National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

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

Public Notice No.: 13-09-009
Public Notice Date: September 16, 2013
Comment Period Ends: October 16, 2013

Ohio EPA Permit No.: 1PK00006*LD
Application No.: OH0025470

Name and Address of Applicant:
Hamilton County Board of Commissioners
c/o Metropolitan Sewer District of Greater Cincinnati
1600 Gest Street
Cincinnati, Ohio 45204

Name and Address of Facility Where Discharge Occurs:
Muddy Creek WWTP
6125 River Road
Cincinnati, Ohio
Hamilton County

Receiving Water: Ohio River

Subsequent Stream Network: Not Applicable

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.

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 the United States EPA (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 for most parameters are the same as in the current permit. No monitoring or limits are proposed to be removed. New monitoring for thallium and total filterable residue (dissolved solids) is proposed.

New limits are proposed for *E. coli*; based on best engineering judgment, it is anticipated the facility will be able to comply with the limits without a compliance schedule.

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

In Part II of the permit, special conditions are included that address operator certification, minimum staffing and operator of record; whole effluent toxicity (WET) testing; storm water compliance; 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 Sara Hise, (614) 644-4824, Sara.Hise@epa.ohio.gov.

Location of Discharge/Receiving Water Use Classification

The Muddy Creek WWTP discharges to the Ohio River at Ohio River mile point 464.5. Figure 1 shows the approximate location of the facility.

This segment of the Ohio River is described by Ohio EPA River Code: 25-050, U.S. EPA River Reach #: 05090203, County: Hamilton, Ecoregion: Interior Plateau. The Ohio River is designated for the following uses under Ohio's WQS (Ohio Administrative Code [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 WQS are developed to protect these uses. Different uses have different water quality criteria.

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

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) 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. PWS 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 Muddy Creek WWTP is a secondary treatment facility with an average design flow of 15 million gallons per day (MGD) and a peak hydraulic capacity of 22 MGD. The WWTP was constructed in 1961 and last upgraded in 2010. The WWTP also has an estimated infiltration/inflow (I/I) rate of 5.3 MGD. Wet stream processes include:

- Influent pumping
- Grit removal
- Comminution
- Fine screening
- Primary settling
- Activated sludge aeration
- Secondary clarification
- Ultraviolet disinfection

Chlorination is available as a back-up disinfection process. The final effluent discharges to the Ohio River through a diffuser. Solid stream processes include gravity thickening, dewatering using a belt filter press, and transfer to another WWTP. As an alternative, dewatered sludge solids may be taken to a solid waste landfill.

The WWTP's collection system is 70% separate and 30% combined with storm sewers. The 24 combined sewer overflows (CSOs) in the Muddy Creek WWTP service area are regulated under Ohio NPDES permit 1PX00022. For additional information, please see the fact sheet for this permit, which is available at the following Ohio EPA website: http://wwwapp.epa.ohio.gov/dsw/permits/permit_list_district.html (choose "Southwest" district; scroll down or use the "find" function to find the permit number).

The Metropolitan Sewer District of Greater Cincinnati (MSDGC) implements an Ohio EPA approved industrial pretreatment program at the Muddy Creek WWTP. Two categorical users and two significant non-categorical users discharge to the WWTP. Only a small percentage of flow to the WWTP is from industrial users.

Description of Existing Discharge

The WWTP has an internal secondary treatment bypass, which is station 602. Discharges were reported through station 602 on six days in 2009 and four days in 2010. WWTP staff has the ability to restrict interceptor flows in excess of the influent pumping capacity of the WWTP. The pumping capacity of the WWTP is 35 MGD (28 MGD firm). Staff report calculated "throttled" flow to the Ohio EPA through bypass notifications. Long-term reduction or elimination of the use of this bypass will be addressed as part of MSDGC's comprehensive wet weather program.

Abatement of CSOs and sanitary sewer overflows (SSOs) in the Muddy Creek WWTP service area is being addressed under the *Consent Decree on CSOs, WWTPs and Implementation of Capacity Assurance Program Plan for SSOs* (Civil Action Number C-1-02-107; U.S. District Court for the Southern District of Ohio Western Division; June 9, 2004). The complete decree and accompanying exhibits are available at the following Ohio EPA webpage: http://epa.ohio.gov/dsw/enforcement/enf.aspx [click on "Federal and State Consent Agreements, Judicial Orders and Judgements (2001-2013) – Alphabetical Order" and scroll down to "Hamilton County, Board of County Commissioners and City of Cincinnati (CSO)"].

