National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

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

Public Notice No.: 13-11-026
Public Notice Date: November 15, 2013
Comment Period Ends: December 15, 2013

Ohio EPA Permit No.: 1PL00000*PD
Application No.: OH0025453

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:
Little Miami WWTP
225 Wilmer Avenue
Cincinnati, Ohio
Hamilton County

Receiving Water: Ohio River

Subsequent Stream Network: N/A

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 proposed in this draft permit are mostly the same as the current permit.

New monitoring is proposed for thallium, n-Nitrosodi-n-propylamine, and total filterable residue (dissolved solids. 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.

Monitoring for selenium is proposed to be removed because effluent data shows this parameter no longer has the reasonable potential to contribute to exceedances of WQS.

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; tracking of group 4 parameters; storm water compliance; outfall signage; and pretreatment program requirements.

Table of Contents

List of Figures

List of Tables

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 Little Miami 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 Little Miami WWTP is a secondary treatment facility with an average design flow of 55 million gallons per day (MGD). Wet stream processes include:

- Influent pumping
- Screening and grit removal
- Primary settling
- Activated sludge aeration
- Secondary clarification
- Chlorination
- Dechlorination

Solid stream processes are sludge thickening and storage, and dewatering using belt filter presses. Sludge is incinerated and the ash is sent to a landfill.

The WWTP's collection system is 70% separate and 30% combined with storm sewers. The 51 combined sewer overflows (CSOs) in the Little Miami 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 Little Miami WWTP. Approximately 10 categorical users and 7 significant non-categorical users discharge to the WWTP. The total discharge is approximately 1.41 MGD.

Description of Existing Discharge

Abatement of CSOs and sanitary sewer overflows (SSOs) in the Little Miami 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)"].

The effluent discharges through outfall 003; however, the facility's internal secondary treatment bypass effluent (station 602) recombines with fully treated effluent after monitoring station 003. The WWTP also has an external influent bypass (station 004). Station 004 was used six times in 2009, 17 times in 2010, 53 times in 2011, and 32 times in 2012. Station 602 was used twice in 2009, 10 times in 2010, eight times in 2011, and 13 times in 2012. Long-term reduction of the bypassing will be addressed as part of MSDGC's comprehensive wet weather implementation program (Little Miami WWTP bundle project), which was developed as part of the Consent Decree. Once these series of projects are completed, Ohio EPA expects all flow entering the Little Miami WWTP will be treated and disinfected prior to discharge.

In June of 2013, a significant mercury spill occurred on the Little Miami WWTP property. To this point, remediation of the mercury has occurred at the site and storm drains in the affected areas were plugged and remain plugged at the time of this NPDES permit renewal action. Current best management practices require mercury testing of the accumulated storm water around the plugged drains. Once confirmation is made that mercury levels are below the pretreatment standards for the WWTP, the collected storm water is conveyed to the headworks of the WWTP for treatment prior to discharge through outfall 003. Low-level mercury monitoring is required at outfall 003.

If at some point the determination has been made that mercury levels in the storm water are consistently below WQS (end-of-pipe 12 ng/L), discharges to waters of the state may occur without treatment but applicable events must be monitored at the representative storm water monitoring station (610) and reported on the Discharge Monitoring Reports (DMRs).

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

Table 2 presents a summary of unaltered DMR data. Data are presented for the period January 2008 through December 2012, and current permit limits are provided for comparison.

Table 3 presents the average and maximum PEQs for outfall 003.

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 Little Miami 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:

Self-monitoring data (DMR)	January 2008 through December 2012
NPDES Pretreatment data	2008 through 2011

Outliers
The data were examined, and the following value was removed from the evaluation to give a more reliable PEQ: copper – 121 µg/L (11/1/08).

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 8 for a summary of the screening results.

Wasteload Allocation
For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio 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	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 the Little Miami WWTP, the WLA values are 0.7 TU_a and 13.46 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.

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

Dilution Ratio (downstream flow to discharger flow)	Allowable Effluent Toxicity (percent effects in 100% effluent)
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 the Little Miami WWTP is 40 percent mortality in 100 percent effluent based on the dilution ratio of 2.2 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 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 outfall 003 and the basis for their recommendation.

