

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

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

Public Notice No.: 15-09-013
Public Notice Date: September 7, 2015
Comment Period Ends: October 7, 2015

Ohio EPA Permit No.: **1PC00001*LD**
Application No.: **OH0020907**

Name and Address of Applicant:

City of Eaton
P.O. Box 45320
Eaton, Ohio 45320

Name and Address of Facility Where

Discharge Occurs:

Eaton WWTP
901 South Barron Street
Eaton, Ohio 45320
Preble County

Receiving Water: **Sevenmile Creek**

Subsequent Stream Network: **Fourmile Creek, Great Miami River, Ohio River**

Introduction

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

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

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: flow, temperature, 5-day carbonaceous biochemical oxygen demand (CBOD₅), arsenic, dissolved oxygen, dissolved hexavalent chromium, total residual chlorine, mercury, free cyanide, total phosphorus, ammonia, nitrate+nitrite, oil and grease, pH, molybdenum, cadmium, chromium, lead, nickel, barium, copper, total filterable residue, selenium, total suspended solids, and zinc.

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.

New monitoring is proposed for total Kjeldahl nitrogen. The monitoring is to maintain a nutrient data set for use in future water quality studies.

Monitoring requirements are proposed to be removed for strontium because effluent data shows that they no longer have the reasonable potential to contribute to exceedances of water quality standards.

New monitoring for silver is being proposed in order to assess the facility's treatment of industrial wastewater and fulfill data collection for the pretreatment local limits review.

In accordance with Ohio Administrative Code (OAC) 3745-33-07, it has been determined that the effluent from the Eaton WWTP shows chronic toxicity to *Ceriodaphnia dubia* (water fleas). The increased monitoring frequency is proposed.

Upstream monitoring for phosphorus, total Kjeldahl nitrogen, and nitrate+nitrite have been added to station 801.

Downstream monitoring for phosphorus, total Kjeldahl nitrogen, and nitrate+nitrite has been added to station 901. Metals monitoring isn't necessary and therefore removed from station 901.

Arsenic, molybdenum, and silver is being added to influent monitoring station 601 because there is monitoring for these parameters in effluent monitoring station 001.

This permit no longer authorizes the use of method 4500 CN-I from Standard Methods for free cyanide testing. As soon as possible, the permittee must begin using either ASTM D7237-10 or OIA-1677-09 both of which are approved methods for free cyanide listed in 40 CFR 136.

To ensure that data is obtained that allows Ohio EPA to make water quality-related decisions regarding dissolved hexavalent chromium and selenium; a special condition is proposed in Part II of the permit that provides guidance on the analytical method detection limits (MDLs) the permittee should use in analyzing for these contaminants.

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; pretreatment program requirements; and outfall signage.

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Procedures for Participation in the Formulation of Final Determinations

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

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

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be 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 Elizabeth Buening, (614) 644-2138, Elizabeth.buening@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

The Eaton WWTP discharges to Sevenmile Creek at River Mile (RM) 25.17. Figure 1 shows the approximate location of the facility.

This segment of Sevenmile Creek is described by Ohio EPA River Code: 14-410, County: Preble, Ecoregion: Eastern Corn Belt Plains. Sevenmile Creek is designated for the following uses under Ohio's WQS (OAC 3745-1-21): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Class B Primary Contact Recreation (PCR).

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 (PCR) 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 AWS and IWS.

Facility Description

The Eaton WWTP was constructed in 1909 and last upgraded in 1983. The average design flow is 1.9 million gallons per day (MGD) and the peak hydraulic capacity is 6.0 MGD. The Eaton WWTP serves the City of Eaton for a total of 8,400 customers. The Eaton WWTP has the following treatment processes:

- Influent pumping
- Fine bar screen
- Grit removal
- Scum removal
- Primary sedimentation
- Activated bio-filter
- Activated sludge – conventional
- Secondary clarification
- Mixed media filter
- Chlorination
- Dechlorination
- Post aeration

The Eaton WWTP has one bypass (outfall 002). During high flow events, wastewater overflows through the manhole in between the two primary clarifiers and discharges to the nearby storm drain which discharges to the creek. The City of Eaton has 100 percent separated sewers in the collection system. The City of Eaton does have an approved pretreatment program. The City of Eaton has two categorical users that discharge 0.0955 MGD of flow and one significant non-categorical user that discharge 0.0195 MGD of flow.

The Eaton WWTP utilizes the following sewage sludge treatment processes:

- Primary and secondary clarification
- Gravity thickening
- Anaerobic digestion
- Digester gas utilization facilities
- Aerobic digestion
- Polymer addition
- Air drying

Treated sludge is land applied or disposed of in a municipal landfill.