Table 1 presents chemical specific data compiled from the data reported in annual pretreatment reports.

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 001. Data are presented for the period January 2008 to December 2012, and current permit limits are provided for comparison.

Table 3 presents the average and maximum PEQ values.

Table 4 summarizes the results of acute WET tests of the final effluent.

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

In 2009, the Ohio River Valley Water Sanitation Commission (ORSANCO) conducted a biological survey in the Markland dam pool, which includes the Cincinnati area. The survey showed that the biological condition of the pool is rated as "good" and that the pool meets its aquatic life-use designation. The complete report for the Markland pool can be found at this ORSANCO webpage: http://www.orsanco.org/biological-programs-55/10-mainpages/orsanco-programs/228-2009-pool-reports

Further information on the Ohio River can be found in the *2012 Biennial Assessment of Ohio River Water Quality Conditions*. The entire river is impaired for fish consumption due to polychlorinated biphenyl and dioxin contamination; potential impairment due to mercury has yet to be evaluated. This area is also only in

partial attainment of the contact recreation use. More information can be found at this ORSANCO webpage: http://www.orsanco.org/images/stories/files/publications/305b/docs/2012/2012ohioriver305breport.pdf

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 Muddy Creek WWTP were used to determine what parameters should undergo WLA. The parameters discharged are identified by the data available to Ohio EPA Discharge Monitoring Report (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:

DMR	January 2008 through December 2012
Pretreatment data	2008 through 2011

Outliers
The data were examined, and no values were removed from the evaluation to give a more reliable PEQ.

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. The average and maximum PEQ values are presented in Table 3.

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 7 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. 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	10% of annual 7Q10
	Maximum	1% of annual 1Q10
AWS		10% of harmonic mean flow
Human Health (carcinogens)		10% of harmonic mean flow
Human Health (non-carcinogens)		100% of 7Q10

Allocations are developed using a percentage of stream design flow as specified in Table 6, and allocations cannot exceed the Inside Mixing Zone Maximum 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 are 12 ng/L (average) and 1700 ng/L (maximum) in the Ohio River basin.

The data used in the WLA are listed in Tables 5 and 6. The WLA results to maintain all applicable criteria are presented in Table 7.

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

WQS for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free froms" are translated into toxicity units (TUs) by the associated WQS Implementation Rule (OAC 3745-2-09). WLAs can then be calculated using TUs as if they were water quality criteria.

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Muddy Creek WWTP, the WLA values are 1.0 TU_a and 46.7 TU_c.

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

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

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

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

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

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

This equation applies outside the mixing zone for 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 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 5. 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 [($PEQ_{avg} \div PEL_{avg}$) X 100, or ($PEQ_{max} \div PEL_{max}$) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 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 Muddy Creek WWTP outfall 001 and the basis for their recommendation.

Water Temperature and Flow Rate
Monitoring for these parameters is proposed to continue from the previous permit.

Oil and Grease, Fecal Coliform, and E. coli
Permit limits for oil & grease are based on WQS and are proposed to continue. New *E. coli* limits are being proposed based on ORSANCO's 2012 pollution control standards. These limits will be in effect from April to October. The winter fecal coliform limits are based on WQS and are proposed to continue for the months of November through March.

pH
The pH limits are proposed to be continued. The limit for the minimum pH is based on a water quality modeling study conducted by Ohio EPA in June 1999 and is protective of the WQS for pH of 6.5 S.U.

Total Suspended Solids, Carbonaceous Biochemical Oxygen Demand (5 day), and Dissolved Oxygen
Based on BEJ, it is proposed that the existing permit limits for total suspended solids (TSS), five-day carbonaceous biochemical oxygen demand ($CBOD_5$), and dissolved oxygen (DO) continue.

Ammonia
Monitoring for ammonia is proposed to be continued. Based on best engineering judgment (BEJ), the proposed monitoring is appropriate for a facility required to meet secondary treatment standards.