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

Oil & Grease, Fecal Coliforms, and E.coli
Permit limits for oil & grease is 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.

Dissolved Oxygen, Carbonaceous Biochemical Oxygen Demand (5 day), and Total Suspended Solids
The dissolved oxygen (DO) limit is proposed to continue. The limits for total suspended solids (TSS) and five-day carbonaceous biochemical oxygen demand ($CBOD_5$) are technology-based treatment standards from 40 CFR 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned treatment works.

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.

Nitrate+Nitrite, Phosphorus, Orthophosphorus, and Total Kjeldahl Nitrogen
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 Little Miami WWTP effluent.

Arsenic and Selenium
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 for selenium is proposed to be removed.

Chromium, Chromium^{+6} (dissolved), Lead, Nickel, Cadmium, Zinc, Cyanide – Free
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 document that these pollutants continue to remain at low levels.

Chlorine – Total Residual, Copper, Heptachlor, Mercury, Silver, Thallium
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). Monitoring for copper, silver, and mercury is proposed to continue from the previous permit.

Thallium was only detected in one of ten samples. Based on BPJ, thallium monitoring will be at a frequency of once per quarter instead of the recommended once per month for a WWTP of this size. Quarterly monitoring will be sufficient to collect additional data on the frequency of occurrence and variability of this pollutant in the WWTP's effluent.

In addition, the total residual chlorine and heptachlor effluent quality falls within 75 percent of the WLA. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA.

However, using the discretion allowed in OAC 3745-33-07(A)(6), these tracking/reduction requirements are not proposed for heptachlor or total residual chlorine. Heptachlor has only been detected in two of 14 samples from 2008 through 2012 and the two detections were at the method detection limit. The monitoring frequency is proposed to be increased to once per month. The limits for total residual chlorine are proposed to be continued based on plant design and BPJ; therefore, the tracking requirements do not apply.

N-Nitrosodi-n-propylamine

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. 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 one detected value out of only ten total data points. Quarterly monitoring will be sufficient to collect additional data on the frequency of occurrence and variability of this pollutant in the WWTP's effluent.

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 Little Miami 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/County must also submit a pretreatment program modification request. A six month compliance schedule is proposed for the City/County 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 Little Miami 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 Little Miami 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 Little Miami 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 Little Miami 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 Little Miami WWTP

