National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio
for Harrison Wastewater Treatment Plant

Public Notice No.: 205225
Public Notice Date: August 8, 2024
Comment Period Ends: September 7, 2024

Ohio EPA Permit No.: 1PC00002*LD
Application No.: OH0021440

Name and Address of Applicant:
City of Harrison
10999 Campbell Road
Harrison, OH 45030

Name and Address of Facility Where Discharge Occurs:
Harrison Wastewater Treatment Plant
10999 Campbell Road
Harrison, OH 45030
Hamilton County

Receiving Water: Whitewater River

Subsequent Stream Network: Great Miami River, Ohio River

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 water. 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.

Monitoring for Free Cyanide at outfall 001 is proposed for addition to collect adequate data for a reasonable potential analysis.

Monitoring for selenium is proposed to be removed from outfall station 001 and influent station 601 because this parameter does not have the reasonable potential to contribute to WQS exceedances.

Reduced monitoring frequency is proposed for oil and grease at outfall stations 001 and 601 as there is a demonstrated history of meeting oil and grease limits.

Reduced monitoring frequencies are proposed for copper and mercury at outfall stations 001 and 601 due to lack of reasonable potential to exceed WQS.

Monitoring for temperature, pH and dissolved oxygen are proposed to be removed from upstream monitoring station 801 because this data is not currently needed as part of the reasonable potential analysis.

Monitoring for dissolved oxygen is proposed to be removed from downstream monitoring station 901 because this parameter data is not currently needed as part of the reasonable potential analysis.

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

Annual acute and chronic toxicity monitoring 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.

An additional sludge monitoring station 588 is proposed for emergency or optional sludge disposal at another NPDES permitted facility.

A schedule of compliance for pretreatment local limits evaluation is included in Part I.C of the permit.

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; pretreatment program requirements; 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 Risa Stumbo, (937) 285-6091, risa.stumbo@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: http://epa.ohio.gov/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, written notification 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

Harrison Wastewater Treatment Plant (WWTP) discharges to the Whitewater River at River Mile 7.6. Figure 1 shows the approximate location of the facility.

This segment of the Whitewater River is described by Ohio EPA River Code: 14-300, Hydrologic Unit Code: 05080003-08-10, County: Hamilton, Ecoregion: Interior Plateau. The Whitewater River is designated for the following uses under Ohio's WQS (OAC 3745-1-21): Exceptional Warmwater Habitat, Agricultural Water Supply, Industrial Water Supply, Primary Contact Recreation. It is listed as a Superior High Quality Water under Ohio's antidegradation rule (OAC 3745-1-05).

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

The Harrison WWTP was constructed in 1970 and last upgraded in 2004. The average design flow is 2.3 million gallons per day (MGD). Harrison WWTP has the following treatment processes which are shown on Figure 2:

- Influent Pumping
- Screening
- Grit Removal
- Scum Removal
- Activated Sludge Aeration/Oxidation Ditches
- Secondary Clarification
- Ultraviolet Disinfection

The City of Harrison operates and maintains a separate sanitary sewer system that includes five lift stations. The collection system serves the city of Harrison, Ohio and the town of West Harrison, Indiana for a total population of approximately 14,086.

The City of Harrison implements an Ohio EPA-approved industrial pretreatment program. Based on information in the 2023 NPDES renewal application, seven industrial users, including one categorical industrial user and one significant noncategorical user, discharge approximately 0.115 MGD to the treatment plant.

Harrison's potable water comes from the city's ground water wells and from the City of Cincinnati's surface water treatment plant. The City of Harrison also has an emergency/back-up connection with the Tri-Township Water Corporation out of Bright, Indiana.

The Harrison WWTP utilizes the following sewage sludge treatment processes:

- Aerobic Digestion
- Gravity Thickening
- Polymer, Lime, Ferric Chloride, and Alum Addition
- Mechanical Dewatering

Treated sludge is hauled to a sanitary landfill. As a back-up, sludge can also be land applied or hauled to another NPDES permit holder. Table 1 shows the totals for the last five years of sludge removed from the treatment plant.

DESCRIPTION OF EXISTING DISCHARGE

Table 2 presents the effluent violations for Harrison WWTP during the previous five years (June 2018 - May 2023). The violations had similar causes; excessive filamentous bacteria in the oxidation ditches which was remedied by increased wasting of solids.

The average annual effluent flow rate for Harrison WWTP for the previous five years is presented in Table 3. Harrison WWTP has an estimated infiltration/inflow (I/I) rate of less than 0.01 MGD that does not cause known problems in the collection system. Harrison continues to perform the following activities to minimize I/I: street rehabilitation involving storm sewers.

Harrison WWTP reports SSOs at station 300. No SSOs were reported over the past five years.

Table 4 presents data characterizing the annual total phosphorus load from the Harrison WWTP during the previous five years.

Table 5 presents chemical specific data compiled from data reported in annual pretreatment reports. Because this data is substantially identical to the application requirements in 40 CFR 122.21(j), the Director has waived the requirement for submittal of expanded effluent testing data as part of the NPDES renewal application.

Table 6 presents a summary of unaltered Discharge Monitoring Report (DMR). Data are presented for the period June 2018 through May 2023, and current permit limits are provided for comparison.

Table 7 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 8 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 Whitewater River Mainstem large river assessment unit, OHLR050800039001, which includes the Whitewater River in the vicinity of Harrison WWTP, is listed as impaired for recreation for bacteria (TMDL needed) on Ohio's 2022 303(d) list. The Indiana Department of Environmental Management has initiated the TMDL for the southern portion of the Whitewater River which includes impairments for bacteria in February 2020.

The attainment status of the Whitewater River watershed is reported in the final Ohio 2022 Integrated Water Quality Monitoring and Assessment Report. 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 9) 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 most recent data available for the Whitewater River is from a 2017-2019 study. The Whitewater River is listed as meeting the full biological attainment status of the Exceptional Warmwater Habitat designation both up and downstream of the City of Harrison. The Whitewater River is listed as impaired for recreation due to *E. coli* bacteria due to the following causes: Agriculture and storm water runoff. It appears Harrison WWTP is not contributing to the impairments based on compliance with the *E. coli* limits in the permit. As such, no additional limits are recommended for Harrison WWTP.

The Technical Support Document of this study is available through the Ohio EPA, Division of Surface Water website at:

https://epa.ohio.gov/static/Portals/35/tmdl/TSD/Whitewater%20River/Whitewater_TSD.pdf

The full Integrated Report is available through the Ohio EPA, Division of Surface Water website at:

https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/ohio-integrated-water-quality-monitoring-and-assessment-report

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 Harrison 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)	June 2018 through May 2023
Pretreatment data	2018 - 2022

Statistical Outliers and Other Non-Representative Data

The data were examined, and one outlier was removed from the evaluation as non-representative;

- Copper - 0.22 µg/L on 5/2/2019; low value 100 times lower than others, possible decimal place error.

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 7). 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/static/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 10).

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.

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.

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
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 11, and allocations cannot exceed the Inside Mixing Zone Maximum (IMZM) criteria.

The data used in the WLA are listed in Tables 5 and 6. The WLA results to maintain all applicable criteria are presented in Table 12.

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. Water quality criteria for WET are 0.3 TUa for acute toxicity and 1.0 TUc for chronic toxicity (OAC 3745-1-44).

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 Harrison WWTP, the WLA values for outfall 001 are 1.0 TU_a and 30.89 TU_c.

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

$$TU_c = 100/IC_{25}$$

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):

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

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

$$TU_a = 100/LC_{50}$$

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

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 14 presents the final effluent limits and monitoring requirements proposed for Harrison 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.

Total Suspended Solids, Ammonia, and CBOD5

The concentration limits recommended for total suspended solids, ammonia, and 5-day carbonaceous biochemical oxygen demand are technology-based treatment standards included in 40 CFR Part 122.29, Best Available Demonstrated Control Technology. The effluent loading limits for these parameters are based on previous loadings kept from pre-expansion in 2003. The existing loading limits from the plant design basis of PTI no. 05-11714 are proposed to be continued.

Continuation of the existing ammonia limits are proposed due to the anti-backsliding (ABS) rule. Although the current WLA would allow higher concentration limits for ammonia, 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 this case, none of the 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. The existing limits have been evaluated using the WLA procedure and found to be protective of water quality standards for ammonia toxicity.

The loading limits are proposed to be continued; these were kept from prior to 2004 during the last plant upgrade/expansion at the request of City of Harrison and approved in the PTI 05-11704 issued January 17, 2002.

Dissolved Oxygen, Oil & Grease, pH, and *E. coli*
Limits proposed for dissolved oxygen, 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 Whitewater River. The limits for dissolved oxygen are also based on plant design criteria. Reduced monitoring is proposed for oil and grease as there is a demonstrated history of meeting oil and grease limits.

Cadmium, Chromium, Dissolved Hexavalent Chromium, Copper, Lead, Mercury, Nickel, Zinc, and Total Filterable Residue
The Ohio EPA risk assessment (Table 13) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 5 and 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 for total filterable residue is proposed to continue on a monthly basis, and monitoring for metal parameters is proposed to continue on a quarterly basis to document that these pollutants continue to remain at low levels. Monitoring frequencies for copper and mercury are proposed to be reduced to once a quarter due to low reasonable potential grouping.

Antimony, Arsenic, Beryllium, Molybdenum, Selenium, Silver, and Thallium
The Ohio EPA risk assessment (Table 13) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 5 and 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. Monitoring for selenium at outfall 001 is proposed to be removed. Sampling data as part of submittal with the permittee's annual pretreatment report will be used in future analysis for these parameters.

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

Nitrite + Nitrate Nitrogen, and Total Kjeldahl Nitrogen
A continuation of monitoring for nitrite + nitrate nitrogen, and total Kjeldahl nitrogen is proposed for outfall 001 based on best technical judgment. In addition, continued monitoring of these parameters is proposed at the upstream and downstream stations, 801 and 901. The Harrison WWTP discharges to the Whitewater River, which is part of the Great Miami River basin. The purpose of the monitoring is to maintain a data set on nutrient loadings and ambient concentrations in the basin. This data will be available for future studies addressing nutrient-related water quality impairment. Nitrite + nitrate nitrogen was evaluated using WLA procedures and does not have the reasonable potential to exceed the wasteload allocation.

Dissolved Orthophosphate and Total Phosphorus
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.

Whole Effluent Toxicity Reasonable Potential
Based on evaluating the WET data presented in Table 8 and Attachment 1, and other pertinent data under the provisions of OAC 3745-33-07(B), the Harrison WWTP is placed in Category 4 with respect to WET. While this indicates that the plant's effluent does not currently pose a toxicity problem, annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11). Annual chronic

toxicity monitoring with the determination of acute endpoints for *Ceriodaphnia dubia* and *Pimephales promelas* is proposed for the life of the permit. The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Free Cyanide
Monitoring of free cyanide is being proposed to allow an adequate evaluation of the effluent quality in the next permit cycle.

Additional Monitoring Requirements
Monitoring for temperature, pH and dissolved oxygen are proposed to be removed from upstream monitoring station 801 because this data is not currently needed as part of the reasonable potential analysis.

Monitoring for dissolved oxygen is proposed to be removed from downstream monitoring station 901 because this parameter data is not currently needed as part of the reasonable potential analysis.

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

Due to safety considerations, sampling of the downstream monitoring station 901 has been collected at the bridge over the Whitewater River at Suspension Bridge Road (RM 1.5) for many years as opposed to the original location of 1,000 feet downstream of 001. It is proposed to update the location within Part II of this permit to include the Suspension Bridge Road location.

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: removal to sanitary landfill, land application or transfer to another NPDES permitted facility.

OTHER REQUIREMENTS

Compliance Schedule
Pretreatment Local Limits Review - A 6-month compliance schedule is proposed for the City of Harrison 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 of Harrison must also submit a pretreatment program modification request. Details are in Part I.C of the permit.

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 Professional 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 Harrison 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.

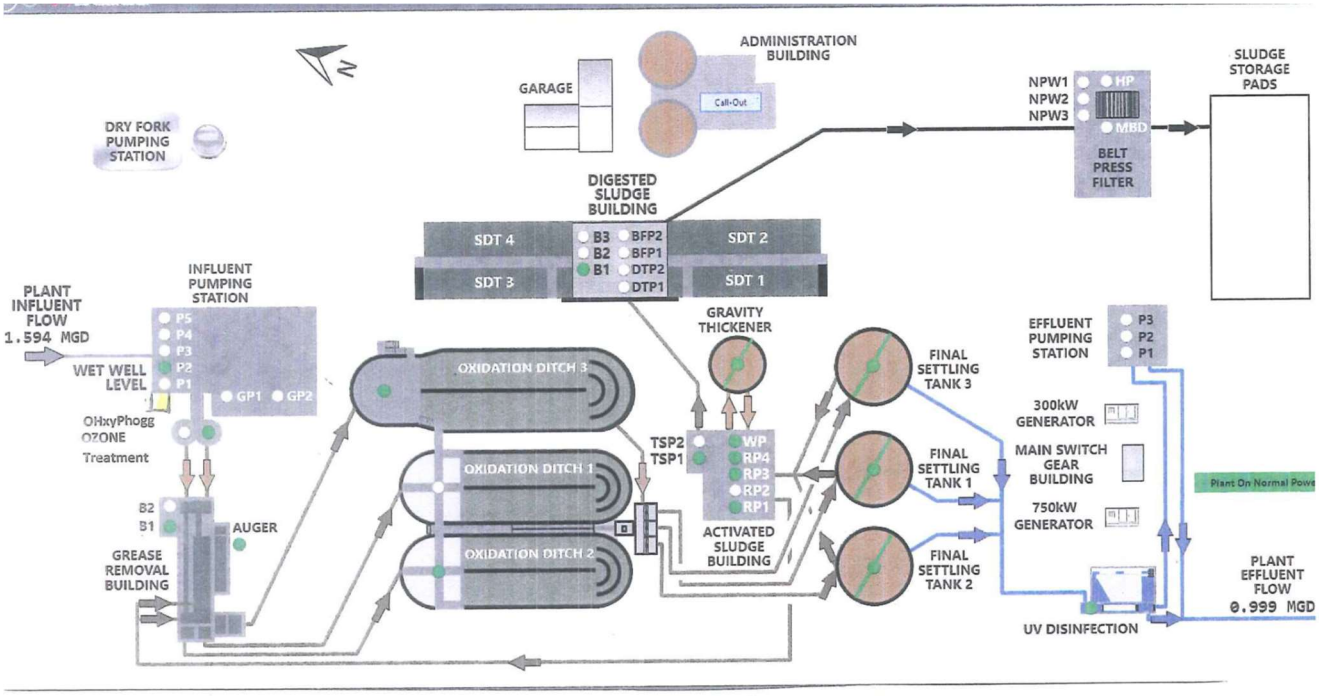
Outfall Signage
Part II of the permit includes requirements for the permittee to place and maintain a sign at each outfall to the Whitewater River providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

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

Stormwater Compliance
To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed on 12/19/2023. The certification number is 1GRN0434*DG. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than 12/19/2028, 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 Harrison WWTP

Figure 2. Diagram of Wastewater Treatment System



City of Harrison WWTP

Table 1. Sewage Sludge Removal (Landfill)

Year	Dry Tons Removed
2018	273
2019	302
2020	283
2021	247
2022	354

Table 1. Effluent Violations for Outfall 001

Parameter	2018	2019	2020	2021	2022	Total
Total Suspended Solids	0	2	0	8	1	**11**
CBOD 5 day	0	0	0	2	0	**2**
Total	**0**	**2**	**0**	**10**	**1**	**13**

Table 3. Average Annual Effluent Flow Rates (6/1/2018-5/31/2023)

	Annual Flow (MGD)		
Year	50th Percentile	95th Percentile	Maximum
2018	0.808	1.148	1.963
2019	0.830	1.166	1.766
2020	0.750	1.027	2.680
2021	0.907	1.163	1.792
2022	0.935	1.201	2.087

MGD = million gallons per day

Table 4. Calculated Annual Total Phosphorus Loadings (6/1/2018-5/31/2023)

Year	# Samples	Median Phosphorus (mg/L)	Median Flow (MGD)	Median Loading (kg/day)
2018	28	7.82	0.808	23.9
2019	48	7.69	0.830	24.1
2020	48	7.32	0.750	20.7
2021	49	8.59	0.907	29.4
2022	28	9	0.961	32.7

MGD = million gallons per day

Table 5. Effluent Characterization Using Pretreatment Data

Parameter (µg/l)	8/23/2018	8/21/2019	9/16/2020	10/27/2021	10/6/2022
Antimony	AA (3)	AA (4)	AA (35)	AA (11)	AA (7)
Arsenic	AA (10)	AA (10)	AA (10)	5	AA (5)
Beryllium	AA (5)	AA (1)	AA (1)	AA (0.2)	AA (0.06)
Cadmium	AA (5)	AA (5)	AA (5)	AA (0.9)	AA (0.8)
Chromium	AA (10)	AA (10)	AA (10)	AA (5)	AA (0.8)
Copper	12	20	21	19	16
Lead	AA (20)	AA (20)	AA (20)	AA (10)	AA (4)
Nickel	AA (10)	AA (10)	AA (10)	8	2
Selenium	AA (10)	AA (30)	AA (30)	AA (8)	AA (7)
Silver	AA (10)	AA (10)	AA (25)	AA (0.7)	0.6
Thallium	AA (25)	AA (25)	AA (25)	AA (6)	AA (4)
Zinc	60	49	47	40	33
Mercury (mg/l)	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.08)	0.4
Beta-BHC*	-	-	-	0.8	-
Molybdenum	AA (6)	AA (7)	AA (7)	AA (3)	2

*No WQ standards for Beta-BHC
AA = not-detected (analytical method detection limit)

Table 6. Outfall 001 Effluent Characterization Using Self-Monitoring Data (June 2018 – May 31, 2023)

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Water Temperature	Annual	°C	- - - - Monitor - - -		1826	19.1	25.9	10.7-27.2
Dissolved Oxygen	Annual	mg/L	--	6.0 min	1257	8.1	7.1**	6.6-10.5
Total Suspended Solids	Annual	mg/L	12	18[a]	723	4	15	1-264
		kg/day	131	196[a]	723	13.03	66.69	0.316-2919
Oil and Grease	Annual	mg/L	--	10 max	239	0	0	0-4.8
Ammonia (Summer)	Summer	mg/L	1.0	1.5[a]	240	0.08	0.442	0.02-2.37
		kg/day	65.2	97.9[a]	240	0.246	1.832	0.006-17.58
Ammonia (Winter)	Winter	mg/L	3.0	4.5[a]	180	0.11	0.767	0-3.97
		kg/day	65.2	97.9[a]	180	0.386	3.672	0-31.36
Total Kjeldahl Nitrogen	Annual	mg/L	- - - - Monitor - - -		60	1	2.9	0-3.9
Nitrate + Nitrite	Annual	mg/L	- - - - Monitor - - -		60	27.65	37.65	0-55.6
Phosphorus	Annual	mg/L	- - - - Monitor - - -		241	8.29	11.8	4.63-15.1
Orthophosphate	Annual	mg/L	- - - - Monitor - - -		62	8	12.34	0.81-24
Selenium	Annual	µg/L	- - - - Monitor - - -		21	0	0	0-0
Nickel	Annual	µg/L	- - - - Monitor - - -		21	0	20	0-21
Zinc	Annual	µg/L	- - - - Monitor - - -		21	48	104	30-142
Cadmium	Annual	µg/L	- - - - Monitor - - -		21	0	0	0-0
Lead	Annual	µg/L	- - - - Monitor - - -		21	0	0	0-0
Chromium	Annual	µg/L	- - - - Monitor - - -		21	0	1	0-1
Copper	Annual	µg/L	- - - - Monitor - - -		59	18	30.3	0.22-65
Chromium, Dissolved Hexavalent	Annual	µg/L	- - - - Monitor - - -		20	0	0.105	0-2.1
E. coli	Annual	#/100 ml	126	284[a]	363	4.1	34.86	0-980.4
Flow Rate	Annual	MGD	- - - - Monitor - - -		1826	0.861	1.174	0.083-2.92
Mercury	Annual	ng/L	- - - - Monitor - - -		60	1	3.51	0-4

Table 6. Outfall 001 Effluent Characterization Using Self-Monitoring Data (June 2018 – May 31, 2023)

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Acute Toxicity, *Ceriodaphnia dubia*	Annual	TUa	- - - - Monitor - - -		5	0	0.16	0-0.2
Acute Toxicity, *Pimephales promelas*	Annual	TUa	- - - - Monitor - - - -		5	0	0	0-0
Chronic Toxicity, *Ceriodaphnia dubia*	Annual	TUc	- - - - Monitor - - -		5	1.41	2.546	0-2.83
Chronic Toxicity, *Pimephales promelas*	Annual	TUc	- - - - Monitor - - -		5	0	0	0-0
pH, Maximum	Annual	S.U.	--	9.0 max	1257	7.7	7.9	6.9-8.3
pH, Minimum	Annual	S.U.	--	6.5 min	1257	7.2*	7.8	6.7-8.1
Residue, Total Filterable	Annual	mg/L	- - - - Monitor - - -		59	984	1130	652-1230
Carbonaceous Biochemical Oxygen Demand (5 day)	Annual	mg/L	10	15[a]	721	3	7	1-54
		kg/day	109	175[a]	721	9.776	31.105	0.316-597.22

* = For minimum pH, 5th percentile shown in place of 50th percentile.
** = For dissolved oxygen, 5th percentile shown in place of 95th percentile.
[a] = daily.

Table 7. Projected Effluent Quality for Outfall 001

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/l	240	240	0.18603	0.37657
Ammonia (Winter)	mg/l	180	179	0.35405	0.76822
Antimony	µg/l	5	0	--	--
Arsenic	µg/l	2	1	13.87	19
Beryllium	µg/l	5	0	--	--
Cadmium	µg/l	26	0	--	--
Chromium	µg/l	26	3	0.949	1.3
Copper	µg/l	63	63	25.956	33.804
Hexavalent Chromium (Dissolved)	µg/l	20	1	2.1462	2.94
Lead	µg/l	26	0	--	--
Molybdenum	µg/l	2	1	8.322	11.4
Mercury	ng/l	60	57	2.3109	3.5368
Nickel	µg/l	26	9	36.237	42.487
Selenium	µg/l	26	0	--	--
Silver	µg/l	2	1	1.9418	2.66
Thallium	µg/l	5	0	--	--
Total Filterable Residue	mg/l	59	59	1091.9	1223.4
Zinc	µg/l	26	26	73.437	100.34

MDL = analytical method detection limit
PEQ = projected effluent quality

Table 8. Summary of Acute and Chronic Toxicity Results

Date	*Ceriodaphnia Dubia*		*Pimephales promelas*	
	TU_a	TU_c	TU_a	TU_c
10/23/2018	AA	1.41	AA	AA
10/18/2019	0.2	1.02	AA	AA
10/20/2020	AA	AA	AA	AA
10/26/2021	AA	1.41	AA	AA
10/21/2022	0.2	2.83	AA	AA

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

Table 9. Use Attainment Table

Location	RM[a]	Existing Use	IBI	MIwb[b]	ICI[c]	QHEI	Status[d]
Whitewater River at Harrison near Ohio/Indiana state line	8.28	EWH	52	11.68	52	86.25	Full
Whitewater River at private canoe launch	3.80	EWH	50	11.45	58	76.50	Full
Whitewater River west of Hooven near Suspension Bridge Road	1.50	EWH	50	11.77	E	85.00	Full

Data gathered from *Biological and Water Quality Study of the Whitewater River Study Area December 2020*.
RM = River mile
EWH = Exceptional warmwater habitat
IBI = Index of biotic integrity
ICI = Invertebrate community index
QHEI = Qualitative habitat evaluation index
a River Mile (RM) represents the point of record for the station, not the actual sampling RM.
b MIwb (Modified Index of Well Being) is not applicable to headwater streams with drainage areas < 20 mi^2.
c A narrative evaluation of the qualitative sample based on attributes such as EPT taxa richness, number of sensitive taxa and community composition was used when quantitative data was not available or considered unreliable. VP=Very Poor; P=Poor; LF= Low Fair; F= Fair; MG = Marginally Good; G = Good; VG = Very Good; E= Exceptional.
d Attainment is given for the proposed status when a change is recommended.

Table 10. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	0.6	--	--
Ammonia (Winter)	mg/L	--	--	0.6	--	--
Antimony	µg/L	640	--	190	900	1800
Arsenic	µg/L	--	100	150	340	680
Beryllium	µg/L	280	100	52	440	890
Cadmium	µg/L	--	50	5.3	14	27
Chromium	µg/L	--	100	190	4000	8000
Diss. Hex. Chromium	µg/L	--	--	11	16	31
Copper	µg/L	--	500	21	35	70
Lead	µg/L	--	100	22	420	840
Mercury[A]	ng/L	12	10000	910	1700	3400
Molybdenum	µg/L	--	--	2000	190000	370000
Nickel	µg/L	4600	200	120	1100	2100
Selenium	µg/L	4200	50	5	62	120
Silver	µg/L	--	--	1.3	8.5	17
Thallium	µg/L	--	--	17	79	160
Total Filterable Residue	mg/L	--	--	1500	--	--
Zinc	µg/L	26000	25000	270	270	550

A = Bioaccumalative Chemical of Concern

Table 11. Instream Conditions and Discharger Flow

Parameter	Units		Value	Basis
Whitewater River - Harrison WWTP discharge				
7Q10	cfs	annual	114.2	USGS Gage 03276500 extrapolate flows*
1Q10	cfs	annual	104.2	USGS Gage 03276500 extrapolate flows*
30Q10	cfs	summer	130.4	USGS Gage 03274000 extrapolate flows**
		winter	205.5	USGS Gage 03274000 extrapolate flows**
Harmonic Mean	cfs	annual	433.6	USGS Gage 03274000 extrapolate flows**
Mixing Assumption	%	average	93.15	
		maximum	93.15	
Instream Hardness	mg/l	annual	264	DMR 901 station; 60 values; 0<MDL; 2018-2023; 50th percentile
pH	S.U.	summer	8.22	DMR 901 station; 20 values; 0<MDL; 2018-2023; 75th percentile
		winter	8.9	DMR 901 station; 15 values; 0<MDL; 2018-2023; 75th percentile
Temperature	C	summer	23.7	DMR 901 station; 20 values; 0<MDL; 2018-2023; 75th percentile
		winter	5.2	DMR 901 station; 15 values; 0<MDL; 2018-2023; 75th percentile
Discharger Flow:				
Harrison WWTP flow	cfs	annual	3.5586	NPDES application
Background Water Quality				
Ammonia (Summer)	mg/l	summer	0.03	DMR 801; 20 values; 0<MDL; 2018-2023; 50th percentile
Ammonia (Winter)	mg/l	winter	0.04	DMR 801; 15 values; 0<MDL; 2018-2023; 50th percentile
Antimony	µg/l	annual	0	No representative data available.
Arsenic	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Beryllium	µg/l	annual	0	No representative data available.
Cadmium	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Chromium	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Diss. Hex. Chromium	µg/l	annual	0	No representative data available.
Copper	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Lead	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Mercury	ng/l	annual	0	No representative data available.
Molybdenum	µg/l	annual	0	No representative data available.
Nickel	µg/l	annual	2.4	Whitewater TSD; 5 values; 1<MDL; 2017; 50th percentile
Selenium	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017
Silver	µg/l	annual	0	No representative data available.
Thallium	µg/l	annual	0	No representative data available.

Total Filterable Residue	mg/l	annual	308	Whitewater TSD; 7 values; 0<MDL; 2017; 50th percentile
Zinc	µg/l	annual	0	Whitewater TSD; 5 values; 5<MDL; 2017

*drainage 1369 sq. mi., multiplier 1.12
**drainage 1369 sq. mi, multiplier 0.377
MDL = analytical method detection limit
WLA = Wasteload Allocation
STORET = EPA Storage and Retrieval Database
DMR = Discharge Monitoring Report
BWQR = Background Water Quality Report
USGS = United States Geological Survey
NPDES = National Pollutant Discharge Elimination System
TSD = *Biological and Water Quality Study of the Whitewater River Study Area, December 2020,* river sampling 2017 data at RM 8.29.

Table 12. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum Aquatic Life	
		Human Health	Agri-culture	Aquatic Life		
Ammonia (Summer)	mg/L	--	--	20.06	--	--
Ammonia (Winter)	mg/L	--	--	30.72	--	--
Antimony	µg/L	73281	--	5870	25448	1800
Arsenic	µg/L	--	11450	4634	9614	680
Beryllium	µg/L	32060	11450	1606	12441	890
Cadmium	µg/L	--	5725	164	396	27
Chromium	µg/L	--	11450	5870	113104	8000
Diss. Hex. Chromium	µg/L	--	--	340	452	31
Copper	µg/L	--	57251	649	990	70
Lead	µg/L	--	11450	680	11876	840
Mercury[A]	ng/L	12	1000	910	1700	3400
Molybdenum	µg/L	--	--	617871	5372424	370000
Nickel	µg/L	526434	22628	3635	31038	2100
Selenium	µg/L	480906	5725	154	1753	120
Silver	µg/L	--	--	40	240	17
Thallium	µg/L	--	--	525	2234	160
Total Filterable Residue	mg/L	--	--	37133	--	--
Zinc	µg/L	2977034	2862533	8341	7634	550

[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 13. Parameter Assessment

Group 1:	Due to a lack of criteria, the following parameters could not be evaluated at this time.		
	No parameters match the criteria of 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	Beryllium
	Cadmium	Chromium	Lead
	Mercury	Molybdenum	Selenium
	Thallium		
Group 3:	PEQ_{max} < 50 percent of maximum PEL and PEQ_{avg} < 50 percent of average PEL. No limit recommended; monitoring optional.		
	Diss. Hex. Chromium	Copper	Nickel
	Silver	Zinc	Total Filterable Residue
Group 4:	$PEQ_{max} \geq$ 50 percent, but < 100 percent of the maximum PEL or $PEQ_{avg} \geq$ 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.		
	No parameters match the criteria of 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.		
	No parameters match the criteria of this group.		

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

Table 14. 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]	--	--	--	PD/WQS
Total Suspended Solids	mg/l	18[d]	12	196[d]	131	BADCT
Oil & Grease	mg/l	10	--	--	--	WQS
Ammonia - Summer	mg/l	1.5[d]	1.0	97.9[d]	65.2	BADCT/ABS
Ammonia - Winter	mg/l	4.5[d]	3.0	97.9[d]	65.2	BADCT/ABS
Total Kjeldahl Nitrogen	mg/l	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Nitrate+Nitrite	mg/l	- - - - - - - - - - Monitor - - - - - - - - - - -				M
Phosphorus	mg/l	- - - - - - - - - - Monitor - - - - - - - - - - -				PMR
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
Mercury	ng/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	S.U.	9.0	--	--	--	WQS
pH, Minimum	S.U.	6.5[m]	--	--	--	WQS
Residue, Total Filterable	mg/l	- - - - - - - - - - Monitor - - - - - - - - - - -				M
CBOD5	mg/l	15[d]	10	175[d]	109	BADCT

[a] Effluent loadings based on previous loadings kept from pre-expansion in 2003. Plant Design basis from PTI no. 05-11714. The average daily design flow is 2.3 MGD.

[b] Definitions:

ABS = Antibacksliding Rule (OAC 3745-33-05(F) and 40 CFR Part 122.44(l))

BADCT = Best Available Demonstrated Control Technology; 40 CFR Part 122.29, And OAC 3745-1-05
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)
RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in permits (OAC 3745-33-07(A))
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

Attachment 1. Whole Effluent Toxicity Reasonable Potential Analysis

Whole effluent toxicity testing produced only non-detection results for acute and chronic toxicity in *Pimephales promelas* and therefore fall under Hazard Category 4. The reasonable potential analysis in Table A below were only performed for *Ceriodaphnia dubia* acute (TUa Cd) and chronic toxicity (TUc Cd).

Hazard Category Summary

	Ceriodaphnia dubia		***Pimephales promelas***	
	Acute	**Chronic**	**Acute**	**Chronic**
Effluent Toxicity (Table A)	4	4	4	4
	4		4	

Hazard Categories: 1: Toxicity adequately documented 3: Toxicity possible NE = Not Evaluated
2: Toxicity strongly suspected 4: No toxicity

Table A. Effluent Toxicity

	Ceriodaphnia dubia		***Pimephales promelas***	
	Acute	**Chronic**	**Acute**	**Chronic**
WLA	1.0	30.89	1.0	30.89
# of tests	5	5	5	5
Maximum value	0.2	2.83	0	0
Percent of tests >WLA	0	0	0	0
Geometric mean	0.2	1.41	0	0
Average Exceedance (Geomean * Percent of tests >WLA)	0	0	0	0
Average Exceedance / WLA	0	0	0	0

Attribute Evaluated	**Hazard Category 1**	**Hazard Category 2**	**Hazard Category 3**	**Hazard Category 4**
Degree of Toxicity	Adequately Documented	Strongly Suspected	Possible	None
(1) Minimum number of tests (Actual #: 5)	3 TUa Cd TUc Cd	1	0 or 1	0 or 1
(2) Percent of tests >WLA (Actual %: 0)	>30	20 to 30	10 to 20	<10 TUa Cd TUc Cd
(3) Average Exceedance/WLA[1]				
(a) Acute	> 0.3	≥ 0.3	≥ 0.2	< 0.2 TUa Cd
(b) Chronic	> 0.3	≥ 0.3	≥ 0.2	< 0.2 TUc Cd
(4) Maximum TU value	≥(3xWLA)	≥WLA	≥WLA	<WLA TUa Cd TUc Cd

[1] Compare (per cent exceedances x geometric mean TU) to table factor.

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