National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio
For City of Findlay Water Pollution Control Center (WPCC)

Public Notice No.: 205259
Public Notice Date: August 9, 2024
Comment Period Ends: September 8, 2024

Ohio EPA Permit No.: 2PD00008*UD
Application No.: OH0025135

Name and Address of Applicant:
City of Findlay
1201 South River Road
Findlay, OH 45804

Name and Address of Facility Where Discharge Occurs:
Findlay WPCC
1201 South River Road
Findlay, OH 45804
Hancock County

Receiving Water: Blanchard River

Subsequent Stream Network: Auglaize River to Maumee River to 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.

Effluent limits for free cyanide are proposed to be removed because reasonable potential was not observed. Monitoring will continue.

Monitoring requirements are proposed to be removed for bis(2-ethylhexyl) phthalate and selenium because reasonable potential was not observed.

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. Limits for *Cerodaphnia dubia* are proposed to be removed from the permit.

The mercury variance is proposed to be renewed that includes a pollution minimization program (PMP) and a proposed monthly limit of 3.3 ng/l.

Monitoring for *E. coli* at upstream monitoring station 801 is proposed to change from summer to June-August, and from monthly to once every two weeks. The higher frequency over a shorter period will facilitate impairment assessments in the receiving stream.

Selenium is proposed to be removed from influent monitoring station 601 because monitoring has been removed from the final outfall 001.

The monitoring station for SSO 021 is proposed to be removed following elimination of the overflow structure.

Monitoring for water temperature, dissolved oxygen, and pH is proposed to be removed from station 801, and dissolved oxygen is proposed to be removed from station 901. These data are not needed for reasonable potential analyses.

Monitoring for phosphorus is proposed at the influent 601 monitoring station so data can be collected to evaluate a local limit.

Monitoring for total kjeldahl nitrogen is proposed to be added to both the 801 and 901 stations to allow for future evaluations of the nutrient.

A schedule of compliance for the submittal of a plan to address the City's SSOs and CSOs is included in Part I.C of the permit.

A schedule of compliance for the City to submit a technical justification for local industrial user limits for several pollutants, including total phosphorus.

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; mercury variance; pretreatment program requirements; CSO public notification; 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 Michael Donnelly, 419-373-3070, Michael.donnelly@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

Findlay WPCC discharges to Blanchard River at River Mile 56.42. Figure 1 shows the approximate location of the facility.

This segment of the Blanchard River is described by Ohio EPA River Code: 04-160, Hydrologic Unit Code: 04100008-03-04, County: Hancock, Ecoregion: Eastern Corn Belt Plains. The Blanchard River is designated for the following uses under Ohio's WQS (OAC 3745-1-11): Warmwater Habitat, Agricultural Water Supply, Industrial Water Supply, and Primary Contact Recreation.

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

Findlay WPCC was constructed in 1988 and last upgraded in 2001. The average design flow is 15 million gallons per day (MGD) and the peak hydraulic capacity is 40 MGD. Findlay WPCC serves the City of Findlay, the Village of Arcadia, the Village of Van Buren and parts of Hancock County. Findlay WPCC has the following treatment processes (Figure 2):

- Influent Pumping
- Influent Screening
- Oxidation Ditch
- Secondary Clarification
- Chemical Precipitation (ferric chloride)
- Ultraviolet Disinfection
- Post Aeration

The City of Findlay has 93% separate sewers and 7% combined sewers in the collection system. Following completion of the City of Findlay's 1998 CSO LTCP, the City determined in a 2018 LTCP Evaluation Report that the designated level of control (LOC) of four overflows per typical year was not attained. The report indicated that 12 of the CSO outfalls no longer had combined sewers upstream of the discharge location and that

they are now sanitary sewer overflows. In accordance with Part I,C, Item C.2 of NPDES permit 2PB00008*TD, the City submitted an updated LTCP for Ohio EPA approval on January 31, 2020. The updated LTCP was an integrated plan that included projects to eliminate sanitary sewer overflows and reduce discharges from combined sewer overflows and was approved by Ohio EPA on July 8, 2021. The proposed plan included reducing inflow and infiltration, increasing weir elevations at CSOs, upsizing sewer pipes, installing a new 5 MGD lift station, and installing equalization basins. The City has requested additional time to evaluate their treatment system and to develop a new plan to address the overflows. A compliance schedule is proposed in the permit for the submittal of the revised plan.

The City of Findlay has an approved pretreatment program. The City of Findlay has eight significant industrial users including five categorical users that discharge 0.428 MGD of flow.

Findlay WPCC utilizes the following sewage sludge treatment processes:

- Aerobic Digestion
- Mechanical Dewatering – Belt Filter Press

Table 1 shows the last five years of sludge removed from Findlay WPCC. Treated sludge is disposed of in a municipal landfill.

DESCRIPTION OF EXISTING DISCHARGE

The City of Findlay WPCC has not reported any effluent limit violations in the previous five years.

Table 2 presents the average annual effluent flow rate for Findlay WPCC for the previous five years. Findlay WPCC has an estimated infiltration/inflow (I/I) rate of 1.6 MGD. Findlay WPCC performs the following activities to minimize I/I: Continued lining projects, disconnection of illegal connections, maintaining manhole dishes, install and maintain flap gates at CSO outfalls.

Table 3 presents the number of SSOs reported by Findlay WPCC for the previous five years. The monitoring station for SSO 021 is proposed to be removed following elimination of the overflow structure.

Table 4 presents the number of CSOs reported by Findlay WPCC during the previous five years. Findlay WPCC has 10 known combined sewer overflows (CSOs). Findlay WPCC has taken the following actions to reduce or eliminate CSOs: new screening at the plant, sewer separation and sewer lining.

Table 5 presents data characterizing the annual total phosphorus load from Findlay WPCC during the previous five years.

Table 6 presents chemical specific data compiled from data reported in annual pretreatment reports and data collected by Ohio EPA. Because this data is substantially identical to the application requirements in CFR 122.21(j), the Director has waived the requirement for submittal of supplemental effluent testing data as part of the NPDES renewal application.

Table 7 presents a summary of unaltered Discharge Monitoring Report (DMR). Data are presented for the period January 2018 to April 2023, and current permit limits are provided for comparison.

Table 8 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 9 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 Howard Run – Blanchard River watershed assessment unit, which includes the Blanchard River in the vicinity of Findlay WPCC, is listed as impaired for aquatic life, recreation and human health on Ohio's 303(d) list.

