

National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T (2/27/13)

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio  
for the Findlay Water Pollution Control Center (WPCC)

Public Notice No.: 13-03-007  
Public Notice Date: March 7, 2013  
Comment Period Ends: April 7, 2013

OEPA Permit No.: 2PD00008\*RD  
Application No.: OH0025135

Name and Address of Applicant:

City of Findlay  
Water Pollution Control  
1201 South River Road  
Findlay, Ohio 45804

Name and Address of Facility Where

Discharge Occurs:

Findlay WPCC  
1201 South River Road  
Findlay, Ohio 45840  
Hancock County, Ohio

Receiving Water: Blanchard River

Subsequent  
Stream Network: Auglaize River  
Maumee River  
Lake Erie

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations (CFR), Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency, 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, in stream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act and Ohio Water Pollution Control Law (ORC 6111). Decisions to award variances to Water Quality Standards 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 U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

### Summary of Permit Conditions

#### *Final Outfall 2PD00008001*

The effluent limits and monitoring requirements proposed for the following parameters at station 001 (final outfall) are the same as in the current permit, although some sampling type and monitoring frequencies have changed: flow, temperature, dissolved oxygen (DO), 5-day carbonaceous biological oxygen demand (CBOD<sub>5</sub>), total suspended solids (TSS), total dissolved solids (filterable residue), total phosphorus, total Kjeldahl nitrogen (TKN), oil and grease, pH, *Escherichia coli* (*E. coli*), acute and chronic whole effluent toxicity (WET), bis(2-ethylhexyl) phthalate, free cyanide, cadmium, chromium, dissolved hexavalent chromium (Cr<sup>6+</sup>), copper, lead, nickel, zinc and silver.

Nitrite(N) + Nitrate(N) monitoring has been added to the proposed permit under the requirements of the Ohio Administrative Code (OAC) 3745-33-07. This parameter replaces monitoring for nitrite and nitrate separately as required in the current permit.

Findlay has applied for a renewal of the mercury variance effective December 1, 2010. The 30-day average mercury limit developed from sampling data submitted by Findlay is 5.6 ng/L in the proposed permit. This limit is lower than the current permit limit of 8.5 ng/L. The daily maximum of 1700 ng/L mercury remains the same as the current permit.

The existing summer ammonia-nitrogen limit is not protective of water quality and a lower water-quality-based limit of 0.91 mg/L is proposed for ammonia-nitrogen during summer months. The existing winter ammonia-nitrogen limit is protective of water quality standards and remains the same as in the current permit.

The monitoring requirement for strontium in the current permit is proposed to be removed. The concentrations of the pollutant reported in the final effluent do not have the reasonable potential to cause or contribute to exceedances of WQS.

The limits for acute and chronic WET testing for the species *Pimephales promelas* have been removed, and the monitoring frequencies have been reduced to once per year in the proposed permit based on 40 CFR Part 132 Appendix F Procedure 6 and OAC 3745-33-07 (B). The monitoring requirements and limits for acute and chronic WET testing for the species *Ceriodaphnia dubia* remain the same as in the current permit.

#### *Station 801*

The list of parameters to monitor at the 801 station has changed to include monitoring requirements for whole effluent toxicity testing at the same frequency as Station 001 in accordance with OAC 3754-33-07(B). Nutrient monitoring for total phosphorus and nitrite + nitrate has also been added to Station 801 based on best engineering judgment (BEJ). The proposed monitoring is to maintain a nutrient data set for use in future water quality studies.

*Station 901*

The list of parameters to monitor at the 901 station has been updated. Monitoring is proposed for nitrate + nitrite and phosphorous based on BEJ. The purpose of the monitoring to maintain a nutrient data set for use in future water quality studies. The list of parameters monitored at station 901 of the current permit was evaluated based on data submitted by the City of Findlay. The following parameters were removed from the 901 station in the proposed permit: nickel, silver, zinc, lead, total chromium, and cyanide. The name of the 901 station has been changed from “Downstream-Nearfield Monitoring” to “Downstream- Farfield Monitoring”.

*Part II Other Requirements*

In Part II of the permit, special conditions are included that address compliance schedules, combined sewer overflow monitoring; sanitary sewer overflow reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity 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 OEPA 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 Caitlin Ruza, (614) 644-2039, [caitlinruza@epa.state.oh.us](mailto:caitlinruza@epa.state.oh.us).

## Location of Discharge/Receiving Water Use Classification

Findlay WWTP discharges to the Blanchard River at River Mile (RM) 56.42. Figure 1 shows the approximate location of the facility.

This segment of the Blanchard River is described by Ohio EPA River Code: 04-160, U.S. EPA River Reach #: 04100008-004, County: Hancock, Ecoregion: Eastern Corn Belt Plains. The Blanchard River is designated for the following uses under Ohio's Water Quality Standards (WQS) in OAC 3745-1-07: Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

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

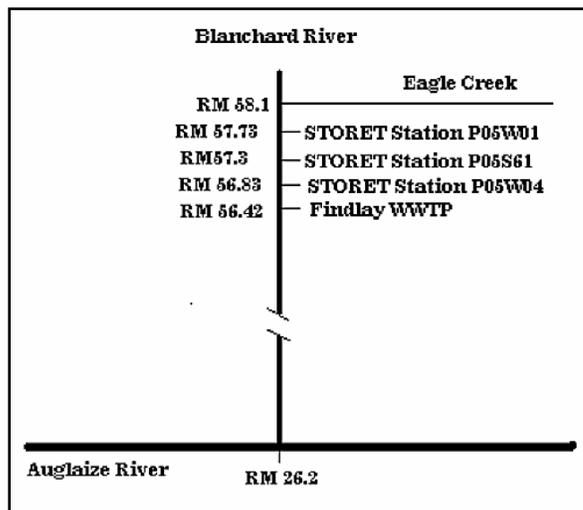
Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which cannot meet the Clean Water Act 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. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for agricultural and industrial water supply.

## Facility Description

The Findlay Water Pollution Control Center (WPCC) facility is a Class IV advanced wastewater treatment plant (WWTP) with an average design flow of 15 million gallons per day (MGD), and a peak hydraulic capacity of 40 MGD. It was initially constructed in 1988 with the most recent major modification occurring in 2001. The treatment plant includes the following equipment and processes: influent pumping, four oxidation ditches, five secondary clarifiers, ultraviolet disinfection and post-aeration. The facility is a Class I sludge management facility. Sludge processing includes belt filter presses, aerobic sludge storage tanks, and aerobic sludge digesters which are available but not currently used. Sludge is pumped from the final clarifiers to the aerobic sludge storage tanks where it is dewatered and concentrated prior to being further dewatered with the belt filter presses. Sludge is currently disposed at the Hancock County Sanitary Landfill. In addition to the City of Findlay, the WWTP serves the Village of Arcadia, the Village of Van Buren, and parts of Hancock County. The total population served is estimated to be 45,002.



