.1	16
Carbon disulfide	µg/L	--	--	--	15	130	260
Chloroform (Trichloromethane)	µg/L	--	1700[c]	--	140	1300	2600
Chromium - TR	µg/L	--	14000	100	130	2700	5500
Copper - TR	µg/L	--	64000	500	14	23	45
Cyanide - free	µg/L	--	48000	--	5.2	22	44
Dibromochloromethane	µg/L	--	150[c]	--	320	2900	5800
Dissolved Solids	mg/L	--	--	--	1500	--	--
Lead - TR	µg/L	--	--	100	12	240	470
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Methyl bromide (Bromomethane)	µg/L	--	2600	--	16	38	75
Methyl chloride (Chloromethane)	µg/L	--	7300[c]	--	--	--	--
Iodomethane	µg/L	--	--	--	--	--	--
Methyl ethyl ketone	µg/L	--	--	--	22000	200000	400000
Nickel - TR	µg/L	--	43000	200	80	720	1400
Nitrate-N + Nitrite-N	mg/L	--	--	100	--	--	--
Selenium - TR	µg/L	--	3100	50	5	62	120
Toluene	µg/L	--	51000	--	62	560	1100
Zinc - TR	µg/L	--	35000	25000	190	190	370
Chlorine, Total Residual	mg/L	--	--	--	0.011	0.019	0.038

[c] = carcinogen

Table 9. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Hardness, OMZ	mg/L	annual	167	OEPA Data Station 300900 n=10
Hardness, IMZ	mg/L	annual	167	OEPA Data Station 300900 n=10
pH	S.U.	summer	9	OEPA Data Station June-September, 2014-2016
		winter	9	OEPA Data Station June-September, 2014-2016
Temperature	ºC	summer	25.57	OEPA Data Station 300900 June-September, 2014-2016
		winter	3.89	NOAA Marblehead coastal water monitor Dec-Feb long term
Danbury WWTP flow	cfs	annual	5.8795	Design Flow
Background Water Quality				
Ammonia (Summer)	mg/L		0.025	EPA; 2010-2022; n=103; 93<MDL; 300900
Ammonia (Winter)	mg/L		0	No representative data available.
Antimony	µg/L		0	No representative data available.
Arsenic - TR	µg/L		2.55	EPA; 2010-2013; n=10; 3<MDL; 300900
Bromodichloromethane	µg/L		0	No representative data available.
Bromoform (Tribromomethane)	µg/L		0	No representative data available.
Cadmium - TR	µg/L		0	EPA; 2010-2013; n=10; 10<MDL; 300900
Carbon disulfide	µg/L		0	No representative data available.
Chloroform (Trichloromethane)	µg/L		0	No representative data available.
Chromium - TR	µg/L		0	EPA; 2010-2013; n=10; 10<MDL; 300900
Copper - TR	µg/L		1	EPA; 2010-2013; n=10; 7<MDL; 300900
Cyanide - free	µg/L		0	No representative data available.
Dibromochloromethane	µg/L		0	No representative data available.
Total Filterable Residue	mg/L		234	EPA; 210-2022; n=103; 0<MDL; 300900
Lead - TR	µg/L		0	EPA; 2010-2013; n=10; 10<MDL; 300900
Mercury	ng/L		0	No representative data available.
Methyl bromide (Bromomethane)	µg/L		0	No representative data available.
Methyl chloride (Chloromethane)	µg/L		0	No representative data available.
Methyl ethyl ketone	µg/L		0	No representative data available.
Nickel - TR	µg/L		3	EPA; 2010-2013; n=10; 2<MDL; 300900
Nitrate-N + Nitrite-N	mg/L		0.05	EPA; 2010-2022; n=103; 56<MDL; 300900
Selenium - TR	µg/L		0	EPA; 2010-2013; n=10; 10<MDL; 300900
Toluene	µg/L		0	No representative data available.
Zinc - TR	µg/L		5	EPA; 2010-2013; n=10; 9<MDL; 300900
Chlorine, Total Residual	mg/L		0	No representative data available.

