

National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for City of Marietta WWTP

Public Notice No.: 14-05-082
Public Notice Date: May 28, 2014
Comment Period Ends: June 27, 2014

Ohio EPA Permit No.: OPD00016*RD
Application No.:

Name and Address of Applicant:

City of Marietta
440 East Eighth Street
Marietta, Ohio 45750

Name and Address of Facility Where
Discharge Occurs:

City of Marietta WWTP
440 East Eighth Street
Marietta, Ohio 45750
Washington County

Receiving Water: Ohio River

Subsequent
Stream Network: Mississippi 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, 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 and Ohio Water Pollution Control Law, Chapter 6111 of the Ohio Revised Code (ORC). 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.

In accordance with the antidegradation rule, Ohio Administrative Code (OAC) 3745-1-05, I have determined that a lowering of water quality in the Ohio River is necessary. Provision (D)(1)(b)(i) was applied to this application. This provision excludes the need for the submittal and subsequent review of technical alternatives and social and economic issues related to the degradation. Other rule provisions, however, including public participation and appropriate intergovernmental coordination were required and considered prior to reaching this decision.

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by 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 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 wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. 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

Most permit conditions, limits, and monitoring frequencies will remain the same as in the existing permit, with the following proposed changes.

New limits are proposed for mercury based on water quality standards. A compliance schedule is provided to allow the facility time to evaluate ability to comply.

Limits for Total Suspended Solids and CBOD₅ have changed slightly due to a plant expansion and antidegradation policies found in OAC Rule 3745-1-05. New limits for ammonia are included as well. A compliance schedule is provided to meet these new limits.

Monitoring frequency for Cadmium, Chromium, Free Cyanide, Lead, Nickel, and Zinc has been reduced from monthly to quarterly.

Limits have been removed for Copper, and tracking of the parameter has been added with limit trigger levels.

Annual acute toxicity monitoring is proposed for the life of the permit. This satisfies the minimum testing requirements of rule 3745-33-07(B)(11) of the OAC and will adequately characterize toxicity in the plant's effluent.

In Part II of the permit, special conditions are included that address sanitary sewer overflow (SSO) reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity testing; tracking of group 4 parameters; outfall signage; and pretreatment program requirements.

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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 Andy Bachman, andrew.bachman@epa.ohio.gov, (614) 644-3075, or Bruce Goff, bruce.goff@epa.ohio.gov, (740) 380-5238.

Information Regarding Certain Water Quality Based Effluent Limits

This draft permit may contain proposed water quality based effluent limitations 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 Ohio Revised Code Section 6111.03(J)(3), the Director established these water quality based effluent limits 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 National Pollutant Discharge Elimination System (NDPES) 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 water quality based effluent limitations 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 water quality standard(s) used to develop the proposed effluent limitation in accordance with the terms and conditions set forth in Ohio Administrative Code (OAC) Rule 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 water quality standard(s) pursuant to OAC Rule 3745-1-35. The permittee shall submit written notification regarding their intent to develop site specific water quality standards 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

The Marietta WWTP discharges to Ohio River at river mile 810.38. Figure 1 shows the approximate location of the facility.

This segment of the Ohio River is described by Ohio EPA River Code: 25-500, U.S. EPA River Reach #: 05030201-001, County: Washington County, Ecoregion: Western Allegheny Plateau. The Ohio River is designated for the following uses under Ohio's water quality standards (OAC 3745-1-32): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Public Water Supply (PWS), and Bathing Waters (BW).

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 water quality standards 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 Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not 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) and wading only (Secondary Contact - 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 and industrial water supply.

Facility Description

The City of Marietta WWTP is currently designed to treat an average daily flow of 3.34 million gallons per day (MGD). The treatment plant will be undergoing an expansion to 4.0 MGD to accommodate growth in Washington County subdivisions and Reno Water and Sewer District, as well as a nominal consideration for growth within Marietta. The treatment plant was originally constructed in 1955, with the most recent major upgrade occurring in 2003. Treatment plant processes and/or equipment include: influent pumping, bar screen, grit removal, scum removal, flow equalization, primary sedimentation, pre-aeration, activated sludge stabilization, secondary clarification, and ultraviolet disinfection.

The treatment plant includes a bypass at the head of the plant to the flow equalization basin which can be discharged directly to the Ohio River. However, according to the permit renewal application, the bypass is not used.

Sludge is processed by anaerobic digestion, gravity thickening, and dewatered with a belt filter press. Sludge is removed from the facility and disposed in a landfill or transferred to another NPDES permit holder. Sludge had previously been land applied until the facility's digester failed in 2010.

