

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **Huron Basin Wastewater Treatment Plant (WWTP)**

Public Notice No.: 16-01-011
Public Notice Date: January 12, 2016
Comment Period Ends: February 12, 2016

Ohio EPA Permit No.: **2PC00001*LD**
Application No.: **OH0020125**

Name and Address of Applicant:

Board of Commissioners
Erie County
P.O. Box 370
Huron, OH 44839

Name and Address of Facility Where

Discharge Occurs:

Huron Basin WWTP
554 River Road
Huron, OH 44839
Erie County

Receiving Water: Huron River

Subsequent Stream Network: Lake Erie

Introduction

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

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

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 monitoring requirements proposed for the following parameters are the same as in the previous permit, although some monitoring frequencies have changed: water temperature, dissolved oxygen, total suspended solids (TSS), oil and grease (O&G), ammonia, nitrate plus nitrite, total phosphorus, cyanide, nickel, zinc, cadmium, lead, chromium, copper, *Escherichia coli* (*E. coli*), flow rate, total chlorine residual, pH, total filterable residue, five-day carbonaceous biochemical oxygen demand (CBOD₅), acute toxicity testing for *Ceriodaphnia dubia* and *Pimephales promelas*, and chronic toxicity testing for *Ceriodaphnia dubia* and *Pimephales promelas*.

A lower monthly effluent limit is proposed for mercury because the PEQ value used to determine the mercury variance monthly limitation has decreased during the last permit cycle.

New monitoring is proposed for dissolved orthophosphate because of Ohio Senate Bill 1.

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

No parameters are being added to or removed from influent monitoring station 601, upstream monitoring station 801 or downstream monitoring station 901.

In Part II of the permit, special conditions are included that address sanitary sewer overflow (SSO) reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity (WET) testing; storm water compliance; mercury variance; phosphorus optimization; tracking language for free cyanide; 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 addressed 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 in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

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

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

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

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

Information Regarding Certain Water Quality Based Effluent Limits

This draft permit may contain proposed water-quality-based effluent limits (WQBELs) for parameters that **are not** priority pollutants. (See the following link for a list of the priority pollutants: 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 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 3745-1-35. 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

Huron Basin WWTP discharges to Huron River at River Mile 0.81. Figure 1 shows the approximate location of the facility.

This segment of the Huron River is described by Ohio EPA River Code: 12-001, U.S. EPA River Reach Code: 04100012-004, County: Erie, Ecoregion: Huron/Erie Lake Plain Ecoregion. The Huron River is designated for the following uses under Ohio's WQS (OAC 3745-1-19) Warmwater Habitat, Seasonal Salmonid Habitat, Agricultural Water Supply, Industrial Water Supply, and Class A Primary Contact Recreation.

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

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

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

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

Facility Description

Huron Basin WWTP was constructed in 1985 and last upgraded in 2005. The average design flow is 2.0 million gallons per day (MGD) and the peak hydraulic capacity is 5.5 MGD. Huron Basin WWTP serves the eastern two-thirds of the Huron Basin service area or approximately 5,000 people. Huron Basin WWTP has the following treatment processes which are shown on Figure 2:

- Bar Screens;
- Grit Removal;
- Communitation;
- Pre-Aeration;
- Primary Sedimentation;
- Alum Addition;
- Rotating Biological Contactors (RBCs);
- Secondary Clarification;
- Chlorination; and
- Dechlorination.

The Huron Basin service area has 100% separated sewers in the collection system. The Huron Basin service area does not have an approved pretreatment program. The Huron Basin service area has two categorical users. Both industrial users are monitored under indirect discharge permits. Both industrial users have the potential to discharge surfactants. Surfactants can cause foaming issues at WWTPs and the Huron Basin WWTP has experienced foaming issues, both within the WWTP and at its final outfall. The Huron Basin WWTP has been working with both industrial users to reduce the instances of foaming at the WWTP. In 2014, three major force main breaks occurred in force main serving the eastern portion of the Huron Basin collection system. As a result of the multiple breaks, Erie County has decided to replace that force main. Erie County also owns and operates a smaller publically owned treatment works, the Mittawanga-Ruggles Beach WWTP, that is located to the east of the Huron Basin WWTP. This WWTP is often in significant non-compliance and has inflow and infiltration issues. As part of the force main replacement project, Erie County has decided to connect the Mittawanga – Ruggles Beach service area to the Huron Basin collection system.

Huron Basin WWTP utilizes the following sewage sludge treatment processes:

- Anaerobic Digestion
- Digester Gas Utilization

Currently, treated sewage sludge is land applied as a Class B product or transferred to another NPDES permit holder. Erie County plans to submit a Permit to Install application to install new sewage sludge dewatering equipment. Once the new sewage sludge dewatering equipment is installed and operational, Erie County will then dispose of its sewage sludge in a municipal landfill and plans to discontinue land application.

Description of Existing Discharge

Huron Basin WWTP estimates there is an infiltration/inflow (I/I) rate to the collection system of 0.1 MGD. Huron Basin WWTP performs the following activities to minimize I/I: cured-in-place lining of sanitary main lines in areas of know infiltration.