300900 = ambient monitoring station in Sandusky Bay off Johnson's Island

MDL = analytical method detection limit
n = number of samples
NPDES = National Pollutant Discharge Elimination System
OEPA = Ohio Environmental Protection Agency
WWTP = wastewater treatment plant

Table 10. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum Aquatic Life	
		Wildlife	Human Health	Agri-culture	Aquatic Life		
Acetone	µg/L	--	--	--	--	--	--
Antimony	µg/L	--	8580	--	2090	--	1800
Arsenic - TR	µg/L	--	6354	1074	1624	--	680
Bromodichloromethane	µg/L	--	1980	--	3740	--	6200
Bromoform (Tribromomethane)	µg/L	--	9790	--	2530	--	2200
Cadmium - TR	µg/L	--	8030	550	41	--	16
Carbon disulfide	µg/L	--	--	--	165	--	260
Chloroform (Trichloromethane)	µg/L	--	18700	--	1540	--	2600
Chromium - TR	µg/L	--	154000	1100	1430	--	5500
Copper - TR	µg/L	--	703990	5490	144	--	45
Cyanide - free	µg/L	--	528000	--	57	--	44
Dibromochloromethane	µg/L	--	1650	--	3520	--	5800
Total Filterable Residue	mg/L	--	--	--	14160	--	--
Lead - TR	µg/L	--	--	1100	132	--	470
Mercury[A]	ng/L	1.3	3.1	10000	910	--	3400
Methyl bromide (Bromomethane)	µg/L	--	28600	--	176	--	75
Methyl chloride (Chloromethane)	µg/L	--	80300	--	--	--	--
Methyl ethyl ketone	µg/L	--	--	--	242000	--	400000
Iodomethane	µg/L	--	--	--	--	--	--
Nickel - TR	µg/L	--	472970	2170	850	--	1400
Nitrate-N + Nitrite-N	mg/L	--	--	1100	--	--	--
Selenium - TR	µg/L	--	34100	550	55	--	120
Toluene	µg/L	--	561000	--	682	--	1100
Zinc - TR	µg/L	--	384950	274950	2040	--	370
Chlorine, Total Residual	mg/L	--	--	--	0.12	--	0.038

[A] Bioaccumulative Chemical of Concern (BCC); no mixing zone allowed after 11/15/2010, WQS must be met at end-of-pipe, unless requirements for an exception are met as listed in OAC 3745-2-05(A)(2)(e)(ii)

Table 11. Parameter Assessment

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time.
Acetone
Iodomethane

Group 2: PEQ < 25 percent of WQS or all data below minimum detection limit.
WLA not required. No limit recommended; monitoring optional.

Antimony	Arsenic - TR	Bromodichloromethane
Bromoform (Tribromomethane)	Cadmium - TR	Carbon disulfide
Chloroform (Trichloromethane)	Chromium - TR	Dibromochloromethane
	Methyl bromide	Methyl chloride
Lead - TR	(Bromomethane)	(Chloromethane)
Methyl ethyl ketone	Nickel - TR	Nitrate-N + Nitrite-N
Toluene	Zinc - TR	

Group 3: PEQmax < 50 percent of maximum PEL and PEQavg < 50 percent of average PEL.
No limit recommended; monitoring optional.

	Copper - TR	Cyanide - free
Total Filterable Residue	Selenium - TR	

Group 4: PEQmax >= 50 percent, but < 100 percent of the maximum PEL or
PEQavg >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Chlorine, Total Residual

Group 5: Maximum PEQ >= 100 percent of the maximum PEL or average PEQ >= 100 percent of the average PEL, or either the average or maximum PEQ is between 75 and 100 percent of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

		Recommended Effluent Limits	
Parameter	*Units*	*Average*	*Maximum*
Mercury	ng/L	1.3	3400

PEL = preliminary effluent limit
PEQ = projected effluent quality
WLA = wasteload allocation
WQS = water quality standard