The Total Maximum Daily Load (TMDL) program focuses on identifying and restoring polluted rivers, streams, lakes and other surface water bodies. A TMDL is a written, quantitative assessment of water quality problems in a water body and contributing sources of pollution. It specifies the amount a pollutant needs to be reduced to meet water quality standards (WQS), allocates pollutant load reductions, and provides the basis for taking actions needed to restore a water body. A Total Daily Maximum Load (TMDL) report was approved for the Blanchard River in July 2009.

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical, biological, and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio WQS and Ohio EPA guidance documents. Other information which may be evaluated includes but is not limited to: NPDES permittee self-monitoring data; effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Indicators of exposure to these stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio WQS (OAC 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-1). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity and modified Index of Well-Being, which indicate the response of the fish community, and the Invertebrate Community Index, which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices fails meet the biocriteria. Nonattainment means that either none of the applicable indices meet the biocriteria or one of the organism groups indicates poor or very poor performance. An aquatic life use attainment table (see Table 10) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index, and comments and observations for each sampling location.

The Blanchard River is impaired for aquatic life, recreation and human health due to the following: direct habitat alterations, nutrient/eutrophication, organic enrichment, sedimentation, pathogens, and PCBs. This indicates that Findlay WPCC is likely contributing to the impairments in the Blanchard River due to nutrient loading and bacteria discharges from the SSOs and CSOs.

The report published in June 2007 entitled, "Biological and Water Quality Study of the Blanchard River" contains the results of the 2005 sampling efforts and includes the following information with regard to the Findlay WWTP:

"…Construction of a new Findlay WWTP that included relocating the discharge was completed in 2001. Operations at the new plant have reduced ammonia concentrations to the point where it has been nearly undetectable in the effluent for the last 3 years. The macroinvertebrate community in 1983 was impacted for approximately 20 miles. In contrast, the macroinvertebrate community in 2005 produced an ICI in the very good range just 1.2 miles downstream from the discharge. The condition of the fish community, as reflected by the two surveys, also demonstrated an overall increase in resource quality of the Blanchard River mainstem downstream from Findlay in the intervening years. Significant improvements in the fish community that pointed to the improved condition of the resource included the reduced prominence of tolerant fish, a greater proportion of top carnivores and a reduction in the occurrence of deformities, tumors and lesions. The mainstem consistently met ecoregional expectations beginning approximately 6.4 miles downstream from the discharge in 2005…" [page 3]

"The Findlay WWTP discharged an average of about 12 MGD during 2005 and is a major source of nutrient loading to the Blanchard River. A significant increase in the levels of nitrate-nitrite and phosphorus from below target to well above target occurred downstream of the Findlay WWTP. There also appeared to be a slight depression in dissolved oxygen concentrations approximately 10 miles downstream of the WWTP discharge based on the surface grab samples. Partial attainment downstream from the Findlay WWTP (RM 54.7) resulted from widely differing fish index scores recorded in the initial sampling pass on June 11 versus the subsequent sampling conducted October 14. An IBI score of 28 was recorded in June and increased to 44 in October. Similarly, MIwb scores were 7.0 and 8.2 in June and October, respectively. The averaged IBI and MIwb scores were in the fair range. The disparate results suggest an impaired community condition possibly due to an upset in the operation of the Findlay WWTP followed by a reestablishment of the warmwater fish community in the intervening period between sampling passes. The macroinvertebrate community produced a very good ICI score of 42 at RM 55.2. The community structure was indicative of moderate to high enrichment but, given the conditions upstream from the Findlay WWTP, an influence from the discharge on the macroinvertebrate community could not be directly correlated…" [page 111]

Additionally, in September 2023, the *Maumee Watershed Nutrient TMDL* was approved by US EPA. The TMDL was developed to reduce phosphorus loadings from the Maumee River to restore beneficial uses of drinking water, aquatic life, and recreation in the following assessment units: Lake Erie Shoreline, Open Water, and Islands of the Western Basin. The TMDL assigned an individual wasteload allocation to Findlay WPCC of 3,200 kg of total phosphorus for the critical season (March through July). Compliance with this individual wasteload allocation will be regulated through the Maumee Watershed Total Phosphorus NPDES General Permit, under which Findlay WPCC has been granted coverage.

The *Maumee Watershed Nutrient TMDL Report*, as well as the TMDL for the Blanchard River, and related information are available through the Ohio EPA, Division of Surface Water website at: https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/maumee-river-watershed

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 Findlay WPCC 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 February 2023
Pretreatment data	2018-2022
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 8). 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 11).

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. For free flowing streams, WLAs using this method are calculated 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.

The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (Warmwater Habitat)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
Wildlife		Annual 90Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 12, and allocations cannot exceed the Inside Mixing Zone Maximum (IMZM) criteria. The data used in the WLA are listed in Table 11 and Table 12. The WLA results to maintain all applicable criteria are presented in Table 13.

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 Findlay WPCC, the WLA values for outfall 001 are 0.3 TUa and 1.0 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.

When the acute WLA is less than 1.0 TUa, it may be defined as a ratio of the stream dilution to the effluent flow:

Acute Dilution Ratio (downstream flow to discharger flow)	Allowable Effluent Toxicity (percent effects in 100% effluent)
up to 2 to 1	30
greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

$$\text{Acute Dilution Ratio} = \frac{1Q10 + [\text{WWTP flow rate}]}{[\text{WWTP flow rate}]} = \frac{0.17 \text{ cfs} + 23.2 \text{ cfs}}{23.2 \text{ cfs}} = 1.0$$

The acute WLA for Findlay WPCC can be expressed as 30 percent mortality in 100 percent effluent based on the dilution ratio of 1 to 1. If the acute dilution ratio is less than 3.3 to 1.0, and there is evidence that effluent values between 0.3 TUa and 1.0 TUa cause or contribute to violations of WQS, the permittee may be required to investigate and remediate toxicity in this range.

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 13. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 8, 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 14.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 15 presents the final effluent limits and monitoring requirements proposed for Findlay WPCC outfall 001 and the basis for their recommendation. Unless otherwise indicated, the monitoring frequencies proposed in the permit are continued from the existing permit.

Dissolved Oxygen, Total Suspended Solids, Ammonia, and 5-day Carbonaceous Biochemical Oxygen Demand

The limits proposed for dissolved oxygen, total suspended solids, ammonia and 5-day carbonaceous biochemical oxygen demand (CBOD5) are all based on plant design criteria and are associated with the 2001 facility improvements. The TSS and CBOD5 limits are more stringent than the Secondary Treatment Standards in 40 CFR Part 133. The current ammonia limits have been evaluated using the WLA procedures and are protective of WQS for ammonia toxicity. The current dissolved oxygen limit is protective of WQS.