Table 1 presents phosphorus effluent loading data.

Table 2 presents chemical specific data compiled from data collected by Ohio EPA.

Table 3 presents a summary of unaltered Discharge Monitoring Reports (DMRs). Data is presented for the period July 2011 thru May 2015, and current permit limits are provided for comparison.

Table 4 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 5 summarizes the results of acute and chronic WET tests of the final effluent.

Table 6 summarizes the screening results of Ohio EPA bioassay sampling of the final effluent.

Assessment of Impact on Receiving Waters

The Huron River-Frontal Lake Erie watershed assessment unit, which includes the Huron River in the vicinity of Huron Basin WWTP, is listed as impaired for recreation and aquatic life on Ohio's 303(d) list.

A TMDL report was approved for the Huron River in September 2005. The March 24, 2015, Supreme Court of Ohio decision *Fairfield Cty. Bd. of Commrs. v. Nally, Slip Opinion No. 2015-Ohio-991* vacated all previously

approved TMDLs. As of October 6, 2015, this TMDL is considered a technical guidance document pending final TMDL approval. 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 7-15). 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 7) 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.

According to the draft TMDL, the input of treated wastewater from the Huron Basin WWTP and other minor POTWs (via Mud Brook) appeared to be secondary factors to the combined influences of deficient habitat and nutrient loads from upstream sources in determining the biological health of the lower Huron River mainstem. Although no water quality violations or exceedances of the ammonia-nitrogen criteria for WWH were documented, the rise appeared associated the aforementioned POTWs, and corresponded with the lowest dissolved oxygen concentrations observed on the mainstem. Ultimately, the effects of habitat homogeneity, sedimentation, nutrient enrichment, and flow attenuation combined to render the lower Huron River impaired. Effluents released by the Huron Basin WWTP, and possibly lesser sources of pollution via Mud Brook, likely served only to exacerbate the conditions for the lower mile.

The draft TMDL is available through the Ohio EPA, Division of Surface Water website at:
<http://epa.ohio.gov/dsw/tmdl/HuronVermilionRivers.aspx>

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 Huron Basin 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)	July 2011 through May 2015
Ohio EPA bioassay sampling data	October 28, 2013

Statistical Outliers and Other Non-representative Data

The data were examined and the following values were removed from the evaluation to give a more reliable PEQ: Total Recoverable Zinc – 82 µg/l, March 3, 2015, because this value is three times higher than the next highest reported 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 4).

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 degrade in the receiving water. For free flowing streams, WLAs using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations.

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

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

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

Ohio's WQS implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] required a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring mercury limits in their NPDES permit must meet WQS at the end-of-pipe, which for mercury are 1.3 ng/L (average) and 1700 ng/L (maximum) in the Lake Erie basin.

The data used in the WLA are listed in Table 2 and Table 3. The WLA results to maintain all applicable criteria are presented in Table 10.

Whole Effluent Toxicity WLA

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

WQS for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free froms" are translated into toxicity units (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 Huron Basin WWTP, the WLA values are 0.7 TU_a and 1.43 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 (IC₂₅):

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

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):

$$TU_c = 100/\text{geometric mean of No Observed Effect Concentration and Lowest Observed Effect Concentration}$$

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 (LC₅₀) for the most sensitive test species:

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

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations.

When the acute WLA is less than 1.0 TU_a, it may be defined as:

<u>Dilution Ratio</u> (<u>downstream flow to discharger flow</u>)	<u>Allowable Effluent Toxicity</u> (<u>percent effects in 100% effluent</u>)
up to 2 to 1	30

greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

The acute WLA for Huron Basin WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1.72 to 1.

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 10. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 4, and the PEL_{max} is compared to the PEQ_{max} . Based on the calculated percentage of the allocated value [$(PEQ_{avg} \div PEL_{avg}) \times 100$, or $(PEQ_{max} \div PEL_{max}) \times 100$], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 1111.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 12 presents the final effluent limits and monitoring requirements proposed for Huron Basin 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.

Flow Rate, Water Temperature, and Ammonia (Winter)

Monitoring for flow rate, water temperature, and winter ammonia is proposed to continue in order to evaluate the performance of the treatment plant.

Dissolved Oxygen

The limit proposed for dissolved oxygen is based on plant design criteria. This limit is protective of WQS.

TSS and CBOD₅

The limits recommended for total suspended solids and $CBOD_5$ 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.

O&G, pH, E.Coli, and Total Phosphorus

Limits proposed for O&G, pH, and *E. coli* are based on WQS (OAC 3745-1-07). Class A PCR *E. coli* standards apply to the Huron River. Total phosphorus is limited based on provisions of OAC 3745-33-06(C).

Ammonia (Summer)

The current summer ammonia limits have been evaluated using the WLA procedures and are protective of WQS for ammonia toxicity.