Description of Existing Discharge

The Eaton WWTP had no reported effluent violations in the past five years. The Eaton WWTP has an estimated infiltration/inflow (I/I) rate of 0.25 MGD. The Eaton WWTP performs the following activities to minimize I/I: smoke testing, regular tracking of I/I issues and improvements, sewer lining, etc. The Eaton WWTP reports SSOs at station 300. The number of SSOs and dates recorded is presented on Table 1. The Eaton WWTP reports bypasses at station 002. The data on bypass station 002 is presented on Table 2. The Eaton WWTP has an internal bypass which bypasses the tertiary filters during maintenance.

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 Ohio EPA effluent testing conducted.

Table 3 presents chemical specific data compiled from data reported in annual pretreatment reports and data collected by Ohio EPA.

Table 4 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 001. Data are presented for the period January 2010 through December 2014, and current permit limits are provided for comparison.

Table 5 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 6 summarizes the results of acute and chronic WET tests of the final effluent.

Table 7 summarizes the screening results of Ohio EPA bioassay sampling of the final effluent.

Assessment of Impact on Receiving Waters

The Sevenmile Creek has been identified as a priority impaired water on Ohio's 303(d) list.

The attainment status of Sevenmile Creek watershed is reported in the *Ohio 2014 Integrated Water Quality Monitoring and Assessment Report*. An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical, biological, and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio WQS and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to: NPDES permittee self-monitoring data; effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

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

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio WQS (OAC 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). 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 (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), 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 8) 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 (QHEI), and comments and observations for each sampling location.

The most recent data available for the Sevenmile Creek watershed is from 2002. Sevenmile Creek is in full attainment (see Table 8).

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

Self-monitoring data (DMR)	January 2010 through December 2014
Pretreatment data	2010, 2011, 2012, 2013, 2014

Non-Representative Data and Statistical Outliers

The data were examined, and the following value was removed from the evaluation to give a more reliable PEQ: Strontium – 1050 µg/L, December 8, 2011 (low statistical outlier) and Selenium – 26.2 µg/L, September 4, 2014 (this value was the only non-representative data point above detection out of 27 data points).

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 5).

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 12 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 WQS (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. 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 (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
AWS		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 10, 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 12 ng/L (average) and 1700 ng/L (maximum) in the Ohio River basin.

The data used in the WLA are listed in Table 10 and Table 11. The WLA results to maintain all applicable criteria are presented in Table 12.

Whole Effluent Toxicity WLA

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 Eaton WWTP, the WLA values are $0.4 TU_a$ and $1.24 TU_c$.

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

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

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

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

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 (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.

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 Eaton WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1.2 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 11. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 5, 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 12.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 13 presents the final effluent limits and monitoring requirements proposed for Eaton 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 and Water Temperature

Monitoring for these parameters is proposed to continue in order to evaluate the performance of the treatment plant.

Dissolved Oxygen, Total Suspended Solids, Ammonia, and CBOD₅

The limits proposed for these parameters are all based on plant design criteria. These limits are protective of WQS.

Oil and Grease and pH

Limits proposed for oil and grease and pH are based on WQS (OAC 3745-1-07).

Chlorine, Total Residual

The proposed limit for total residual chlorine is based on WLA.

Selenium

The Ohio EPA risk assessment (Table 12) places selenium in group 5, which recommends limits to protect water quality. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), monitoring rather than limits is proposed for these parameters. The PEQ values calculated for selenium (Table 5) may not be representative of its actual levels in the plant effluent since they were based on the only one data point above detection. The purpose of the proposed monitoring is to collect additional data on the frequency of occurrence and variability of these pollutants in the plant's effluent.

In addition, selenium's actual value falls within 75 percent of the WLA. Parameters from small data sets with values greater than 75 percent of the WLA need 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.

Barium and Total Filterable Residue

The Ohio EPA risk assessment (Table 12) places barium and total filterable residue in group 4. This placement, as well as the data in Tables 4 and 5, 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). Monitoring for these parameters will continue at the same frequency.

Arsenic, Nitrate+Nitrite, Dissolved Hexavalent Chromium, Cadmium, Copper, Chromium, Lead, Mercury, Molybdenum, Free Cyanide, Nickel, Silver, and Zinc

The Ohio EPA risk assessment (Table 12) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 4 and 5, 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 reduced frequency is proposed to document that these pollutants continue to remain at low levels.

Beryllium, Bromodichloromethane, Chloroform, Chlorodibromomethane, Bis(2-ethylhexyl)phthalate, Strontium, and Thallium

The Ohio EPA risk assessment (Table 12) places these parameters in groups 2 and 3; this placement, as well as the data in Tables 4 and 5, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. No new monitoring is proposed.

Phosphorus and Total Kjeldahl Nitrogen

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 data set for use in future nutrient-related water quality studies.