Phosphorus, Orthophosphate, Total Kjeldahl Nitrogen, and Nitrate+Nitrite
Based on BEJ, monitoring for nitrate+nitrite, phosphorus, orthophosphorus, and total Kjeldahl nitrogen is proposed to continue. The purpose of monitoring is to obtain data to evaluate nutrient impacts on the Ohio River.

Total Filterable Residue
Based on BEJ, monitoring is proposed for total dissolved solids (total filterable residue). No effluent data is available for this parameter, which is an emerging water quality issue for municipal wastewater treatment plants. The purpose of the monitoring is to obtain data on the level and variability of total dissolved solids in the Muddy Creek WWTP effluent.

Arsenic, Beryllium, Methylene chlorine (dichloromethane), and Selenium
Ohio EPA risk assessment (Table 8) places these parameters in group 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.

Cyanide – Free, Nickel, Cadmium, Lead, Chromium, Chromium+6 (dissolved), and Mercury
Ohio EPA risk assessment (Table 8) places these parameters 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 is proposed to continue to document that these pollutants continue to remain at low levels.

Copper, Silver, and Zinc
Ohio EPA risk assessment (Table 8) places these parameters in group 4. 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 Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC 3745-33-07(A)(2). The monitoring frequency for zinc is proposed to be increased to once per two weeks.

Thallium
The Ohio EPA risk assessment (Table 8) places this parameter in group 5. This placement, as well as the data in Tables 1, 2, and 3, indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For these parameters, the PEQ is greater than 100 percent of the WLA. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), monitoring is proposed for this parameter rather than limits. The PEQ values calculated for this parameter (Table 3) may not be representative of its actual levels in the plant effluent they were based on six detections and there have been no detections since July 2009. Quarterly monitoring will be sufficient to collect additional data on the frequency of occurrence and variability of this pollutant in the WWTP's effluent.

Chlorine – Total Residual
The Ohio EPA risk assessment (Table 8) places this parameter in group 5. This placement, as well as the data in Tables 1, 2, and 3, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For this parameter, the PEQ is greater than 100 percent of the WLA. However, no limit is proposed for total residual chlorine. Chlorination is not the Muddy Creek WWTP's main method of disinfection. A permit condition for chlorine monitoring will be included in Part II of the permit.

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 Muddy Creek WWTP in Category 4 with respect to WET. While this indicates that the WWTP'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.

Additional Monitoring
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.

Sewage Sludge
Limits and monitoring requirements proposed for the disposal of sewage sludge by removal to a sanitary landfill are based on OAC 3745-40. Monitoring requirements proposed for the disposal of sewage sludge by incineration are based on 40 CFR Part 503, Subpart E.

Other Requirements

Compliance Schedule
A twelve 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. A six month compliance

schedule is proposed for the City to submit a pretreatment program modification request for implementing changes required by Ohio's pretreatment rules and U.S. EPA's pretreatment streamlining rule.

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 Muddy Creek WWTP to have a Class IV WWTP operator in charge of the sewage treatment plant operations discharging through outfall 003.

In December 2006, OAC 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 Muddy Creek WWTP.

Storm Water Compliance
Parts IV, V, and VI have been included with the draft permit in order to ensure that any storm water flows from the facility site are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, the Muddy Creek WWTP may seek permit coverage under the general permit for industrial stormwater (permit # OHR000005) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the Muddy Creek WWTP submits a Notice of Intent (NOI) for coverage under the general permit for industrial stormwater or submits a No Exposure Certification, 2) Ohio EPA determines that the facility is eligible for coverage under the general permit or meets the requirements for a No Exposure Certification, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

Outfall Signage
Part II of the permit includes requirements for the permittee to place 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. Approximate Location of Muddy Creek WWTP