Table 12. Final Effluent Limits for Outfall 001

Parameter	Units	Concentration		Loading (kg/day)[a]		Basis[b]
		Daily Maximum	30 Day Average	Daily Maximum	30 Day Average	
Water Temperature	°C	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Dissolved Oxygen	mg/L	6.0[m]	--	--	--	WQS
TSS	mg/L	45[d]	30	650[d]	430	BPT
Oil & Grease	mg/L	10	--	--	--	WQS
Ammonia	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Nitrate plus Nitrite	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Phosphorus	mg/L	1.5[d]	1.0	21.6[d]	14.4	PTS
Orthophosphate	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				PMR
Nickel	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Zinc	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Cadmium	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Lead	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Chromium	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Copper	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
E. coli	#/100 mL	189 [d]	126	--	--	WQS/ABS
Flow Rate	MGD	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Chlorine	mg/L	0.038	--	--	--	PD/WLA
Mercury	ng/L	1700	2.7	0.024	0.000039	MV
Free Cyanide	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Acute Toxicity, *Ceriodaphnia dubia*	TUa	- - - - - - - - - - Monitor - - - - - - - - - - -				WET
Chronic Toxicity, *Ceriodaphnia dubia*	TUc	- - - - - - - - - - Monitor - - - - - - - - - - -				WET
Acute Toxicity, *Pimephales promelas*	TUa	- - - - - - - - - - Monitor - - - - - - - - - - -				WET
Chronic Toxicity, *Pimephales promelas*	TUc	- - - - - - - - - - Monitor - - - - - - - - - - -				WET
Total Filterable Residue	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M
pH, maximum	SU	9.0	--	--	--	WQS
pH, minimum	SU	6.5[m]	--	--	--	WQS
CBOD5 (summer)	mg/L	28[d]	18	403[d]	259	PD

[a] Effluent loadings based on average design discharge flow of 3.8 MGD.

[b] Definitions:

ABS = Antibacksliding Rule (OAC 3745-33-05(F) and 40 CFR Part 122.44(l))
BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation
CFR = Code of Federal Regulations
M = Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges
PD = Plant Design (OAC 3745-33-05(E))
PMR = Phosphorus monitoring requirements (ORC 6111.03)
PTS = Phosphorus Treatment Standards (OAC 3745-33-06 (C))
VAR = Variance from a WQS (Mercury variance (OAC 3745-1-38(J)))
WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]
WLA = Wasteload Allocation procedures (OAC 3745-2)

WQS = Ohio Water Quality Standards (OAC 3745-1)

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.
[d] 7 day average limit.
[m] minimum limit

Attachment 1. Whole Effluent Toxicity Reasonable Potential Analysis

	Water Flea (*Ceriodaphnia dubia*)		Fathead Minnow (*Pimephales promelas*)	
	Acute[3]	**Chronic**	**Acute[3]**	**Chronic**
WLA (TU)	1.0	11.0	1.0	11.0
Total # of Tests	5	5	5	5
Maximum Value (TU)	--	1.14	--	1
Coefficient of Variation[1] [Where # tests < 10]	--	0.6	--	0.6
Multiplying Factors[2]	--	2.3	--	2.3
PEQ (Maximum Value x Multiplying Factor)	--	2.6	--	2.3
Reasonable Potential Demonstrated? (Yes/No) (Yes if PEQ > WLA)	--	No	--	No

[1] 40 CFR Part 132, Appendix F, Paragraph D(3)
[2] 40 CFR Part 132, Appendix F, Table F6-1
[3] Acute detections were less than 1.0 TU, reasonable potential cannot be evaluate

Nutrient Related Water Quality Impairments in Lake Erie's

The Danbury Township WWTP discharges to the Sandusky Bay which is part of the "Sandusky Shoreline" assessment unit (Figure 3). The discharge is tributary to downstream assessment units including the Sandusky Open Water a Assessment Unit. There are impairments within these assessment units associated with nutrients noted in Table 13. These include public drinking water supplies impaired by algae and the aquatic life use for the Sandusky Shoreline unit. Harmful Algal Blooms (HABs) have been identified in the unit as a potential impact to recreational use, however, at this time there is insufficient data to evaluate the use. Data will be sufficient in the 2024 Integrated Report and preliminary results suggest that the recreation use is being attained. As required by 40 CFR 422.44(d) and companion provisions in Ohio Administrative Code, a reasonable potential analysis must be completed to determine if the facility causes or contributes to a water quality impairment.