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). Primary contact recreation *E. coli* standards apply to the Blanchard River.

Copper, Chromium, Hexavalent Chromium, Cadmium, Free Cyanide, Nickel, Lead, Total Filterable Residue (Total Dissolved Solids), and Zinc

The Ohio EPA risk assessment (Table 14) places copper, chromium, hexavalent chromium, cadmium, free cyanide, nickel, lead, total filterable residue (total dissolved solids), and zinc in groups 2 and 3. This placement, as well as the data in Table 7 and Table 8, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Limits are

proposed to be removed for free cyanide. Monitoring is proposed to document that these pollutants continue to remain at low levels.

Antimony, Arsenic, Beryllium, Bis(2-ethylhexyl) phthalate, Chloroform, Molybdenum, Silver, and Selenium
The Ohio EPA risk assessment (Table 14) places antimony, arsenic, beryllium, bis(2-ethylhexyl) phthalate, chloroform, molybdenum, silver, and selenium in groups 2 and 3. This placement, as well as the data in Table 7 and Table 8, 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. Monitoring for bis(2-ethylhexyl) phthalate and selenium are proposed to be removed. Monitoring data for future reasonable potential analyses will be available through annual reports from the approved pretreatment program.

Flow Rate and Water Temperature
Monitoring for flow rate and water temperature is proposed to continue in order to evaluate the performance of the treatment plant.

Nitrate + Nitrite and Total Kjeldahl Nitrogen
The *2022 Ohio Integrated Water Quality Monitoring and Assessment Report* (Ohio EPA) lists the Blanchard River watershed as impaired for aquatic life. Nutrients and organic enrichment/dissolved oxygen are listed as "high magnitude" causes, and major municipal point sources are listed among the "high magnitude" sources. Considering this information and the fact that municipal WWTPs discharge a nutrient load to the river, monthly monitoring for nitrate + nitrite and total Kjeldahl nitrogen is proposed to continue from the previous permit based on best technical judgment. Monitoring for phosphorus and nitrate + nitrite at the upstream and downstream stations also is proposed. The purpose of the monitoring is to maintain a nutrient data set for use in future nutrient studies.

Dissolved Orthophosphate and Total Phosphorus
Phosphorus is limited based on provisions of OAC 3745-33-06(C). Monitoring for dissolved orthophosphate (as P) and total phosphorus is required 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.

In September 2023, the *Maumee Watershed Nutrient Total Maximum Daily Load* (TMDL) Report was approved by US EPA. The TMDL was developed to restore full attainment of the designated uses in the Western Basin of Lake Erie, which experience frequent and extensive harmful algal blooms due to nutrient contributions, much of which is delivered by the Maumee River. The TMDL assigned an individual wasteload allocation to Findlay WPCC of 3,200 kg of total phosphorus for the critical season (March through July). Compliance with this individual wasteload allocation will be regulated through the Maumee Watershed Total Phosphorus NPDES General Permit, under which Findlay WPCC has been granted coverage.

Mercury
The Findlay WPCC permit was modified in 2010 to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from January 2018 to March 2023, and the new application information, the Findlay WPCC 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 Findlay WPCC is eligible for renewal of the mercury variance under OAC 3745-1-38(H).

Findlay WPCC submitted information supporting the renewal of the variance. The permittee proposes to continue collection system monitoring, address identified sources, mercury collection, and provide informational pamphlets to residents to reduce the amount of mercury coming into the plant and being discharged. 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 8.5 ng/L to 2.2 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 3.3 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 3.3 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

The acute and chronic toxicity results in Table 9, show that there have been no detections of toxicity. Under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, no PEQ values can be calculated. Reasonable potential for toxicity is not demonstrated. 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. The final effluent limits for *Ceriodaphnia dubia* are proposed to be removed.

Additional Monitoring Requirements

The monitoring station for SSO 021 is proposed to be removed following elimination of the overflow structure.

Monitoring for *E. coli* at upstream monitoring station 801 and downstream monitoring station 901 is proposed to change from summer to June-August, and from monthly to once every two weeks. The higher frequency over a shorter period will facilitate impairment assessments in the receiving stream.

Selenium is being removed from influent monitoring station 601 because monitoring has been removed from the final outfall 001.

Monitoring for phosphorus is proposed at the influent 601 monitoring station so data can be collected to evaluate a local limit.

Monitoring for water temperature, dissolved oxygen, and pH is proposed to be removed from station 801, and dissolved oxygen is proposed to be removed from station 901. These data are not needed for reasonable potential analyses.

Monitoring for total kjeldahl nitrogen is proposed to be added to both the 801 and 901 stations to allow for future evaluations of the nutrient.

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

Compliance Schedule

Pretreatment Local Limits Review - A 18-month compliance schedule is proposed for the City to submit a technical justification for either revising its local industrial user limits or retaining its existing local limits. If revisions to local limits are required, the City must also submit a pretreatment program modification request.

In addition to the standard requirement to develop and submit a technical local limit justification report, the permittee shall also determine whether the development and implementation of local limits for total phosphorus will help the POTW achieve a monthly average effluent concentration target of 0.5 mg/L. This target is not an effluent limit but permittees should evaluate whether reductions in headworks loading would enable the facility to further reduce total phosphorus loading to the receiving stream and, ultimately, Lake Erie. Local limits for total phosphorus may not be appropriate in all cases and justification can be made for not instituting local limits. Examples include, but are not limited to, (1) if the permittee has maintained a monthly average effluent concentration at or below 0.5 mg/L for the previous 12 months or (2) if industrial loads are not a primary factor contributing to effluent concentrations above 0.5 mg/L. Justification for the permittee's determination must be submitted to Ohio EPA regardless of whether local limits are deemed appropriate or not. Details are in Part I.C of the permit.

SSO and CSO Plan – A compliance schedule is proposed for the City to submit a plan to address the SSOs and CSOs in the collection system no later than December 1, 2025.

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 Findlay WPCC to have a Class IV 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.

Method Detection Limit Reporting
When submitting monitoring results in eDMR, the permittee must report all detected concentration values above the method detection limit (MDL), even if that value is below the quantification level, as indicated in Permit Guidance 9: *Limits below Quantification*. A detection above the MDL indicates the presence of a pollutant with strong confidence, which must be considered in reasonable potential analyses. Per OAC 3745-33-07(C)(2)(c), for the purpose of assessing compliance, any value reported below the quantification level shall be considered in compliance with an effluent limit.