### *Collection System*

The Findlay WWTP collection system is currently approximately 85 percent separate and 15 percent combined sanitary and storm sewers. The inflow/infiltration rate for the collection system is estimated to be 3 MGD. The City of Findlay was required to develop a Long-Term Control Plan (LTCP) for reducing the number and frequency of combined sewer overflows (CSOs) in the collection system, and on April 15, 1998, the LTCP was submitted to Ohio EPA. An addendum to the LTCP was received on August 29, 2003. The City has since fully implemented the LTCP which consisted of various WWTP upgrades (installation of additional oxidation ditches, additional clarifiers, increased disinfection capacity), construction of an east-side express sewer and pump station, sewer separation projects (new storm and sanitary), continued implementation of a sewer relining program to address inflow and infiltration issues, and installation of watertight covers on manholes of concern. Findlay continues to submit annual reports summarizing the activity of their CSOs, and continues to monitor their CSOs to document compliance with the National and State CSO Policies. Within the collection system, Findlay reports no known sanitary sewer overflow (SSO) locations, zero treatment plant bypasses, and 22 CSOs. Three additional CSOs have been closed as part of the LTCP efforts (CSO Stations 008, 017, and 020). The total volume discharged from Findlays CSOs in 2008, 2009, and 2011 was estimated to be 0.46 million gallons (MG), 2.1 MG, and 4.7 MG, respectively (No CSOs were reported in 2010). The City of Findlay reported 3.7 MG in 2012 between January 1 and June 30.

### *Pretreatment*

The City of Findlay implements an Ohio EPA-approved industrial pretreatment program. Six categorical industrial users and two significant non-categorical industrial users discharge to the wastewater plant. The average daily flow from all industrial users is 0.4417 MGD.

### Description of Existing Discharge

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

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 2PD00008001. Data are presented for the period of July 2007 through June 2012, and current permit limits are provided for comparison.

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

Tables 4 and 5 summarize the results of acute and chronic whole effluent toxicity tests of the final effluent.

Table 6 summarizes the combined sewer overflow data.

### Assessment of Impact on Receiving Waters

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

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and

unpermitted), land use effects, and habitat modifications. Indicators of exposure to these stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices fails meet the biocriteria. Nonattainment means that either none of the applicable indices meet the biocriteria or one of the organism groups indicates poor or very poor performance. An aquatic life use attainment table (see Table 7) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

Figure 2 presents the watershed assessment unit results for the Blanchard River from upstream and downstream of the Findlay WWTP from the *Ohio 2012 Integrated Water Quality Monitoring and Assessment Report* (Ohio EPA; Approved by U.S. EPA on May 8, 2012). The complete report is available through the following Internet link:

<http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx>

The Blanchard River is a tributary to the Auglaize River in the Maumee basin, draining over 770 square miles in northwestern Ohio. The river originates in Hardin County and flows northward to the City of Findlay, where it abruptly changes direction to flow due west. The dominant land use in the watershed is small-grained row crop production, accounting for more than 80% of the land area.

Ohio EPA conducted a comprehensive physical, chemical and biological survey of the Blanchard River watershed in 2005, and several problems were identified. Primary causes of impairment are nutrients, sediment, poor habitat quality, organic substances and high stream temperatures. The report published in June 2007 entitled, "Biological and Water Quality Study of the Blanchard River" contains the results of the 2005 sampling efforts and includes the following information with regard to the Findlay WWTP:

“...Construction of a new Findlay WWTP that included relocating the discharge was completed in 2001. Operations at the new plant have reduced ammonia concentrations to the point where it has been nearly undetectable in the effluent for the last 3 years. The macroinvertebrate community in 1983 was impacted for approximately 20 miles. In contrast, the macroinvertebrate community in 2005 produced an ICI in the very good range just 1.2 miles downstream from the discharge. The condition of the fish community, as reflected by the two surveys, also demonstrated an overall increase in resource quality of the Blanchard River mainstem downstream from Findlay in the intervening years. Significant improvements in the fish community that pointed to the improved condition of the resource included the reduced prominence of tolerant fish, a greater proportion of top carnivores and a reduction in the

occurrence of deformities, tumors and lesions. The mainstem consistently met ecoregional expectations beginning approximately 6.4 miles downstream from the discharge in 2005...” [page 3]  
“The Findlay WWTP discharged an average of about 12 MGD during 2005 and is a major source of nutrient loading to the Blanchard River. A significant increase in the levels of nitrate-nitrite and phosphorus from below target to well above target occurred downstream of the Findlay WWTP. There also appeared to be a slight depression in dissolved oxygen concentrations approximately 10 miles downstream of the WWTP discharge based on the surface grab samples. Partial attainment downstream from the Findlay WWTP (RM 54.7) resulted from widely differing fish index scores recorded in the initial sampling pass on June 11 versus the subsequent sampling conducted October 14. An IBI score of 28 was recorded in June and increased to 44 in October. Similarly, MIwb scores were 7.0 and 8.2 in June and October, respectively. The averaged IBI and MIwb scores were in the fair range. The disparate results suggest an impaired community condition possibly due to an upset in the operation of the Findlay WWTP followed by a reestablishment of the warmwater fish community in the intervening period between sampling passes. The macroinvertebrate community produced a very good ICI score of 42 at RM 55.2. The community structure was indicative of moderate to high enrichment but, given the conditions upstream from the Findlay WWTP, an influence from the discharge on the macroinvertebrate community could not be directly correlated...” [page 111]

According to the 2012 Integrated Report, this watershed will next be monitored in 2020. The full report is available at the following Internet link:

<http://www.epa.ohio.gov/portals/35/documents/BlanchardRiverTSD2005.pdf>

The Blanchard River Watershed Total Maximum Daily Load (TMDL) report was approved by U.S. EPA on July 2, 2009. TMDL reports identify and evaluate water quality problems in impaired water bodies and propose solutions to bring those waters into attainment with water quality standards. TMDLs are calculated for total phosphorus, fecal coliform bacteria, and habitat quality and sedimentation, and scenarios were developed to address water temperature issues. TMDL recommendations include:

- lower phosphorus limits and/or phosphorus monitoring for point source dischargers
- agricultural conservation practices to abate sediment, nutrient and manure pollution
- local health departments identify and address septic system failures and provide educational opportunities for system owners
- stream setbacks, controls for subsurface drainage, less damaging channel maintenance, and stream and riparian restoration to improve or protect habitat quality

The TMDL also includes the following recommendations specifically for the City of Findlay:

- continue to abate CSO impacts
- achieve a 30 percent phosphorus reduction in the designated MS4 storm water area in an effort to reduce phosphorus discharges to the river
- meet an instream target of 0.16 mg/L approximately two miles downstream. If these interim measures are not sufficient to reduce nutrient loads, then Findlay may receive a phosphorus permit limit below the current 1.0 mg/l monthly average

The TMDL Report for the Blanchard River is available at the following Internet link:

<http://www.epa.ohio.gov/dsw/tmdl/MaumeeRiver.aspx>

## Development of Water-Quality-Based Effluent Limits

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

### *Parameter Selection*

Effluent data for the City of Findlay were used to determine what parameters should undergo wasteload allocation. 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)	July 2007 through June 2012
Pretreatment data	2008-2011
Ohio EPA Bioassay data	April, May 2011

### *Outliers*

The data were examined, and the following values were removed from the evaluation to give a more reliable projection of effluent quality: Copper-74 ug/L (8/1/2011), Total dissolved solids (TDS) – 65.49 mg/L (7/6/2009), TSS – 76 mg/L (3/2/2011).

This data is evaluated statistically, and PEQ values are calculated for each pollutant. Average PEQ ( $PEQ_{avg}$ ) values represent the 95<sup>th</sup> percentile of monthly average data, and maximum PEQ ( $PEQ_{max}$ ) values represent the 95<sup>th</sup> 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 wasteload allocation (WLA) values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either  $PEQ_{avg}$  or  $PEQ_{max}$  is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 11 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	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
Wildlife		Annual 90Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 10, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

Ohio's water quality standard implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] required a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring mercury limits in their NPDES permit must meet water quality standards at the end-of-pipe, which are 12 ng/l (average) and 1700 ng/l (maximum) in the Ohio River basin, or 1.3 ng/l (average) and 1700 ng/l (maximum) in the Lake Erie basin.