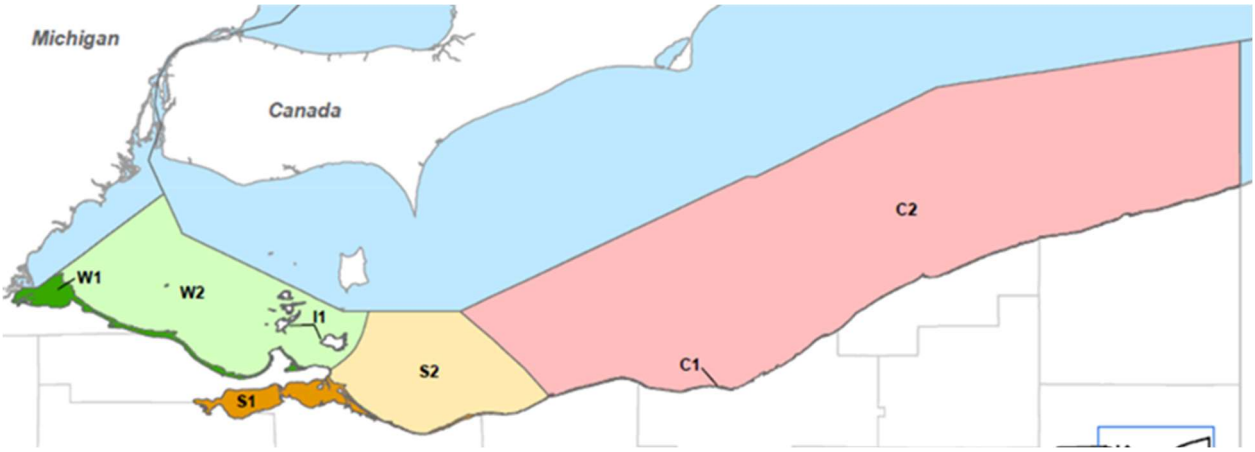

Figure 3. Lake Erie Assessment Units from Ohio's 2020 Integrated Report. W1 = Western Shoreline; W2 = Western Open Water; I1 = Islands Shoreline; S1 = Sandusky Shoreline; S2 = Sandusky Open Water; C1 = Central Shoreline; and C2 = Central Open Waters

Table 13. Nutrient related use impairments to Lake Erie impacted by Danbury TWP WWTP discharge.

Use Designation Impairment	Sandusky Shoreline	Sandusky Open Water	Central Shoreline	Central Open Water
Aquatic Life Use (*Biological Community/Diversity*)	✓	☐	✓	☐
Public Drinking Water Supply (*Algae*)	✓	✓	N/A	✓
Recreation (*Algae*)	★	X	X	X

Legend

✓ = Impaired; N/A = Not applicable; X = Not impaired;
☐ = Method under development; ★ = Insufficient information at this time

Water Quality Targets to Address Nutrient Related Impairments

To evaluate reasonable potential, water quality-based targets need to be identified for the receiving water. Annex 4 of the Great Lakes Water Quality Agreement convened a task team to identify targets following the signing of the 2012 agreement. One focus of the task team was identifying necessary reductions to reduce the occurrence of HABs in Lake Erie.

The Annex 4 Targets and Objective Task Team determined that springtime total phosphorus load was the critical link to harmful algal bloom extent. One consideration before the task team was the HAB that was identified in Sandusky Bay. To address the bloom they identified a necessary 40-percent reduction of total and dissolved reactive phosphorus from the Sandusky River and Bay Tributaries (Annex 4 Targets and Objectives Task Team, 2015). This is a loading target of 230 metric tons per spring season for tributaries to the Sandusky Bay, a 40% reduction from the 2008 load of 366.9 metric tons (U.S. Environmental Protection Agency, 2018). These targets are not directly linked to the occurrence of HABs a individual drinking water intakes, however, the reduction in the spatial extent of HABs will have a positive impact to drinking water systems. The targets are also expected to reduce overall eutrophication in the unit which will alleviate nutrient related stress on aquatic life.

Role of POTWs in Total Phosphorus Loading to Sandusky Shoreline and Sandusky Open Waters

Since the signing of the Collaborative Agreement in 2015, Ohio has done extensive work to define the loads from different sources and define strategies to reduce the loads from these sources. One of the primary efforts for that is the biennial Nutrient Mass Balance Report, first published in 2016. In part, the report tracks total loads from tributaries to Lake Erie but also seeks to identify the role of different sources, including the annual load of major POTWs discharging directly to the Bay and its tributaries. In the last five water years the major POTWs averaged a discharge of 12.8 metric tons per year (Ohio Environmental Protection Agency, 2022). This load is 3.5% of the 2008 reference year load. It is estimated that point sources only make up 4 percent of the total load.