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

CSO Public Notification
The rule for Public Notification Requirements for Combined Sewer Overflows to the Great Lakes Basin, i.e. 40 CFR 122.38 became effective on Wednesday, February 7, 2018. This rule protects public health by ensuring timely notification to the public and to public health departments, public drinking water facilities, and other potentially affected public entities. This rule applies to CSO dischargers within Ohio's Lake Erie Basin. Under this rule, CSO dischargers are subject to the following requirements:

- A Public Notification Plan must be developed and submitted to Ohio EPA on or prior to August 7, 2018. The City of Findlay submitted its Public Notification Plan to Ohio EPA on August 23, 2018.
- An Annual Report of data pertaining to CSO activity must be published on or prior to May 1 of every year. Ohio EPA and U.S. EPA must be provided with instructions on how to access the Annual Report.

Part II of the permit includes requirements for public notification of CSOs and the posting of an annual CSO report.

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 2/7/2023. The certification number is 2GRN00222*FG. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than 2/6/2028, 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 Findlay WPCC

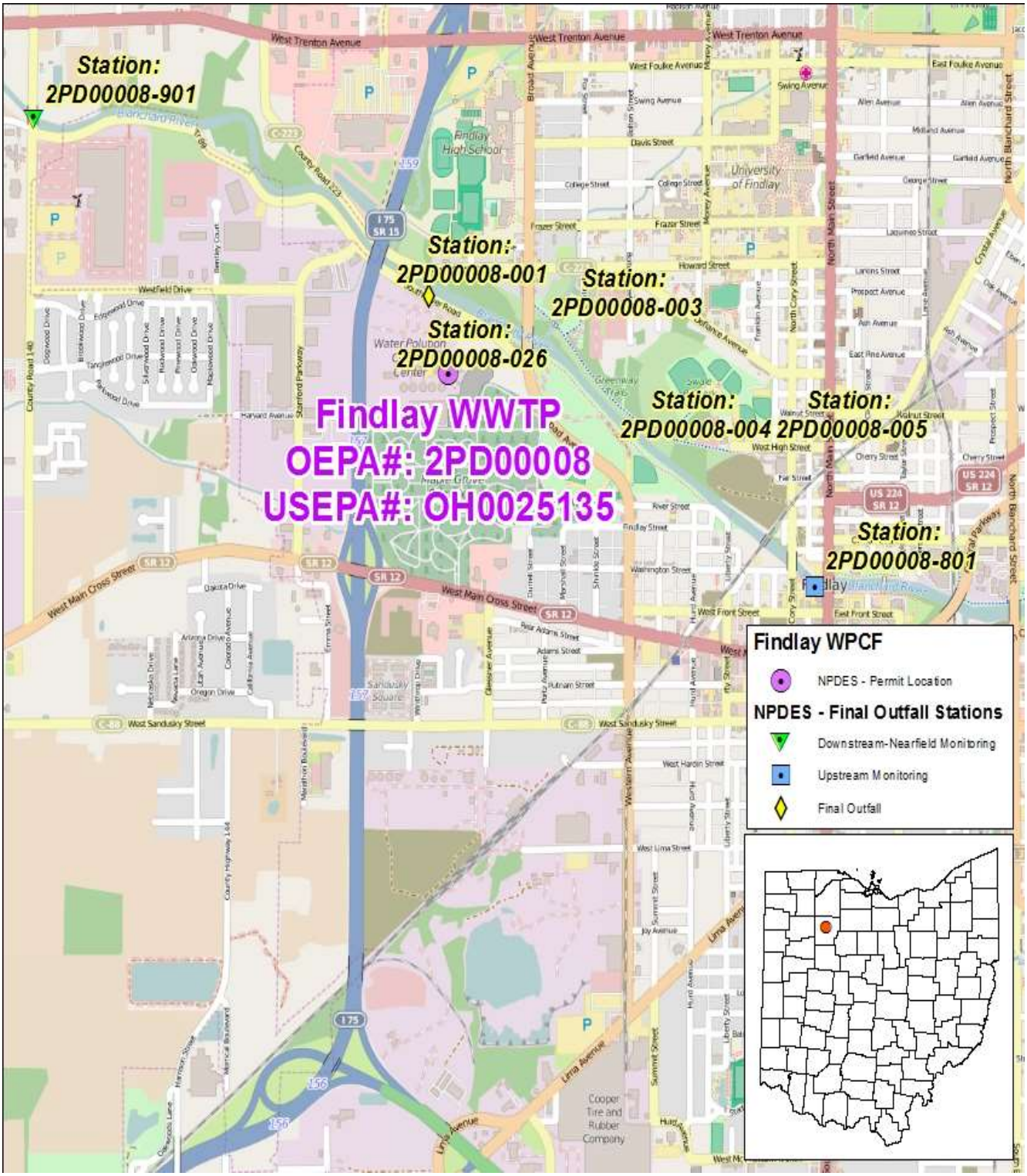

Figure 2. Diagram of Wastewater Treatment System

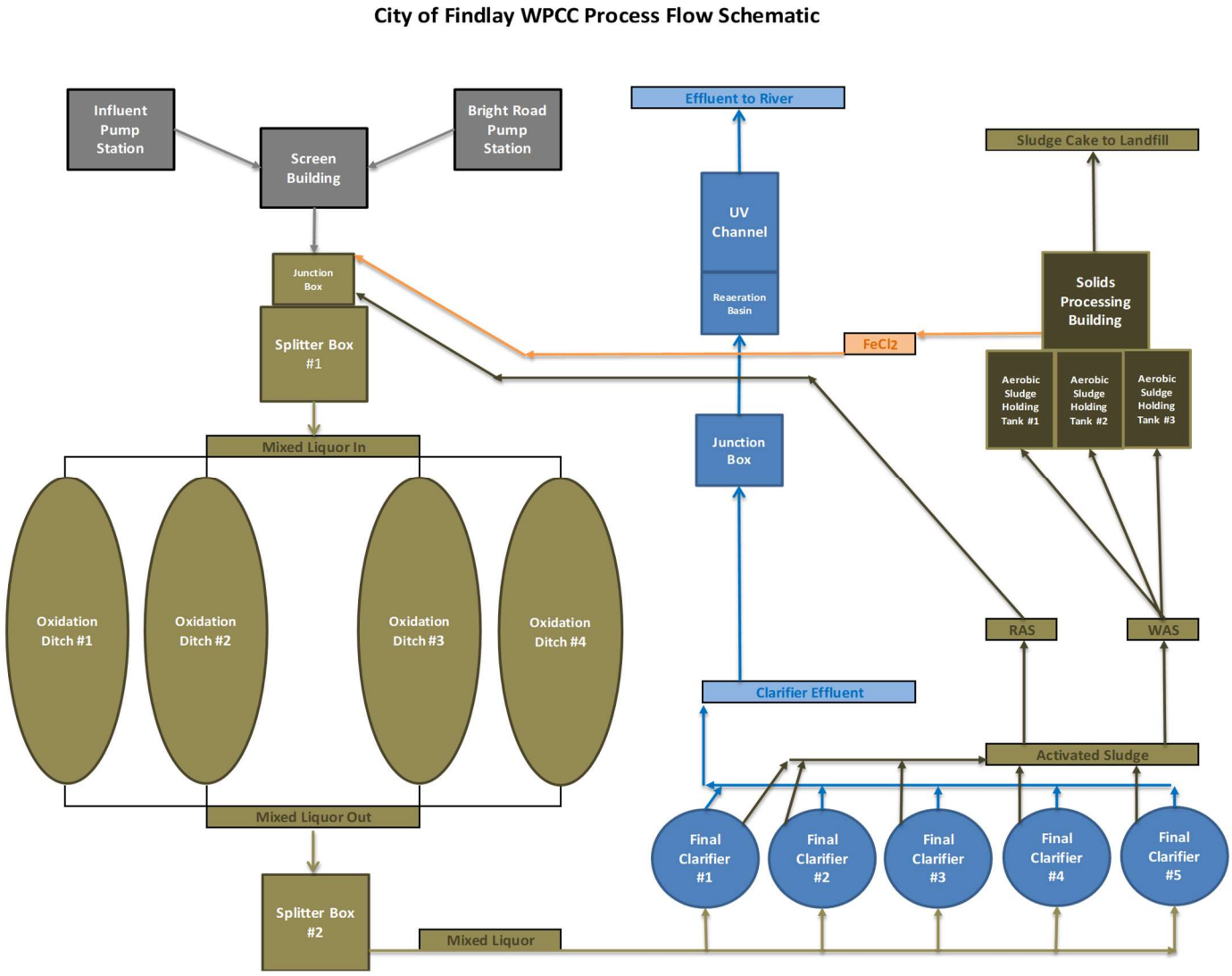

Table 1. Sewage Sludge Removal

Year	Dry Tons Removed
2018	1960
2019	2000
2020	1800
2021	1930
2022	1890

Table 2. Average Annual Effluent Flow Rates

Flow Rate (Million Gallons per Day)					
Year	# obs	Average	Median	95th Percentile	Maximum
2018	365	12.5	10.8	27.6	35.7
2019	365	12.9	11.2	28.5	35.8
2020	366	12.2	10.8	21.5	44.8
2021	365	11.4	9.6	24.4	42.1
2022	365	10.0	9.2	17.2	44.9
2023[a]	59	10.9	9.5	20.8	28.9

MGD = million gallons per day.
[a]= data set ends on February 28, 2023

Table 3. Sanitary Sewer Overflows Discharges

	Occurrences					
Station	2018	2019	2020	2021	2022	2023[a]
002	0	4	2	2	0	1
003	0	0	0	0	0	0