Mercury

The Ohio EPA risk assessment (Table 11) places mercury in group 5. The Huron Basin WWTP permit was renewed on July 1, 2011, to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from July 2011 to May 2015 and the new application information, the Huron Basin WWTP has determined that the facility will not meet the 30-day average permit limit of 1.3 ng/L. However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/L. The permittee's

application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the Huron Basin WWTP is eligible for the mercury variance under OAC 3745-33-07(D)(10)(a).

Huron Basin WWTP submitted information supporting the renewal of the variance. The permittee has implemented a pollutant minimization program to reduce the amount of mercury coming being discharged. The calculation of the PEQ_{avg} value from July 2011 to May 2015 compared to the PEQ_{avg} calculated at the time the original variance was issued shows a reduction from 4.25 ng/l to 1.86 ng/l. The Pollutant Minimization Program (PMP) schedule developed from the original variance continues to be implemented, and further reductions in mercury may be possible.

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

- A variance-based monthly average effluent limit of 1.86 ng/L, which was developed from sampling data submitted by the permittee;
- A requirement that the permittee make reasonable progress to meet the WQBEL for mercury by implementing the plan of study, which has been developed as part of the PMP;
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration is less than or equal to 12 ng/L as specified in the plan of study;
- A summary of the elements of the plan of study;
- A requirement to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied, but that compliance with the monthly average WQBEL for mercury has not been achieved.

Free Cyanide

The Ohio EPA risk assessment (Table 11) places free cyanide in group 4. This placement, as well as the data in Tables 3 and 4 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 Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC 3745-33-07(A)(2). In addition, the free cyanide effluent quality falls within 75 percent of the WLA. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II of the permit.

Total Chlorine Residual

The proposed limit for total residual chlorine is based on WLA as limited by the IMZM. The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. The effluent limit for chlorine at outfall 001 is less than the quantification level of 0.050 mg/L. However, a pollutant minimization program is not required because the dosing rate of dechlorination chemicals ensures that the WQBEL is being met.

Nickel, Zinc, Cadmium, Chromium, Lead, Copper, and Total Filterable Residue

The Ohio EPA risk assessment (Table 11) places nickel, zinc, cadmium, lead, chromium, copper, and total filterable residue (total dissolved solids) in groups 2 and 3. This placement, as well as the data in Tables 7 and 8, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a low frequency is proposed for zinc and copper to document that these pollutants continue to remain at low levels. Based on best technical judgment, continued monitoring is proposed for total filterable residue. This parameter is an emerging water quality issue for

municipal wastewater treatment plants. The purpose of the monitoring is to obtain data on the level and variability of total filterable residue in the effluent.

Total Phosphorus and Nitrate+Nitrite

The 2014 Ohio Integrated Water Quality Monitoring and Assessment Report (Ohio EPA) lists the Huron River watershed as impaired for aquatic life. Nutrients and organic enrichment/dissolved oxygen are listed as “high magnitude” causes, and major municipal point sources are listed among the “high magnitude” sources. Considering this information and the fact that municipal WWTPs discharge a nutrient load to the river, monthly monitoring for nitrate + nitrite is proposed based on best technical judgment. Monitoring for phosphorus and nitrate + nitrite at the upstream and downstream stations also is proposed. The purpose of the monitoring is to maintain a nutrient data set for use in the future TMDL study.

Dissolved Orthophosphate

New monthly monitoring is proposed for dissolved orthophosphate (as P). This monitoring is required by Ohio Senate Bill 1, which was signed by the Governor on April 2, 2015. Monitoring for orthophosphate is proposed to further develop nutrient datasets for dissolved reactive phosphorus and to assist stream and watershed assessments and studies. Ohio EPA monitoring, as well as other in-stream monitoring, is taken via grab sample, orthophosphate is proposed to be collected by grab sample to maintain consistent data to support watershed and stream surveys. Monitoring will be done by grab sample, which 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

The acute and chronic toxicity results in Table 5 and Table 6 show no toxicity was detected; therefore, PEQs cannot be evaluated under the provisions of 40 CFR Part 132, Appendix F, Procedure 6. Reasonable potential for toxicity is not demonstrated because non-detections do not exceed the WLA values of 0.7 TU_a and 1.43 TU_c. 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 is proposed for the life of the permit. The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Additional Monitoring Requirements

No new monitoring is being proposed at influent monitoring station 601, upstream monitoring station 801, or downstream monitoring station 901.

No removal of currently monitored parameters is proposed at influent monitoring station 601, upstream monitoring station 801, or downstream monitoring station 901.

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

Sludge

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

Other Requirements

Low-Level Free Cyanide Testing

Currently there are two approved methods for free cyanide listed in 40 CFR 136.3 that have quantification levels lower than any water quality-based effluent limits:

- ASTM D7237-10 and OIA-1677-09 - Flow injection followed by gas diffusion amperometry

These methods will allow Ohio EPA 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.

New NPDES permits no longer authorize the use of method 4500 CN-I from Standard Methods for free cyanide testing. The new permits require permittees to begin using one of these approved methods as soon as possible. If a permittee must use method 4500 CN-I during the transition to an approved method, they are instructed to report the results on their DMR and enter "Method 4500 CN-I" in the remarks section.