The data used in the WLA are listed in Tables 8 and 10. The wasteload allocation results to maintain all applicable criteria are presented in Table 9. The current ammonia limits have been evaluated using the wasteload allocation procedures. The existing summer ammonia limit is not protective of water quality and has been placed in the Group 5 category of the Parameter Assessment with a proposed limit of 0.91 mg/L. The existing winter ammonia limit is protective of water quality standards for ammonia toxicity.

*Whole Effluent Toxicity WLA*

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

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

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU<sub>c</sub>) and 7Q10 flow for the average and the acute toxicity unit (TU<sub>a</sub>) 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 Findlay WWTP, the wasteload allocation values are 0.3 TU<sub>a</sub> and 1.0TU<sub>c</sub>.

When the acute wasteload allocation is less than 1.0 TU<sub>a</sub>, it may be defined as:

<u>Dilution Ratio</u> ( <u>downstream flow to discharger flow</u> )	<u>Wasteload Allocation</u> ( <u>percent effects in 100% effluent</u> )
up to 2 to 1	30
greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

The acute wasteload allocation for Findlay WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1 to 1.

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

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

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

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

The acute toxicity unit ( $TU_a$ ) is defined as 100 divided by the  $LC_{50}$  for the most sensitive test species:

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

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

#### Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum wasteload allocations are selected from Table 9. The average PEL ( $PEL_{avg}$ ) is compared to the average  $PEQ_{avg}$  from Table 3, and the  $PEL_{max}$  is compared to the  $PEQ_{max}$ . Based on the calculated percentage of the allocated value [ $(PEQ_{avg} \div PEL_{avg}) \times 100$ , or  $(PEQ_{max} \div PEL_{max}) \times 100$ ], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 11.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 12 presents the final effluent limits and monitoring requirements proposed for the City of Findlay WWTP outfall 2PD00008001 and the basis for their recommendation.

#### *Water Temperature, Total Precipitation, TKN, Nitrite + Nitrate and Flow Rate*

Monitoring is proposed to continue for water temperature, total precipitation, TKN, and flow rate in order to assist in the evaluation of effluent quality and treatment plant performance, and in accordance with Ohio EPA guidance. Continued monitoring for TKN and Nitrite + Nitrate will also be important for implementation of the Blanchard River Watershed TMDL and efforts to address the impairments in the Blanchard River.

#### *Oil and Grease, pH, and E. coli*

Limits proposed for oil and grease, pH, and *E. coli* are based on WQS (OAC 3745-1-07). Class A Primary Contact Recreation *E. coli* standards apply to the Blanchard River. The data for oil and grease was analyzed and the 95<sup>th</sup> percentile for the data set was less than 5 mg/l. The monitoring frequency for oil & grease has been reduced from the current permit to once per two weeks based on best BEJ and in accordance with Ohio EPA guidance

#### *Phosphorus*

The proposed phosphorus limit is the same as the current permit based on provisions of OAC 3745-33-06(C). The limit of 1.0 mg/L is consistent with the approved TMDL. The City's LTCP was complete by 2008 and

monitoring data at the STORET station 50040 located at river mile 55.26 collected since that time has a median value of 0.138 mg/L, which is below the target goal of 0.16 mg/l in the TMDL.

#### *DO, TSS, Ammonia (Winter), and CBOD<sub>5</sub>*

The limits proposed for dissolved oxygen, total suspended solids, ammonia-nitrogen and CBOD<sub>5</sub> are all based on plant design criteria and are a continuation of the current permit limits. These limits are protective of water quality standards. The Ohio EPA risk assessment places Summer Ammonia in Group 5. A new limit has been proposed for summer ammonia and is further discussed below.

#### *Ammonia (Summer)*

The Ohio EPA risk assessment (Table 11) places summer ammonia in group 5. The thirty day average limit and weekly limit for summer ammonia are based on WQS. A compliance schedule for attaining the proposed summer ammonia limit has not been included; the PEQ<sub>avg</sub> and PEQ<sub>max</sub> for summer ammonia are below the proposed limit. The average detected value (0.20 mg/L) and the maximum value (0.85 mg/l) reported for summer ammonia over the five year data analysis period were also below the proposed limit.

#### *Mercury*

The Ohio EPA risk assessment (Table 11) places mercury 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 for summer ammonia and mercury and limits are necessary to protect water quality. For these parameters, the PEQ is greater than 100 percent of the wasteload allocation and certain conditions exist that increase the risk to the environment. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1).

#### *Mercury Variance*

The City of Findlay's permit was modified in 2010 to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from July 2007 through June 2012 and the new application information, the City of Findlay has determined that the facility will not meet the 30-day average permit limit of 1.3 nanograms per liter (ng/l). However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/l. The permittee's application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the City of Findlay is eligible for the mercury variance under OAC Rule 3745-33-07(D)(10)(a).

The City of Findlay submitted information supporting the renewal of the variance. The permittee has performed the following activities to reduce the amount of mercury in the collection system and WWTP:

- Developed and sent questionnaires to all of the dentists that would contribute to the collection system which included American Dental Association (ADA) best management practices for amalgam waste; 20 of 29 facilities responded.
- Developed and sent questionnaires to local schools; all reported that there was no mercury present at their facilities.
- Conducts mercury collection days to collect prescription drugs, thermometers, mercury switches, sphygmomanometers, and any other mercury devices. The WPCC also accepts mercury containing items throughout the year.
- Divided the collection system into 19 separate sewersheds to conduct sampling to identify high levels of mercury. The sewershed with the highest reported concentrations of mercury (26.8 ng/L to 32,000 ng/L) is located near the hospital and includes several medical and dental offices; this sewershed has become the area of concentration for mercury removal efforts including sewer cleaning.
- Conducted city wide department assessments for potential mercury sources and informed employees of the danger of mercury and proper disposal methods.

The calculation of the PEQ<sub>avg</sub> value from July 2007 to June 2012 compared to the PEQ<sub>avg</sub> calculated at the time the original variance was issued shows a reduction from 8.5 ng/L to 5.6 ng/L. The pollutant minimization plan (PMP) schedule developed from the original variance continues to be implemented, and further reductions in mercury may be possible.

Ohio EPA has reviewed the mercury variance application and has determined that the application meets the requirements of the OAC. As a result, the variance is proposed to be issued as a condition in Part II of the NPDES permit, and the following requirements have been incorporated into the draft permit:

- 30-day average limit mercury effluent limit of 5.6 ng/l developed from sampling data submitted by Findlay;
- a requirement that the City of Findlay make reasonable progress to meet the water-quality-based effluent limit for mercury by implementing the plan of study which has been developed as part of the pollutant minimization program;
- influent and effluent monitoring for mercury;
- a requirement that the average annual effluent concentration for mercury is less than or equal to 12 ng/l as specified in the plan of study;
- a summary of the elements of the plan of study;
- a requirement for the City of Findlay to use the most sensitive analytical method approved by U.S. EPA; and
- a requirement that City of Findlay submit a certification to Ohio EPA stating that all required permit conditions for the plan of study have been satisfied once these have been completed. In addition, the certification must state that compliance with the WQBEL for mercury has not been achieved.

#### *Bis(2-ethylhexyl)phthalate, hexavalent chromium, free cyanide, and silver*

The Ohio EPA risk assessment (Table 11) places bis(2-ethylhexyl)phthalate, hexavalent chromium, free cyanide, and silver in group 5, which recommends limits to protect water quality. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants. Bis(2-ethylhexyl)phthalate and hexavalent chromium had two 2 observations above the MDL and cyanide and silver had only one (1) data point above the MDL; a lack of a sufficient amount of data above the MDL indicates the PEQs may not be representative of the actual levels in the plant effluent. The purpose of the proposed monitoring is to collect additional data on the frequency of occurrence and variability of these pollutants in the plant's effluent.