009 (eliminated)	1	0	0	0	0	0
011	2	10	5	9	4	2
012	0	0	0	0	0	0
015	0	3	0	0	0	0
016	0	0	0	0	0	0
018	8	12	5	4	0	3
021 (eliminated)	0	6	0	0	0	0
024	0	0	0	0	0	0
025	0	0	0	0	0	0
026	0	0	0	0	0	0
300	0	0	0	1	0	3

[a]= data set ends on February 28, 2023

Table 4. Combined Sewer Overflow Discharges

Station	Occurrences							Volume (MG)					
	2018	2019	2020	2021	2022	2023[a]		2018	2019	2020	2021	2022	2023[a]
004	1	2	1	3	1	0		1.2	0.58	3.1	5.7	2.5	0
005	1	1	0	3	0	0		0	2.6	0	0.21	0	0
006	1	2	1	3	0	0		0.69	0.32	1.8	3.4	0	0.1
007	0	2	1	2	0	0		0	2.8	1.1	2.7	0	0
010	0	2	0	1	0	0		0	9.6	0	0.98	0	0
013	0	0	0	0	0	0		0	0	0	0	0	0
014	0	0	0	0	0	0		0	0	0	0	0	0
019	1	3	2	1	0	1		2.2	9.1	4.7	3.9	0	0.93
022	0	0	0	0	0	0		0	0	0	0	0	0
023	0	0	0	0	0	0		0	0	0	0	0	0

[a]= data set ends on February 28, 2023

Table 5. Calculated Annual Total Phosphorus Loadings

Year	Median Phosphorus (mg/L)	Median Flow (MGD)	Median Loading (kg/day)
2018	0.74	10.8	30
2019	0.73	11.2	31
2020	0.73	10.8	30
2021	0.79	9.6	29
2022	0.78	9.2	27
2023[a]	0.60	10.8	24

[a] = data set ends on 2/28/23
MGD = million gallons per day

Table 6. Effluent Characterization Using Pretreatment Data and Ohio EPA Data

Parameter	Ohio EPA		Pretreatment				
	10/25/22	11/29/22	12/3/18	12/2/19	12/7/20	12/6/21	12/5/22
Antimony	0.678	0.69	AA (5)	AA (5)	AA (0.8)	0.9	1
Arsenic	3.27	0.376	AA (5)	AA (5)	AA (0.3)	0.6	AA (0.3)
B2EHP	AA (1.75)	AA (1.71)	AA (5)	AA (5)	AA (1.83)	AA (1.83)	AA (1.63)
Beryllium	0.0311	AA (0.0096)	AA (3)	AA (3)	AA (0.1)	AA (0.1)	AA (0.1)
Cadmium	0.0798	AA (0.0221)	AA (3)	AA (3)	AA (0.1)	AA (0.1)	AA (0.1)
Chloroform	AA (0.316)	0.622	AA (5)	AA (5)	AA (0.3)	AA (0.3)	AA (0.3)
Chromium	0.784	0.329	AA (7)	AA (7)	1.8	AA (1.5)	2
Copper	7.92	1.64	AA (8)	AA (8)	4.3	7.6	4
Lead	0.752	0.109	AA (10)	AA (10)	AA (0.2)	AA (0.2)	AA (0.2)
Molybdenum	NT	NT	AA (10)	12.9	26	20	30
Nickel	4.06	4.43	AA (8)	AA (8)	3.1	5.4	6
Nitrate + Nitrite (mg/L)	23.8	13.2	NT	NT	NT	NT	NT
Selenium	0.293	0.385	AA (4)	AA (4)	0.7	0.3	AA (0.2)
Silver	AA (0.2)	AA (0.2)	AA (1)	AA (1)	AA (0.4)	AA (0.4)	AA (0.4)
Total Filterable Residue (mg/L)	664	514	NT	NT	NT	NT	NT
Zinc	23.8	24	16	23	37	40	30