Compliance Schedule

Sanitary Sewer Improvements – The permittee shall submit a Permit to Install application(s) and detailed plans to make sewer improvements within the Huron Basin collection system and connect the Mittawanga-Ruggles Beach WWTP to the Huron Basin Sewer System. The application(s) and detailed plans shall be submitted to the Ohio EPA Northwest District Office. Details are in Part I.C of the permit.

Sludge Handling Improvements – The permittee shall submit a Permit to Install application(s) and detailed plans for the installation of sludge dewatering improvements at the Huron Basin WWTP. The application and detail plans shall be submitted to the Ohio EPA Northwest District Office. Details are in Part I.C of the permit.

Phosphorus Optimization – The permittee shall prepare and submit a Phosphorus Discharge Optimization Evaluation plan to Ohio EPA Northwest District Office. The plan shall be completed and submitted to Ohio EPA no later than 12 months from the effective date of this permit. 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 Operator of Record

Operator certification requirements have been included in Part II of the permit in accordance with rules adopted in December 2006 (OAC 3745-7-02). These rules require the Huron Basin 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.

Staffing Hour Reduction

In accordance with OAC 3745-7-04, the permittee previously requested that Ohio EPA reduce the minimum staffing requirements from 40 hours to 20 hours. Ohio EPA reviewed the request and on December 30, 2010, determined that the reduced staffing plan should be granted. This permit proposes to continue the approved staffing hour reduction. Any change in the criteria under which the reduced staffing plan was approved (such as enforcement status, history of compliance, or provisions included in the plan) will require that the treatment works immediately return to the minimum staffing requirements included in OAC 3745-7-04(C)(1).

Storm Water Compliance

Parts IV, V, and VI have been included with the draft permit to ensure that any storm water flows from the facility site are properly regulated and managed. The Huron Basin WWTP is not currently eligible for a No Exposure Certification. As an alternative to complying with Parts IV, V, and VI, the Huron Basin WWTP may seek permit coverage under the general permit for industrial storm water (permit # OHR000005). Parts IV, V, and VI will be removed from the final permit if: 1) the Huron Basin WWTP submits a Notice of Intent (NOI) for coverage under the general permit, 2) Ohio EPA determines that the facility is eligible for coverage under the general permit, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

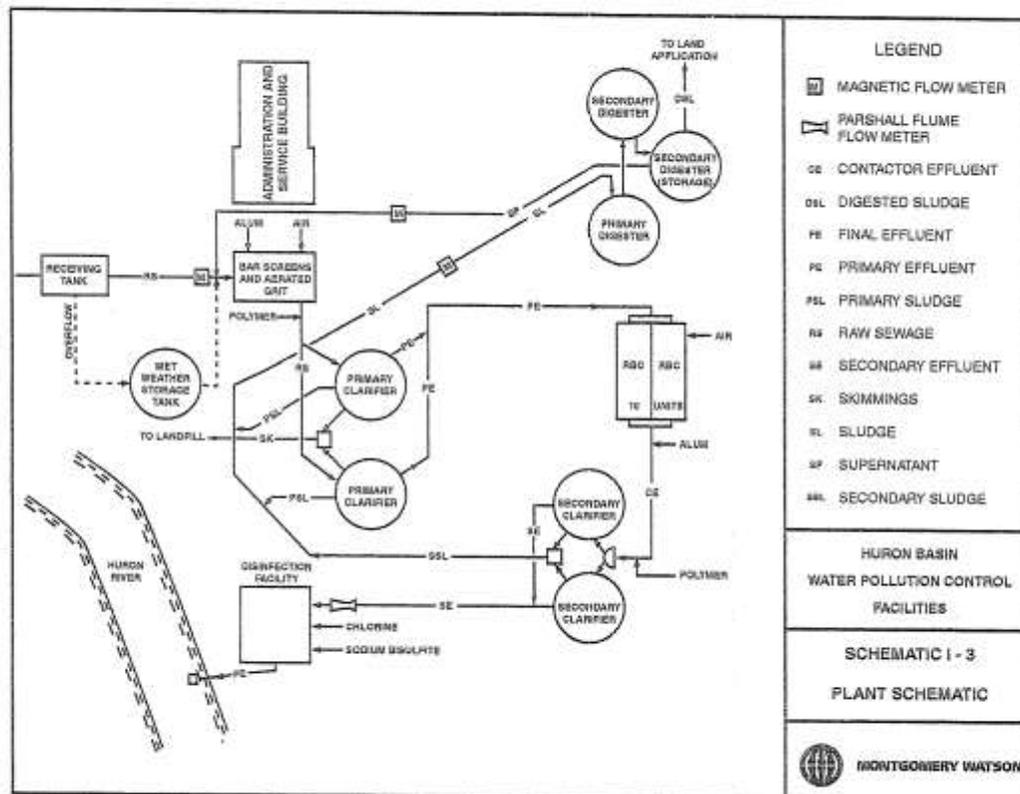
Outfall Signage

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

Figure 1. Location of Huron Basin WWTP



Figure 2. Diagram of Wastewater Treatment System



Huron Basin Water Pollution Control Facilities

Table 1. Calculated Phosphorus Loadings

For Months May - October			
Year	Median Phosphorus (mg/L)	Median Flow (MGD)	Median Loading (kg/day)
2011 ^a	0.355	0.726	1.06
2012	0.365	0.7705	1.16
2013	0.345	0.8725	0.907
2014	0.255	0.6505	0.591
2015 ^b	0.23	0.756	0.658