The collection system, which serves the City of Marietta as well as the Reno Water and Sewer District, consists of 100 percent separate sanitary sewers. There are no engineered or constructed bypasses in the collection system. Ten industrial users discharge into the collection system. Two categorical users contribute 0.02 MGD and eight non-categorical contribute 0.128 MGD, for a total of 0.148 MGD. The City enforces technically-based local limits for industrial dischargers to the collection system in accordance with an Ohio EPA-approved pretreatment program.

The water supply source for the City is wells.

Other entities responsible for maintenance of the collection system are: the city of Devola for Washington County, and the Reno Water and Sewer District for the town of Reno.

Description of Existing Discharge

Table 1 presents chemical specific data compiled from data reported in annual pretreatment reports and data collected by Ohio EPA.

Table 2 presents a summary of unaltered discharge monitoring report (DMR) data for outfall OPD00016001. Data are presented for the period March 2009 through February 2014, and current permit limits are provided for comparison.

Table 3 summarizes the chemical specific data for outfall 001 by presenting the average and maximum Projected Effluent Quality values.

Table 4 summarizes the results of whole effluent toxicity tests of the final effluent.

The City reports sanitary sewer overflow (SSO) occurrences under station 300 in its NPDES permit. The City reported 8 SSOs in 2009, 10 SSOs in 2010, 13 SSOs in 2011, 6 SSOs in 2012, 1 SSO in 2013, and 2 SSOs through February 2014.

Under the provisions of 40 CFR 122.21(j), the Director has waived the requirement for submittal of expanded effluent testing data as part of the NPDES renewal application. Ohio EPA has access to substantially identical information through the submission of annual pretreatment program reports and/or from effluent testing conducted by the Agency.

Assessment of Impact on Receiving Waters

The report titled, 2012 Biennial Assessment of Ohio River Water Quality Conditions, developed by the Ohio River Valley Water Sanitation Commission (ORSANCO) contains information regarding conditions in the Ohio River. This report is based upon sampling conducted from 2007 through 2011, and “the Ohio River public water supply use was assessed based on chemical water quality data collected from the Bimonthly and Clean Metals Sampling Programs, bacteria monitoring, and questionnaires sent to Ohio River drinking water utilities to assess impacts on those utilities caused by source water conditions” [page 3].

Based on an assessment of fish community surveys from 2007-2011, ORSANCO “assessed the entirety of the Ohio as fully supporting the aquatic life use” [page 47].

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 Marietta WWTP were used to determine what parameters should undergo wasteload allocation. 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)	March 2009 through February 2014
Pretreatment data	2009 through 2011
Ohio EPA compliance sampling data	2011 and 2012

This data is evaluated statistically, and Projected Effluent Quality (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. The average and maximum PEQ values are presented in Table 3.

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

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 water quality standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload allocations 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 (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
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 6, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

Ohio's water quality standard 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 water quality standards at the end-of-pipe, which are 12 ng/L (average) and 1700 ng/L (maximum) in the Ohio River basin, or 1.3 ng/L (average) and 1700 ng/L (maximum) in the Lake Erie basin.

The data used in the WLA are listed in Tables 3, 5, and 6.

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.

Water quality standards 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). Wasteload allocations can then be calculated using TUs as if they were water quality criteria.

The wasteload allocation 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 Marietta WWTP, the wasteload allocation values are 4.1 TU_a and 127.96 TU_c . The acute toxicity WLA defaults to 1.0 TU_a in accordance with OAC Rule 3745-2-09.

The chronic toxicity unit (TU_c) is defined as 100 divided by the IC_{25} :

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

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

$$TU_c = 100/\text{geometric mean of NOEC and LOEC}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the LC_{50} 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.

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation 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 wasteload allocations are selected from Table 7. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 3, 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 8.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 9 presents the final effluent limits and monitoring requirements proposed for Marietta WWTP outfall OPD00016*RD and the basis for their recommendation.

The treatment plant will be undergoing an expansion to 4.0 MGD. In accordance with the antidegradation rule, OAC 3745-1-05, a lowering of water quality in the Ohio River is necessary. Provision (D)(1)(b)(i) was applied, which excludes the need for the submittal and subsequent review of technical alternatives and social and economic issues related to the degradation.

The limits proposed for ammonia, total suspended solids, and 5-day carbonaceous biochemical oxygen demand (CBOD₅) are based on plant design criteria. These limits are protective of water quality standards. They were calculated for the blended flow of the existing plant design flow and the future expanded flow according to Best Available Demonstrated Control Technology (BADCT) standards. A compliance schedule is provided to meet the new limits. In Part II, language is provided which requires the permittee to notify Ohio EPA 90 days before discharging at the expanded flow rate.