Units in µg/L unless otherwise indicated
AA = not-detected (analytical method detection limit)
NT = not tested
B2EHP = bis(2-ethylhexyl) phthalate

Table 7. Effluent Characterization Using Self-Monitoring Data

Parameter	Unit	Current Limits		# Obs	Percentiles		Data Range
		30 Day	Daily		50th	95th	
Water Temperature	°C	Monitoring Only		1885	15.1	22.4	6.2 - 23.5
Total Precipitation	Inches	Monitoring Only		1885	< .01	.608	0 - 2.78
Dissolved Oxygen - Summer	mg/L	--	6.7[m]	920	7.6	7.2*	6.8 - 9.1
Dissolved Oxygen - Winter	mg/L	--	5.3[m]	965	9	8.1*	6.4 - 10.2
Total Suspended Solids - Summer	kg/day	795	1250[w]	656	< 113	334	0 - 1670
Total Suspended Solids - Summer	mg/L	14	22[w]	656	< 4	7	0 - 29
Total Suspended Solids - Winter	kg/day	1030	1540[w]	684	< 118	659	0 - 3390
Total Suspended Solids - Winter	mg/L	18	27[w]	684	< 4	12	0 - 38
Oil and Grease	mg/L	--	10	146	< 5	5.78	0 - 9.5
Nitrogen, Ammonia - Summer	kg/day	51.7	79.5[w]	656	< 2.82	< 2.82	0 - 40.4
Nitrogen, Ammonia - Summer	mg/L	0.91	1.4[w]	656	< .1	< .1	0 - .94
Nitrogen, Ammonia - Winter - 2018-2023	kg/day	199	301[w]	605	< 2.4	< 2.4	0 - 42.5
Nitrogen, Ammonia - Winter - 2018-2018	kg/day	239	358[w]	86	< 4.22	< 4.22	0 - 23.7
Nitrogen, Ammonia - Winter - 2018-2023	mg/L	3.5	5.3[w]	605	< .1	< .1	0 - .92
Nitrogen, Ammonia - Winter - 2018-2018	mg/L	4.2	6.3[w]	86	< .1	< .1	0 - .21
Nitrogen Kjeldahl, Total	mg/L	Monitoring Only		62	< .5	1.07	0 - 1.8
Nitrite Plus Nitrate, Total	mg/L	Monitoring Only		167	13.4	20.7	3.09 - 24.5
Phosphorus, Total	kg/day	56.8	85.2[w]	1347	27.6	55.1	7.65 - 145
Phosphorus, Total	mg/L	1.0	1.5[w]	1347	.75	.97	.22 - 1.09
Orthophosphate, Dissolved	mg/L	Monitoring Only		79	.67	.92	.21 - 1.01
Cyanide, Free	mg/L	Monitoring Only		3	--	--	< .003
Selenium, TR	µg/L	Monitoring Only		62	< 4	1	0 - 1
Nickel, TR	µg/L	Monitoring Only		24	< 8	5.85	0 - 14.3
Silver, TR	µg/L	Monitoring Only		3	--	--	< 1

Parameter	Unit	Current Limits		# Obs	Percentiles		Data Range
		30 Day	Daily		50th	95th	
Zinc, TR	µg/L	Monitoring Only		24	28.5	47.7	14 - 86.9
Cadmium, TR	µg/L	Monitoring Only		20	--	--	< 3
Lead, TR	µg/L	Monitoring Only		24	< 10	< 10	0 - 2
Chromium, TR	µg/L	Monitoring Only		20	< 7	2	0 - 2
Copper, TR	µg/L	Monitoring Only		24	< 8	3.85	0 - 4
Chromium, Dissolved Hexavalent	µg/L	Monitoring Only		83	2.48	5	0 - 6.19
E. coli	#/100 mL	126	284[w]	656	8	146	0 - 2420
Bis(2-ethylhexyl) Phthalate	µg/L	Monitoring Only		20	--	--	< 5
Flow Rate	MGD	Monitoring Only		1885	10.4	23.7	2.27 - 44.9
Mercury, Total - 2018-2023	kg/day	0.000222	0.0966	63	.0000332	.000145	0 - .000626
Mercury, Total - 2018	kg/day	0.000318	0.0966	8	.0000394	.000155	0 - .000196
Mercury, Total - 2018-2023	ng/L	3.9	1700	63	.845	2.76	0 - 13.6
Mercury, Total - 2018	ng/L	5.6	1700	8	.858	4.58	0 - 6.18
Cyanide, Free	kg/day	0.296	1.25	17	--	--	< .0000825
Cyanide, Free	µg/L	5.2	22	17	--	--	< 3
Acute Toxicity, Ceriodaphnia dubia	TUa	--	1.0	10	--	--	< .1
Chronic Toxicity, Ceriodaphnia dubia	TUc	1.0	--	10	--	--	< 1
Acute Toxicity, Pimephales promelas	TUa	Monitoring Only		5	--	--	< .2
Chronic Toxicity, Pimephales promelas	TUc	Monitoring Only		5	--	--	< 1
pH, Maximum	S.U.	--	9.0	1347	7.2	7.5	6.6 - 7.8
pH, Minimum	S.U.	--	6.5[m]	1347	7.1	6.8*	6.5 - 7.8
Residue, Total Filterable	mg/L	Monitoring Only		76	628	715	301 - 778
CBOD5 - Summer	kg/day	568	852[w]	652	90.6	277	0 - 1410
CBOD5 - Summer	mg/L	10	15[w]	652	2	6	0 - 35
CBOD5 - Winter	kg/day	739	1140[w]	686	106	372	0 - 942
CBOD5 - Winter	mg/L	13	20[w]	686	3	7	0 - 17