MGD = million gallons per day

^a = July – October

^b = May

Table 2. Effluent Characterization Using Ohio EPA data

Parameter	Units	10/28/2013
Aluminum	µg/L	587
Ammonia	mg/L	0.285
Arsenic	µg/L	AA (2)
Barium	µg/L	25
Bromodichloromethane	µg/L	2.49
Cadmium	µg/L	AA (0.2)
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	2.6
Chemical Oxygen Demand	mg/L	37
Chloride	mg/L	20
Chloroform	µg/L	2.12
Chromium	µg/L	AA (2.0)
Copper	µg/L	5.8
Cyanide, Free	µg/L	AA (2.2)
Dibromochloromethane	µg/L	1.23
Iron	µg/L	89
Lead	µg/L	AA (2.0)
Magnesium	mg/L	20
Manganese	µg/L	19
Nickel	µg/L	3
Nitrate+Nitrite	mg/L	24.2
Oil & Grease	mg/L	AA (5)
Phosphorus	mg/L	0.246
Selenium	µg/L	AA (2.0)
Strontium	µg/L	304
Total Filterable Residue (Dissolved Solids)	mg/L	752
Total Kjeldahl Nitrogen	mg/L	2.64
Total Suspended Solids	mg/L	AA (5)
Zinc	µg/L	AA (10)

AA = not-detected (analytical method detection limit)

Table 3. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
<u>Outfall 001</u>								
Acute Toxicity, <i>Ceriodaphnia dubia</i>	Annual	TU _a	----- Monitor -----		4	0	0	0-0
Acute Toxicity, <i>Pimephales promelas</i>	Annual	TU _a	----- Monitor -----		4	0	0	0-0
Ammonia	Summer	mg/L	4.1	6.2 ^a	272	0.22	1.99	0-5.52
		kg/day	31	46.9 ^a	--	--	--	--
	Winter	mg/L	----- Monitor -----		279	0.48	8.44	0-25.9
		kg/day	----- Monitor -----		--	--	--	--
Cadmium	Annual	µg/L	----- Monitor -----		15	0	0	0-0
CBOD 5 day	Annual	mg/L	25	40 ^a	548	1	7	0-15
		kg/day	190	303 ^a	--	--	--	--
Chlorine, Total Residual	Annual	mg/L	--	0.038	603	0	0	0-0
Chromium	Annual	µg/L	----- Monitor -----		15	0	0	0-0
Chronic Toxicity, <i>Ceriodaphnia dubia</i>	Annual	TU _c	----- Monitor -----		4	0	0	0-0
Chronic Toxicity, <i>Pimephales promelas</i>	Annual	TU _c	----- Monitor -----		4	0	0	0-0
Copper	Annual	µg/L	----- Monitor -----		15	0	6.3	0-7
Cyanide, Free	Annual	mg/L	----- Monitor -----		47	0	0	0-0.008
Dissolved Oxygen	Annual	mg/L	5.0 Minimum		991	6.6	9.3	5-11.6
<i>E. coli</i>	Annual	#/100 ml	126	284	275	1	41	0-1050
Flow Rate	Annual	MGD	----- Monitor -----		1430	0.824	2.32	0.211-662
Lead	Annual	µg/L	----- Monitor -----		15	0	0	0-0
Mercury	Annual	ng/L	2.8	1700	47	1.26	2.26	0-2.78
Mercury, PQL=1000	Annual	ng/L	2.8	1700	1	0	0	0-0
Nickel	Annual	µg/L	----- Monitor -----		15	0	0	0-0
Nitrite + Nitrate	Annual	mg/L	----- Monitor -----		46	20.3	28.7	8.77-31.4
Oil and Grease	Annual	mg/L		10	47	0	0	0-0
pH, Maximum	Annual	S.U.	9.0 Maximum		994	7.4	7.8	6.7-8.5
pH, Minimum	Annual	S.U.	6.5 Minimum		994	7.3	7.6	6.5-8.1
Phosphorus	Annual	mg/L	1	1.5	47	0.33	0.43	0.08-0.61
		kg/day	7.57	11.4	--	--	--	--
Residue, Total Filterable	Annual	mg/L	----- Monitor -----		47	774	968	506-1060

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Total Suspended Solids	Annual	mg/L	30	45 ^a	552	4.2	8	0-19.3
		kg/day	227	341 ^a	--	--	--	--
Water Temperature	Annual	°C	---- Monitor ----		991	15	23	6-25
Zinc	Annual	µg/L	---- Monitor ----		15	13	39.3	0-82
Sludge Station 581								
Ammonia		mg/kg	---- Monitor ----		7	14000	16600	9430-17500
Total Kjeldahl Nitrogen		mg/kg	---- Monitor ----		7	34400	40700	3870-41500
Phosphorus		mg/kg	---- Monitor ----		7	24200	26300	22700-26700
Potassium		mg/kg	---- Monitor ----		7	7070	11400	3710-12900
Arsenic		mg/kg	--	75	7	11	11.9	9.1-11.9
Cadmium		mg/kg	--	85	7	2.1	4	1.5-4
Copper		mg/kg	--	4300	7	591	688	584-694
Lead		mg/kg	--	840	7	40.3	59	30.1-65
Nickel		mg/kg	--	420	7	21.6	24.4	19.3-25
Zinc		mg/kg	--	7500	7	1030	1200	811-1210
Selenium		mg/kg	--	100	7	8.4	9	5.8-9
Sludge Fee Weight		dry tons	---- Monitor ----		7	89.6	202	23.5-216
Fecal Coliform		CFU/gram	--	2000000	7	0	0	0-0
Sludge Weight		Dry Tons	---- Monitor ----		7	89.6	202	23.5-216
Mercury		mg/kg	--	57	7	1.21	2.22	1-2.6
Molybdenum		mg/kg	--	75	7	16.4	18.4	13.3-19
Sludge Station 586								
Sludge Fee Weight	Annual	dry tons	---- Monitor ----		2	166	255	68.3-264
Influent Monitoring Station 601								
pH	Annual	S.U.	---- Monitor ----		994	7.3	7.7	6.5-8.2
Total Suspended Solids	Annual	mg/L	---- Monitor ----		552	159	506	20-4150
Mercury	Annual	ng/L	---- Monitor ----		48	62	1370	0-4560
CBOD 5 day	Annual	mg/L	---- Monitor ----		542	157	302	19-663
Upstream Monitoring Station 801								
Water Temperature	Annual	°C	---- Monitor ----		62	7.2	26	0.2-27
Dissolved Oxygen	Annual	mg/L	---- Monitor ----		53	10	176	3-218
pH	Annual	S.U.	---- Monitor ----		52	8	209	7.2-230

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Ammonia	Annual	mg/L	----- Monitor -----		42	0.08	0.483	0-644
Nitrite + Nitrate	Annual	mg/L	----- Monitor -----		42	2.43	7.06	0.24-16.1
Phosphorus	Annual	mg/L	----- Monitor -----		42	0.09	0.23	0-0.29
<i>E. coli</i>	Annual	#/100 ml	----- Monitor -----		23	89	300	15-489
48-Hr. Acute Toxicity <i>Ceriodaphnia dubia</i>	Annual	% Affected	----- Monitor -----		4	0	0	0-0
96-Hr. Acute Toxicity <i>Pimephales promelas</i>	Annual	% Affected	----- Monitor -----		4	0	0	0-0
7-Day Chronic Toxicity <i>Ceriodaphnia dubia</i>	Annual	% Affected	----- Monitor -----		4	0	8.5	0-10
7-Day Chronic Toxicity <i>Pimephales promelas</i>	Annual	% Affected	----- Monitor -----		4	0	6.38	0-7.5
Downstream Monitoring Station 901								
Water Temperature	Annual	°C	----- Monitor -----		42	15	26	0.6-27
Dissolved Oxygen	Annual	mg/L	----- Monitor -----		42	7.56	13	3.1-13.8
pH	Annual	S.U.	----- Monitor -----		42	7.8	8.2	7.2-8.3
Ammonia	Annual	mg/L	----- Monitor -----		42	0.095	0.445	0-0.79
Nitrite + Nitrate	Annual	mg/L	----- Monitor -----		42	1.89	6.84	0-387
Phosphorus	Annual	mg/L	----- Monitor -----		42	0.095	0.21	0-0.25
Hardness	Annual	mg/L	----- Monitor -----		41	225	307	146-345
<i>E. coli</i>	Annual	#/100 ml	----- Monitor -----		23	100	563	13-614

All values are based on annual records unless otherwise indicated. * = For minimum pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; ^a = weekly average; MGD = million gallons per day; CBOD = Carbonaceous Biochemical Oxygen Demand; PQL = practical quantitation level

Table 4. Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-Summer	mg/L	177	177	0.83412	1.8044
Ammonia-Winter	mg/L	138	128	12.202	14.525
Cadmium	µg/L	16	0	--	--
Chromium	µg/L	16	0	--	--
Copper	µg/L	16	8	7.665	10.5
Cyanide - free	mg/L	47	1	0.006424	0.0088
Residue, Total Filterable	mg/L	48	48	903.1	1039.3
Lead	µg/L	16	0	--	--
Mercury	ng/L	47	46	1.8591	2.465
Nickel	µg/L	15	1	4.38	6
Zinc	µg/L	15	11	17.838	25.035
Phosphorus	mg/L	48	48	0.46635	0.63947

MDL = analytical method detection limit

PEQ = projected effluent quality

Table 5. Summary of Acute and Chronic Toxicity Results

Date	<i>Ceriodaphnia Dubia</i>		<i>Pimephales Promelas</i>	
	TU _a	TU _c	TU _a	TU _c
8/16/2011	AA	AA	AA	AA
10/1/2012	AA	AA	AA	AA
10/1/2013	AA	AA	AA	AA
10/1/2014	AA	AA	AA	AA

AA = non-detection; analytical method detection limit of 0.2 TU_a, 1.0 TU_c

TU_a = acute toxicity unit

TU_c = chronic toxicity unit

Table 6. Ohio EPA Toxicity Screening Results for Outfall 001

Date	<i>Pimephales promelas</i>		<i>Ceriodaphnia dubia</i>	
	%M		%M	
	24 hours	48 hours	24 hours	48 hours
10/28/2013	0	0	0	0
10/29/2013	0	0	0	0
10/28/13-10/29/13 ^a	0	0	5	5

^a = 24-hour composite sample

%M = percent mortality in 100% effluent

Table 7. Use Attainment Table

Location	River Mile	Use	Status	Causes	Sources
Huron River	14.7-9.8	WWH	FULL	None	None
Huron River	9.8-0.0	WWH	NON	Siltation Nutrients Habitat Alteration	Agriculture Runoff Channelization Municipal Point Sources Marinas

WWH = warmwater habitat

Table 8. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum	
			Human Health	Agri- culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	--	1.2	--	--
Ammonia (Winter)	mg/L	--	--	--	2.8	--	--
Cadmium	µg/L	--	730	50	4.7	11	23
Chromium	µg/L	--	14000	100	170	3500	7000
Copper	µg/L	--	14000	--	11	16	31
Cyanide, Free	µg/L	--	64000	500	19	30	60
Hexavalent Chromium (Dissolved)	mg/L	--	48	--	0.0052	0.022	0.044
Lead	mg/L	--	--	--	1500	--	--
Mercury	µg/L	--	--	100	18	340	690
Nickel	ng/L	1.3	3.1	10000	910	1700	3400
Total Filterable Residue	µg/L	--	43000	200	100	930	1900
Zinc	µg/L	--	35000	25000	240	240	480
Phosphorus	mg/L	--	--	--	--	--	--

Table 9. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
<i>Stream Flows</i>				
1Q10	cfs	annual	4.48	USGS (Gage #04199000) Drainage Area Ratio Calculation
7Q10	cfs	annual	5.34	USGS (Gage #04199000) Drainage Area Ratio Calculation
		summer	0	
		winter	0	
30Q10	cfs	summer	7.58	USGS (Gage #04199000) Drainage Area Ratio Calculation
		winter	24.54	
90Q10	cfs	annual	12.8	USGS (Gage #04199000) Drainage Area Ratio Calculation
Harmonic Mean	cfs	annual	42.7	USGS (Gage #04199000) Drainage Area Ratio Calculation
Mixing Assumption	%	average	25	
	%	maximum	100	
<i>Hardness</i>				
<i>Hardness</i>	mg/l	annual	225	Downstream 901 Station (50th Percentile)
<i>pH</i>				
<i>pH</i>	S.U.	summer	0	Downstream 901 Station (75th Percentile)
		winter	0	
<i>Temperature</i>				
<i>Temperature</i>	°C	summer	25	Downstream 901 Station (75th Percentile)
		winter	100	
<i>Huron Basin WWTP Flow</i>				
<i>Huron Basin WWTP Flow</i>	cfs	annual	3.094	Permit Application Design Flow
<i>Background Water Quality</i>				
Ammonia Summer	mg/L		0.12	DMR; 2011-2015; n=15; 1<MDL; 801 Station
Ammonia Winter	mg/L		0.09	DMR; 2011-2015; n=8; 0<MDL; 801 Station
Cadmium	µg/L		0	STORET; 1998; n=10; 10<MDL; K01P01, K01W32
Chromium	µg/L		0	No representative data available.
Copper	µg/L		0	STORET; 1998; n=10; 10<MDL; K01P01, K01W32
Cyanide, free	mg/L			No representative data available.
Total Dissolved Solids	mg/L		302	STORET; 1998; n=10; 0<MDL; K01P01, K01W32
Lead	µg/L		1	STORET; 1998; n=10; 8<MDL; K01P01, K01W32
Mercury	ng/l			No representative data available.
Nickel	µg/L		0	STORET; 1998; n=10; 10<MDL; K01P01, K01W32
Zinc	µg/L		10	STORET; 1998; n=10; 4<MDL; K01P01, K01W32

DMR = discharge monitoring report

n = number of samples

STORET = United States Environmental Protection Agency water quality Storage and Retrieval database

MDL = analytical method detection limit

USGS = United States Geological Survey

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

Parameter	Units	Average			Maximum Aquatic Life	Mixing Zone Maximum
		Wildlife	Human Health	Agri-culture		
Ammonia (Summer)	mg/L	--	--	--	4.14	--
Ammonia (Winter)	mg/L	--	--	--	25.01	--
Cadmium	µg/L	--	3249	223	6.7	27
Chromium	µg/L	--	62303	445	243	8568
Copper	µg/L	--	62303	--	16	39
Cyanide, Free	µg/L	--	284814	2225	27	73
Hexavalent Chromium (Dissolved)	mg/L	--	214	--	0.0074	0.054
Lead	mg/L	--	--	--	2017	--
Mercury	µg/L	--	--	442	25	831
Nickel	ng/L	1.3	3.1	10000	910	1700
Total Filterable Residue	µg/L	--	191360	890	143	2277
Zinc	µg/L	--	155723	111221	339	573
Phosphorus	mg/L	--	--	--	--	--

Table 11. Parameter Assessment

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

No parameters meet this criterion.