Monitoring for nitrate+nitrite is proposed to continue to verify that the effluent is meeting water quality standards. Monitoring for total Kjeldahl nitrogen, orthophosphate, phosphorus, and cyanide are proposed to continue based on best engineering judgment. The purpose of the monitoring is to maintain a nutrient data set for use in future aquatic life use assessment surveys. Monitoring for total phosphorus, orthophosphate, TKN, and nitrate+nitrite are included because the Ohio River Valley Water Sanitation Commission (ORSANCO) has requested that all municipal facilities and appropriate industrial facilities with a direct discharge to the Ohio River monitor for these parameters in order to provide additional data for nutrient loadings.

Mercury Reasonable Potential and Mercury Variance The Ohio EPA risk assessment (Table 8) places mercury in group 5. This placement as well as the data in Tables 1, 2 and 4 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality.

As the Marietta WWTP may have difficulty complying with the limits for mercury and because cost effective measures for reducing mercury discharge concentrations may not be available for the permittee, a compliance schedule for mercury has been incorporated in the draft permit. The compliance schedule requires the Marietta WWTP to determine if meeting the water quality-based effluent limits (WQBELs) for mercury will be possible. If the permittee believes that complying with the WQBELs is not possible, they may apply for a variance by submitting a mercury variance application. Ohio EPA would then review the application, and if approved, would proceed to modify the permit to incorporate variance-based mercury limits and conditions associated with the mercury variance. Marietta WWTP is required to make the determination described above and submit a mercury variance application (if needed) no later than 12 months after the effective date of the permit. If Marietta WWTP does not apply for a mercury variance and the permit is not modified, water quality-based limits for mercury will become effective 36 months after the effective date of the NPDES permit. Collecting and analyzing the samples for mercury must be done using U.S. EPA Method 1631 or 245.7.

Ohio EPA risk assessment (Table 8) places Dissolved Hexavalent Chromium in group 4. This placement as well as the data in Tables 1, 2 and 3 supports 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 Rule 3745-33-07(A)(2).

Ohio EPA risk assessment (Table 8) places Copper in group 4. In addition, the copper effluent quality falls within 75 percent of the wasteload allocation. 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 Item K of the draft permit. Limits have been removed for copper based on the WLA.

Ohio EPA risk assessment (Table 8) places Arsenic, Antimony, Beryllium, Barium, bis(2-ethylhexyl)phthalate, Cadmium, Chloroform, Chromium, Free Cyanide, 1,4-Dichlorobenzene, Dissolved solids, Iron, Lead, Nickel, Selenium, and Zinc in groups 2 and 3. This placement as well as the data in Tables 1, 2, and 3 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 the metals in these risk assessment groups that are monitored in the existing permit has been reduced from monthly to quarterly.

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.

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.

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.

Monitoring is proposed to continue for temperature and flow rate in order to assist in the evaluation of effluent quality and treatment plant performance, and in accordance with Ohio EPA guidance.

Whole Effluent Toxicity Reasonable Potential

Annual acute toxicity monitoring is proposed for the life of the permit. Evaluating the toxicity data presented in Table 4 and other pertinent data under the provisions of OAC 3745-33-07(B) placed the Marietta wastewater plant in Category 4 with respect to whole effluent toxicity. 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). The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Dissolved Metals Translators A dissolved metals translator (DMT) is the factor used to convert a dissolved metal aquatic life criterion to an effective total recoverable aquatic life criterion with which a total recoverable aquatic life allocation can be calculated as required by NPDES permit rules [OAC Rule 3745-33-05(C)(2)]. Currently, a DMT is based on site- or area-specific field data; each field data sample consists of a total recoverable measurement paired with a dissolved metal measurement.

For the Ohio River, there were 5 such paired samples available applicable to chromium, copper, lead, nickel and zinc. To account for the limited quantity of data, the DMT for each of these metals was determine as the lower end of the 95 percent confidence interval (1-tail) about the geometric mean of the total recoverable-to-dissolved ratios of the sample pairs. Each DMT is metal-specific and is applied by multiplying the dissolved criteria by the DMT, resulting in total effective recoverable criteria which are used in the wasteload allocation procedures.

In some cases, it is possible that the use of a DMT may result in instream concentrations of metals that may increase the risk of non-attainment of the aquatic life use designation. This was evaluated for the Marietta WWTP. The application of the DMTs resulted in effective total recoverable criteria for chromium, copper, lead, nickel, and zinc that were lower than the total recoverable criteria listed in OAC 3745-1. The application of

DMTs did not result in any change in parameter grouping in Table 8, and therefore did not result in any change in monitoring or limit requirements for any parameters.

If the facility wishes to use DMTs in their next permit renewal, a new DMT study shall be completed and submitted with the permit renewal application.

Other Requirements

Sanitary Sewer Overflow Reporting

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

Operator Certification

Operator certification requirements have been included in Part II, Item A of the permit in accordance with rules adopted in December 2006. These rules require the Marietta WWTP to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001.