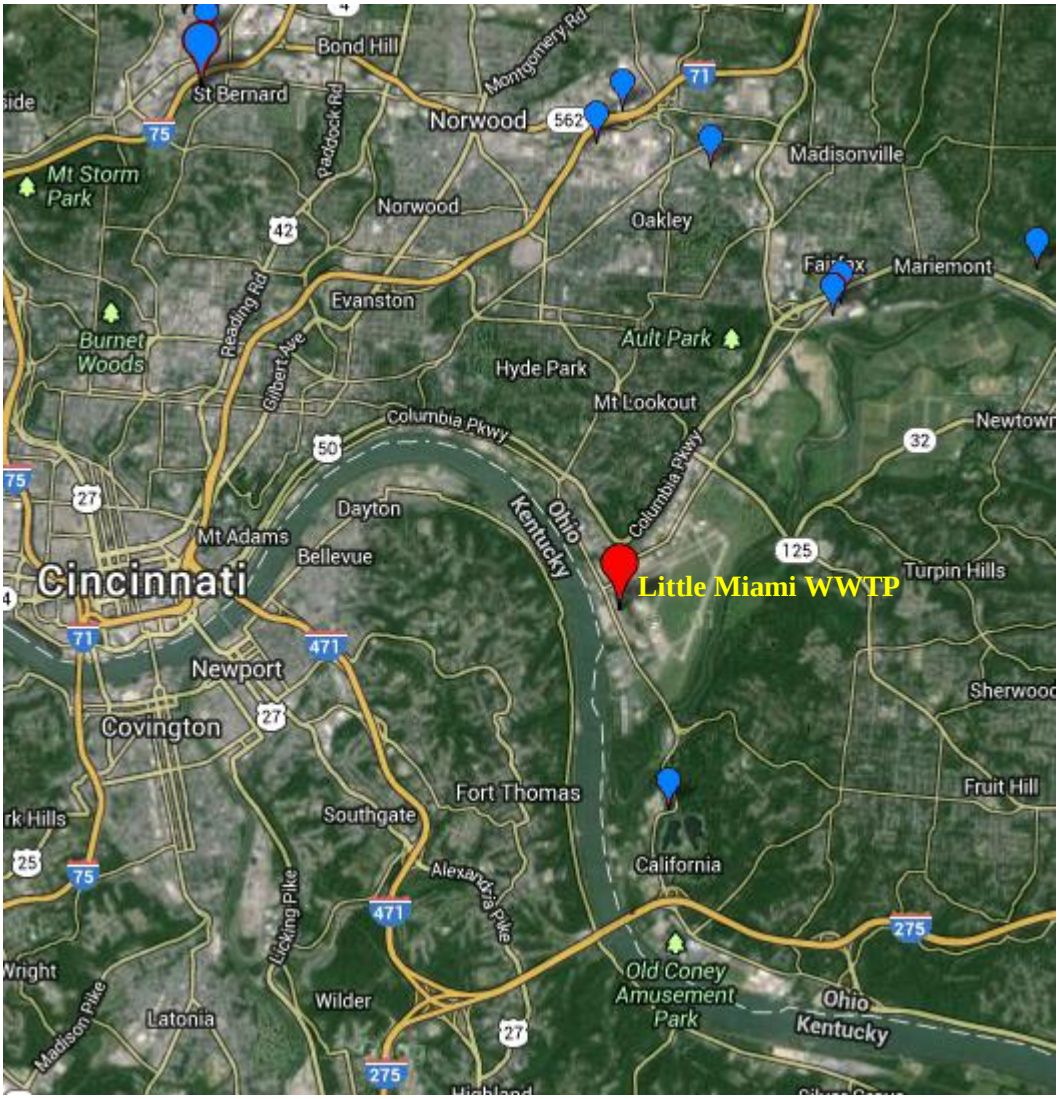

Table 1. Outfall 003 Effluent Characterization Using Pretreatment Data

Parameter (µg/L)	3/30/2008	6/12/2008	8/21/2008	12/2/2008	3/12/2009	8/20/2009	3/12/2010	8/13/2010	3/11/2011	8/18/2011
Antimony	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)
Arsenic	AA (5)	12	AA (5)	5	31.5	34.2	35.7	AA (5)	AA (5)	AA (5)
Beryllium	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)	AA (1)
Cadmium	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)	AA (2)
Chromium	AA (5)	6	AA (5)	9	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)
Copper	AA (2)	AA (2)	6	12	5.9	9.24	8.78	7.53	6.97	11
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)
Nickel	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Selenium	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	69.2	55.5	AA (50)	AA (50)	AA (50)
Silver	AA (3)	AA (3)	AA (3)	AA (3)	AA (3)	4.33	AA (3)	AA (3)	AA (3)	AA (3)
Thallium	AA (50)	53	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)	AA (50)
Zinc	22	65	33	32	31.8	123	147	20	38.5	18.1
Chloroform	AA (5)	AA (5)	AA (5)	5.1	AA (5)	AA (5)	AA (5)	6.8	5.6	AA (5)
Toulene	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	27.2	AA (5)	AA (5)	AA (5)	AA (5)
N-nitrosodi-n-propylamine	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	AA (5)	5.66

AA = not detected (method detection limit)