Fecal Coliform/E. coli

WQS for *E. coli* became effective in March 2010. A compliance schedule is proposed for meeting these new final effluent limits no later than 18 months from the effective date of the permit. The schedule provides time during the summer disinfection season for the plant to evaluate the ability of its existing disinfection system to achieve the new limits and to make operational changes or equipment upgrades if necessary. Based on BPJ, it is proposed that the plant comply with its current fecal coliform limits during the interim period. Class B PCR *E. coli* standards apply to Sevenmile Creek. Fecal coliform will be replaced with *E. coli* at downstream monitoring station 901 and upstream monitoring station 801.

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

Based on evaluating the WET data presented in Table 6 and other pertinent data under the provisions of OAC 3745-33-07(B), the Eaton WWTP is placed in Category 3 with respect to WET. No limits are proposed, but increased chronic testing with acute endpoints is proposed for *Ceriodaphnia dubia* for the duration of the permit. The *Pimephales promelas* testing frequency will continue to be once per year.

Additional Monitoring Requirements

Upstream monitoring for phosphorus, total Kjeldahl nitrogen, and nitrate+nitrite have been added to station 801. Downstream monitoring for phosphorus, total Kjeldahl nitrogen, and nitrate+nitrite has been added to station 901. Cadmium, total cyanide, chromium, dissolved hexavalent chromium, mercury, copper; lead, nickel, and zinc are being removed from downstream monitoring station 901. New monitoring for arsenic, molybdenum, and silver are being proposed for influent monitoring station 601 in order to assess the facility's treatment of industrial wastewater and fulfill data collection for the pretreatment local limits review.

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 and removal to sanitary.

Other Requirements

Compliance Schedule

Pretreatment Local Limits Review - A 6 month compliance schedule is proposed for the City to submit a technical justification for either revising its local industrial user limits or retaining its existing local limits. If

revisions to local limits are required, the City must also submit a pretreatment program modification request. Details are in Part I.C of the permit.

New Limit(s) - An 18 month compliance schedule is proposed for the Eaton WWTP to meet the new weekly and monthly average concentration limits for *E. coli*. In the interim, the facility will continue to monitor fecal coliform. 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

Ohio EPA has determined that re-classification from a Class IV to a Class III facility should be implemented in accordance with OAC 3745-7-04. As a result, the permittee will be required to meet the requirements associated with a Class III facility as defined in OAC 3745-7-04. The permittee has up to 12 months to meet the staffing requirements for this new classification. The permittee may submit an operating plan for the Eaton WWTP as part of an application for a staffing reduction. The permittee is also required to designate one or more operator of record to oversee the technical operation of the treatment works.

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.

Method Detection Limit

The reported data for dissolved hexavalent chromium and selenium shows that the Eaton WWTP used an analytical method with a MDL that is not sensitive enough to properly evaluate the discharge with regard to the WLA for this parameter. As a result, Part II of the permit includes a condition requiring the Eaton WWTP to use an analytical method with an appropriate MDL.

Storm Water Compliance

To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed on February 23, 2015 under certificate number 1GRN00654*EG. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than February 23, 2020, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