Operator of Record

In December 2006, rule revisions became effective that affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A of this NPDES permit is included to implement OAC 3745-7-02. It requires the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

Storm Water Compliance

The City obtained coverage under the general industrial stormwater permit, permit number OGR00291*CG, on April 4, 2012 for stormwater discharges from the WWTP. Coverage under general industrial stormwater permit must be renewed when the general permit expires in 2016.

Outfall Signage

Part II of the permit includes requirements for the permittee to 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).

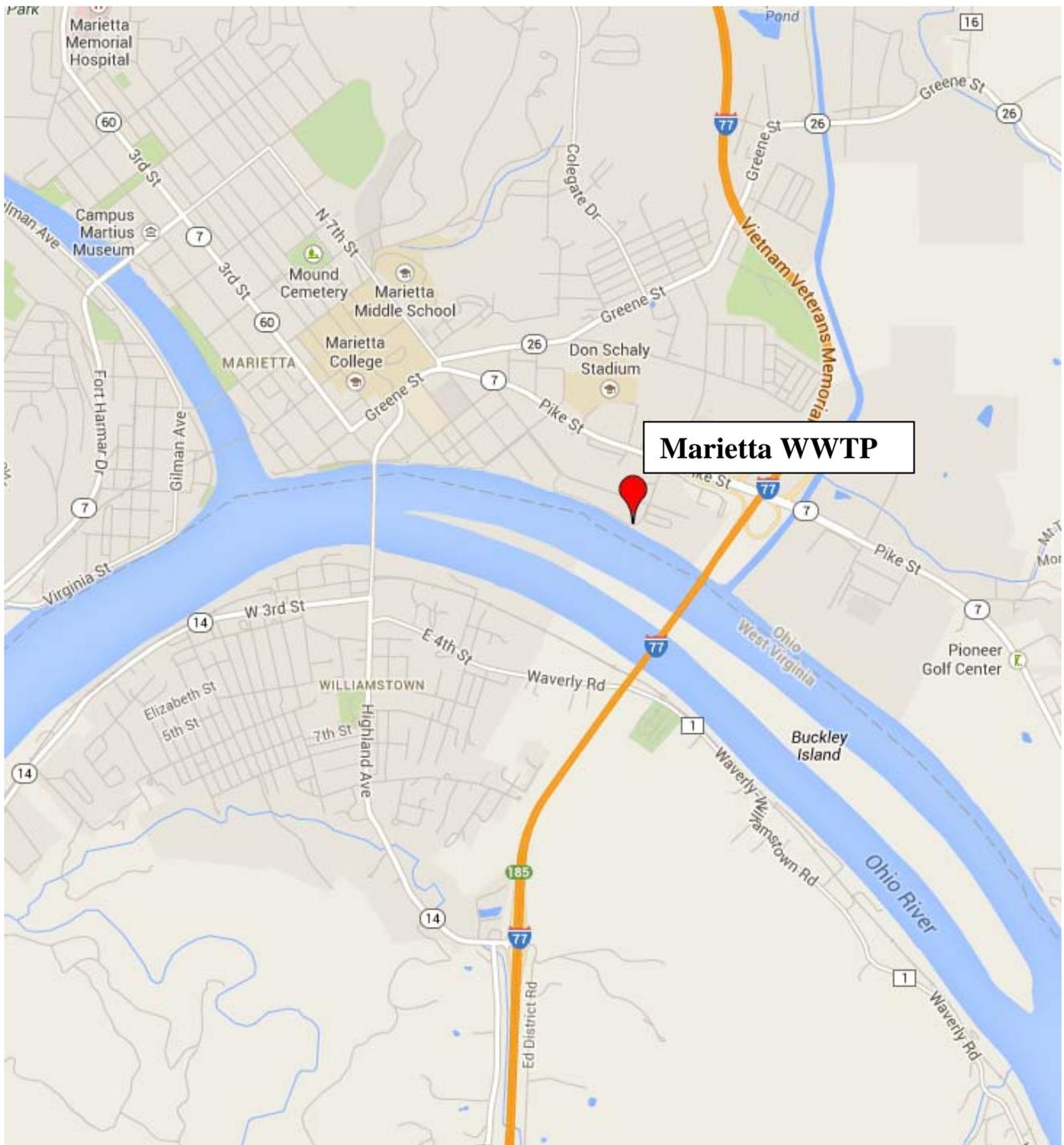


Figure 1. Location of Marietta WWTP

Table 1. Effluent Characterization Using Ohio EPA and Pretreatment Data

Summary of analytical results for Marietta WWTP outfall OPD00016001. Units $\mu\text{g/L}$ unless otherwise noted; OEPA = data from analyses by Ohio EPA; PT = data from pretreatment program reports