#### *Selenium and Copper*

Ohio EPA risk assessment (Table 11) places selenium and copper 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 Rule 3745-33-07(A)(2).

#### *Cadmium, Total Chromium, Nickel, Zinc, Lead, and TDS*

The Ohio EPA risk assessment (Table 11) places barium, cadmium, chloroform, total chromium, iron, nickel, and zinc in Group 2 and total dissolved solids (TDS), and lead in Group 3. This placement, as well as the data in Tables 1, 2 and 3, support that these parameters do not have reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Based on BEJ, monitoring is proposed to ensure concentrations remain at low levels for the following parameters: cadmium, total chromium, nickel, zinc, lead and TDS (total filterable residue). Only 2 data points were available for TDS, 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 Findlay WWTP effluent.

### *Whole Effluent Toxicity Reasonable Potential*

The City of Findlay conducted both acute and chronic toxicity tests during the past five years, while Ohio EPA conducted screening bioassays in March and May of 2011. Acute toxicity (Table 4) was not observed for either test species, *Ceriodaphnia dubia* or *Pimephales promelas*. Evaluating the chronic toxicity results in Table 5 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, gives a chronic PEQ of 2.4 TU<sub>c</sub> for *C. dubia*. Reasonable potential for toxicity is demonstrated, since this value exceeds the wasteload allocation value of 1.0 TU<sub>c</sub>. Consistent with Procedure 6 and OAC 3745-33-07(B), a monthly average limit of 1.0 TU<sub>c</sub> and a daily maximum limit of 1.0 TU<sub>a</sub> are proposed for *C. dubia*. These proposed limits are the same as the current permit and no interim condition are proposed for the final effluent. For *P. promelas*, no acute or chronic toxicity was observed over the 5 year data period analysis, therefore, the limits for this species have been removed and annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11).

### *801 Station Monitoring*

The list of parameters to monitor at the 801 station has changed to include monitoring requirements for whole effluent toxicity testing. These parameters are proposed to be monitored at the same frequency as Station 001 in accordance with OAC 3754-33-07(B). Nutrient monitoring for total phosphorus and nitrite + nitrate has also been added to Station 801 based on BEJ. The proposed monitoring is to maintain a nutrient data set for use in future water quality studies.

### *901 Station Monitoring*

The list of parameters to monitor at the 901 station has been updated. Monitoring for nitrite + nitrate and phosphorous have been added at a monitoring frequency of 1/month based on BEJ. The proposed monitoring is to maintain a nutrient data set for use in future water quality studies. The list of parameters monitored at station 901 of the current permit was evaluated based on data submitted by the City of Findlay. A reasonable potential analysis was conducted to compare the station 901 data to the WQS values in OAC 3745-33-01. The following parameters had a PEQ less than 25 percent of the WQS (group 2) and were removed from the 901 station in the proposed permit: nickel, silver, zinc, lead, total chromium, cyanide. The name of the 901 station has been changed from "Downstream-Nearfield Monitoring" to "Downstream- Farfield Monitoring".

### *Sludge*

Limits and monitoring requirements proposed for the disposal of sewage sludge by the following management practices are based on OAC 3745-40: removal to sanitary landfill. The previous permit included station 581 for sludge land application; that station has been removed in this permit proposal in accordance with the City of Findlay application.

### Other Requirements

#### *Compliance Schedule*

A six 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.

A 6 month compliance schedule is proposed for the City to submit for acceptance a Long Term Control Plan post-construction monitoring plan. The minimum requirements of the submittal have been listed in Part I, C of the proposed permit. Two status reports have been included for submittal at 18 and 30 months after the effective date of the permit. A compliance schedule for a follow-up Long Term Control Plan Completion Evaluation

Report has also been included for submittal after the Post-Construction Compliance Monitoring Plan has been developed and implemented and is proposed to be submitted 42 months after the effective date of the permit. This report shall be adequate to determine whether the goals for each project or group of projects implemented have been met, to evaluate the performance of each project in the LTCP separately, and to evaluate whether the goals of the LTCP have been achieved system wide (e.g., no more than an average of 4 overflow events per year).

#### *Sanitary Sewer Overflow Reporting*

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

#### *Operator Certification*

Operator certification requirements have been included in Part II, Item A of the permit in accordance with rules adopted in December 2006. These rules require the City of Findlay to have a Class IV wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 2PD00008001.

#### *Operator of Record*

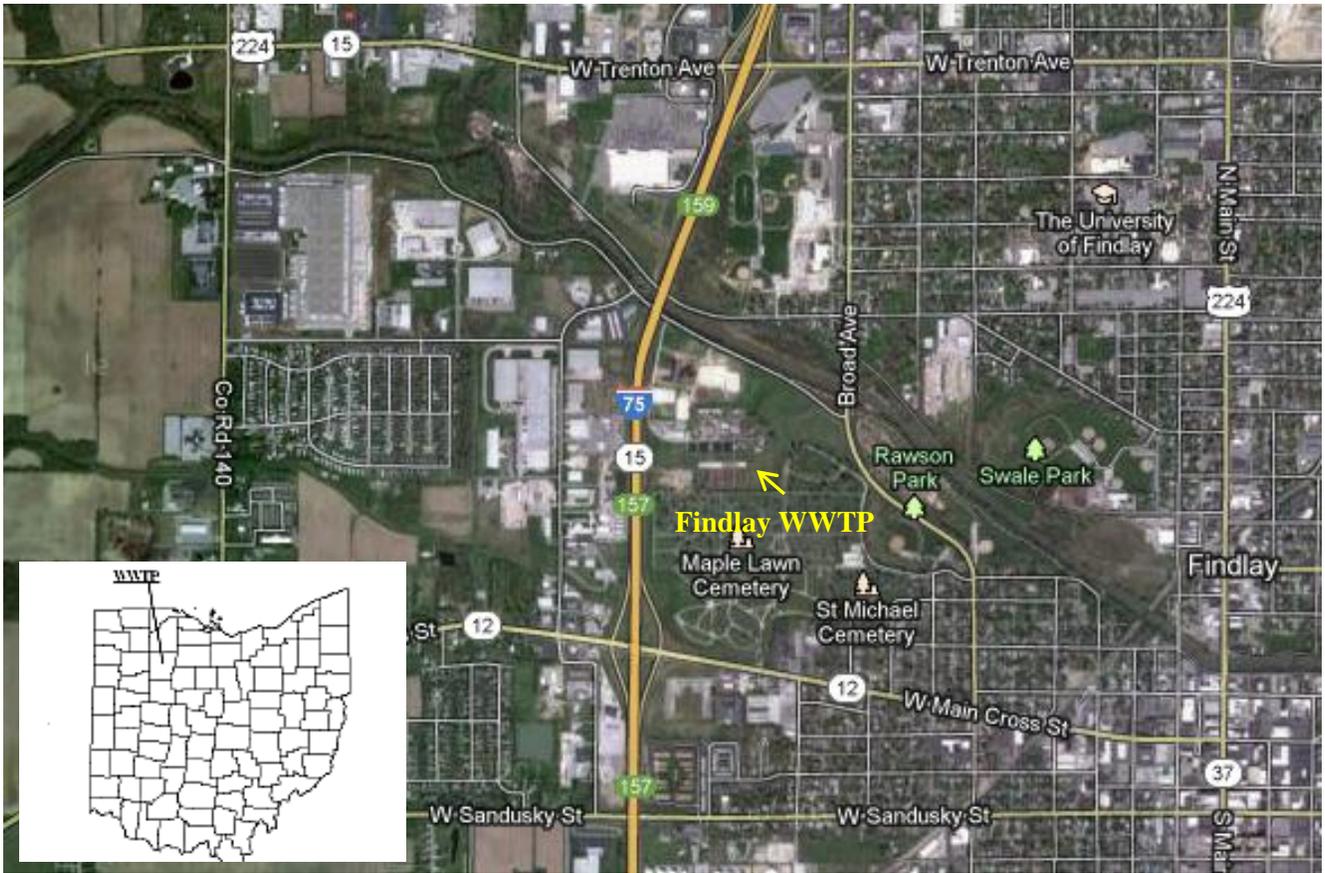
In December 2006, OAC rule revisions became effective that affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A of this NPDES permit is included to implement rule 3745-7-02 of the OAC. It requires the permittee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