* = 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 limit

Table 8. Projected Effluent Quality for Outfall 001

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	436	21	0.08	0.12
Ammonia (Winter)	mg/L	364	5	1.7	0.644
Antimony	µg/L	5	4	1.68	2.3
Arsenic - TR	µg/L	5	3	5.49	7.52
Beryllium	µg/L	2	1	0.086	0.118
Bis(2-ethylhexyl) phthalate	µg/L	23	0	--	--
Cadmium - TR	µg/L	6	1	0.153	0.21
Chloroform	µg/L	5	1	1.04	1.43
Chromium - TR	µg/L	6	5	3.07	4.2
Hexavalent Chromium (Dissolved)	µg/L	84	63	4.3	5.8
Copper - TR	µg/L	29	7	6.5	10.6
Cyanide - free	µg/L	18	0	--	--
Lead - TR	µg/L	6	3	3.07	4.2
Mercury	ng/L	72	66	2.2	3.3
Molybdenum	µg/L	5	4	50.4	69
Nickel - TR	µg/L	27	9	7	11.9
Nitrate-N + Nitrite-N	mg/L	171	171	18.7	25
Selenium - TR	µg/L	16	10	1.1	1.5
Silver	µg/L	10	0	--	--
Total Filterable Residue	mg/L	79	79	712	817
Zinc - TR	µg/L	27	27	45.7	64.7

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 9. Summary of Acute and Chronic Toxicity Results

	Ceriodaphnia dubia		*Pimephales promelas*	
Date	**Acute (Tu_a)**	**Chronic (Tu_c)**	**Acute (Tu_a)**	**Chronic (Tu_c)**
4/2/2018	AA	AA	--	--
10/12/2018	AA	AA	AA	AA
4/8/2019	AA	AA	--	--
10/7/2019	AA	AA	AA	AA
4/6/2020	AA	AA	--	--
10/5/2020	AA	AA	AA	AA
4/5/2021	AA	AA	--	--
10/4/2021	AA	AA	AA	AA
4/4/2022	AA	AA	--	--
10/3/2022	AA	AA	AA	AA

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 10. Aquatic Life Use Attainment Table

River Mile Invertebrate/ Fish	MI[2]	IBI	MIwb[a]	ICI[b]	QHEI	Attainment[c]	Causes[d]	Soures[e]
Blanchard River			*WWH - ECBP Ecoregion*					
101.0/101.3	4.9	36[ns]		G	32.0	Full		
100.1/____	16.2			G				
97.5/97.5	43	34*	9.0	20*	46.0	NON	Direct habitat alteration, nutrients, flow alteration, ammonia	Ag related channelization, crop production streambank modification/destabilization
96.0/95.6	61	30*	7.3*	16*	46.0	NON	Direct habitat alteration, organic enrichment/DO	Ag related channelization, crop production, combined sewer overflow (via Shallow Run/ Dunkirk)
88.2/88.3	80	46	9.3	48	55.5	Full		
82.1/82.1	91	34*	8.4	VG	62.5	Partial	Organic enrichment/DO, ammonia, nutrients	Source unknown (ammonia) via Ripley Run, crop production, minor municipal WWTP (Forest)
75.8/75.6	142	38[ns]	7.2*	VG	57.5	Partial	Organic enrichment, nutrients	Crop production
71.9/71.9	145	40	8.7	VG	51.0	Full		
61.7/61.9	238	36[ns]	7.2*	48	62.5	Partial	Organic enrichment, nutrients, thermal modification	Crop production
57.8/57.9	335	36*	9.7	12*	46.0	NON	Thermal modification, organic enrichment/DO, development related direct habitat alteration, siltation	Dam construction, urban runoff, combined sewer overflows
57.3/57.3	336	42	10.1	24*	63.0	Partial	Thermal modification, nutrients, organic enrichment/DO	Upstream impoundment, urban runoff, combined sewer overflows
56.9/56.8	336	38[ns]	9.3	16*	56.5	Partial	Thermal modification, nutrients, development related direct habitat alteration	Upstream impoundment, urban runoff, combined sewer overflows, channelization
55.2/54.7	346	36*	7.6*	42	54.5	Partial	Nutrients, organic enrichment/DO, thermal modification	Upstream impoundment, major municipal point source (Findlay)

a- MIwb is not applicable to headwater streams with drainage areas ≤ 20 mi^2.
b- A narrative evaluation of the qualitative sample based on attributes such as community composition, EPT taxa richness, and number of sensitive taxa was used when quantitative data were not available or considered unreliable due to current velocities less than 0.3 fps flowing over the artificial substrates.
c- Attainment status based on a single organism group is parenthetically expressed.
d- Causes listed are considered to be a primary influence on water quality, but may not be the only issue leading to impairment. See text for discussion of additional causes that cumulatively have led to impairment.
e- Sources listed are considered to be a primary influence on water quality, but may not be the only source leading to impairment. See text for discussion of additional sources that cumulatively have led to impairment.
ns- Nonsignificant departure from biocriteria (≤4 IBI or ICI units, or ≤0.5 MIwb units).
* - Indicates significant departure from applicable biocriteria (>4 IBI or ICI units, or >0.5 MIwb uits). Underlined scores are in the Poor or Very Poor range.

Data gathered from Appendix A *Blanchard River TMDL July 2007*

Table 11. 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		
Ammonia (Summer)	mg/L	--	--	--	1.5	--	--
Ammonia (Winter)	mg/L	--	--	--	4	--	--
Antimony	µg/L	--	780	--	190	900	1800
Arsenic - TR	µg/L	--	580	100	150	340	680
Beryllium	µg/L	--	130[c]	100	55	470	940
Bis(2-ethylhexyl) phthalate	µg/L	--	32[c]	--	8.4	1100	2100
Cadmium - TR	µg/L	--	730	50	5.4	14	28
Chloroform	µg/L	--	1700[c]	--	140	1300	2600
Chromium - TR	µg/L	--	14000	100	200	4100	8200
Hexavalent Chromium (Dissolved)	µg/L	--	14000	--	11	16	31
Copper - TR	µg/L	--	64000	500	22	36	72
Cyanide - free	µg/L	--	48000	--	5.2	22	44
Lead - TR	µg/L	--	--	100	23	440	880
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Molybdenum	µg/L	--	10000	--	20000	190000	370000
Nickel - TR	µg/L	--	43000	200	120	1100	2200
Nitrate-N + Nitrite-N	mg/L	--	--	100	--	--	--
Selenium - TR	µg/L	--	3100	50	5	62	120
Silver	µg/L	--	11000	--	1.3	9	18
Total Filterable Residue	mg/L	--	--	--	1500	--	--
Zinc - TR	µg/L	--	35000	25000	280	280	560