Parameter	PT			OEPA	
	9/17/2009	9/2/2010	9/2/2011	11/1/2011	2/27/2012
Aluminum	-	-	-	844	<200
Ammonia (mg/L)	-	-	-	<0.05	16.6
Antimony	<2.0	3	<5.0	-	-
Arsenic	<1.0	<1.0	<5.0	<2.0	<2.0
Barium	-	-	-	62	<15
Beryllium	<0.2	<0.2	<3.0	-	-
bis(2-ethylhexyl)phthalate	1.9	4.2	<10.0	<10.4	<13.7
Cadmium	<0.5	<0.5	<3.0	<0.20	<0.20
Calcium (mg/L)	-	-	-	39	38
Chloride (mg/L)	-	-	-	85.2	92.5
Chloroform	<1.0	2.3	<5.0	<0.50	<0.50
Chromium	<2.0	<2.0	<7.0	<2.0	3.1
Chromium, Dissolved Hexavalent	-	-	-	<10	<10
Copper	12	23	<8.0	3.6	5.5
Cyanide, free	-	-	-	<5	<5
1,4-Dichlorobenzene	<1.0	1.3	<5.0	<2.1	<2.7
Dissolved solids, total (mg/L)	-	-	-	420	434
Hardness (mg/L)	-	-	-	139	169
Iron	-	-	-	1680	205
Lead	<2.0	<2.0	<10	2	<2.0
Magnesium (mg/L)	-	-	-	10	18
Manganese	-	-	-	210	21
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<0.20	<0.20	<8.0	5.3	5.2
Nitrate+nitrite (mg/L)	-	-	-	0.58	2.31
Oil & Grease (mg/L)	-	-	-	<2.1	<2.1
Phosphorus (mg/L)	-	-	-	0.057	1.25
Potassium (mg/L)	-	-	-	3	11
Selenium	9.8	<1.0	<4.0	<2.0	<2.0
Silver	<0.2	<0.2	<1.0	-	-
Strontium	-	-	-	204	210
Suspended solids, total (mg/L)	-	-	-	11	8
Thallium	<2.0	<2.0	<5.0	-	-
TKN (mg/L)	-	-	-	<0.20	16.7
Toluene	<1.0	<1.0	<5.0	<0.50	0.84
Zinc	72	59	76	46	50

Table 2. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report data for Marietta WWTP outfall OPD00016001 (March 2009 – February 2014). All values are based on annual records unless otherwise indicated. PEQ=Projected Effluent Quality; * = 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.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ _{avg}	PEQ _{max}
Water Temperature	Annual	C	Monitor		1826	18	25	6-26	-	-	
Dissolved Oxygen	Summer	mg/L	Monitor		610	4	2.645	1.2-7	-	-	
Dissolved Oxygen	Winter	mg/L	Monitor		451	5.7	3.35	2.4-8.8	-	-	
Total Suspended Solids	Annual	mg/L	30	45	1824	10	25	1-108	1826	14.15	26.8
Total Suspended Solids	Annual	kg/day	380.4	570.6					-	-	-
Oil and Grease, Hexane Extr Method	Annual	mg/L		10	129	0	6	0-7.5	56	4.5645	6.96
Nitrogen, Ammonia (NH3)	Summer	mg/L	Monitor		258	0.18	1.732	0-10	-	-	
Nitrogen, Ammonia (NH3)	Winter	mg/L	Monitor		195	0.36	15.58	0-23.6	-	-	
Nitrogen Kjeldahl, Total	Annual	mg/L	Monitor		60	2.1	5.4125	0.62-17	-	-	
Nitrite Plus Nitrate	Annual	mg/L	Monitor		60	10.085	18.935	0-31.98	61	23.452	36.7
Orthophosphate, Total	Annual	mg/L	Monitor		54	5.07	15.4	0-17.7	-	-	
Phosphorus, Total (P)	Annual	mg/L	Monitor		56	3.62	6.665	0.385-9	-	-	
Cyanide, Free	Annual	µg/L	Monitor		59	0	0.01	0-0.022	6	0.00899	0.0128
Nickel	Annual	µg/L	Monitor		60	0	1.335	0-13	6	9.49	13
Zinc	Annual	µg/L	Monitor		60	40.5	100.04	13-113	65	79.069	113.3
Cadmium	Annual	µg/L	Monitor		60	0	0	0-0.2	1	0.17	0.24
Lead	Annual	µg/L	Monitor		60	0	0	0-17	2	12.41	17
Chromium	Annual	µg/L	Monitor		60	0	0	0-0.2	2	2.716	3.72
Copper	Annual	µg/L		35	60	0	18.05	0-20	29	17.5	27.5
Copper	Annual	kg/day		0.442	-	-	-	-	-	-	-
Chromium, Dissolved Hexavalent	Annual	µg/L	Monitor		60	0	0	0-19	2	13.87	19
Fecal Coliform	Annual	#/100mL	1000	2000	764	16.3	400	0-9800	-	-	
Flow Rate	Summer	MGD	Monitor		609	1.97	3.914	1.21-6.36	-	-	
Flow Rate	Winter	MGD	Monitor		451	2.38	5.94	1.35-7.36	-	-	
Flow Rate	Annual	MGD	Monitor		1825	2.14	5.198	1.21-8.22	-	-	