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

Cadmium	Chromium	-Hexavalent Chromium (dissolved)
Lead	Nickel	Zinc

Group 3: PEQ_{max} < 50 percent of maximum PEL and PEQ_{avg} < 50 percent of average PEL.
No limit recommended; monitoring optional.

Copper	Total Filterable Residue
--------	-----------------------------

Group 4: PEQ_{max} ≥ 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} ≥ 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Cyanide - free

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

<u>Parameter</u>	<u>Units</u>	<u>Period</u>	<u>Recommended Effluent Limits</u>	
			<u>Average</u>	<u>Maximum</u>
Mercury	ng/L		1.3	1700

Cyanide - free requires a permit tracking requirement in accordance with OAC
3745-33-07(A)(2) since the PEQ is > or = 75 percent of the PEL.

OAC = Ohio Administrative Code
PEL = preliminary effluent limit
PEQ = projected effluent quality
WLA = wasteload allocation
WQS = water quality standard

Table 12. Final Effluent Limits for Outfall 001

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Water Temperature	°C	----- Monitor -----				M ^c
Dissolved Oxygen	mg/L	--	5.0 Minimum	--	--	PD
Total Suspended Solids	mg/L	30	45 ^d	227	341 ^d	EP/BPT
Oil & Grease	mg/L	--	10	--	--	WQS
Ammonia						
Summer	mg/L	6.2	4.1	31	46.9 ^d	EP/WLA
Winter	mg/L	----- Monitor -----				EP/M ^c
Nitrate+Nitrite	mg/L	----- Monitor -----				BTJ
Total Phosphorus	mg/L	1	1.5 ^d	7.57	11.4 ^d	BTJ
Orthophosphate, Dissolved (as P)	mg/L	----- Monitor -----				SB1
Nickel	µg/L	----- Monitor -----				EP/WLA
Zinc	µg/L	----- Monitor -----				EP/WLA
Cadmium	µg/L	----- Monitor -----				EP/WLA
Lead	µg/L	----- Monitor -----				EP/WLA
Chromium	µg/L	----- Monitor -----				EP/WLA
Copper	µg/L	----- Monitor -----				EP/WLA
<i>E. coli</i>	#/100 mL	126	284 ^d	--	--	WQS
Flow Rate	MGD	----- Monitor -----				M ^c
Chlorine, Total Residual	mg/L	--	0.038	--	--	EP/BTJ
Mercury	ng/L	1.86	1700	0.000015	0.0129	WQS/VAR
Cyanide, Free	µg/L	----- Monitor -----				WLA
Acute Toxicity						
<i>Ceriodaphnia dubia</i>	TU _a	----- Monitor -----				WET
<i>Pimephales promelas</i>	TU _a	----- Monitor -----				WET
Chronic Toxicity						
<i>Ceriodaphnia dubia</i>	TU _c	----- Monitor -----				WET
<i>Pimephales promelas</i>	TU _c	----- Monitor -----				WET
pH	SU	6.5 - 9.0		--	--	WQS
Total Filterable Residue	mg/L	----- Monitor -----				BTJ/WLA
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	25	40 ^d	190	303 ^d	EP/BPT

^a Effluent loadings based on average design discharge flow of 2.0 MGD.

^b Definitions: BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation
 BTJ = Best Technical Judgment
 EP = Existing Permit

M = Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges
PD = Plant Design, OAC 3745-33-05(E)
PTS = Phosphorus Treatment Standards (OAC 3745-33-06 (C))
SB1 = Implementation of Senate Bill 1 [ORC 6111.03]
VAR = Mercury variance (OAC 3745-33-07(D)(10)(a))
WET = Whole Effluent Toxicity (OAC 3745-33-07(B))
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.

Attachment 1. Mercury Data from Pollutant Minimization Program

Current Influent and Effluent Mercury Concentrations and PEQ Result

<i>Date</i>	<i>Influent [Hg] (ng/L)</i>	<i>Effluent [Hg] (ng/L)</i>
Dec-13	325	2.23
Jan-14	11.2	1.25
Feb-14	35.1	0.799
Mar-14	13.4	1.96
Apr-14	19	2.65
May-14	26200	2.27
Jun-14	72.8	1.32
Jul-14	131	1.36
Aug-14	644	1.69
Sep-14	37.2	0.851
Oct-14	98.9	1.35
Nov-14	354	1.96