Outfall Signage

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

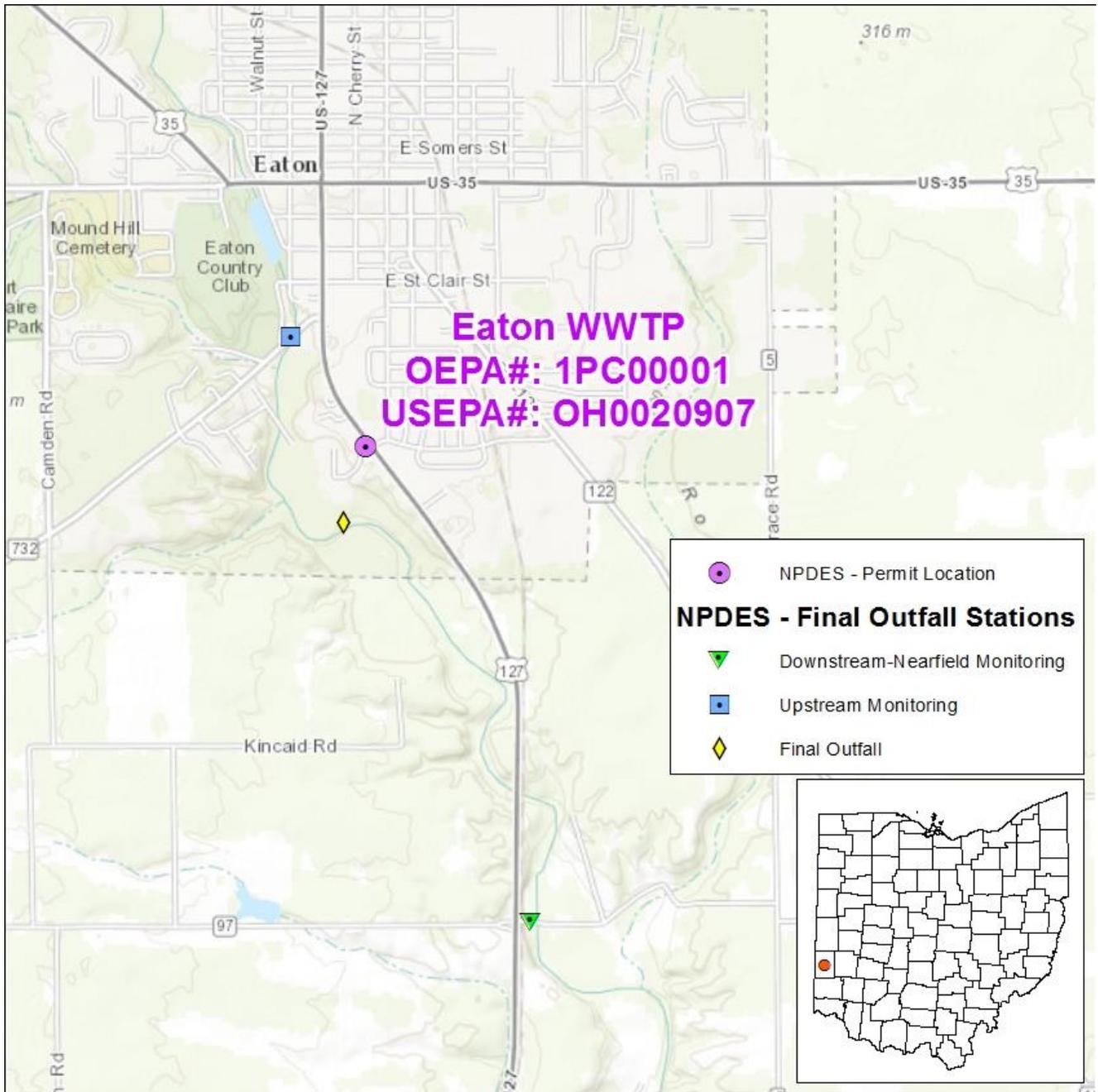


Figure 1. Location of the Eaton Wastewater Treatment Plant

Table 1. Sanitary Sewer Overflows Discharge

Year	Number
2010	0
2011	5
2012	1
2013	2
2014	3

Table 2. Bypass Discharges for Station 002

Year	# of Obs.	No. Below Detection	Bypass Occurrence	Bypass Total Hours		Flow Rate		Total Suspended Solids		CBOD ₅	
			Number /Day	Hrs/day		Million Gallons/Day		mg/L		mg/L	
				Mean	Maximum	Mean	Maximum	Mean	Maximum	Mean	Maximum
2011	5	0	1	20.462	36.08	0.1095	0.217	26.4	60	20	26
2012	1	0	1	5.6	5.6	0.0336	0.0336	12	12	33	33
2013	2	0	1	17.5	34	0.253	0.5	52	80	39	46
2014	2	0	1	16.9	30	0.203	0.36	104	132	46	54

CBOD₅ = five-day carbonaceous biochemical oxygen demand

Table 3. Effluent Characterization Using Ohio EPA and Pretreatment Data

	PT	PT	PT	PT	PT	OEPA	OEPA
Parameter (µg/L)	9/4/2014	9/5/2013	9/6/2012	9/8/2011	9/2/2010	10/23/2013	3/17/2014
Arsenic	12.4	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	3.0	AA (2.0)
Barium	NA	NA	NA	NA	NA	130	124
Beryllium	0.64	AA (0.5)	AA (0.5)	AA (0.5)	AA (0.5)	NA	NA
Bis(2-ethylhexyl)phthalate	1.05	AA (6.0)	AA (6.0)	AA (6.0)	AA (6.0)	AA (10.3)	AA (10.1)
Cadmium	AA (2.0)	AA (2.0)	AA (2.0)	AA (0.5)	AA (0.5)	AA (0.2)	AA (0.2)
Chloroform	11.2	8.47	17.5	9.17	7.97	23.1	AA (0.5)
Chromium	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (2.0)	AA (2.0)
Copper	8.39	8.66	7.74	8.33	8.71	7.3	6.8
Cyanide, Free	NA	NA	NA	NA	NA	AA (5.0)	AA (5.0)
Dibromochloromethane	5.01	AA (5.0)	6.34	AA (5.0)	AA (5.0)	4.04	AA (0.5)
Dichlorobromomethane	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	16.1	AA (0.5)
Lead	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (2.0)	AA (2.0)
Molybdenum	50.8	NA	NA	NA	NA	NA	NA
Nickel	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	AA (5.0)	3.3	3.6
Nitrate+Nitrite	NA	NA	NA	NA	NA	16.2	13.4
Selenium	26.2	AA (10.0)	AA (10.0)	AA (10.0)	AA (10.0)	AA (2.0)	AA (2.0)
Silver	AA (2.0)	AA (2.0)	AA (2.0)	AA (0.5)	AA (0.5)	NA	NA
Strontium	NA	NA	NA	NA	NA	3920	2630
Thallium	AA (1.0)	AA (1.0)	AA (1.0)	1.28	AA (1.0)	NA	NA
Total Filterable Residue	NA	NA	NA	NA	NA	1020	950
Zinc	34	40.8	29.7	70.6	34.6	28	29