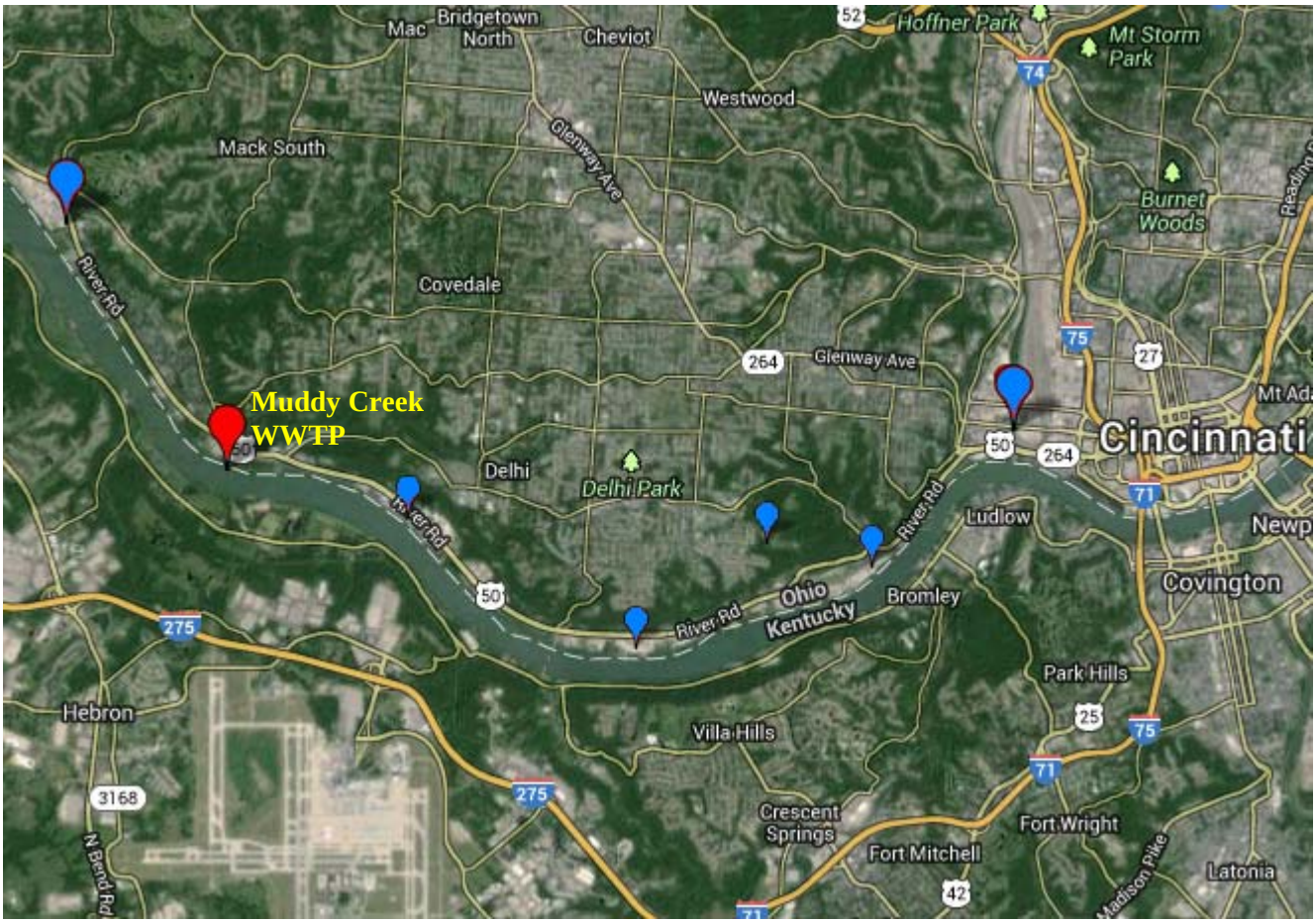

Table 1. Outfall 001 Effluent Characterization from Pretreatment Program Data

Parameter (µg/L)	2/29/2008	5/14/2008	9/12/2008	11/7/2008	2/11/2009	7/31/2009	3/19/2010	9/17/2010	2/4/2011	9/16/2011
Antimony	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)
Arsenic	AA (5)	AA (5)	AA (5)	22	27	38	28	AA (5)	AA (5)	AA (5)
Beryllium	AA (1)	AA (1)	6	10	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)
Cadmium	AA (2)	AA (2)	4	9	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)
Chromium	AA (5)	AA (5)	9	21	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	8.59
Copper	19	AA (2)	15	22	9	9.7	6.57	13	AA (2)	7.63
Cyanide, total	AA (5)	AA (5)	AA (5)	AA (5)	16.7	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)
Lead	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)	AA (25)
Mercury	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.2)	AA (0.2)	AA 0.2)	AA (0.2)
Methylene chloride	AA (5)	10.2	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)
Nickel	AA (10)	AA (10)	AA (10)	11	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Selenium	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	57.5	53.3	AA (50)	AA (50)	AA (50)
Silver	AA (3)	AA (3)	5.3	AA (3)	AA (3)	AA (3)	AA (3)	AA (3)	AA (3)	AA (3)
Thallium	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)
Zinc	77	AA (4)	37	52	20	116	91.7	36.3	22	19.2

AA = not detected (method detection limit)

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Outfall 001								
Water Temperature	Annual	℃	Monitor		1824	17	24	8-26
Dissolved Oxygen	Summer	mg/L	Monitor		917	4.6	7.1	0-10.1
Dissolved Oxygen	Winter	mg/L	Monitor		907	5.3	9.2	0-10.8
Total Suspended Solids	Annual	mg/L	23	34[a]	1822	1	12	1-75
Oil and Grease	Annual	mg/L	--	10	239	0	0	0-8.4
Ammonia	Summer	mg/L	Monitor		917	0	2.84	0-31.8
Ammonia	Winter	mg/L	Monitor		907	0	8.46	0-303
Total Kjeldahl Nitrogen	Annual	mg/L	Monitor		704	0	3.87	0-377
Nitrite+Nitrate	Annual	mg/L	Monitor		1824	9.22	18.2	0-107
Orthophosphate	Annual	mg/L	Monitor		159	1.3	3.61	0.3-4.8
Phosphorus	Annual	mg/L	Monitor		652	1	2	0-4
Cyanide, Free	Annual	mg/L	Monitor		60	0	0	0-0.006
Nickel	Annual	µg/L	Monitor		121	0	3	0-5
Silver	Annual	µg/L	Monitor		82	0	2	0-5
Zinc	Annual	µg/L	Monitor		121	31	145	0-271
Cadmium	Annual	µg/L	Monitor		121	0	0	0-7
Lead	Annual	µg/L	Monitor		121	0	1	0-7
Chromium	Annual	µg/L	Monitor		121	0	12	0-33
Copper	Annual	µg/L	Monitor		121	9	19	0-30
Chromium^{+6} (dissolved)	Annual	µg/L	Monitor		60	0	0	0-0
Fecal Coliform								
	Winter	#/100 mL	1000	2000[a]	449	19	362	1-6800
	Summer	#/100 mL	200	400[a]	775	33	778	1-15100
Flow Rate	Annual	MGD	Monitor		1825	13.4	23.7	3.1-28.2
Mercury	Annual	ng/L	Monitor		119	1.8	5.81	0-11
Acute Toxicity, *Ceriodaphnia dubia*	Annual	TU_a	Monitor		4	0	0	0-0
Acute Toxicity, *Pimephales promelas*	Annual	TU_a	Monitor		4	0	0	0-0
pH, Maximum	Annual	S.U.	--	9.0	1824	7.1	7.5	6.2-9
pH, Minimum	Annual	S.U.	--	6.0	1824	6.8	7.2	6-8.7
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	16	24[a]	510	2	4	1-8
Carbonaceous Biochemical Oxygen	Winter	mg/L	16	24[a]	495	2	6	1-9

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits 30 day	Current Permit Limits Daily	# Obs.	Percentiles 50th	Percentiles 95th	Data Range
Demand (5 day)								
Outfall 586								
Sludge Fee Weight	Annual	dry tons	Monitor		4	461	1170	216-1280
Outfall 588								
Sludge Weight	Annual	Dry Tons	Monitor		562	6	11.5	0-2030
Sludge Volume	Annual	Gals	Monitor		4	1620000	2040000	849000-2110000
Outfall 601								
Total Suspended Solids	Annual	mg/L	Monitor		1822	76	201	1-2030
Cyanide, Total	Annual	mg/L	Monitor		60	0	0.0106	0-0.036
Nickel	Annual	µg/L	Monitor		61	0	6	0-484
Silver	Annual	µg/L	Monitor		41	0	2	0-3
Zinc	Annual	µg/L	Monitor		61	69	188	6-634
Cadmium	Annual	µg/L	Monitor		61	0	0	0-2
Lead	Annual	µg/L	Monitor		61	2	8	0-12
Chromium	Annual	µg/L	Monitor		61	0	10	0-1140
Copper	Annual	µg/L	Monitor		61	27	62	0-132
$Chromium^{+6}$ (dissolved)	Annual	µg/L	Monitor		60	0	0	0-0
Mercury	Annual	ng/L	Monitor		119	35.6	124	0-268
pH, Maximum	Annual	S.U.	Monitor		1824	7.6	8.8	4.5-12
pH, Minimum	Annual	S.U.	Monitor		1824	7.1	7.7	2-9.1
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	Monitor		510	72	173	6-440
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	Monitor		494	61	143	6-344
Outfall 602								
Bypass Occurrence	Annual	No./Day	Monitor		10	1	1	1-1
Bypass Total Hours Per Day	Annual	Hrs/Day	Monitor		10	7	11.2	2-12.7
Total Suspended Solids	Annual	mg/L	Monitor		221	50	110	15-178
Bypass Volume	Annual	MGAL	Monitor		10	1.54	3.6	0-3.63

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	Monitor		33	29	92.8	5-158
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	Monitor		88	39	102	1-148
Outfall 801								
Water Temperature	Summer	℃	Monitor		121	25	29	13-30
Dissolved Oxygen	Summer	mg/L	Monitor		121	8.5	10	4.9-11.3
pH	Summer	S.U.	Monitor		117	7.4	9.34	5.7-9.9
Ammonia	Summer	mg/L	Monitor		122	0	0	0-0.89
Fecal Coliform	Summer	#/100 mL	Monitor		122	43	1530	1-3400
Acute Toxicity, *Ceriodaphnia dubia*	Annual	% Affected	Monitor		4	0	4.25	0-5
Acute Toxicity, *Pimephales promelas*	Annual	% Affected	Monitor		4	0	4.25	0-5
Outfall 901								
Water Temperature	Summer	℃	Monitor		121	25	29	13-31
Dissolved Oxygen	Summer	mg/L	Monitor		121	8.4	10.1	4.5-11.3
pH	Summer	S.U.	Monitor		117	7.4	9.32	5.6-9.9
Ammonia	Summer	mg/L	Monitor		122	0	0	0-9.14
Cyanide, Total	Summer	mg/L	Monitor		30	0	0	0-0.007
Nickel	Summer	µg/L	Monitor		30	0	7.75	0-16
Zinc	Summer	µg/L	Monitor		30	5	124	0-155
Cadmium	Summer	µg/L	Monitor		30	0	0	0-0
Lead	Summer	µg/L	Monitor		30	0	4	0-9
Chromium	Summer	µg/L	Monitor		30	0	10.9	0-19
Copper	Summer	µg/L	Monitor		30	0	17.8	0-20
$Chromium^{+6}$ (dissolved)	Summer	µg/L	Monitor		30	0	0	0-0
Fecal Coliform	Summer	#/100 mL	Monitor		120	43	1410	1-60000
Mercury	Summer	ng/L	Monitor		29	2	12	0-85

*All values are based on annual records unless otherwise indicated. * = For minimum pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; [a] = weekly average.*

Table 3. Outfall 001 Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (summer)	mg/L	607	94	1.84	2.54
Ammonia (winter)	mg/L	452	170	5.28	9.70
Arsenic	µg/L	4	0	47.16	64.6
Beryllium	µg/L	2	0	12.41	17
Cadmium	µg/L	131	8	3.019	3.859
Chlorine, Total Residual	mg/L	37	36	0.430	0.647
Chromium	µg/L	131	15	12.257	15.588
Chromium+6 (dissolved)	µg/L	60	0	--	--
Copper	µg/L	131	109	15.034	21.241
Cyanide, Free	mg/L	60	2	0.00438	0.006
Lead	µg/L	121	18	4.088	5.6
Mercury	ng/L	119	100	4.329	6.572
Methylene chloride (Dichloromethane)	µg/L	10	1	12.66	17.34
Nickel	µg/L	131	12	6.424	8.8
Nitrate + Nitrite	mg/L	1824	1821	12.133	22.395
Orthophosphate	mg/L	159	159	2.81	4.13
Phosphorus	mg/L	652	498	1.752	2.4
Selenium	µg/L	10	2	71.36	97.75
Silver	µg/L	92	39	3.48	4.77
Thallium	µg/L	37	6	118.844	162.8
Total Kjeldahl Nitrogen	mg/L	704	306	2.367	4.107
Zinc	µg/L	131	126	98.386	150.4