Reducing Nutrient Loads from Ohio's POTW's Tributary to Lake Erie

The period of re-eutrophication has been identified for Lake Erie that occurred from the mid-1990's to the early 2000's. This time period was associated with consistent regulatory action on POTWs discharging in the larger Great Lakes watershed. Throughout that time period all major POTWs were required to meet a limit of 1.0 mg/L. The re-eutrophication occurred while loadings from POTWs were stable. None-the-less Ohio EPA and communities in Ohio have continued to take action to reduce phosphorus from POTWs and further limit their role in nutrient loading to Lake Erie. This has been accomplished programmatically without lower numeric effluent limits. Since 2008, when it was widely recognized that Lake Erie was returning to a more eutrophic state, Ohio has taken the following steps to mitigate nutrient loads from POTWs:

1) Limitations to the use of phosphates in dishwashing detergents.
2) Removal of phosphorus from most lawn fertilizer products.
3) Take steps to ensure that facilities are optimizing the use of the existing infrastructure.
4) Facilitate implementation of long-term control plans and realize associated phosphorus reductions. Most of Ohio's largest POTWs serve combined sewer communities. Nutrient reduction was not the focus of these plans, but it is an added benefit. As these plans are implemented, Ohio has included monitoring requirements to help quantify the nutrient reduction impacts. Reducing the amount of CSO volume that is discharged untreated will result in nutrient reductions from the community.
5) Provide financial incentives to POTWs that implement nutrient reduction projects (lower interest AND principal forgiveness)
6) Continue to implement phosphorus TMDLs where they are developed.

These strategies have been implemented by Ohio EPA and have had impacts at the Danbury Township WWTP. For example, restrictions of phosphorus in consumer products works to reduce phosphorus loads in POTW influents.

Reasonable Potential Determination

Existing limits and phosphorus management actions have combined to generate a scenario where Danbury Township WWTP does not cause or contribute to impairments in the Sandusky Shoreline or Open Waters Assessment Units. The current limits are proposed to continue.

References

Annex 4 Objectives and Targets Task Team. 2015. *Recommended Phosphorus Loading Targets for Lake Erie*. Published at: ***epa.gov/sites/production/files/2015-06/documents/report-recommended-phosphorus-loading-targets-lake-erie-201505.pdf***

Ohio Environmental Protection Agency. 2018. *Nutrient Mass Balance Study for Ohio's Major Rivers*. Published at: ***https://epa.ohio.gov/Portals/35/documents/Nutrient%20Mass%20Balance%20Study%202018_Final.pdf***

U.S. Environmental Protection Agency, Great Lakes National Program Office. 2018. *U.S. Action Plan for Lake Erie.* Published at: https://www.epa.gov/sites/production/files/2018-03/documents/us_dap_final_march_1.pdf

Addendum 1. Acronyms

ABS	Anti-backsliding
BPJ	Best professional judgment
CFR	Code of Federal Regulations
CMOM	Capacity Management, Operation, and Maintenance
CONSWLA	Conservative substance wasteload allocation
CSO	Combined sewer overflow
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DMT	Dissolved metal translator
IMZM	Inside mixing zone maximum
LTCP	Long-term Control Plan
MDL	Analytical method detection limit
MGD	Million gallons per day
NPDES	National Pollutant Discharge Elimination System
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
ORSANCO	Ohio River Valley Water Sanitation Commission
PEL	Preliminary effluent limit
PEQ	Projected effluent quality
PMP	Pollution Minimization Program
PPE	Plant performance evaluation
SSO	Sanitary sewer overflow
TMDL	Total Daily Maximum Load
TRE	Toxicity reduction evaluation
TU	Toxicity unit
U.S. EPA	United States Environmental Protection Agency
WET	Whole effluent toxicity
WLA	Wasteload allocation
WPCF	Water Pollution Control Facility
WQBEL	Water-quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant