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 Ironton Wastewater Treatment Plant (WWTP)**

Public Notice No.: 183542
Public Notice Date: May 12, 2023
Comment Period Ends: June 12, 2023

Ohio EPA Permit No.: **0PD00007*PD**
Application No.: **OH0025852**

Name and Address of Applicant:
City of Ironton
P.O. Box 704
Ironton, OH 45638

Name and Address of Facility Where Discharge Occurs:
Ironton WWTP
810 North Fourth Street
Ironton, OH 45638
Lawrence County

Receiving Water: **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 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.

A new monitoring station for the secondary treatment bypass is proposed (0PD00007602). A 4-month compliance schedule is proposed for the permittee to install an electronic monitoring device at the bypass.

New final effluent limits are proposed for *Escherichia coli*. New WQS for *E. coli* became effective in April 2016. No compliance schedule is proposed for meeting these new final effluent limits. Based on best technical judgment, it is expected the facility will be able to comply when the permit becomes effective.

New monitoring for free cyanide is proposed based on best technical judgement.

Monitoring for copper at an increased frequency due to reasonable potential to exceed the wasteload allocation.

Annual acute 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.

A new monitoring station 0PD00007801 is proposed to require biomonitoring of ambient waters in conjunction with whole effluent toxicity testing at 0PD0007001.

Following implementation of sewer separation projects, combined sewer overflow (CSOs) 004, 010, and 018 were reclassified as sanitary sewer overflows (SSOs). Station numbers have been changed to 304, 310, and 318, respectively, and new monitoring requirements at these stations are proposed.

A 24-month compliance schedule requiring installation of backup power for Ironton WWTP is proposed.

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

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PROCEDURES FOR PARTICIPATION IN THE FORMULATION OF FINAL DETERMINATIONS

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

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

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

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

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

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

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

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

For additional information about this fact sheet or the draft permit, contact David Brumbaugh at (614) 644-2138 or david.brumbaugh@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

Ironton WWTP discharges to the Ohio River at Mile Point 327.2. Figure 1 shows the approximate location of the facility.

This segment of the Ohio River is described by Ohio EPA River Code: 25-300; County: Lawrence, Ecoregion: Western Allegheny Plateau. The Ohio River is designated for the following uses under Ohio's WQS (OAC 3745-1-32): Warmwater Habitat, Agricultural Water Supply, Industrial Water Supply, Bathing Waters, Public Water Supply.

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

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

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

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

FACILITY DESCRIPTION

Ironton WWTP was constructed in 1953 and last upgraded in 1987. The average design flow is 1.7 million gallons per day (MGD) and the peak hydraulic capacity is 3.4 MGD. Ironton WWTP serves the City of Ironton, a population of approximately 10,500. Ironton WWTP has the following treatment processes (Figure 2):

- Influent Pumping
- Bar Screen
- Grit, Scum Removal
- Primary Sedimentation
- Pre-aeration
- Trickling Filter
- Secondary Clarification
- Chlorination/Dechlorination

Ironton WWTP has one bypass, located in a diversion box downstream of the primary clarifiers and before the trickling filter pump station. When the depth in the diversion box exceeds the fixed weir of the bypass, flows are diverted to the effluent pipe, bypassing secondary treatment and disinfection. Bypass flows are blended with

fully treated effluent after monitoring at Outfall 001 and discharged to the Ohio River. A new monitoring station for the bypass is proposed as Station 0PD000007602.

The City of Ironton has 50% separate sewers and 50 % combined sewers in the collection system and has eight known overflow structures, three of which are designated as SSOs and five of which are permitted as combined sewer overflows (CSOs). Ironton WWTP is subject to a consent order filed in the United States District Court, Southern District of Ohio, Western Division (Case 1:09-cv-00011-MRB) in 2009. The order required the City to implement its CSO Long Term Control Plan (LTCP), which consisted of complete separation of the combined sewer system by December 31, 2026. The City is currently engaged with state and federal agencies to potentially update the LTCP and amend the consent order. Several near-term projects have been proposed for implementation while an LTCP update is developed, including expansion of the storm sewer system (Batham Lane), restoration of Pump Station #7 (stormwater), and upsizing of the Orchard Lift Station (sanitary).

The City of Ironton's potable water comes from the Ohio River and provided by the City's municipal water treatment system. Ohio EPA has issued Indirect Discharge Permits to three industrial users which contribute wastewater to Ironton WWTP.

Ironton WWTP utilizes the following sewage sludge treatment processes (Figure 2):

- Gravity Thickening
- Anaerobic Digestion
- Dewatering (filter press)

Table 1 shows the last five years of sludge removed from Ironton WWTP. Treated sludge is typically removed to a solid waste landfill (Station 586). Sludge removal via transfer to another NPDES permit holder is also authorized under this permit (Station 588).

DESCRIPTION OF EXISTING DISCHARGE

Table 2 presents the effluent violations for Ironton WWTP during the previous five years.

Table 3 presents the average annual effluent flow rate for Ironton WWTP for the previous five years. Ironton WWTP estimates there is an infiltration/inflow (I/I) rate to the collection system of 0.4 MGD. The City of Ironton has performed smoke and dye testing and investigated implementation of a program to enforce removal of private clean water connections. The City has also proposed projects to improve the effectiveness of the storm sewer system.

Table 4 presents the number of SSOs reported by Ironton WWTP for the previous five years. SSOs are reported at station 300. Three outfall structures have been reclassified from CSOs to SSOs; discharges from the Nash Street, Mastin Avenue, and Orchard Street outfalls will be reported as SSOs under Stations 304, 310, and 318, respectively. The increase in occurrences reported in 2021 and 2022 are attributed to this reclassification.

Table 5 presents data characterizing CSO activity reported by Ironton WWTP during the previous five years. Ironton WWTP has five combined sewer overflows (CSOs).
Table 6 presents data characterizing the annual total phosphorus load from Ironton WWTP during the previous five years.

Table 7 presents chemical specific data compiled from supplemental effluent testing data submitted as part of the NPDES renewal application.

Table 8 presents a summary of unaltered Discharge Monitoring Report (DMR). Data are presented for the period January 2018 through December 2022, and current permit limits are provided for comparison.

Table 9 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 10 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

Ironton WWTP discharges directly to the Ohio River in the Greenup dam pool. Water quality monitoring on the Ohio River is performed by the Ohio River Valley Water Sanitation Commission (ORSANCO). This information can be found in the *2022 Biennial Assessment of Ohio River Water Quality Conditions (305b) Report* and/or biological survey results/pool reports.

The Biennial Report can be found at this website –
https://www.orsanco.org/publications/biennial-assessment-305b-report/

The most recent pool report can be found here –
https://www.orsanco.org/publications/pool-assessments/

ORSANCO evaluates the river for four uses: aquatic life, contact recreation impairment, public water supply, and fish consumption. The segment of the Ohio River that Ironton WWTP discharges to is in full attainment of the aquatic life and public water supply uses, as well as human health (fish consumption) use for mercury. Based on the 2015 biological surveys conducted in the Greenup Pool, fish communities are in "good" condition and macroinvertebrate communities are in "fair" condition.

However, this segment of the Ohio River is only partially supporting the human health (fish consumption) use due to dioxin and only partially supporting recreation use due to high bacteria levels. Ironton WWTP is likely contributing to the recreation use impairment due to the high frequency and volume of CSO and SSO discharges from the City's collection system. Implementation of an LTCP under the federal consent will reduce overflow activity.

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

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

Statistical Outliers and Other Non-representative Data
The data were examined and the following values were removed from the evaluation as non-representative data:
- Mercury: October 4, 2019 (1150 ng/L) – value is two orders of magnitude larger than the next highest value.

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 9). 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 to the Ohio River and the associated stream design flows are as follows:

Aquatic life (Warmwater Habitat)		
Toxics (metals, organics, etc.)	Average	10% of annual 7Q10
	Maximum	1% of annual 7Q10
Agricultural Water Supply		10% of harmonic mean flow
Human Health (carcinogens)		10% of harmonic mean flow
Human Health (non-carcinogens)		100% of 7Q10

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
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 (TUs) by the associated WQS Implementation Rule (OAC 3745-2-09). WLAs can then be calculated using TUs as if they were water quality criteria.

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These

values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Ironton WWTP, the WLA values are 1.0 TU_a and 381 TU_c.

However, Ironton WWTP is not required to monitor for TU_c because the ratio of the downstream is more than twenty to one [OAC 3745-33-07(B)(11)(c)]. According to the data in Table 12, the dilution ratio for Ironton WWTP to the Ohio River is approximately 381 to one.

$$\text{Stream Dilution Ratio} = \frac{\text{10\% of 7Q10 + [WWTP flow rate]}}{\text{[WWTP flow rate]}} = \frac{\text{1,000 cfs + 2.63 cfs}}{\text{2.63 cfs}} = 381$$

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 9, 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 Ironton 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.

TSS and CBOD5
The limits recommended for total suspended solids (TSS) and 5-day carbonaceous biochemical oxygen demand (CBOD5) are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned treatment works.

Total Residual Chlorine
The existing daily effluent limit for total residual chlorine is proposed to continue as a plant design value which is based on protection of the inside mixing zone maximum (IMZM) and outside mixing zone maximum (OMZM) PELs. The most stringent daily maximum criterion is applied and is to be met anytime chlorine is being utilized for effluent disinfection. The limit has been evaluated using the WLA procedures and determined to be protective of WQS for chlorine toxicity. The effluent limit for chlorine is less than the quantification level of 0.050 mg/L.

***E. coli*, Oil & Grease, and pH**
Limits proposed for *Escherichia coli,* oil and grease, and pH are based on WQS (OAC 3745-1-35 and 37). Bathing waters recreation *E. coli* and fecal coliform standards apply to the Ohio River. New summer WQS for *E. coli* became effective in April 2016. Based on best technical judgment (BTJ), it is expected the plant can comply with the new *E. coli* weekly limits at the start of the next disinfection season and does not require a compliance schedule.

Mercury
The Ohio EPA risk assessment (Table 14) places mercury in group 5. This placement, as well as the data in Tables 8 and 9, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect

water quality. For this parameter, the PEQ is greater than 100 percent of the WLA. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1). The thirty day average concentration limit is based on the outside mixing zone maximum, and the daily maximum concentration limit is based on human health WQC.

Copper
The Ohio EPA risk assessment (Table 14) places copper in group 4. This placement, as well as the data in Tables 8 and 9, support that this parameter does not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring for Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC 3745-33-07(A)(2). Monitoring frequency for copper is proposed to increase to monthly.

Ammonia, Cadmium, Chromium, Chromium (Dissolved Hexavalent), Lead, Nickel, Total Filterable Residue and Zinc
The Ohio EPA risk assessment (Table 14) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 8 and 9, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring is proposed to document that these pollutants continue to remain at low levels.

Antimony, Arsenic, Barium, Bis(2-ethylhexyl) Phthalate, Bromomethane, Chloroform, Iron, Manganese, Methylene Chloride, Selenium, Silver, Strontium, and Toluene
The Ohio EPA risk assessment (Table 14) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 8 and 9, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. No new monitoring is proposed. Data for future reasonable potential analyses will be provided in the next renewal application.

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

Nitrate plus Nitrite and Total Kjeldahl Nitrogen
Municipal WWTPs discharge nutrient loads to receiving waters, therefore monitoring for nitrate plus nitrite and total Kjeldahl nitrogen is proposed based on best technical judgment. The purpose of the monitoring is to maintain a nutrient data set for use in the future studies. Nitrate plus nitrite was evaluated using the WLA procedures and reasonable potential to exceed the wasteload allocation was not demonstrated.

Free Cyanide
No effluent data is available for this parameter, which is a common water quality issue for municipal wastewater treatment plants. The purpose of the monitoring is to obtain data on the level and variability of free cyanide in the effluent.

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 10 and Attachment 1, and other pertinent data under the provisions of OAC 3745-33-07(B), the Ironton 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 acute toxicity monitoring is proposed for the life of the permit. The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Additional Monitoring Requirements
A new monitoring station 0PD00007801 is proposed to allow for electronic reported of required biomonitoring of ambient waters in conjunction with whole effluent toxicity testing at 0PD0007001.

Following implementation of sewer separation projects, combined sewer overflow (CSOs) 004, 010, and 018 were reclassified as sanitary sewer overflows (SSOs). Station numbers have been changed to 304, 310, and 318, respectively, and new monitoring requirements at these stations are proposed.

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 or transfer to another facility with an NPDES permit.

OTHER REQUIREMENTS

Schedule of Compliance
Backup Power Installation – Ironton WWTP does not currently have backup electrical supply to operate the facility in the event of a power failure. A 24-months compliance schedule is proposed for the permittee to install a backup power source. See Part I,C for details.

Bypass Monitoring – A 4-month compliance schedule is proposed for the permittee to install an electronic device to monitor discharge activity at 0PD00007602.

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 Ironton 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.

Low-Level Free Cyanide Testing
Currently there are three approved methods for free cyanide listed in 40 CFR 136 that have a quantification level lower than water quality-based effluent limits:

- ASTM D7237-10, OIA-1677-09, and ASTM D4282-02. (Note: The use of ASTM D4282-02 requires supporting documentation that it meets the requirement of a "sufficiently sensitive" test procedure as defined in 40 CFR 122.44(i)(1)(iv)).

These methods will allow Ohio EPA to make more reliable water quality-related decisions regarding free cyanide. Because the quantification levels are lower than any water quality-based effluent limits, it will also be possible to directly evaluate compliance with free cyanide limits.

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. 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 Ohio River providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

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

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

Storm Water Compliance
To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed on February 21, 2023. The certification number is 0GRN00354*BG. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than February 20, 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 Ironton WWTP

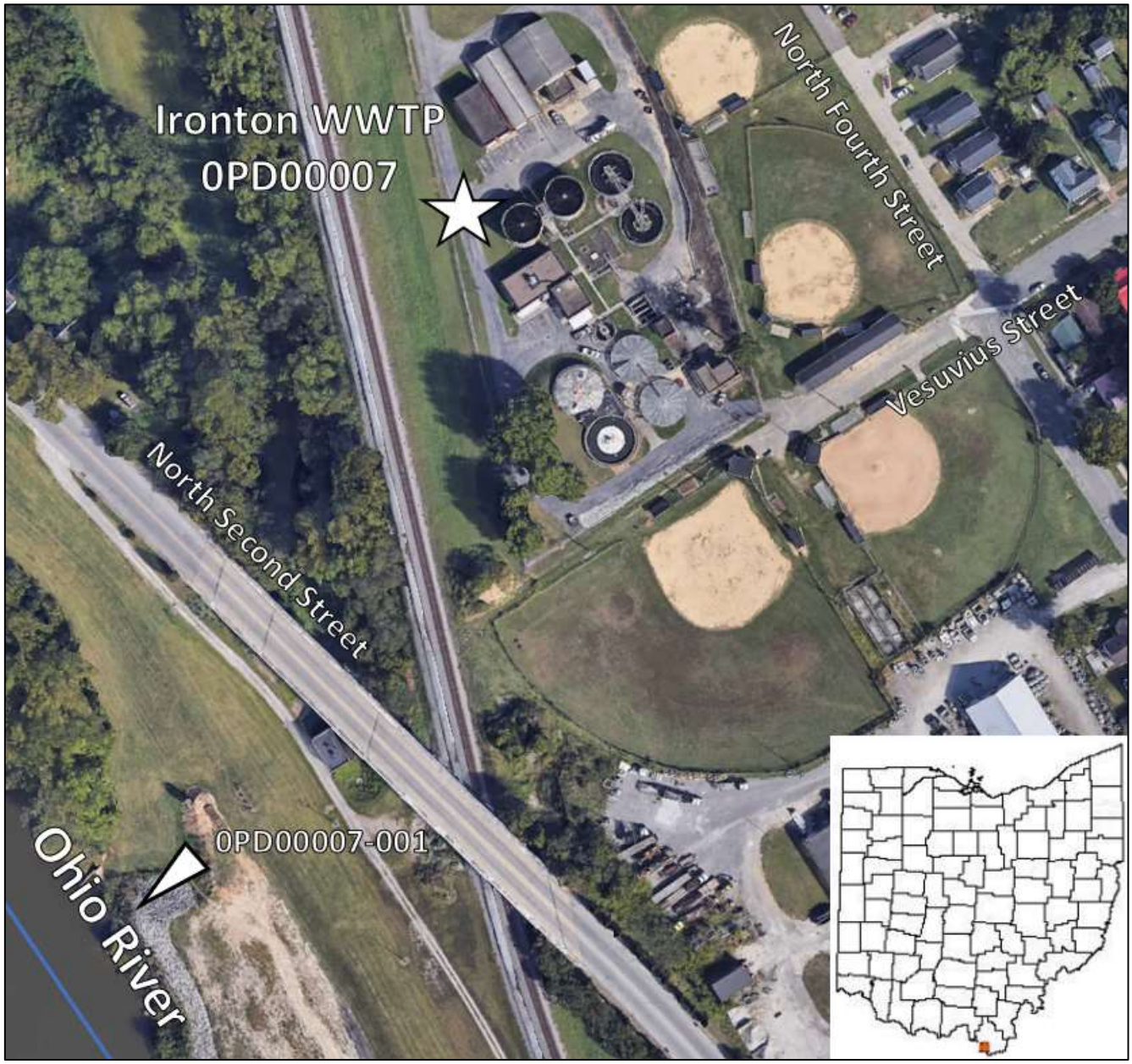

Figure 2. Diagram of Wastewater and Sludge Treatment System

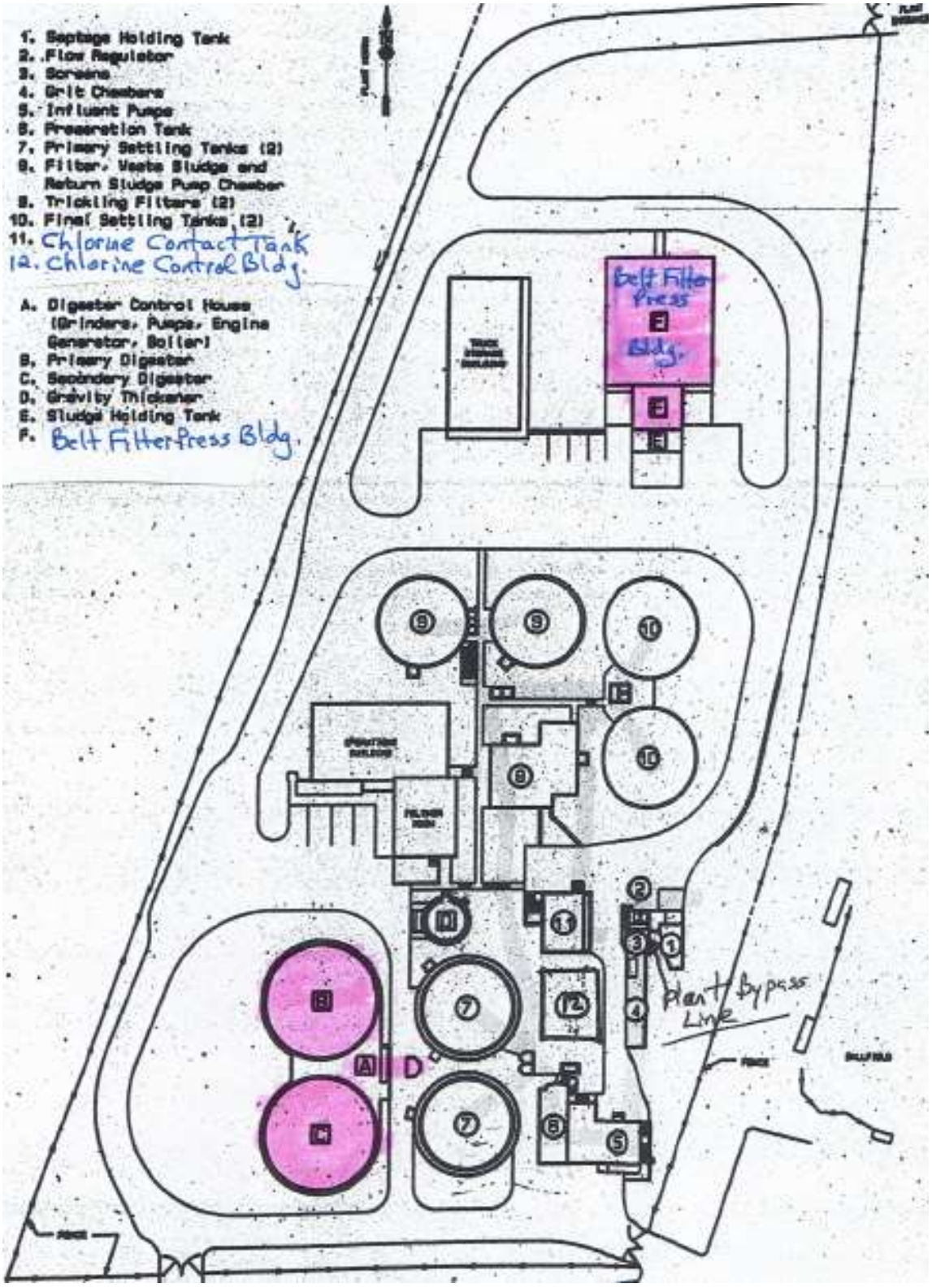

Table 1. Sewage Sludge Removal

Year	Dry Tons Removed
2018	210
2019	150
2020	153
2021	219
2022	292

Table 2. Effluent Violations for Outfall 001

Parameter	2018	2019	2020	2021	2022	Total
E. coli	0	0	1	0	0	**1**
Fecal Coliform	0	1	0	0	0	**1**
Mercury	6	5	0	0	4	**15**

Table 3. Average Annual Effluent Flow Rates

	Annual Flow (MGD)		
Year	50th Percentile	95th Percentile	Maximum
2018	1.94	3.47	4.70
2019	1.71	3.47	4.26
2020	1.49	2.95	4.24
2021	1.44	2.88	3.91
2022	1.39	2.83	5.16

MGD = million gallons per day.

Table 4. Sanitary Sewer Overflows Discharges

Year	Occurrences
2018	6
2019	1
2020	9
2021	33
2022	34

Table 5. Combined Sewer Overflow Discharges

	Occurrences						Volume (MG)				
Station	2018	2019	2020	2021	2022	Station	2018	2019	2020	2021	2022
002		2	1	4	4	002	1.0	1.0	1.0	4.3	1.7
004*	7	8	5	8	11	004	0.5	7.8	1.7	1.7	0.9
007	49	92	92	58	54	007	19.7	52.9	45.0	366.4	71.6
008	34	45	33	37	45	008	5.5	22.6	11.0	36.0	34.4
009	13	7	8	14	19	009	3.0	6.1	7.8	4.8	2.6
010*	1	6	2	4	3	010	10.0	3.2	2.3	2.8	0.5
017	0	8	6	11	10	017	0	1.7	1.1	0.7	1.0
018*	5	22	6	5	6	018	1.0	14.3	6.0	3.1	1.1
Maximum	**49**	**92**	**92**	**58**	**54**	**Total**	**40.7**	**109.5**	**75.8**	**419.9**	**113.7**

*Reclassified as SSOs in January 2021

Table 6. Calculated Annual Total Phosphorus Loadings

Year	Median Phosphorus (mg/L)	Median Flow (MGD)	Median Loading (kg/day)
2018	1.88	1.94	26.9
2019	1.34	1.71	19.2
2020	1.4	1.49	20.1
2021	1.9	1.44	27.3
2022	1.7	1.39	24.4

MGD = million gallons per day

Table 7. Effluent Characterization Using Supplemental Effluent Data

		Ohio EPA	NPDES Application Form 2A		
Parameter	Units	3/7/2023	1/24/2023	1/25/2023	1/31/2023
Antimony	µg/L	0.53	AA (15.3)	AA (15.3)	AA (15.3)
Arsenic	µg/L	0.80	AA (6.4)	AA (6.4)	AA (6.4)
Barium	µg/L	17.40	NT	NT	NT
Bis(2-ethylhexl) Phthalate	µg/L	2.43	AA (22.3)	AA (22.3)	AA (44.6)
Bromomethane	µg/L	3.61	AA (2.5)	AA (2.5)	AA (2.5)
Cadmium	µg/L	0.036	AA (1.8)	AA (1.8)	AA (1.8)
Chloroform	µg/L	0.98	2.3	AA (1.2)	2.2
Chromium	µg/L	AA (0.23)	1.3	1.3	AA (1.3)
Copper	µg/L	9.39	13.8	13.2	11.1
Iron	µg/L	341	NT	NT	NT
Lead	µg/L	0.76	AA (2.5)	AA (2.5)	AA (2.5)
Manganese	µg/L	133	NT	NT	NT
Mercury	ng/L	AA (134)	AA (160)	AA (160)	AA (160)
Methylene Chloride	µg/L	0.35	AA (0.75)	AA (0.75)	AA (0.75)
Nickel	µg/L	3.06	3.1	3.3	3.2
Nitrate + Nitrite	mg/L	13	NT	NT	NT
Selenium	µg/L	1.12	AA (0.84)	1.6	0.96
Silver	µg/L	0.07	AA (0.53)	AA (0.53)	AA (0.53)
Strontium	µg/L	168	NT	NT	NT
Toluene	µg/L	0.56	0.87	AA (0.24)	1
Total Filterable Residue	mg/L	428	NT	NT	NT
Zinc	µg/L	40.4	55	55.2	41.9