MDL = method detection limit
PEQ = projected effluent quality

Table 4. Acute Toxicity Testing Results for Outfall 001

	Ceriodaphnia dubia	*Pimephales promelas*
Date	Acute Toxicity (TU_a)	Acute Toxicity (TU_a)
8/4/2009	AA	AA
8/4/2010	AA	AA
8/2/2011	AA	AA
8/1/2012	AA	AA

Table 5. 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	--	--	--	--	--
Ammonia (winter)	mg/L	--	--	--	--	--
Arsenic	µg/L	50	100	150	340	680
Beryllium	µg/L	16	100	17	140	290
Cadmium	µg/L	--	50	3	6.1	12
Chlorine, Total Residual	mg/L	--	--	0.011	0.019	0.038
Chromium	µg/L	--	100	110	2200	4500
Chromium+6 (dissolved)	µg/L	--	--	11	16	31
Copper	µg/L	1300	500	12	18	36
Cyanide, Free	mg/L	0.7	--	0.0052	0.022	0.044
Lead	µg/L	--	100	9.1	170	350
Mercury	ng/L	12	10000	910	1700	3400
Methylene chloride (Dichloromethane)	µg/L	47	--	1900	11000	22000
Nickel	µg/L	610	200	66	590	1200
Nitrate + Nitrite	mg/L	10	100	--	--	--
Orthophosphate	mg/L	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--
Selenium	µg/L	170	50	5	--	--
Silver	µg/L	50	--	1.3	2.5	5.1
Thallium	µg/L	1.7	--	17	79	160
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	--
Zinc	µg/L	9100	25000	150	150	300

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	10600	ORSANCO - Greenup to Meldahl
7Q10	cfs	annual	10600	ORSANCO - Greenup to Meldahl
		summer	0	
		winter	0	
Harmonic Mean	cfs	annual	42100	ORSANCO - Greenup to Meldahl
Mixing Assumption	%	average	10	WLAs for non-carcinogens are developed using 100 percent of the 7Q10.
	%	maximum	1	
Hardness	mg/l	annual	131	ORSANCO - Greenup to Meldahl
Muddy Creek WWTP flow	cfs	annual	23.2	NPDES permit application
Background Water Quality				
Ammonia (summer)	mg/L		0.35	ORSANCO; 2000-07; n=16; 5<MDL; Bimonthly sampling, Meldahl Dam
Ammonia (winter)	mg/L		0.1025	ORSANCO; 2000-07; n=8; 0<MDL; Bimonthly sampling, Meldahl Dam
Arsenic	µg/L		0.79	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam
Beryllium	µg/L		0	No representative data available.
Cadmium	µg/L		0.05	ORSANCO; 2006-11; n=30; 26<MDL; Clean Metals Program, Meldahl Dam
Chlorine, Total Residual	mg/L		0	No representative data available.
Chromium	µg/L		1.54	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam
Chromium+6 (dissolved)	µg/L		0	No representative data available.
Copper	µg/L		2.31	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam
Cyanide, Free	mg/L		0	No representative data available.
Lead	µg/L		0.74	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam
Mercury	ng/L		2.24	ORSANCO; 2006-11; n=29; 8<MDL; Clean Metals Program, Meldahl Dam
Methylene chloride (Dichloromethane)	µg/L		0	No representative data available.
Nickel	µg/L		2.7	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Nitrate + Nitrite	mg/L		0.8965	ORSANCO; 2000-07; n=48; 0<MDL; Bimonthly sampling, Meldahl Dam
Orthophosphate	mg/L		0	No representative data available.
Phosphorus	mg/L		0.625	ORSANCO; 2000-07; n=48; 6<MDL; Bimonthly sampling, Meldahl Dam
Selenium	µg/L		0.7	ORSANCO; 2006-11; n=30; 4<MDL; Clean Metals Program, Meldahl Dam
Silver	µg/L		0.05	ORSANCO; 2006-11; n=30; 30<MDL; Clean Metals Program, Meldahl Dam
Thallium	µg/L		0.05	ORSANCO; 2006-11; n=30; 2<MDL; Clean Metals Program, Meldahl Dam
Total Kjeldahl Nitrogen	mg/L		0.471	ORSANCO; 2000-07; n=33; 0<MDL; Bimonthly sampling, Meldahl Dam
Zinc	µg/L		4.8	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam

MDL = method detection limit
NPDES = National Pollutant Discharge Elimination System
ORSANCO = Ohio River Valley Water Sanitation Commission

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

		Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
Parameter	Units	Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (summer)	mg/L	--	--	--	--	--
Ammonia (winter)	mg/L	--	--	--	--	--
Arsenic	µg/L	22534	18103	6967	1890	680
Beryllium	µg/L	7326	18247	794	780	290
Cadmium	µg/L	--	9114	138	34	12
Chlorine, Total Residual	mg/L	--	--	0.51	0.11	0.038
Chromium	µg/L	--	17967	5066	12245	4500
Chromium+6 (dissolved)	µg/L	--	--	514	89	31
Copper	µg/L	594210	90814	455	90	36
Cyanide, Free	mg/L	321	--	0.24	0.12	0.044
Lead	µg/L	--	18112	391	943	350
Mercury	ng/L	12	10000	910	1700	3400
Methylene chloride (Dichloromethane)	µg/L	8576	--	88710	61259	22000
Nickel	µg/L	278083	36003	2958	3273	1200
Nitrate + Nitrite	mg/L	4169	18084	--	--	--
Orthophosphate	mg/L	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--
Selenium	µg/L	77523	8996	201	--	--
Silver	µg/L	22872	--	58	14	5.1
Thallium	µg/L	756	--	791	440	160
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	--
Zinc	µg/L	4164666	4560767	6784	813	300

Table 8. Outfall 001 Parameter Assessment

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

Total Kjeldahl Nitrogen	Orthophosphate	Phosphorus

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

Chromium	Chromium^{+6} (dissolved)	Nickel

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

Arsenic	Beryllium	Cadmium
Cyanide - free	Lead	Mercury
Nitrate + Nitrite	Selenium	
Methylene chloride (Dichloromethane)		

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.

Copper	Silver	Zinc

Group 5: Maximum PEQ >= 100 percent of the maximum PEL or average PEQ >= 100 percent of the average PEL, or either the average or maximum PEQ is between 75 and 100 percent of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

	Recommended Effluent Limits		
Parameter	Average	Maximum	Units
Chlorine, Total Residual	--	0.038	mg/L
Thallium	--	160	µg/L

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

Table 9. Final Effluent Limits for Outfall 001

		Concentration		Loading (kg/day)[a]		
Parameter	**Units**	**30 Day Average**	**Daily Maximum**	**30 Day Average**	**Daily Maximum**	**Basis[b]**
Temperature	°C	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				M[c]
Flow Rate	MGD	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				M[c]
Oil & Grease	mg/L	--	10.0	--	--	WQS
pH	S.U.	--	6.0 - 9.0	--	--	WQS
E. coli - Summer	#/100 mL	130	292[d]	--	--	WQS
Fecal Coliform - Winter	#/100 mL	1000	2000[d]	--	--	WQS
Total Suspended Solids	mg/L	23	34[d]	1308	1933[d]	BEJ/EP
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	16	24[d]	910	1365[d]	BEJ/EP
Dissolved Oxygen	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Ammonia	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Nitrate+Nitrite	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Phosphorus	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Orthophosphate	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/M[c]
Total Filterable Residue	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				BEJ
Cadmium	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Chromium	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Chromium^{+6} (dissolved)	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Cyanide, Free	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Lead	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Nickel	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Zinc	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/RP
Silver	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/RP
Copper	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/RP
Thallium	µg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP/RP
Mercury	ng/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				EP
Acute Toxicity						
Ceriodaphnia dubia	TU_a	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				WET
Pimephales promelas	TU_a	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - -				WET

[a] Effluent loadings based on average design discharge flow of 15 MGD.

[b] Definitions: **BEJ** = Best Engineering Judgment
EP = Existing Permit
M = 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 (OAC 3745-33-07(B))
WQS = Ohio Water Quality Standards (OAC 3745-1)

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

[d] 7 day average limit.