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		#	Percentiles		Data Range
			Monthly	Daily	Obs.	50th	95th	
Outfall 003								
Water Temperature	Annual	℃	Monitor		1827	19.2	25.8	9-27.7
Dissolved Oxygen	Summer	mg/L	5.0 Minimum		920	7.9	9.2	2.4-10.5
Dissolved Oxygen	Winter	mg/L	5.0 Minimum		907	9.3	10.6	5.1-12
Total Suspended Solids	Annual	mg/L	30	45[a]	1827	6	16	1-102
Oil and Grease	Annual	mg/L	--	10	259	0	0	0-8.9
Ammonia	Summer	mg/L	Monitor		920	0	3.35	0-14.9
Ammonia	Winter	mg/L	Monitor		907	0	1.64	0-8.72
Total Kjeldahl Nitrogen	Annual	mg/L	Monitor		1827	0	4.5	0-19.3
Nitrite + Nitrate	Annual	mg/L	Monitor		1826	19.8	40	0-62.3
Orthophosphate	Annual	mg/L	Monitor		175	1.2	3.06	0.2-3.8
Phosphorus	Annual	mg/L	Monitor		1249	1.2	2.4	0-4.2
Cyanide, Free	Annual	mg/L	Monitor		239	0	0	0-0.021
Selenium	Annual	µg/L	Monitor		163	0	10.2	0-86
Nickel	Annual	µg/L	Monitor		242	0	11	0-29
Silver	Annual	µg/L	Monitor		163	0	2	0-4
Zinc	Annual	µg/L	Monitor		242	29	127	0-282
Cadmium	Annual	µg/L	Monitor		242	0	0	0-5
Lead	Annual	µg/L	Monitor		242	0	1	0-3
Chromium	Annual	µg/L	Monitor		242	0	8.95	0-72
Copper	Annual	µg/L	Monitor		242	11	21	0-121
Chromium^{+6} (dissolved)	Annual	µg/L	Monitor		257	0	0	0-0
Fecal Coliform	Annual				1000	38	1300	1-22000
	Winter	#/100 mL	1000	2000[a]				
	Summer	#/100 mL	200	400[a]				
Heptachlor	Annual	µg/L	Monitor		14	0	0.1	0-0.1
Flow Rate	Annual	MGD	Monitor		1827	21.7	49.7	9.47-91.7
Chlorine, Total Residual	Annual	mg/L	--	0.038	1220	0.011	0.028	0-0.04
Mercury	Annual	ng/L	Monitor		245	2.95	10.9	0-55.7
Acute Toxicity, *Ceriodaphnia dubia*	Annual	TU_a	Monitor		9	0	0	0-0
Acute Toxicity, *Pimephales promelas*	Annual	TU_a	Monitor		9	0	0.3	0-0.3
pH, Maximum	Annual	S.U.	--	9.0	1827	7.4	7.7	6.8-8.6
pH, Minimum	Annual	S.U.	--	6.0	1827	7.1	7.4	6.3-7.6

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		#	Percentiles		Data Range
			Monthly	Daily	Obs.	50th	95th	
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	25	40[a]	529	3	6	1-9
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	25	40[a]	502	3	6	1-17
Bypass Station 004								
Bypass Occurrence	Annual	No./Day	Monitor		106	1	1	1-2
Bypass Total Hours Per Day	Annual	Hrs/Day	Monitor		139	7.5	24	0-24
Total Suspended Solids	Annual	mg/L	Monitor		186	116	475	30-1650
Flow Rate	Annual	MGD	Monitor		50	7.31	35.8	0.058-54.9
Bypass Volume	Annual	MGAL	Monitor		139	12.9	78.7	0.071-99.1
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	Monitor		34	38	112	16-280
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	Monitor		89	37	80	10-119
Outfall 098								
Fecal Coliform	Annual	#/100 mL	Monitor		10	31500	162000	4100-168000
Flow Rate	Annual	MGD	Monitor		43	41.6	77.8	9.7-94.6
Station 585								
Arsenic	Annual	mg/kg	Monitor		242	0	13	0-36
Beryllium	Annual	mg/kg	Monitor		242	0.27	0.699	0-3.47
Cadmium	Annual	mg/kg	Monitor		242	2	5	0-13
Chromium	Annual	mg/kg	Monitor		242	25	41	0-97
Lead	Annual	mg/kg	Monitor		242	35	80	0-164
Nickel	Annual	mg/kg	Monitor		242	25	51	0-94
Sludge Fee Weight	Annual	dry tons	Monitor		920	29.6	40	0-50.1
Mercury	Annual	mg/kg	Monitor		242	0.7	1.3	0-6.8
Influent Monitoring Station 601								
Total Suspended Solids	Annual	mg/L	Monitor		1826	154	286	10-926
Cyanide, Total	Annual	mg/L	Monitor		240	0	0.0792	0-0.241
Nickel	Annual	µg/L	Monitor		241	5	18	0-54
Silver	Annual	µg/L	Monitor		163	0	3	0-5
Zinc	Annual	µg/L	Monitor		241	87	206	0-334