AA = not-detected (analytical method detection limit)

OEPA = data from analyses by Ohio EPA

PT = data from pretreatment program annual reports

NA = not analyzed

Table 4. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report for Eaton outfall 1PC00001001 (December 2009 - November 2014). All values are based on annual records unless otherwise indicated.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Water Temperature	Annual	°C	--	Monitor	1276	16	23	7-24
Dissolved Oxygen	Summer	mg/L	--	5.0 min	642	7.9	8.9	5.9-10
	Winter	mg/L	--	5.0 min	632	9.7	10.6	5.5-11.9
Total Filterable Residue	Annual	mg/L	--	Monitor	60	1040	1330	660-1410
Total Suspended Solids	Annual	mg/L	12	18 ^a	722	1.2	2.3	0.6-6.9
Total Suspended Solids	Annual	kg/day	86	129 ^a	722	6.49	16.5	0.333-150
Oil and Grease	Annual	mg/L	--	10	116	0	0	0-6.22
Ammonia	Summer	mg/L	1.0	1.5 ^a	617	0.05	0.242	0.01-0.94
		kg/day	7.2	11 ^a	617	0.219	1.23	0.0133-12.1
	Winter	mg/L	3.8	5.7 ^a	606	0.04	0.268	0.01-2.52
		kg/day	27	41 ^a	606	0.24	2.05	0.0354-12.5
Phosphorus	Annual	mg/L	--	Monitor	246	2.65	4.01	0.165-7.12
Nitrate+Nitrite	Annual	mg/L	Monitor	--	60	13.9	22.5	5-41
Cyanide, Free	Annual	mg/L	Monitor	--	60	0	0	0-0
Arsenic	Annual	µg/L	Monitor	--	20	0	0	0-0
Selenium	Annual	µg/L	Monitor	--	20	0	0	0-0
Barium	Annual	µg/L	Monitor	--	60	126	153	83.4-165
Molybdenum	Annual	µg/L	Monitor	--	20	10.3	18.8	0-26.2
Nickel	Annual	µg/L	Monitor	--	10	0	2.75	0-5
Strontium	Annual	µg/L	Monitor	--	22	3630	5590	1050-6060
Zinc	Annual	µg/L	Monitor	--	10	36.6	48.3	17.5-50.5
Cadmium	Annual	µg/L	Monitor	--	22	0	0	0-0
Lead	Annual	µg/L	Monitor	--	10	0	0	0-0

Table 4. (Continued)

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Chromium	Annual	µg/L	Monitor	--	10	0	0	0-0
Copper	Annual	µg/L	Monitor	--	22	6.52	11.5	0-11.7
Dissolved Hexavalent Chromium	Annual	µg/L	Monitor	--	10	0	0	0-0
Fecal Coliform	Annual	#/100 mL	1000	2000 ^a	367	27	814	1-4000
Chlorine, Total Residual	Annual	mg/L	--	0.022	642	0.02	0.02	0-0.03
Flow Rate	Summer	MGD	--	Monitor	920	1.09	2.02	0.088-6.41
	Winter	MGD	--	Monitor	906	1.45	3.5	0.631-7.28
	Annual	MGD	--	Monitor	1826	1.23	2.79	0.088-7.28
Mercury	Annual	ng/L	--	Monitor	22	0.675	2.84	0-6.56
pH, Maximum*	Annual	S.U.	--	9.0	1274	7.95	8.08	7.39-8.6
pH, Minimum*	Annual	S.U.	--	6.5	1274	7.86	8	7.22-8.13
CBOD ₅	Annual	mg/L	8	12 ^a	720	1	2	1-9
		kg/day	58	86 ^a	720	5.67	13.4	0.333-95.9