#### *Storm Water Compliance*

In order to comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was issued on December 22, 2008 (2GRN00222\*DG). Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than December 22, 2013, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

#### *Outfall Signage*

Part II of the permit includes requirements for the permittee to place a sign at each outfall to the Blanchard River, Howard Run, Dalzell Ditch, Eagle Creek, and Haggerman Run providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).



**Figure 1. Location of Findlay WWTP**

## Division of Surface Water Watershed Assessment Unit Summary

[Back to Ohio River Basin list](#)

### Overview Information

 [Click to view a glossary of terms](#)

Assessment Unit Name: Howard Run-Blanchard River

Hydrologic Unit Code: 04100008 03 04

Assessment Unit Size: 36.3 square miles

Priority Points: 2

Monitoring Scheduled: 2020

TMDL Scheduled: 2023

Land Use Statistics:

Developed	Forest	Grass/Pasture	Row Crops	Other
27.5%	5.8%	2%	63.6%	1%

### Aquatic Life Use Assessment

Reporting Category: 4A

Aquatic Life Uses: WWH

Sampling Years: 2005

Watershed Score: 33.3

Assessment Details:

Headwater Sites <20 sq. mi.	Wading Sites >20 & <50 sq. mi.	Principal Sites >50 & <500 sq. mi.
Sites Assessed: 0	Sites Assessed: 0	Sites Assessed: 6
Sites Attaining: 0	Sites Attaining: 0	Sites Attaining: 2

Most Recent Data:

Year Assessed	Station Name	River Mile	Drainage Area	Aquatic Life Use	Attainment Status
2005	BLANCHARD R. AT FINDLAY @ MAIN ST. (IMPOUNDED)	57.7	335.0	WWH	Non
2005	BLANCHARD R DST LIBERTY ST DAM IN FINDLAY	57.3	336.0	WWH	Partial
2005	BLANCHARD R. AT FINDLAY, JUST UPST. BROAD ST.	56.8	336.0	WWH	Partial
2005	BLANCHARD R. DST. FINDLAY @ CO. RD. 140	55.3	345.0	WWH	Partial
2005	BLANCHARD R @ CR 128 W OF FINDLAY	49.8	378.0	WWH	Full
2005	BLANCHARD R. S OF MCCOMB @ ST. RT. 235	46.5	387.0	WWH	Full



**Figure 2. Blanchard River Watershed Assessment**

Causes of Impairment:

- direct habitat alterations
- nitrate/nitrite (nitrite + nitrate as N)
- nutrient/eutrophication biological indicators
- organic enrichment (sewage) biological indicators
- sedimentation/siltation
- temperature, water

Sources of Impairment:

- combined sewer overflows
- dam or impoundment
- municipal point source discharges
- unspecified urban stormwater
- upstream impoundments

Comments: TMDLs for pollutants impairing designated or recommended aquatic life uses in the Blanchard River basin were approved by U.S. EPA on July 2, 2009. The TMDL report is available at <http://www.epa.ohio.gov/dsw/tmdl/BlanchardRiverTMDL.aspx>. Monitoring in support of the TMDL was conducted in 2005. The monitoring report is available at [http://www.epa.ohio.gov/dsw/document\\_index/psdindx.aspx](http://www.epa.ohio.gov/dsw/document_index/psdindx.aspx) (see Index Number EAS/2007-6-2).

### Recreation Use Assessment

Reporting Category: 4A  
 Assessment Unit Score: 43.8

Assessment Details:			Geometric Mean of <i>E. Coli</i> Samples (colony forming units/100ml)				
Station ID	Station Name	Rec. Use Class	2006	2007	2008	2009	2010
500040	BLANCHARD R. DST. FINDLAY @ CO. RD. 140	Primary A	1202	482	176		710

### Public Drinking Water Supply Assessment

Reporting Category: No active intakes  
 Cause of Impairment: None  
 Nitrate Watch List: No  
 Pesticide Watch List: No

### Fish Tissue Assessment

Reporting Category: 5  
 Causes of Impairment: PCBs  
 PCB Concentration: 58 ppb

**Figure 2. Blanchard River Watershed Assessment (continued)**

**Table 1. Effluent Characterization Using Ohio EPA and Pretreatment Data**

Summary of analytical results for the Findlay WWTP outfall 3PD00008001. Units ug/l unless otherwise noted.

Parameter	OEPA 3/28/2011	OEPA 5/16/2011	PT 2/2/2009	PT 2/1/2010	PT 2/7/2011	PT 9/8/2011
Ammonia (mg/L)	ND	ND	NA	NA	NA	NA
Barium	34	33	NA	NA	NA	NA
Bis(2-ethylhexylphalate)	ND	ND	ND	1.1	ND	ND
BOD	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	ND	ND	ND	ND
Chloride (mg/L)	145	80.2	NA	NA	NA	NA
Chloroform	0.77	0.71	ND	1.9	ND	7.2
Chromium (Total)	ND	ND	ND	ND	ND	ND
Copper	2.9	2.9	23	12	ND	ND
Cyanide (mg/L)	NA	NA	ND	ND	ND	10
Iron	76	99	NA	NA	NA	NA
Mercury (ng/L)	ND	ND	ND	ND	ND	ND
Nickel	4.1	2.8	ND	ND	ND	ND
Nitrite + Nitrate (mg/L)	11.7	5.69	NA	NA	NA	NA
O&G (mg/L)	ND	ND	NA	NA	NA	NA
Phosphorus (mg/L)	0.145	0.15	NA	NA	NA	NA
Selenium	ND	ND	ND	5.1	ND	ND
TDS (mg/L)	714	520	NA	NA	NA	NA
TKN (mg/L)	1.16	0.67	NA	NA	NA	NA
TSS (mg/L)	ND	ND	NA	NA	NA	NA
Zinc	32	13	35	32	50	47

OEPA = data from analyses by Ohio EPA

PT = data from pretreatment program reports

NA = not analyzed

ND = not detected (detection limit)

**Table 2. Effluent Characterization Using Self-Monitoring Data**

Summary of current permit limits and unaltered discharge monitoring report data for the Findlay WWTP outfall 2PD00008001 (July 2007-June 2012). All values are based on annual records unless otherwise indicated. <sup>a</sup> = weekly average