Table 2 (continued)

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ _{avg}	PEQ _{max}
Mercury, Total (Low Level)	Annual	ng/L	Monitor		57	6.9	14.04	0-23.9	55	15.97	25.341
pH, Maximum	Annual	S.U.		9.0	1825	7.2	7.5	6.5-8.4	-	-	-
pH, Minimum	Annual	S.U.		6.0	1825	6.6	7.3	6-8.2	-	-	-
CBOD 5 day	Summer	mg/L	25	40	239	3.2	7.43	0-11.1	-	-	-
CBOD 5 day	Winter	mg/L	25	40	181	8.1	19.2	2.3-93	-	-	-
CBOD 5 day	Summer	kg/day	317	507.2					-	-	-
CBOD 5 day	Winter	kg/day	317	507.2					-	-	-

Table 3. Projected Effluent Quality Values

MDL=Method Detection Limit; PEQ= Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Aluminum	µg/L	2	1	2341.256	3207.2
Antimony	µg/L	2	1	8.322	11.4
Arsenic	µg/L	5	0	--	--
Barium	µg/L	2	1	171.988	235.6
Beryllium	µg/L	3	0	--	--
Bis(2-ethylhexyl)phthalate	µg/L	2	2	11.6508	15.96
Cadmium	µg/L	28	1	0.1752	0.24
Chloroform (Trichloromethane)	µg/L	4	1	4.3654	5.98
Chromium	µg/L	29	2	2.7156	3.72
Chromium VI - Diss	µg/L	61	2	13.87	19
Copper	µg/L	65	29	17.519	27.54
Cyanide - free	mg/L	61	6	0.008997	0.012876
1,4-Dichlorobenzene	µg/L	2	1	3.6062	4.94
Dissolved solids	mg/L	2	2	1203.916	1649.2
Iron	µg/L	2	2	4660.32	6384
Lead	µg/L	65	2	12.41	17
Manganese	µg/L	2	2	582.54	798
Mercury	ng/L	57	55	15.97	25.341
Nickel	µg/L	65	6	9.49	13
Nitrate + Nitrite	mg/L	62	61	23.452	36.763
Phosphorus	mg/L	58	58	9.5007	15.131
Selenium	µg/L	5	1	16.4542	22.54
Silver	µg/L	3	0	--	--
Strontium	µg/L	2	2	582.54	798
Thallium	µg/L	3	0	--	--
TKN	mg/L	62	61	5.2814	8.1319
Toluene	µg/L	4	1	1.898	2.6
Zinc	µg/L	65	65	79.069	113.3
Molybdenum	µg/L			--	--

Table 4. Summary of Toxicity Test Results

AA=Not detected; TUa=acute toxicity units; E=Entity test; O=Ohio EPA test

Test Date	<i>Pimephales promelas</i>			<i>Ceriodaphnia dubia</i>		
	TUa	% mortality (24 hr screening)	% mortality (48 hr screening)	TUa	% mortality (24 hr screening)	% mortality (48 hr screening)
9/17/2009 (E)	AA	-	-	AA	-	-
9/1/2010 (E)	AA	-	-	AA	-	-
9/6/2011 (E)	AA	-	-	AA	-	-
11/1/2011 (O)	-	0	0	-	0	0
2/27/2012 (O)	-	0	10	-	0	0
9/10/2012 (E)	AA	-	-	AA	-	-
9/15/2013 (E)	AA	-	-	AA	-	-

Table 5. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria			Maximum Aquatic Life	Inside Mixing Zone Maximum
		Average		Aquatic Life		
		Human Health	Agri-culture			
Aluminum	µg/L	--	--	--	--	
Antimony	µg/L	14	--	190	900	
Arsenic	µg/L	50	100	150	340	
Barium	µg/L	--	--	220	2000	
Beryllium	µg/L	16	100	15	130	
Bis(2-ethylhexyl)phthalate	µg/L	18	--	8.4	1100	
Cadmium	µg/L	--	50	2.8	5.5	
Chloroform (Trichloromethane)	µg/L	57	--	140	1300	
Chromium	µg/L	--	100	170	1300	
Chromium VI - Dissolved	µg/L	--	--	11	16	
Copper	µg/L	1300	500	11	18	
Cyanide - free	mg/L	0.7	--	0.0052	0.022	
1,4-Dichlorobenzene	µg/L	400	--	9.4	57	
Dissolved solids	mg/L	--	--	1500	--	
Iron	µg/L	--	5000	--	--	
Lead	µg/L	--	100	33	630	
Manganese	µg/L	--	--	--	--	
Mercury	ng/L	12	10000	910	1700	
Nickel	µg/L	610	200	73	660	
Nitrate + Nitrite	mg/L	10	100	--	--	
Phosphorus	mg/L	--	--	--	--	
Selenium	µg/L	170	50	5	--	
Silver	µg/L	50	--	1.3	2.2	
Strontium	µg/L	--	--	21000	40000	
Thallium	µg/L	1.7	--	17	79	
TKN	mg/L	--	--	--	--	
Toluene	µg/L	6800	--	62	560	
Zinc	µg/L	9100	25000	140	140	
Molybdenum	µg/L	--	--	20000	190000	