a = weekly average

CBOD₅ = 5-day carbonaceous biochemical oxygen demand

MGD = Million gallons per day

* = Data determined to be invalid

Table 5. Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	409	409	0.099485	0.20466
Ammonia (Winter)	mg/L	299	299	0.094893	0.21761
Arsenic	µg/L	27	2	10.8624	14.88
Barium	µg/L	62	62	144.3	166.51
Beryllium	µg/L	5	1	1.07456	1.472
Bis(2-ethylhexyl)phthalate	µg/L	7	0	--	--
Bromodichloromethane	µg/L	7	1	23.506	32.2
Cadmium	µg/L	29	0	--	--
Chlorine, Total Residual	mg/L	642	641	0.01314	0.018
Chlorodibromomethane	µg/L	7	3	9.2564	12.68
Chloroform	µg/L	7	6	33.726	46.2
Chromium	µg/L	17	0	--	--
Dissolved Hexavalent Chromium	µg/L	10	0	--	--
Copper	µg/L	29	22	9.5729	12.388
Cyanide, Free	mg/L	62	0	--	--
Total Filterable Residue	mg/L	62	62	1240.8	1447.4
Lead	µg/L	17	0	--	--
Mercury	ng/L	22	15	3.4645	5.9972
Molybdenum	µg/L	21	13	26.732	45.254
Nickel	µg/L	17	3	5.11	7
Nitrate+Nitrite	mg/L	62	62	20.762	28.12
Selenium	µg/L	27	1	22.9512	31.44
Silver	µg/L	5	0	--	--
Strontium	µg/L	23	23	5024.7	6537.3
Thallium	µg/L	5	1	2.14912	2.944
Zinc	µg/L	17	17	51.759	69.944

PEQ = Projected Effluent Quality

Table 6. Summary of Acute and Chronic Toxicity Test Results

Date	<i>Ceriodaphnia Dubia</i>		<i>Pimephales promelas</i>	
	Acute Toxicity (TU _a)	Chronic Toxicity (TU _c)	Acute Toxicity (TU _a)	Chronic Toxicity (TU _c)
6/15/2010	AA	AA	AA	AA
6/24/2011	AA	1.41	AA	AA
6/7/2012	AA	AA	AA	AA
6/16/2013	AA	AA	AA	AA
6/10/2014	AA	1.41	AA	AA

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

Table 7. Ohio EPA Toxicity Screening Results for Outfall 001

Collection Date	<i>Ceriodaphnia dubia</i>								<i>Pimephales promelas</i>							
	24 Hours				48 Hours				24 Hours				48 Hours			
	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a
3/18/2014	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
3/19/2014	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
3/18/14- 3/19/14 ^a	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
10/21/2013	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
10/22/2013	0	0	0	ND	0	0	5	ND	0	0	0	ND	0	0	0	ND
10/21/13- 10/22/13 ^a	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND

TU_c = chronic toxicity units

AA = below detection limit (0.2 TU_a, 1.0 TU_c)

a = 24-hour composite sample

C = laboratory control water

%M = percent mortality in 100% effluent

ND = not determined

TU_a = acute toxicity units

UP = percent mortality in upstream control water

Table 8. Use Attainment Table

Aquatic life use attainment status of the Sevenmile Creek basin, June-October, 2002.

River Mile Fish ^a /Invertebrate	IBI	MIwb	ICI ^b	QHEI	Attainment Status	Location
Sevenmile Creek (14-410) - WWH existing						
31.2 ^E	48	NA	VG	67.5	FULL	At Swain Road
28.2 ^E	46	8.6	48	66.5	FULL	Downstream of Periwinkle Run
27.0 ^E	47	8.4	42	71.0	FULL	Downstream of Periwinkle Run
25.2 ^D	53	8.8	46	80.0	FULL	Upstream of Eaton WWTP
25.1 ^D	53	9.1	50	75.5	FULL	Downstream of Eaton WWTP
23.7 ^E /24.2	50	8.3	48	72.0	FULL	Upstream of Concolidated Road/U.S. 127
20.2 ^D	51	9.0	54	76.5	FULL	At Seven Mile Road
16.1 ^D /16.2	47	8.9	56	75.0	FULL	At State Route 725
15.3 ^D /15.5	54	9.7	44	69.0	FULL	Downstream of Camden WWTP

WWH = Warmwater

Habitat

IBI = The Index of Biotic

Integrity

MIwb = Modified Index of well being

ICI = Invertebrate Community Index

QHEI = Qualitative Habitat Evaluation Index

WWTP = Wastewater Treatment Plant

a = Fish sampling methods: D=Sportyak, E=Longline.

b = Narrative evaluation based on qualitative macroinvertebrate sample (VG=Very Good).