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits Monthly	Current Permit Limits Daily	# Obs.	Percentiles 50th	Percentiles 95th	Data Range
Cadmium	Annual	µg/L	Monitor		241	0	2	0-20
Lead	Annual	µg/L	Monitor		241	4	11	0-21
Chromium	Annual	µg/L	Monitor		241	0	14	0-53
Copper	Annual	µg/L	Monitor		241	61	116	0-171
Chromium^{+6} (dissolved)	Annual	µg/L	Monitor		257	0	0	0-16
Mercury	Annual	ng/L	Monitor		245	50	215	6.8-1760
pH, Maximum	Annual	S.U.	Monitor		1827	7.4	8	6.6-9.6
pH, Minimum	Annual	S.U.	Monitor		1827	6.9	7.3	5-7.9
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	Monitor		529	64	129	13-191
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	Monitor		502	52	102	10-224
Bypass Station 602								
Bypass Occurrence	Annual	No./Day	Monitor		32	1	1	1-2
Bypass Total Hours Per Day	Annual	Hrs/Day	Monitor		32	3.5	10.9	0.5-23.5
Total Suspended Solids	Annual	mg/L	Monitor		41	98	316	50-820
Flow Rate	Annual	MGD	Monitor		11	0.96	10.3	0.23-14.1
Bypass Volume	Annual	MGAL	Monitor		32	2.6	11.5	0.04-22.9
Carbonaceous Biochemical Oxygen Demand (5 day)	Summer	mg/L	Monitor		7	37	67.4	14-74
Carbonaceous Biochemical Oxygen Demand (5 day)	Winter	mg/L	Monitor		16	35	53.8	12-56
Monitoring Station 801								
Water Temperature	Summer	℃	Monitor		122	25	29	12-31
Dissolved Oxygen	Summer	mg/L	Monitor		121	8.6	10.7	4.8-11.9
pH	Summer	S.U.	Monitor		117	7.3	8.64	6.4-9.9
Ammonia	Summer	mg/L	Monitor		123	0	0	0-0
Fecal Coliform	Summer	#/100 mL	Monitor		123	12	563	0-2500
Acute Toxicity, *Ceriodaphnia dubia*	Annual	% Affected	Monitor		9	0	0	0-0
Acute Toxicity, *Pimephales promelas*	Annual	% Affected	Monitor		9	0	3	0-5
Monitoring Station 901								

Table 2. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		#	Percentiles		Data Range
			Monthly	Daily	Obs.	50th	95th	
Water Temperature	Summer	℃	Monitor		122	25	29	7-31
Dissolved Oxygen	Summer	mg/L	Monitor		121	8.6	9.9	4.9-11.8
pH	Summer	S.U.	Monitor		117	7.4	8.88	5.2-9.7
Ammonia	Summer	mg/L	Monitor		123	0	0	0-0
Nickel	Summer	mg/L	Monitor		31	0	0	0-0
Silver	Summer	µg/L	Monitor		31	0	8.5	0-16
Zinc	Summer	µg/L	Monitor		31	9	121	0-340
Cadmium	Summer	µg/L	Monitor		31	0	0	0-0
Lead	Summer	µg/L	Monitor		31	0	15	0-20
Chromium	Summer	µg/L	Monitor		31	0	14.5	0-130
Copper	Summer	µg/L	Monitor		31	4	13.5	0-16
$Chromium^{+6}$ (dissolved)	Summer	µg/L	Monitor		31	0	0	0-0
Fecal Coliform	Summer	#/100 mL	Monitor		123	33	864	1-2900
Mercury	Summer	ng/L	Monitor		30	2.25	13.4	0-26.8