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 <sup>th</sup>	95 <sup>th</sup>		# Obs.	PEQ <sub>avg</sub>	PEQ <sub>max</sub>
<b>Outfall 001</b>											
Water Temperature	Annual	C	Monitor		1827	15.9	22.4	5.1-23.9			
Total Precipitation	Annual	Inches	Monitor		1827	0	0.664	0-4.78			
Dissolved Oxygen	Summer	mg/l	not less than 6.7		918	8.1	8.9	6.7-11.3	608	8.1395	8.7376
	Winter	mg/l	not less than 5.3		907	9.1	10	6.4-10.6	452	9.3886	10.38
Chemical Oxygen Demand (Low Level)	Annual	mg/l	Monitor		131	15	24	3-33	131	17.79	29.056
Residue, Total Dissolved	Annual	mg/l	Monitor		19	653	725	65.5-767	20	724.16	810.72
Total Suspended Solids	Summer	mg/l	18	27 <sup>a</sup>	656	0	6	0-26			
	Winter	mg/l	14	22 <sup>a</sup>	649	0	6	0-76			
Oil and Grease, Hexane Extr Method	Annual	mg/l	not to exceed 10		261	0	0	0-9.75	263	3.0303	4.5224
Nitrogen, Ammonia (NH3)	Summer	mg/l	1.4	2.1 <sup>a</sup>	656	0	0.16	0-0.85	438	0.0858	0.19611
	Winter	mg/l	4.2	6.3 <sup>a</sup>	649	0	0.126	0-0.83	324	0.10693	0.15584
Nitrogen, Nitrite (NO2)	Annual	mg/l	Monitor		1305	0.02	0.18	0-1.01	1305	0.096271	0.20673
Nitrogen, Nitrate (NO3)	Annual	mg/l	Monitor		1305	12.4	18.3	1.01-22.6	1305	14.148	22.376
Nitrogen Kjeldahl, Total	Annual	mg/l	Monitor		48	0	2.58	0-16.3	50	8.2651	8.5925
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5 <sup>a</sup>	1305	0.35	0.88	0-1.23	1307	0.53222	1.0327
Cyanide, Free	Annual	mg/l	Monitor		30	0	0	0-0	31	0.00876	0.012
Selenium, Total Recoverable	Annual	ug/l	Monitor		48	0	0	0-0	51	3.723	5.1
Nickel, Total Recoverable	Annual	ug/l	Monitor		62	0	0	0-12	64	8.76	12
Silver, Total Recoverable	Annual	ug/l	Monitor		45	0	0	0-1.7	45	1.365	1.87
Strontium, Total	Annual	ug/l	Monitor		53	2540	2830	1650-2910	55	2779.9	3109
Zinc, Total Recoverable	Annual	ug/l	Monitor		62	30.5	51	11-59	68	46.093	62.552
Cadmium, Total Recoverable	Annual	ug/l	Monitor		30	0	0	0-0	32	--	--
Lead, Total Recoverable	Annual	ug/l	Monitor		62	0	0	0-14	64	10.22	14
Chromium, Total Recoverable	Annual	ug/l	Monitor		30	0	0	0-11	31	9.636	13.2
Copper, Total Recoverable	Annual	ug/l	Monitor		77	0	12.2	0-74	80	14.202	16.728
Chromium, Dissolved Hexavalent	Annual	ug/l	Monitor		61	0	0	0-21	61	15.34	21.02
E. coli	Annual	#/100 ml	126	284 <sup>a</sup>	175	24	266	0-2420			
Bis(2-ethylhexyl) Phthalate	Annual	ug/l	Monitor		16	0	11.4	0-45.5	19	46.5	63.7

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 <sup>th</sup>	95 <sup>th</sup>		# Obs.	PEQ <sub>avg</sub>	PEQ <sub>max</sub>
Flow Rate	Annual	MGD	Monitor		1827	9.31	26.3	5.32-36.4			
Mercury, Total (Low Level)	Annual	ng/l	8.5	1700	62	1.33	7.98	0-9.6	64	5.5695	8.7987
pH, Maximum	Annual	S.U.	--	9	1827	7.3	7.7	6.8-8.3			
pH, Minimum	Annual	S.U.	--	6.5	1827	7.2	7.5	6.6-7.9			
CBOD 5 day	Summer	mg/l	13	20 <sup>a</sup>	654	2	3.35	0-7	437	2.426	3.6178
	Winter	mg/l	10	15 <sup>a</sup>	648	2	3	0-7	324	3.066	4.2

<sup>a</sup> = weekly average

**Table 3. Effluent Data for the City of Findlay WWTP**

<b>Parameter</b>	<b>Units</b>	<b>Number of Samples</b>	<b>Number &gt; MDL</b>	<b>PEQ Average</b>	<b>PEQ Maximum</b>
Ammonia-S	mg/l	438	65	0.0858	0.19611
Ammonia-W	mg/l	324	21	0.10693	0.15584
Barium	ug/l	7	7	49.64	68
Bis(2-ethylhexyl)phthalate	ug/l	19	2	46.501	63.7
Cadmium - TR	ug/l	32	0	--	--
Chlorides	mg/l	2	2	402.23	551
Chloroform (Trichloromethane)	ug/l	4	4	13.6656	18.72
Chromium - TR	ug/l	31	1	9.636	13.2
Chromium VI - Diss	ug/l	61	2	15.3446	21.02
Copper - TR	ug/l	80	11	14.202	16.728
Cyanide - free	mg/l	33	1	0.00876	0.012
Dissolved solids (ave)	mg/l	20	20	724.16	810.72
Iron - TR	ug/l	2	2	274.626	376.2
Lead - TR	ug/l	64	3	10.22	14
Mercury - TR (BCC)	ng/l	64	60	5.5695	8.7987
Nickel - TR	ug/l	64	5	8.76	12
Nitrate-N + Nitrite-N	mg/l	1305	1305	14.148	22.376
Nitrite-N	mg/l	1305	937	0.096271	0.20673
Phosphorus	mg/l	1307	1306	0.53222	1.0327
Selenium - TR	ug/l	51	1	3.723	5.1
Silver (wwh,ewh,mwh)	ug/l	45	1	1.3651	1.87
Strontium	ug/l	55	55	2779.9	3109
TKN	mg/l	50	13	8.2651	8.5925
Zinc - TR	ug/l	68	68	46.093	62.552

**Table 4. Summary of Acute Toxicity Testing Data**

Date	Test Conducted by	Test Species: Ceriodaphnia dubia (TUa)	Test Species: Pimephales promelas (TUa)
10/12/2007	Findlay	AA	AA
4/18/2008	Findlay	AA	AA
10/6/2008	Findlay	AA	AA
4/6/2009	Findlay	AA	AA
10/5/2009	Findlay	AA	AA
4/5/2010	Findlay	AA	AA
10/4/2010	Findlay	AA	AA
3/28/2011	Ohio EPA	0*	0*
4/8/2011	Findlay	AA	AA
5/16/2011	Ohio EPA	0*	0*
10/14/2011	Findlay	AA	AA
4/13/2012	Findlay	AA	AA

Data analyzed: July 2007-June 2012

AA - below detection

\*acute screening test results shown as % affected

**Table 5. Summary of Chronic Toxicity Testing Data**

Date	Test Conducted by	Test Species: Ceriodaphnia dubia (TUC)	Test Species: Pimephales promelas (TUC)
10/12/2007	Findlay	1.1	AA
4/18/2008	Findlay	AA	AA
10/6/2008	Findlay	AA	AA
4/6/2009	Findlay	AA	AA
10/5/2009	Findlay	AA	AA
4/5/2010	Findlay	AA	AA
10/4/2010	Findlay	1.4	AA
4/8/2011	Findlay	AA	AA
10/14/2011	Findlay	AA	AA
4/13/2012	Findlay	AA	AA