Table 6. Instream Conditions and Discharger Flow

<u>Parameter</u>	<u>Units</u>	<u>Season</u>	<u>Value</u>	<u>Basis</u>
<i>Stream Flows</i>				
1Q10	cfs	annual	6560	ORSANCO
7Q10	cfs	annual	6560	ORSANCO
		summer	0	
		winter	0	
30Q10	cfs	summer	0	
		winter	0	
90Q10	cfs	annual	0	
Harmonic Mean	cfs	annual	24500	ORSANCO
Mixing Assumption	%	average	10	(***)WLA's for non-carcinogens are developed using 100 percent of the 7Q10.)
	%	maximum	1	
<i>Hardness</i>	mg/L	annual	120	ORSANCO
<i>pH</i>	S.U.	summer	0	
		winter	0	
<i>Temperature</i>	C	summer	0	
		winter	0	
<i>Marietta WWTP flow</i>	cfs	annual	6.188	
<i>Background Water Quality</i>				
Aluminum	µg/L		166	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Antimony	µg/L			No representative data available.
Arsenic	µg/L		0.72	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Barium	µg/L		44	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Beryllium	µg/L			No representative data available.
Bis(2-ethylhexyl)phthalate	µg/L			No representative data available.
Cadmium	µg/L		0.05	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Chloroform (Trichloromethane)	µg/L			No representative data available.
Chromium	µg/L		1.063	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Chromium-dissolved hexavalent	µg/L			No representative data available.
Copper	µg/L		2.646	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Cyanide - free	mg/L			No representative data available.
1,4-Dichlorobenzene	µg/L			No representative data available.
Dissolved solids	mg/L		382	ORSANCO; 2000-2007; n=3755; 0<MDL; Median
Iron	µg/L		400	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Lead	µg/L		0.543	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Manganese	µg/L		81.8	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Mercury	ng/L		2.031	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Nickel	µg/L		3.191	ORSANCO; 2000-2007; n=49; 0<MDL; Median

Nitrate + Nitrite	mg/L	0.894	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Phosphorus	mg/L	0.046	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Selenium	µg/L	0.6	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Silver	µg/L	0.02	ORSANCO; 2000-2007; n=49; 0<MDL; Median
Strontium	µg/L		No representative data available.
Thallium	µg/L	0.05	ORSANCO; 2000-2007; n=49; 0<MDL; Median
TKN	mg/L	0.452	ORSANCO; 2000-2007; n=34; 0<MDL; Median
Toluene	µg/L		No representative data available.
Zinc	µg/L	4.96	ORSANCO; 2000-2007; n=49; 0<MDL; Median

Table 7. Summary of Effluent Limits to Maintain Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Aluminum	µg/L	--	--	--	--	--
Antimony	µg/L	14856	--	20332	10441	1800
Arsenic	µg/L	52293	39408	15975	3937	680
Barium	µg/L	--	--	18878	22736	4000
Beryllium	µg/L	16978	39693	1605	1508	250
Bis(2-ethylhexyl)phthalate	µg/L	7145	--	899	12761	2100
Cadmium	µg/L	--	19827	294	63	11
Chloroform (Trichloromethane)	µg/L	22625	--	14982	15082	2600
Chromium	µg/L	--	39272	18079	15070	2600
Chromium VI - Diss	µg/L	--	--	1177	186	31
Copper	µg/L	1376646	197416	897	181	35
Cyanide - free	mg/L	743	--	0.56	0.26	0.044
1,4-Dichlorobenzene	µg/L	424447	--	1006	661	110
Dissolved solids	mg/L	--	--	120021	--	--
Iron	µg/L	--	1826267	--	--	--
Lead	µg/L	--	39478	3474	7303	1300
Manganese	µg/L	--	--	--	--	--
Mercury	ng/L	12	10000	910	1700	3400
Nickel	µg/L	643898	78122	7474	7623	1300
Nitrate + Nitrite	mg/L	9663	39339	--	--	--
Phosphorus	mg/L	--	--	--	--	--
Selenium	µg/L	179754	19609	471	--	--
Silver	µg/L	53035	--	137	25	4.4
Strontium	µg/L	--	--	2247244	464047	81000
Thallium	µg/L	1751	--	1814	916	160
TKN	mg/L	--	--	--	--	--
Toluene	µg/L	7215591	--	6635	6497	1100
Zinc	µg/L	9650901	9921226	14456	1572	280
Molybdenum	µg/L	--	--	2140233	2204221	370000