All values are based on annual records unless otherwise indicated.
[a] = weekly average

Table 3. Projected Effluent Quality for Outfall 003

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-Summer	mg/L	610	193	2.12	4.35
Ammonia-Winter	mg/L	452	121	1.00	2.43
Arsenic	µg/L	5	0	--	--
Cadmium	µg/L	252	10	1.20	1.74
Chlorine, Total Residual	mg/L	1220	1176	0.02	0.03
Chloroform (Trichloromethane)	µg/L	10	3	8.44	11.56
Chromium	µg/L	252	23	8.36	9.88
$Chromium^{+6}$ (dissolved)	µg/L	257	0	--	--
Copper	µg/L	251	223	17.98	25.19
Cyanide, Free	mg/L	239	7	0.00	0.00
Heptachlor	µg/L	14	2	0.11	0.15
Lead	µg/L	170	37	1.75	2.40
Mercury	ng/L	245	239	7.50	11.08
Nickel	µg/L	252	107	9.40	13.54
Nitrite + Nitrate	mg/L	1826	1824	25.35	46.57
N-Nitrosodi-n-propylamine	µg/L	10	1	7.02	9.62
Orthophosphate	mg/L	175	0	2.56	3.82
Phosphorus	mg/L	1249	1075	1.48	2.75
Selenium	µg/L	173	80	19.35	20.67
Silver	µg/L	251	74	2.04	2.80
Thallium	µg/L	10	1	65.77	90.10
Toluene	µg/L	10	1	33.76	46.24
Total Kjeldahl Nitrogen	mg/L	1827	864	2.07	4.97
Zinc	µg/L	252	244	81.62	121.49

MDL = method detection limit
PEQ = projected effluent quality

Table 4. Acute Toxicity Results for Outfall 003

	Ceriodaphnia dubia	*Pimephales promelas*
Date	Acute Toxicity (TU_a)	Acute Toxicity (TU_a)
3/3/2008	AA	AA
6/2/2008	AA	AA
10/6/2008	AA	AA
3/3/2009	AA	AA
6/2/2009	AA	AA
8/11/2009	AA	0.3
8/3/2010	AA	AA
8/2/2011	AA	0.3
8/7/2012	AA	AA

AA = non-detection (method detection limit is 0.2 TU_a)
TU_a = acute toxicity unit

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
Cadmium	µg/L	--	50	3	6.1	12
Chlorine, Total Residual	mg/L	--	--	0.011	0.019	0.038
Chloroform (Trichloromethane)	µg/L	57	--	140	1300	2600
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
Heptachlor	µg/L	0.0021	--	--	--	--
Lead	µg/L	--	100	9.1	170	350
Mercury	ng/L	12	10000	910	1700	3400
Nickel	µg/L	610	200	66	590	1200
Nitrite + Nitrate	mg/L	10	100	--	--	--
N-Nitrosodi-n-propylamine	µg/L	0.05	--	--	--	--
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
Toluene	µg/L	6800	--	62	560	1100
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
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
pH	S.U.	summer	7.7	Station 901
		winter	0	
Temperature	°C	summer	28	Station 901
		winter	5	BWQR Central Ohio Tribs; n=25
Little Miami WWTP flow rate	cfs	annual	85.1	NPDES 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
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.
Chloroform (Trichloromethane)	µg/L		0	No representative data available.
Chromium	µg/L		1.5	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.
Heptachlor	µg/L		0	No representative data available.
Lead	µg/L		0.74	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Mercury	ng/L		2.24	ORSANCO; 2006-11; n=29; 8<MDL; Clean Metals Program, Meldahl Dam
Nickel	µg/L		2.7	ORSANCO; 2006-11; n=30; 0<MDL; Clean Metals Program, Meldahl Dam
Nitrite + Nitrate	mg/L		0.8965	ORSANCO; 2000-07; n=48; 0<MDL; Bimonthly sampling, Meldahl Dam
N-Nitrosodi-n-propylamine	µg/L		0	No representative data available.
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; 29<MDL; Clean Metals Program, Meldahl Dam
Toluene	µg/L		0	No representative data available.
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

BWQR = *Analysis of Unimpacted Stream Data for the State of Ohio*, Ohio Environmental Protection Agency, 1988
MDL = method detection limit
NPDES = National Pollutant Discharge Elimination System
ORSANCO = Ohio River Valley Water Sanitation Commission
WLA = Wasteload allocation

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	6180	5008	2009	763	680
Cadmium	µg/L	--	2521	40	14	12
Chlorine, Total Residual	mg/L	--	--	0.15	0.043	0.038
Chloroform (Trichloromethane)	µg/L	2877	--	1884	2919	2600
Chromium	µg/L	--	4973	1461	4938	4500
$Chromium^{+6}$ (dissolved)	µg/L	--	--	148	36	31
Copper	µg/L	162939	25121	133	38	36
Cyanide, Free	mg/L	88	--	0.07	0.049	0.044
Heptachlor	µg/L	0.11	--	--	--	--
Lead	µg/L	--	5011	113	381	350
Mercury	ng/L	12	10000	910	1700	3400
Nickel	µg/L	76255	9961	854	1322	1200
Nitrite + Nitrate	mg/L	1144	5003	--	--	--
N-Nitrosodi-n-propylamine	µg/L	2.5	--	--	--	--
Orthophosphate	mg/L	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--
Selenium	µg/L	21258	2489	59	--	--
Silver	µg/L	6272	--	17	5.6	5.1
Thallium	µg/L	207	--	228	177	160
Toluene	µg/L	853804	--	834	1258	1100
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	--
Zinc	µg/L	1141992	1261543	1959	331	300

Table 8. Parameter Assessment for Outfall 003

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

Orthophosphorus	Totak Kjeldahl Nitrogen	Phosphorus

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

Arsenic	Chloroform (Trichloromethane)	Chromium
Chromium^{+6} (dissolved)	Lead	Nickel

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

Nitrate + Nitrite	Cyanide - free	Cadmium
Selenium	Toluene	Zinc

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

Chlorine, Total Residual[a]	Copper	Heptachlor[a]
Mercury	Silver	Thallium

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

Limits to Protect Numeric Water Quality Criteria

		Recommended Effluent Limits	
Parameter	Units	Average	Maximum
N-Nitrosodi-n-propylamine	µg/L	2.5	--

[a] = requires a permit tracking requirement in accordance with OAC 3745-33-07(A)(2) since the PEQ is ≥ 75% of the PEL.
PEL = preliminary effluent limit
PEQ = projected effluent quality
WLA = wasteload allocation
WQS = water quality standard

Table 9. Final Effluent Limits for Outfall 003

Parameter	Units	Concentration		Loading (kg/day)[a]		Basis[b]
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
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	--	--	EP/WQM
E. coli - Summer	#/100 mL	130	292[d]	--	--	WQS
Fecal Coliform - Winter	#/100 mL	1000	2000[d]	--	--	WQS
Total Suspended Solids	mg/L	30	45[d]	6245	9368[d]	BPT/EP
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	25	40[d]	5204	8327[d]	BPT/EP
Dissolved Oxygen	mg/L	5.0 Minimum		--	--	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 - - - - - - - - - - - -				BPJ
Chlorine, Total Residual	mg/L	--	0.038	--	--	BPJ/EP/RP
N-Nitrosodi-n-propylamine	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WLA
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
Silver	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				EP/RP
Copper	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				EP/RP
Thallium	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				EP/RP
Heptachlor	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				EP/RP
Mercury	ng/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				EP/RP
Acute Toxicity						
Ceriodaphnia dubia	TU_a	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
Pimephales promelas	TU_a	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET

[a] Effluent loadings based on average design discharge flow of 55 MGD.

[b] Definitions:

BPJ = best professional judgment
BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation
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))
WLA = Wasteload Allocation procedures (OAC 3745-2)
WQM = water quality modeling study
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.