Data analyzed: July 2007-June 2012

AA – below detection

**Table 6. Combined Sewer Overflow Data Summary**

Parameter	Year					
	2007	2008	2009	2010	2011	2012
Annual Overflow Occurrences	0	1	4	0	8	6
Annual Overflow Volume (MG)	0	0.46	2.1	0	4.7	3.7

Data analyzed: July 2007-June 2012

MG – million gallons

**Table 7. Aquatic Life Use Attainment Status: Blanchard River Near Findlay**

River Mile	IBI	MIwb <sup>a</sup>	ICI <sup>b</sup>	QHEI	Attainment <sup>c</sup>				
<i>WWH – Eastern Corn Belt Plains Ecoregion</i>									
57.8 / 57.9	36*	9.7	12*	46.0	NON				
Causes of impairment - Thermal modification, organic enrichment/DO, development related direct habitat alteration, siltation Sources of impairment - Dam construction, urban runoff, combined sewer overflows									
57.3	42	10.1	24*	63.0	Partial				
Causes of impairment - Thermal modification, nutrients, organic enrichment/DO Sources of impairment - Upstream impoundment, urban runoff, combined sewer overflows									
56.9 / 56.8	38 <sup>ns</sup>	9.3	16*	56.5	Partial				
Causes of impairment - Thermal modification, nutrients, development related direct habitat alteration Sources of impairment - Upstream impoundment, urban runoff, combined sewer overflows, channelization									
55.2 / 54.7	36*	7.6*	42	54.5	Partial				
Causes of impairment - Nutrients, organic enrichment/DO, thermal modification Sources of impairment - Upstream impoundment, major municipal point source (Findlay)									
<i>WWH – Huron Erie Lake Plains Ecoregion</i>									
49.8	38	9.7	46	61.5	Full				
46.5	39	9.7	44	65.5	Full				
Ecoregion Biocriteria: Eastern Corn Belt Plain									
Site Type	IBI			MIwb			ICI		
	WWH	EWH	MWH	WWH	EWH	MWH	WWH	EWH	MWH
Headwaters	40	50	24				36	46	22
Wading	40	50	24	8.3	9.4	4.0	36	46	22
Boat	42	48	24	8.5	9.6	4.0	36	46	22
Ecoregion Biocriteria: Huron Erie Lake Plain									
Site Type	IBI			MIwb			ICI		
	WWH	EWH	MWH	WWH	EWH	MWH	WWH	EWH	MWH
Headwaters	28	50	20				34	46	22
Wading	32	50	20	7.3	9.04	5.6	34	46	22
Boat	34	48	20	8.6	9.6	5.7	34	46	22

Assessment scores: The Index of Biotic Integrity (IBI), Modified Index of well being (MIwb), and Invertebrate Community Index (ICI) are scores based on the performance of the biotic community. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support a biotic community.

a- MIwb is not applicable to headwater streams with drainage areas < 20 mi<sup>2</sup>.

b- A narrative evaluation of the qualitative sample based on attributes such as community composition, EPT taxa richness, and number of sensitive taxa was used when quantitative data were not available or considered unreliable.

c- Attainment status based on a single organism group is parenthetically expressed. ID = insufficient data to meet credible data requirements.

ns- Nonsignificant departure from biocriteria (<4 IBI or ICI units, or <0.5 MIwb units).

\* - Indicates significant departure from applicable biocriteria (>4 IBI or ICI units, or >0.5 MIwb units). Underlined scores are in the Poor or Very Poor range.

**Table 8. Water Quality Criteria in the Study Area**

Parameter	Units	Outside Mixing Zone Criteria					Maximum Aquatic Life	Inside Mixing Zone Maximum
		Average						
		Wildlife	Human Health	Agri-culture	Aquatic Life			
Ammonia-S	mg/l	--	--	--	0.9	--	--	
Ammonia-W	mg/l	--	--	--	4	--	--	
Barium	ug/l	--	160000	--	220	2000	4000	
Bis(2-ethylhexyl)phthalate	ug/l	--	32c	--	8.4	1100	2100	
Cadmium - TR	ug/l	--	730	50	5.4	14	28	
Chlorides	mg/l	--	--	--	--	--	--	
Chloroform	ug/l	--	1700c	--	140	1300	2600	
Chromium - TR	ug/l	--	14000	100	200	4100	8300	
Chromium VI - Diss	ug/l	--	14000	--	11	16	31	
Copper - TR	ug/l	--	64000	500	22	36	73	
Cyanide - free	mg/l	--	48	--	0.0052	0.022	0.044	
Dissolved solids (ave)	mg/l	--	--	--	1500	--	--	
Iron - TR	ug/l	--	--	5000	--	--	--	
Lead - TR	ug/l	--	--	100	23	440	890	
Mercury - TR (BCC)	ng/l	1.3	3.1	10000	910	1700	3400	
Nickel - TR	ug/l	--	43000	200	120	1100	2200	
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--	
Nitrite-N	mg/l	--	--	--	--	--	--	
Phosphorus	mg/l	--	--	--	--	--	--	
Selenium - TR	ug/l	--	3100	50	5	--	--	
Silver (wwh,ewh,mwh)	ug/l	--	11000	--	1.3	9.1	18	
Strontium	ug/l	--	1400000	--	21000	40000	81000	
TKN	mg/l	--	--	--	--	--	--	
Zinc - TR	ug/l	--	35000	25000	280	280	560	

**Table 9. Summary of Effluent Limits to Maintain Applicable WQ Criteria**

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum Aquatic Life	
		Wildlife	Human Health	Agri-culture	Aquatic Life		
Ammonia-S	mg/l	--	--	--	0.91	--	--
Ammonia-W	mg/l	--	--	--	--	--	--
Barium	ug/l	--	163171	--	220	2014	4000
Bis(2-ethylhexyl)phthalate	ug/l	--	33	--	8.4	1108	2100
Cadmium - TR	ug/l	--	744	51	5.4	14	28
Chlorides	mg/l	--	--	--	--	--	--
Chloroform	ug/l	--	1734	--	140	1310	2600
Chromium - TR	ug/l	--	14278	102	200	4130	8300
Chromium VI - Diss	ug/l	--	14278	--	11	16	31
Copper - TR	ug/l	--	65269	510	22	36	73
Cyanide - free	mg/l	--	49	--	0.0052	0.022	0.044
Dissolved solids (ave)	mg/l	--	--	--	1502	--	--
Iron - TR	ug/l	--	--	5093	--	--	--
Lead - TR	ug/l	--	--	102	23	443	890
Mercury - TR (BCC)	ng/l	1.3	3.1	10000	910	1700	3400
Nickel - TR	ug/l	--	43853	204	120	1108	2200
Nitrate-N + Nitrite-N	mg/l	--	--	102	--	--	--
Nitrite-N	mg/l	--	--	--	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Selenium - TR	ug/l	--	3161	51	5	--	--
Silver (wwh,ewh,mwh)	ug/l	--	11218	--	1.3	9.2	18
Strontium	ug/l	--	1427663	--	21037	40258	81000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	35694	25496	281	282	560