AA = not-detected (analytical method detection limit)
NT = not tested

Table 8. Effluent Characterization Using Self-Monitoring Data

Parameter	Unit	Current Limits		# Obs	Percentiles		Data Range
		30 Day	Daily		50th	95th	
Water Temperature	°C	- - - - Monitor - - - -		1792	19	35	0 - 42
Dissolved Oxygen	mg/L	- - - - Monitor - - - -		1257	6.69	4.38*	2.69 - 10.5
Total Suspended Solids	kg/day	194	290[w]	749	40.8	165	0 - 571
Total Suspended Solids	mg/L	30	45[w]	749	6	24	0 - 84
Oil and Grease	mg/L	--	10	250	< 5	5.97	0 - 110
Nitrogen, Ammonia	mg/L	- - - - Monitor - - - -		744	3.6	12.9	.05 - 26.6
Nitrogen Kjeldahl, Total	mg/L	- - - - Monitor - - - -		59	5.9	17.2	1.7 - 22.5
Nitrite Plus Nitrate	mg/L	- - - - Monitor - - - -		59	7.9	14.7	1.63 - 16.4
Phosphorus, Total	mg/L	- - - - Monitor - - - -		59	1.6	3.4	.67 - 3.7
Orthophosphate	mg/L	- - - - Monitor - - - -		60	1.1	2.21	0 - 2.8
Nickel, TR	µg/L	- - - - Monitor - - - -		19	3.6	4.77	0 - 7.2
Zinc, TR	µg/L	- - - - Monitor - - - -		19	38.2	68	30 - 78.6
Cadmium, TR	µg/L	- - - - Monitor - - - -		19	--	--	< .13
Lead, TR	µg/L	- - - - Monitor - - - -		19	.78	2.08	0 - 3.7
Chromium, TR	µg/L	- - - - Monitor - - - -		19	< 1	1.21	0 - 2.2
Copper, TR	µg/L	- - - - Monitor - - - -		19	8.6	15.9	3.9 - 22.7
Chromium, Dissolved Hexavalent	µg/L	- - - - Monitor - - - -		20	< .001	.809	0 - 1
Fecal Coliform -Summer	#/100 mL	200	400[w]	51	130	245	70 - 420
Fecal Coliform - Winter	#/100 mL	1000	2000[w]	362	183	1100	0 - 1960
E. coli	#/100 mL	126	284[w]	328	30	148	0 - 280
Flow Rate	MGD	- - - - Monitor - - - -		1795	1.57	3.19	.32 - 20.6
Chlorine, Total Residual	mg/L	--	0.038	734	0	.02	0 - .03
Mercury, 2018-22	kg/day	0.000078	0.011	57	.0000328	.000196	.00000422 - .00483
Mercury - 2018	kg/day	0.000342	0.011	8	.0000621	.000172	.0000175 - .000202
Mercury, 2018-22	ng/L	12	1700	57	5.6	30.4	.72 - 1150
Mercury - 2018	ng/L	53	1700	8	8.92	25.5	2.97 - 25.9
Acute Toxicity, Ceriodaphnia dubia	TUa	- - - - Monitor - - - -		5	0	.8	0 - 1
Acute Toxicity, Pimephales promelas	TUa	- - - - Monitor - - - -		5	.2	.88	0 - 1
pH, Maximum	S.U.	--	9.0	1257	7	7.4	6.5 - 8.3
pH, Minimum	S.U.	--	6.5[m]	1257	6.8	6.5*	6.5 - 8.1
Total Filterable Residue	mg/L	- - - - Monitor - - - -		18	312	455	10 - 461
CBOD 5 day	kg/day	161	258[w]	750	56.2	145	0 - 335
CBOD 5 day	mg/L	25	40[w]	750	9	19.7	0 - 60.8

* = 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.

Table 9. Projected Effluent Quality for Outfall 001

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	255	255	5.58	11.8
Ammonia (Winter)	mg/L	183	183	8.7	16.6
Antimony	µg/L	1	1	2.4	3.29
Arsenic	µg/L	1	1	3.62	4.96
Barium	µg/L	1	1	78.8	108
Bis(2-ethylhexyl) Phthalate	µg/L	1	1	11	15.1
Bromomethane	µg/L	4	1	6.85	9.39
Cadmium	µg/L	23	0	--	--
Chlorine	mg/L	1256	544	0.011	0.022
Chloroform	µg/L	3	2	5.04	6.9
Chromium	µg/L	23	9	1.52	2.61
Chromium, Dissolved Hexavalent	µg/L	19	4	1.02	1.4
Copper	µg/L	23	23	15.2	21.6
Iron	µg/L	1	1	1543	2114
Lead	µg/L	23	18	1.83	3.08
Manganese	µg/L	1	1	602	825
Mercury	ng/L	65	65	20.2	31.9
Methylene chloride	µg/L	4	1	1.42	1.95
Nickel	µg/L	23	22	4.72	6.18
Nitrate + Nitrite	mg/L	72	72	10	14.8
Selenium	µg/L	3	2	3.50	4.8
Silver	µg/L	1	1	0.32	0.43
Strontium	µg/L	1	1	760	1042
Toluene	µg/L	3	2	2.19	3
Total Filterable Residue	mg/L	19	19	471	645
Zinc	µg/L	23	23	59.1	77.6

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 10. Summary of Acute and Chronic Toxicity Results

	Ceriodaphnia Dubia	*Pimephales promelas*
Year	**TU_a**	**TU_a**
6/1/2018	1	1
6/25/2019	AA (0.2)	AA (0.2)
6/16/2020	AA (0.2)	0.4
6/8/2021	AA (0.2)	0.2
6/15/2022	AA (0.2)	AA (0.2)

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 11. Water Quality Criteria in the Study Area

		Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
Parameter	**Units**	**Human Health**	**Agri-culture**	**Aquatic Life**	**Aquatic Life**	
Ammonia (Summer)	mg/L	--	--	0.8	--	--
Ammonia (Winter)	mg/L	--	--	1	--	--
Antimony	µg/L	5.6	--	190	900	1800
Arsenic	µg/L	50	100	150	340	680
Barium	µg/L	1000	--	700	3000	6000
Bis(2-ethylhexyl) Phthalate	µg/L	3.2[c]	--	8.4	1100	2100
Bromomethane	µg/L	48	--	16	38	75
Cadmium	µg/L	--	50	2.7	5.1	10
Chlorine	mg/L	--	--	0.011	0.019	0.038
Chloroform	µg/L	57[c]	--	140	1300	2600
Chromium	µg/L	--	100	94	2000	3900
Chromium, Dissolved Hexavalent	µg/L	--	--	11	16	31
Copper	µg/L	--	500	10	15	31
Iron	µg/L	--	100	7.3	140	280
Lead	µg/L	--	5000	--	--	--
Manganese	µg/L	--	--	--	--	--
Mercury	ng/L	12	10000	910	1700	3400
Methylene chloride	µg/L	46[c]	--	1900	11000	22000
Nickel	µg/L	610	200	57	510	1000
Nitrate + Nitrite	mg/L	10	100	--	--	--
Selenium	µg/L	170	50	5	62	120
Silver	µg/L	50	--	1.3	1.9	3.8
Strontium	µg/L	--	--	24000	62000	130000
Toluene	µg/L	57	--	62	560	1100
Total Filterable Residue	mg/L	--	--	1500	--	--
Zinc	µg/L	7400	25000	130	130	260

[c] = carcinogen

Table 12. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	10000	Direct Ohio River discharger - used 7Q10
7Q10	cfs	annual	10000	ORSANCO Pollution Control Standards, 2019
30Q10	cfs	summer	10000	ORSANCO Pollution Control Standards, 2019
		winter	10000	ORSANCO Pollution Control Standards, 2019
Harmonic Mean	cfs	annual	38400	ORSANCO Pollution Control Standards, 2019
Mixing Assumption	%	average	10	(***WLAs for non-carcinogens are developed using 100 percent of the 7Q10.)
		maximum	1	
Hardness	mg/L	annual	111	ORSANCO Bimonthly data, 2018-22, n=29
pH	S.U.	summer	8.01	ORSANCO Bimonthly data, 2018-22, n=8
		winter	8.63	ORSANCO Bimonthly data, 2018-19, n=2
Temperature	ºC	summer	28.1	ORSANCO Bimonthly data, 2018-22, n=8
		winter	5.41	ORSANCO Bimonthly data, 2018-21, n=3
Ironton WWTP flow	cfs	annual	2.6303	NPDES Application Form 2A
Background Water Quality				
Ammonia (Summer)	mg/L	summer	0.029	ORSANCO, n=10; 2<MDL, 2018-22 median
Ammonia (Winter)	mg/L	winter	0.033	ORSANCO, n=5; 1<MDL, 2018-22 median
Cadmium	µg/L	annual	0	ORSANCO, n=29; 29<MDL, 2018-22, median
Chlorine, Total Residual	mg/L	annual	0	No representative data available.
Chloroform	µg/L	annual	0	No representative data available.
Chromium	µg/L	annual	0.05	ORSANCO, n=27; 18<MDL, 2018-22
Hexavalent Chromium (Dissolved)	µg/L	annual	0	No representative data available.
Copper	µg/L	annual	1.84	ORSANCO, n=27; 0<MDL, 2018-22, median
Lead	µg/L	annual	0.05	ORSANCO n=27; 16<MDL, 2018-22, median
Mercury	ng/L	annual	2.4	ORSANCO, n=27; 6<MDL, 2018-22 median
Nickel	µg/L	annual	2.12	ORSANCO, n=27; 0<MDL, 2018-22, median
Nitrate + Nitrite	mg/L	annual	0.75	ORSANCO, n=29; 0<MDL, 2018-22 median
Selenium	µg/L	annual	0	ORSANCO, n=27; 27<MDL, 2018-22
Toluene	µg/L	annual	0	No representative data available.
Total Filterable Residue	mg/L	annual	182	ORSANCO, n=29; 1<MDL, 2018-22 median
Zinc	µg/L	annual	5.3	ORSANCO, n=27; 0<MDL, 2018-22, median

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	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	293.92	--	--
Ammonia (Winter)	mg/L	--	--	368.64	--	--
Antimony	µg/L	21296	--	72425	35117	1800
Arsenic	µg/L	190142	146091	57178	13266	680
Barium	µg/L	3802848	--	266829	117055	6000
Bis(2-ethylhexyl) Phthalate	µg/L	4675	--	3202	42920	2100
Bromomethane	µg/L	182537	--	6099	1483	75
Cadmium	µg/L	--	73045	1029	199	10
Chlorine	mg/L	--	--	4.2	0.74	0.038
Chloroform	µg/L	83272	--	53366	50724	2600
Chromium	µg/L	--	146018	35812	78035	3900
Chromium, Dissolved Hexavalent	µg/L	--	--	4193	624	31
Copper	µg/L	--	727769	3112	515	31
Iron	µg/L	--	146018	2764	5461	280
Lead	µg/L	--	7304548	--	--	--
Manganese	µg/L	--	--	--	--	--
Mercury	ng/L	12	10000	910	1700	--
Methylene chloride	µg/L	67202	--	724251	429203	22000
Nickel	µg/L	2311677	289087	20922	19819	1000
Nitrate + Nitrite	mg/L	35177	144996	--	--	--
Selenium	µg/L	646484	73045	1906	2419	120
Silver	µg/L	190142	--	496	74	3.8
Strontium	µg/L	--	--	9148434	2419146	130000
Toluene	µg/L	216762	--	23633	21850	1100
Total Filterable Residue	mg/L	--	--	502584	--	--
Zinc	µg/L	28120923	36515000	47539	4871	260

[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.

Manganese

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

Cadmium	Chloroform	Chromium
Chromium, Dissolved Hexavalent	Nickel	Toluene
Arsenic	Barium	Methylene chloride
Silver	Strontium	

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

Ammonia (Summer)	Ammonia (Winter)	Total Filterable Residue
Lead	Nitrate + Nitrite	Zinc
Selenium	Antimony	Bis(2-ethylhexyl) phthalate
Bromomethane	Iron	

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

Chlorine Copper

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	12	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]
Dissolved Oxygen	mg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Total Suspended Solids	mg/L	45[d]	30	290[d]	194	BPT
Oil & Grease	mg/L	10	--	--	--	WQS
Ammonia (winter)	mg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M
Nitrate plus 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 - - - - - - - - - - -				RP
Dissolved Hexavalent Chromium	µg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M
Fecal Coliform (winter)	#/100 mL	2000 [d]	1000	--	--	WQS
E. coli (summer)	#/100 mL	240 [d]	126	--	--	WQS
Flow Rate	MGD	- - - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Chlorine	mg/L	0.038	--	--	--	PD/WLA
Mercury	ng/L	1700	12	0.011	0.000078	WLA
Free Cyanide	µg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M
Acute Toxicity, *Ceriodaphnia dubia*	TUa	- - - - - - - - - - - Monitor - - - - - - - - - - -				WET
Acute Toxicity, *Pimephales promelas*	TUa	- - - - - - - - - - - Monitor - - - - - - - - - - -				WET
Total Filterable Residue	mg/L	- - - - - - - - - - - Monitor - - - - - - - - - - -				M
pH, maximum	SU	9.0	--	--	--	WQS
pH, minimum	SU	6.5[m]	--	--	--	WQS
CBOD5	mg/L	40[d]	25	258[d]	161	BPT

[a] Effluent loadings based on average design discharge flow of 1.7 MGD.

[b] Definitions:
BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation
M = Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges
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)
WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum
WQS = Ohio Water Quality Standards (OAC 3745-1)

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

[d] 7 day average limit.

[m] minimum limit

Attachment 1. Whole Effluent Toxicity Reasonable Potential Analysis

The reasonable potential analyses in Table A were only performed for acute toxicity in *Ceriodaphnia dubia (*TUa Cd) and *Pimephales promelas* (TUa Pp).

Hazard Category Summary

	Ceriodaphnia dubia		*Pimephales promelas*	
	Acute	**Chronic**	**Acute**	**Chronic**
Effluent Toxicity (Table A)	4	--	4	--
Near-Field Impact (Table B)	--		--	
Far-field Impact (Table C)		--		--
	4		4	

Hazard Categories: 1: Toxicity adequately documented 3: Toxicity possible
2: Toxicity strongly suspected 4: No toxicity

Table A. Effluent Toxicity

	Ceriodaphnia dubia		*Pimephales promelas*	
	Acute	**Chronic**	**Acute**	**Chronic**
WLA	1.0	--	1.0	--
# of tests	5	--	5	--
Maximum value	1	--	1	--
Percent of tests >WLA	20	--	20	--
Geometric mean	0.276	--	0.317	--
Average Exceedance (Geomean * Percent of tests >WLA)	0.05	--	0.06	--
Average Exceedance / WLA	5.5	--	6.3	--

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	3 TUa Cd TUa Pp	1	0 or 1	0 or 1
(2) Percent of tests >WLA	>30	20 to 30	10 to 20	<10 TUa Cd TUa Pp
(3) Average Exceedance/WLA[1] (Tables B and C data not available)				
(a) Acute[2]	> 0.3	≥ 0.3	≥ 0.2	< 0.2 TUa Cd TUa Pp
(4) Maximum TU value (Tables 3B and 3C data not available)	≥(3xWLA)	≥WLA	≥WLA TUa Cd TUa Pp	<WLA

[1] Compare (per cent exceedances x geometric mean TU) to table factor.
[2] Use 0.3 x WLA for situations where AIM exists.

Attachment 2. 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