[c] = carcinogen

Table 12. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	0.17	USGS Gages 04188300 and 04189000
7Q10	cfs	annual	0.21	USGS Gages 04188300 and 04189000
30Q10	cfs	summer	0.31	USGS 04188300
		winter	1.24	USGS 04188300
90Q10	cfs	annual	0.32	USGS Gages 04188300 and 04189000
Harmonic Mean	cfs	annual	1.84	USGS Gages 04188300 and 04189000
Mixing Assumption	%	average	25	
		maximum	100	
Hardness, OMZ	mg/L	annual	274	Station 901; median; n=86
Hardness, IMZ	mg/L	annual	274	Station 901; median; n=86
pH	S.U.	summer	7.8	Station 901; 75 Percentile; n=20
		winter	7.9	Station 901; 75 Percentile; n=17
Temperature	ºC	summer	23	Station 901; 75 Percentile; n=20
		winter	5	Station 901; 75 Percentile; n=17
Findlay WPCC flow	cfs	annual	23.208	Average Design Flow
Background Water Quality				
Ammonia (Summer)	mg/L		0	Station 801; 2018-2023; n=21; 18<MDL;
Ammonia (Winter)	mg/L		0	Station 801; 2018-2023; n=17; 15<MDL;
Antimony	µg/L		0	No representative data available.
Arsenic - TR	µg/L		0.8	Ohio EPA; 2022; n=2; 0<MDL; Station P05S60
Beryllium	µg/L		0	No representative data available.
Bis(2-ethylhexyl) phthalate	µg/L		0	Ohio EPA; 2005; n=5; 5<MDL; Station P05S61
Cadmium - TR	µg/L		0	Ohio EPA; 2022; n=2; 2<MDL; Station P05S60
Chloroform	µg/L		0	No representative data available.
Chromium - TR	µg/L		0.43	Ohio EPA; 2022; n=2; 0<MDL; Station P05S60
Hexavalent Chromium (Dissolved)	µg/L		0	No representative data available.
Copper - TR	µg/L		1.92	Ohio EPA; 2022; n=2; 0<MDL; Station P05S60
Cyanide - free	µg/L		0	No representative data available.
Lead - TR	µg/L		0.27	Ohio EPA; 2022; n=2; 1<MDL; Station P05S60
Mercury	ng/L		0	No representative data available.
Molybdenum	µg/L		0	No representative data available.
Nickel - TR	µg/L		2.9	Ohio EPA; 2022; n=2; 0<MDL; Station P05S60
Nitrate-N + Nitrite-N	mg/L		2.84	Station 801; 2018-2023; n=84; 0<MDL;
Selenium - TR	µg/L		0.32	Ohio EPA; 2022; n=2; 1<MDL; Station P05S60
Silver	µg/L		0	No representative data available.
Total Filterable Residue	mg/L		0	No representative data available.
Zinc - TR	µg/L		18.6	Ohio EPA; 2022; n=2; 1<MDL; Station P05S60

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

Table 13. 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		
Ammonia (Summer)	mg/L	--	--	--	1.52	--	--
Ammonia (Winter)	mg/L	--	--	--	4.21	--	--
Antimony	µg/L	--	795	--	190	907	1800
Arsenic - TR	µg/L	--	591	102	150	342	680
Beryllium	µg/L	--	133	102	55	473	940
Bis(2-ethylhexyl) phthalate	µg/L	--	33	--	8.4	1108	2100
Cadmium - TR	µg/L	--	744	51	5.4	14	28
Chloroform	µg/L	--	1734	--	140	1310	2600
Chromium - TR	µg/L	--	14277	102	200	4130	8200
Hexavalent Chromium (Dissolved)	µg/L	--	14277	--	11	16	31
Copper - TR	µg/L	--	65268	510	22	36	72
Cyanide - free	µg/L	--	48951	--	5.2	22	44
Lead - TR	µg/L	--	--	102	23	443	880
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Molybdenum	µg/L	--	10198	--	20045	191392	370000
Nickel - TR	µg/L	--	43852	204	120	1108	2200
Nitrate-N + Nitrite-N	mg/L	--	--	102	--	--	--
Selenium - TR	µg/L	--	3161	51	5	62	120
Silver	µg/L	--	11218	--	1.3	9.1	18
Total Filterable Residue	mg/L	--	--	--	1503	--	--
Zinc - TR	µg/L	--	35693	25495	281	282	560

[A] Allocation must not exceed the Inside Mixing Zone Maximum

[B] 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 14. Parameter Assessment

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

No Parameters in this group

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	Beryllium
Bis(2-ethylhexyl) phthalate	Cadmium - TR	Chromium - TR
Cyanide - free	Lead - TR	Molybdenum
Nickel - TR	Nitrate-N + Nitrite-N	Silver
Zinc - TR	Selenium - TR	Chloroform

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

Hexavalent Chromium (Dissolved)	Copper – TR	Total Filterable Residue

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.

No Parameters in this group

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	1700

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

Table 15. 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]
Total Precipitation	Inches	- - - - - - - - - - Monitor - - - - - - - - - -				M
Dissolved Oxygen (Summer)	mg/L	6.7[m]	--	--	--	PD
Dissolved Oxygen (Winter)	mg/L	5.3[m]				PD
TSS (summer)	mg/L	22[d]	14	1250[d]	795	PD
TSS (winter)	mg/L	27[d]	18	1540[d]	1030	PD
Oil & Grease	mg/L	10	--	--	--	WQS
Ammonia (summer)	mg/L	1.4 [d]	0.91	79.5 [d]	51.7	PD
Ammonia (winter)	mg/L	5.3 [d]	3.5	301 [d]	199	PD
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - Monitor - - - - - - - - - -				M
Nitrate plus Nitrite	mg/L	- - - - - - - - - - Monitor - - - - - - - - - -				M
Phosphorus	mg/L	1.5	1.0	85.2	56.8	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
Dissolved Hexavalent Chromium	µg/L	- - - - - - - - - - Monitor - - - - - - - - - -				M
E. coli	#/100 mL	284 [d]	126	--	--	WQS
Flow Rate	MGD	- - - - - - - - - - Monitor - - - - - - - - - -				M[c]
Mercury	ng/L	1700	3.3	0.0966	0.00019	VAR
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
pH, maximum	SU	9.0	--	--	--	WQS
pH, minimum	SU	6.5[m]	--	--	--	WQS
Total Filterable Residue	mg/L	- - - - - - - - - - Monitor - - - - - - - - - -				M
CBOD5 (summer)	mg/L	15[d]	10	852[d]	568	PD
CBOD5 (winter)	mg/L	20[d]	13	1140[d]	739	PD

[a] Effluent loadings based on average design discharge flow of 15 MGD.

[b] Definitions: 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 = Mercury variance (OAC 3745-1-38(J))

WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11
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

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