Table 9. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	0.8	--	--
Ammonia (Winter)	mg/L	--	--	2.1	--	--
Arsenic	µg/L	--	100	150	340	680
Barium	µg/L	--	--	220	2000	4000
Beryllium	µg/L	280	100	77	650	1300
Bis(2-ethylhexyl)phthalate	µg/L	59c	--	8.4	1100	2100
Bromodichloromethane	µg/L	460c	--	--	--	--
Cadmium	µg/L	--	50	6.4	18	35
Chlorine, Total Residual	mg/L	--	--	0.011	0.019	0.038
Chlorodibromomethane	µg/L	340c	--	--	--	--
Chloroform	µg/L	4700c	--	140	1300	2600
Chromium	µg/L	--	100	230	4900	9700
Dissolved Hexavalent Chromium	µg/L	--	--	11	16	31
Copper	µg/L	1300	500	26	44	87
Cyanide, Free	mg/L	220	--	0.012	0.046	0.092
Total Filterable Residue	mg/L	--	--	1500	--	--
Lead	µg/L	--	100	30	570	1100
Mercury	ng/L	12	10000	910	1700	3400
Molybdenum	µg/L	--	--	20000	190000	370000
Nickel	µg/L	4600	200	150	1300	2600
Nitrate+Nitrite	mg/L	--	100	--	--	--
Selenium	µg/L	11000	50	5	--	--
Silver	µg/L	--	--	1.3	13	26
Strontium	µg/L	--	--	21000	40000	81000
Thallium	µg/L	6.3	--	17	79	160
Zinc	µg/L	69000	25000	330	330	670

c = Carcinogen

Table 10. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
1Q10	cfs	annual	0.61	USGS Station 03272700
7Q10	cfs	annual	0.7	USGS Station 03272700
		summer	0.7	USGS Station 03272700
		winter	1.6	USGS Station 03272700
30Q10	cfs	summer	0.98	USGS Station 03272700
		winter	3.3	USGS Station 03272700
90Q10	cfs	annual	0	
Harmonic Mean	cfs	annual	5.18	USGS Station 03272700
Mixing Assumption	%	average	100	
		maximum	100	
Hardness	mg/L	annual	335	Station 901; 2010-2014; n=60
pH*	S.U.	summer	8.3225	Station 901; 2010-2014; n=20
		winter	8.2875	Station 901; 2010-2014; n=14
Temperature*	°C	summer	22.25	Station 901; 2010-2014; n=20
		winter	9.75	Station 901; 2010-2014; n=14
Eaton WWTP flow	cfs	annual	2.9	Design Flow
Ammonia	mg/L	summer	0.075	DMR; 2010-2014; n=20; 0<MDL; Station 801 Median
		winter	0.03	DMR; 2010-2014; n=14; 0<MDL; Station 801 Median
Arsenic	µg/L	annual	1.24	STORET; 2002; n=3; 4<MDL; Station H10S29 Mean
Barium	µg/L	annual	123.4	STORET; 2002; n=5; 0<MDL; Station H10S29 Mean
Beryllium	µg/L	annual	--	No representative data available.
Bis(2-ethylhexyl)phthalate	µg/L	annual	2.7875	STORET; 2002; n=4; 3<MDL; Station H10S29 Mean
Bromodichloromethane	µg/L	annual	0	STORET; 2002; n=2; 2<MDL; All data non-detected
Cadmium	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Chlorine, Total Residual	mg/L	annual	--	No representative data available.
Chlorodibromomethane	µg/L	annual	--	No representative data available.
Chloroform	µg/L	annual	0	STORET; 2002; n=2; 2<MDL; All data non-detected
Chromium	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Dissolved Hexavalent Chromium	µg/L	annual	--	No representative data available.
Copper	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Cyanide, Free	mg/L	annual	--	No representative data available.

Table 10. (Continued)

Parameter	Units	Season	Value	Basis
Total Filterable Residue	mg/L	annual	376	STORET; 2002; n=5; 0<MDL; Station H10S29 Mean
Lead	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Mercury	ng/L	annual	--	No representative data available.
Molybdenum	µg/L	annual	--	No representative data available.
Nickel	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Nitrate+Nitrite	mg/L	annual	1.828	STORET; 2002; n=5; 0<MDL; Station H10S29 Mean
Selenium	µg/L	annual	0	STORET; 2002; n=5; 5<MDL; All data non-detected
Silver	µg/L	annual	--	No representative data available.
Strontium	µg/L	annual	1444	STORET; 2002; n=5; 0<MDL; Station H10S29 Mean
Thallium	µg/L	annual	--	No representative data available.
Zinc	µg/L	annual	6.8	STORET; 2002; n=5; 1<MDL; Station H10S29 Mean

WWTP = Wastewater Treatment Plant

DMR = Discharge Monitoring Report

USGS = United States Geological Survey

MDL = Method Detection Limit

STORET = United States Environmental Protection Agency STORage and RETrieval Data Warehouse

* = Data determined to be invalid

Table 11. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	--	--	--
Ammonia (Winter)	mg/L	--	--	--	--	--
Arsenic	µg/L	--	276	186	411	680
Barium	µg/L	--	--	243	2395	4000
Beryllium	µg/L	780	279	96	787	1300
Bis(2-ethylhexyl)phthalate	µg/L	159	--	9.8	1331	2100
Bromodichloromethane	µg/L	1282	--	--	--	--
Cadmium	µg/L	--	139	7.9	22	35
Chlorine, Total Residual	mg/L	--	--	0.014	0.023	0.038
Chlorodibromomethane	µg/L	947	--	--	--	--
Chloroform	µg/L	13095	--	174	1573	2600
Chromium	µg/L	--	279	286	5931	9700
Dissolved Hexavalent Chromium	µg/L	--	--	14	19	31
Copper	µg/L	3622	1393	32	53	87
Cyanide, Free	mg/L	613	--	0.015	0.056	0.092
Total Filterable Residue	mg/L	--	--	1771	--	--
Lead	µg/L	--	279	37	690	1100
Mercury	ng/L	12	10000	910	1700	3400
Molybdenum	µg/L	--	--	24828	229966	370000
Nickel	µg/L	12817	557	186	1573	2600
Nitrate+Nitrite	mg/L	--	275	--	--	--
Selenium	µg/L	30648	139	6.2	--	--
Silver	µg/L	--	--	1.6	16	26
Strontium	µg/L	--	--	25720	48110	81000
Thallium	µg/L	18	--	21	96	160
Zinc	µg/L	192236	69643	408	398	670

Table 12. Parameter Assessment

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

No parameters meet these criteria

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

Arsenic	Chromium	Zinc	Dissolved Hexavalent Chromium
Molybdenum	Chloroform	Silver	Bis(2-ethylhexyl)phthalate
Cyanide, Free	Strontium	Nickel	Bromodichloromethane
Cadmium	Beryllium	Lead	Chlorodibromomethane
Nitrate+Nitrite			

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

Copper	Mercury	Thallium
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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.

Barium	Total Filterable Residue
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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>
Chlorine, Total Residual*	mg/L	annual	0.014	0.023
Selenium	µg/L	annual	6.2	--

* = This parameter becomes a Group 5 parameter based upon the loading test [OAC 3745-2-06(B)]

PEQ = Projected Effluent Quality

PEL = Projected Effluent Limit

WLA = wasteload allocation

WQS = water quality standard

Table 13. 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 -----				EP, M
Dissolved Oxygen	mg/L	5.0 minimum		--	--	EP, PD
Total Suspended Solids	mg/L	12.0	18 ^c	86	129 ^c	EP, PD
Oil & Grease	mg/L	--	10	--	--	WQS, EP
Ammonia						
Summer	mg/L	1.0	1.5 ^c	7.2	11 ^c	EP, PD
Winter	mg/L	3.8	5.7 ^c	27	41 ^c	EP, PD
Kjeldahl Nitrogen, Total	mg/L	----- Monitor -----				M, BTJ
Nitrate+Nitrite	mg/L	----- Monitor -----				EP, M
Phosphorus	mg/L	----- Monitor -----				EP, M
Orthophosphate, Dissolved (as P)	mg/L	----- Monitor -----				SB1
Selenium	µg/L	----- Monitor -----				EP, RP
Barium	µg/L	----- Monitor -----				EP, RP
Nickel	µg/L	----- Monitor -----				EP, M
Zinc	µg/L	----- Monitor -----				EP, M
Cadmium	µg/L	----- Monitor -----				EP, M
Lead	µg/L	----- Monitor -----				EP, M
Chromium	µg/L	----- Monitor -----				EP, M
Copper	µg/L	----- Monitor -----				EP, M
Dissolved Hexavalent Chromium	µg/L	----- Monitor -----				EP, M
<i>E. coli</i> (Summer Only)	#/100 mL	161	362 ^c	--	--	WQS
Flow Rate	MGD	----- Monitor -----				EP, M
Chlorine, Total Residual	mg/L	--	0.022	--	--	EP, PD, RP
Mercury	ng/L	----- Monitor -----				EP, M
Cyanide, Free	mg/L	----- Monitor -----				EP, M

Table 13. (Continued)

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
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, EP
Total Filterable Residue	mg/L	----- Monitor -----				EP, RP
CBOD ₅	mg/L	8.0	12 ^c	58	86 ^c	EP, PD

a = Effluent loadings based on average design discharge flow of 1.9 MGD.

b = Definitions

BTJ = Best Technical Judgment

EP = Existing Permit

M = BTJ of Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges

RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A))

WET = Whole Effluent Toxicity (CFR 40 part 132, Great Lakes Initiative procedure 6 and OAC 3745-33-07(B))

WLA = Wasteload Allocation procedures (OAC 3745-2)

WQS = Ohio Water Quality Standards (OAC 3745-1)

SB1 = Implementation of Senate Bill 1 [ORC 6111.03]

PD = Plant Design

c = Weekly average limit

MGD = Million gallons per day

S.U. = Standard Units

TU_a = acute toxicity units

TU_c = chronic toxicity units

CBOD₅ = 5-day carbonaceous biochemical oxygen demand

P = Phosphorus