Table 8. Parameter Assessment

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

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

Arsenic	Beryllium	Cadmium
Chloroform (Trichloromethane)	Chromium	Nickel
Silver	Strontium	Thallium
Toluene	Molybdenum	

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

Antimony	Barium	Bis(2-ethylhexyl)phthalate
Cyanide - free	1,4-Dichlorobenzene	Dissolved solids
Iron	Lead	Nitrate + Nitrite
Selenium	Zinc	

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.

Chromium-dissolved hexavalent	Copper*
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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	Annual	12	1700

*Tracking for copper is included in Part II of the permit.

Table 9. Final Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations				Basis ^b
		Concentration		Loading (kg/day) ^a		
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Temperature	°C	----- Monitor -----				M
Dissolved Oxygen	mg/L	----- Monitor -----				M
Suspended Solids (interim)	mg/L	30	45 ^c	380.4	570.6	BEJ
(final)		27.1	40.5 ^c	411	614	PD, AB, AD/BADCT
Oil and Grease	mg/L	--	10	--	--	WQS, EP
Ammonia (interim)	mg/L	----- Monitor -----				BEJ
(final, summer)		12.7	--	192	--	PD, AD/BADCT
(final, winter)		13.1	--	198	--	PD, AD/BADCT
Total Kjeldahl	mg/L	----- Monitor -----				EP/ORSANCO
Nitrite+Nitrate	mg/L	----- Monitor -----				EP/ORSANCO
Phosphorus	mg/L	----- Monitor -----				ORSANCO
Orthophosphate	mg/L	----- Monitor -----				ORSANCO
Cyanide, Free	mg/L	----- Monitor -----				BEJ
Nickel	µg/L	----- Monitor -----				BEJ
Zinc	µg/L	----- Monitor -----				BEJ
Cadmium	µg/L	----- Monitor -----				BEJ
Lead	µg/L	----- Monitor -----				BEJ
Chromium	µg/L	----- Monitor -----				BEJ
Copper	µg/L	----- Monitor -----				BEJ
Hex. Chromium (Dissolved)	µg/L	----- Monitor -----				BEJ
Fecal coliform Summer	#/100ml	200	400 ^c	--	--	WQS
Winter	#/100ml	1000	2000 ^c	--	--	WQS
Flow	MGD	----- Monitor -----				M
Mercury, T. (interim)	ng/L	----- Monitor -----				BEJ
(final)		12	1700	0.000182	0.0258	WQS
Whole Effluent Toxicity – <i>C. dubia</i> and <i>P. promelas</i> Acute	TUa	----- Monitor -----				WET
pH	S.U.	----- 6.0 to 9.0 -----				WQS, EP
CBOD ₅ (interim)	mg/L	25	40 ^c	317	507.2	BEJ
(final)		22.6	35.9 ^c	343	544	PD,AB, AD/BADCT

^a Effluent loadings based on average design discharge flow of 4.0 MGD.

^b **Definitions:** ABS = Antibacksliding Rule [OAC 3745-33-05(E) and 40 CFR Part 122.44(1)]; AD = Antidegradation (OAC 3745-1-05); AD/BADCT = Antidegradation required treatment technology [OAC 3745-1-05(C)(2)] - weighted average of existing flows at existing limits and new flows at BADCT (Table 5-1 of Antidegradation Rule); BEJ = Best Engineering Judgment; BPO/APO = Before/After mixing zone phase out, mixing zones for mercury are not allowed after November 15, 2010 [OAC 3745-2-05(A)(2)(iv) and 3745-2-08(L)]; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency

Requirements for Sanitary Discharges; PD = Plant Design Criteria; PT = Phosphorus treatment required under OAC 3745-33-06(C); RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits [OAC 3745-33-07(A)]; VAR = mercury variance-based limits, OAC 3745-33-07(D)(10); WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)] OR Reasonable potential for requiring water quality-based effluent limits and monitoring requirements for whole effluent toxicity in NPDES permits [OAC 3745-33-07(B)] OR FOR LAKE ERIE BASIN Requiring water quality-based effluent limits and monitoring requirements for whole effluent toxicity in NPDES permits [40 CFR Part 132, Appendix F, Procedure 6 and OAC 3745-33-07(B)]; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1-07).

^c Weekly average limit.