**Table 10. Instream Conditions and Discharger Flow**

Parameter	Units	Season	Value	Basis
<i>Stream Flows</i>				
1Q10	cfs	annual	0.17	USGS Gages 04188300 and 04189000
7Q10	cfs	annual	0.21	USGS Gages 04188300 and 04189000
		summer	0	
		winter	0	
30Q10	cfs	summer	0.31	USGS Gages 04188300
		winter	1.24	USGS Gages 04188300
90Q10	cfs	annual	0	
Harmonic Mean	cfs	annual	1.84	USGS Gages 04188300 and 04189000
Mixing Assumption	%	average	25	
	%	maximum	100	
<i>Hardness</i>	mg/l	annual	275	Station 901, n=59, 50th percentile
<i>pH</i>	S.U.	summer	8.025	Station 901, n=20, 75th percentile
		winter	7.9	Station 901, n=15, 75th percentile
<i>Temperature</i>	C	summer	23.025	Station 901, n=20, 75th percentile
		winter	4.1	Station 901, n=15, 75th percentile
<i>City of Findlay WPCF flow</i>	cfs	annual	23.2	DSW
<i>Background Water Quality</i>				
Ammonia-S	mg/l		0	DMR Data; 2007-2012; n=20; 17<MDL; 801 Station; 50th percentile
Ammonia-W	mg/l		0.11	DMR Data; 2007-2012; n=15; 7<MDL; 801 Station; 50th percentile
Barium	ug/l		68.5	STORET; 2005-2006; n=; <MDL; STORET; 50th percentile
Bis(2-ethylhexyl)phthalate	ug/l		0	No representative data available.
Cadmium - TR	ug/l		0	STORET; 2005-2005; n=22; 0<MDL; STORET; 50th percentile
Chlorides	mg/l		39.85	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
Chloroform (Trichloromethane)	ug/l		0	No representative data available.
Chromium - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Chromium VI - Diss	ug/l		0	No representative data available.

Parameter	Units	Season	Value	Basis
Copper - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Cyanide - free	mg/l		0	No representative data available.
Dissolved solids (ave)	mg/l		405	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
Iron - TR	ug/l		326.5	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
Lead - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Mercury - TR (BCC)	ng/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Nickel - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Nitrate-N + Nitrite-N	mg/l		0.755	STORET; 2005-2006; n=22; 19<MDL; STORET; 50th percentile
Nitrite-N	mg/l		0.024	STORET; 2005-2006; n=22; 13<MDL; STORET; 50th percentile
Phosphorus	mg/l		0.0715	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
Selenium - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile
Silver (wwh,ewh,mwh)	ug/l		0	No representative data available.
Strontium	ug/l		4830	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
TKN	mg/l		0.69	STORET; 2005-2006; n=22; 22<MDL; STORET; 50th percentile
Zinc - TR	ug/l		0	STORET; 2005-2006; n=22; 0<MDL; STORET; 50th percentile

**Table 11. Parameter Assessment**

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

Chlorides  
TKN

Nitrite-N

Phosphorus

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

Barium  
Chromium - TR  
Strontium

Cadmium - TR  
Iron - TR  
Zinc - TR

Chloroform (Trichloromethane)  
Nickel - TR

Group 3: PEQ<sub>max</sub> < 50 percent of maximum PEL and PEQ<sub>avg</sub> < 50 percent of average PEL.  
No limit recommended; monitoring optional.

Dissolved solids (ave)

Lead - TR

Nitrate-N + Nitrite-N

Group 4: PEQ<sub>max</sub> >= 50 percent, but < 100 percent of the maximum PEL or  
PEQ<sub>avg</sub> >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Copper - TR

Selenium - TR

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

Parameter	Units	Period	Recommended Effluent Limits	
			Average	Maximum
Ammonia-S	mg/l		0.91	--
Bis(2-ethylhexyl)phthalate	ug/l		8.4	1108
Chromium VI - Diss	ug/l		11	16
Cyanide - free	mg/l		0.0052	0.022
Mercury - TR (BCC)	ng/l		1.3	1700
Silver (wwh,ewh,mwh)	ug/l		1.3	9.2

**Table 12. Final Effluent Limits for the Findlay WWTP**

Parameter	Units	Effluent Limitations				Basis <sup>b</sup>
		Concentration		Loading (kg/day) <sup>a</sup>		
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Temperature	°C	----- Monitor -----				M <sup>d</sup>
Flow	MGD	----- Monitor -----				M <sup>d</sup>
Total Precipitation						
Dissolved Oxygen						
Summer	mg/l	----- Not less than 6.7 -----				EP, PD
Winter	mg/l	----- Not less than 5.3 -----				EP, PD
Suspended Solids	mg/l					
Summer		14	22 <sup>c</sup>	795	1250 <sup>c</sup>	EP,PD
Winter	mg/l	18	27 <sup>c</sup>	1030	1540 <sup>c</sup>	EP,PD
pH	S.U.	----- -6.5 to 9.0-----				WQS, EP
Total Filterable Residue (Dissolved Solids)	mg/l	----- Monitor -----				M <sup>d</sup>
CBOD <sub>5</sub>	mg/l					
Summer		10	15 <sup>c</sup>	568	852 <sup>c</sup>	EP, PD
Winter		13	20 <sup>c</sup>	739	1140 <sup>c</sup>	EP, PD
Oil and Grease	mg/l	----- Not to exceed 10-----				WQS, EP
Ammonia-N	mg/l					
Summer		0.91	1.4 <sup>c</sup>	51.7	79.5 <sup>c</sup>	WQS, WLA
Winter		4.2	6.3 <sup>c</sup>	239	358 <sup>c</sup>	EP, PD
Total Kjeldahl-N	mg/l	----- Monitor -----				M <sup>d</sup>
Nitrite(N) + Nitrate(N)	mg/l	----- Monitor -----				M <sup>d</sup>
Phosphorus, Total	mg/l	1.0	1.5 <sup>c</sup>	56.8	85.2 <sup>c</sup>	PT
Cyanide, Free	mg/l	----- Monitor -----				RP, BEJ
Nickel, T. R.	µg/l	----- Monitor -----				RP, M <sup>d</sup>
Selenium	µg/l	----- Monitor -----				RP
Silver, T. R.	µg/l	----- Monitor -----				RP
Zinc, T. R.	µg/l	----- Monitor -----				RP, M <sup>d</sup>
Cadmium, T. R.	µg/l	----- Monitor -----				RP, M <sup>d</sup>
Lead, T. R.	µg/l	----- Monitor -----				RP, M <sup>d</sup>
Chromium, T. R.	µg/l	----- Monitor -----				RP, M <sup>d</sup>
Copper, T. R.	µg/l	----- Monitor -----				RP
Cr <sup>6+</sup> (Dissolved)	µg/l	----- Monitor -----				RP, BEJ
<i>E. coli</i>						
Summer Only	#/100ml	126	284 <sup>c</sup>			WQS
Bis(2-ethylhexyl) phthalate	µg/l	----- Monitor -----				RP, BEJ
Mercury, T.	ng/l	5.6	1700	0.000318	0.0966	WQS(maximum), VAR (average)
Whole Effluent Toxicity						
Acute ( <i>C. dubia</i> )	TU <sub>a</sub>	--	1.0	--	--	WET
Chronic ( <i>C. dubia</i> )	TU <sub>c</sub>	1.0	--	--	--	WET

<sup>a</sup> Effluent loadings based on average design discharge flow of 15 MGD.

<sup>b</sup> Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; PT = Phosphorus treatment required under OAC 3745-33-06(C); RP = Reasonable Potential for

requiring water quality-based effluent limits and monitoring requirements in NPDES permits [OAC 3745-33-07(A)]; VAR = mercury variance-based limits, OAC 3745-33-07(D)(10); WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]  
Requiring water quality-based effluent limits and monitoring requirements for whole effluent toxicity in NPDES permits [40 CFR Part 132, Appendix F, Procedure 6 and OAC 3745-33-07(B)]; WLA = Wasteload Allocation procedures (OAC 3745-2); WQS = Ohio Water Quality Standards (OAC 3745-1-07).

<sup>c</sup> Weekly average limit.

<sup>d</sup> Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance