

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

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

Public Notice No.: 15-03-041
Public Notice Date: March 18, 2015
Comment Period Ends: April 18, 2015

Ohio EPA Permit No.: **2PH00006*JD**
Application No.: **OH0037338**

Name and Address of Applicant:

Allen County Board of Commissioners
3230 North Cole Street
Lima, Ohio 45801

Name and Address of Facility Where
Discharge Occurs:

American II WWTP
4140 Diller Road
Lima, Ohio 45807
Allen County

Receiving Water: Dug Run

Subsequent Stream Network: Ottawa River, Auglaize River, Maumee River, Maumee Bay, 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 (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 CWA. Many of these have already been established by the United States Environmental Protection Agency (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works (POTWs) 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 effluent limits (WQBELs) 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 WQBELs is determined by comparing the WLA for a pollutant to a measure of the effluent quality. The measure of effluent quality is called Projected Effluent Quality (PEQ). This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

Summary of Permit Conditions

The effluent limits and monitoring requirements proposed for the following parameters are the same as in the current permit, although some monitoring frequencies have changed: flow, temperature, dissolved oxygen, 5-day carbonaceous biochemical oxygen demand (CBOD₅), *Escherichia coli* (*E. coli*), total suspended solids, ammonia, total phosphorus, nitrite+nitrate, oil and grease, pH, cadmium, chromium, dissolved hexavalent chromium, copper, lead, mercury, nickel and zinc.

Limits for mercury are proposed to continue from the current permit. In order to comply with mercury limits, the permittee has applied for coverage under the general mercury variance, Rule 3745-33-07(D)(10) of the Ohio Administrative Code (OAC). Based on the results of low-level mercury monitoring, the permittee has determined that its wastewater treatment plant cannot meet the 30-day average WQBEL of 1.3 nanograms per liter (ng/L).

New monthly monitoring is proposed for dissolved orthophosphate (as P). This monitoring is required by Ohio Senate Bill 1, which was signed by the Governor on April 2, 2015. Monitoring for orthophosphate is proposed to further develop nutrient datasets for dissolved reactive phosphorus and to assist stream and watershed assessments and studies. Ohio EPA monitoring, as well as other in-stream monitoring, is taken via grab sample, orthophosphate is proposed to be collected by grab sample to maintain consistent data to support watershed and stream surveys. Monitoring will be done by grab sample, which must be filtered within 15 minutes of collection using a 0.45-micron filter. The filtered sample must be analyzed within 48 hours.

Based on the levels at which they were detected in the plant's effluent, new monitoring requirements are being proposed for diethyl phthalate and total filterable residue (total dissolved solids).

Final effluent limits will continue for *Escherichia coli*. The *E. coli* limits are based on new Ohio WQS that became effective on March 15, 2010.

Upstream and downstream monitoring for nutrients (phosphorus and nitrite+nitrate) have been added to stations 2PH00006801 and 2PH00006901.

Annual chronic toxicity monitoring with the determination of acute endpoints 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 sanitary sewer overflow reporting; operator certification; minimum staffing and operator of record; storm water compliance; WET and outfall signage.

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Procedures for Participation in the Formulation of Final Determinations

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

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

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

**Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049**

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

**Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049**

The Ohio EPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

For additional information about this fact sheet or the draft permit, contact Elizabeth Buening, (614) 644-2138, Elizabeth.buening@epa.ohio.gov.

Information Regarding Certain Water Quality Based Effluent Limits

This draft permit may contain proposed water quality based effluent limitations (WQBELs) for parameters that **are not** priority pollutants. (See the following link for a list of the priority pollutants: http://epa.ohio.gov/portals/35/pretreatment/Pretreatment_Program_Priority_Pollutant_Detection_Limits.pdf.) In accordance with ORC 6111.03(J)(3), the Director established these WQBELs after considering, to the extent consistent with the Federal Water Pollution Control Act, evidence relating to the technical feasibility and economic reasonableness of removing the polluting properties from those wastes and to evidence relating to conditions calculated to result from that action and their relation to benefits to the people of the state and to accomplishment of the purposes of this chapter. This determination was made based on data and information

available at the time the permit was drafted, which included the contents of the timely submitted NPDES permit renewal application, along with any and all pertinent information available to the Director.

This public notice allows the permittee to provide to the Director for consideration during this public comment period additional site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness for achieving compliance with the proposed final effluent limitations for these parameters. The permittee shall deliver or mail this information to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049

Should the applicant need additional time to review, obtain or develop site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness of achieving compliance with these limitations, written notification for any additional time shall be sent to the above address no later than 30 days after the Public Notice Date on Page 1.

Should the applicant determine that compliance with the proposed WQBELs for parameters other than the priority pollutants is technically and/or economically unattainable, the permittee may submit an application for a variance to the applicable WQS used to develop the proposed effluent limitation in accordance with the terms and conditions set forth in Ohio Administrative Code (OAC) 3745-33-07(D). The permittee shall submit this application to the above address no later than 30 days after the Public Notice Date.

Alternately, the applicant may propose the development of site-specific WQS pursuant to OAC Rule 3745-1-35. The permittee shall submit written notification regarding their intent to develop site specific WQS for parameters that are not priority pollutants to the above address no later than 30 days after the Public Notice Date.

Location of Discharge/Receiving Water Use Classification

The American II WWTP discharges to Dug Run at River Mile (RM) 3.10. Figure 1 shows the approximate location of the facility.

This segment of Dug Run is described by Ohio EPA River Code: 04-210, U.S. EPA River Reach #: 04100007-040, County: Allen, Ecoregion: Eastern Corn Belt Plains. Dug Run is designated for the following uses under Ohio's WQS OAC 3745-1-11): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class B Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric WQS are developed to protect these uses. Different uses have different water quality criteria.

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

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (PCR) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for AWS and IWS.

Facility Description

The American II WWTP serves American Township. The plant was originally constructed in 1974 with an average daily design flow 0.8 million gallons per day (MGD). In 2008 the facility completed major upgrades and changes to the facility and now has an average daily design flow 1.2 MGD.

Wet stream processes are comminution, influent pumping, fine screening, grit removal, sequencing batch reactors, alum addition, post aeration and ultraviolet disinfection.

Sludge processes include rotary drum thickening cannibal solids reduction processes, aerobic digestion, gravity thickening, polymer addition, and disposal of stabilized sludge by land application at agronomic rates. Currently, all of the sludge gets sent to another NPDES holder such as Lima WWTP and Haviland Energy LLC.

The wastewater collection system consists of 100 percent sanitary sewers. There are 8 lift stations on the sanitary system. The American II WWTP reports SSO occurrences under Station 300 in its NPDES permit. During the period of the previous permit cycle, the WWTP reported 3 SSOs in 2011.

The American II WWTP does not have any industrial users nor implements an Ohio EPA-approved industrial pretreatment program.

Description of Existing Discharge

Table 1 presents chemical specific data compiled from the data collected by Ohio EPA.

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 2PH00006001. Data are presented for the period November 2009 through October 2014, and current permit limits are provided for comparison.

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

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

Assessment of Impact on Receiving Waters

According to the *Total Maximum Daily Loads (TMDL) for the Ottawa River (Lima Area) Watershed, Draft Report* (Ohio EPA Division of Surface Water), the size of the drainage area, Dug Run was only assessed at one site located near the mouth (RM 0.19). The results from the monitoring indicate warmwater habitat as the appropriate aquatic life use designation, and the site was in full biological attainment. In addition, the Ottawa River downstream of the confluence with Dug Run was also in full attainment.

The Ottawa River TMDL report is available at the following internet site:

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

Self-monitoring data (DMR)	November 2009 through October 2014
Ohio EPA compliance sampling data	2013

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 Tables 1 and 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	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
Wildlife		Annual 90Q10
AWS		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 6, and allocations cannot exceed the Inside Mixing Zone Maximum (IMZM) criteria.

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. The current ammonia limits have been evaluated using the WLA procedures and are protective of WQS for ammonia toxicity.

Whole Effluent Toxicity WLA

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

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

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For the American II WWTP, the WLA values are 0.4 TU_a and 1.10 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 (IC₂₅):

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

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

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

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

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

This equation applies outside the mixing zone for warmwater, modified warmwater, EWH, 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 American II WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1.3 to 1. This ratio calculation is based on design effluent flow of 1.86 cfs plus the 1Q10 flow of 0.59 cfs over 1.86 cfs.

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 7. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 3, and the PEL_{max} is compared to the PEQ_{max} . Based on the calculated percentage of the allocated value [$(PEQ_{avg} \div PEL_{avg}) \times 100$, or $(PEQ_{max} \div PEL_{max}) \times 100$], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 8.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 9 presents the final effluent limits and monitoring requirements proposed for the American II WWTP outfall 2PH00006001 and the basis for their recommendation. Unless otherwise indicated, the monitoring frequencies proposed in the permit are continued from the existing permit.

Mercury

The Ohio EPA risk assessment (Table 8) places Mercury in group 5. This placement as well as the data in Tables 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 and certain conditions exist that increase the risk to the environment. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1).

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 1.3 ng/L (average) and 1700 ng/L (maximum) in the Lake Erie basin.

Renewal of Mercury Variance

The American II WWTP permit was renewed in September 14, 2011 to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from November 2009 through October 2014, and the new application information, the American II WWTP has determined that the facility will not meet the 30-day average permit limit of 1.3 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 American II WWTP is eligible for the mercury variance under OAC 3745-33-07(D)(10)(a).

The American II WWTP submitted information supporting the renewal of the variance. The permittee found sources of mercury from dental offices and one collection system sub-basin and will work with these entities to reduce the amount of mercury being discharged. The calculation of the average PEQ value from November 2009 through October 2014 compared to the average PEQ calculated at the time the original variance was issued shows a decrease from 4.5 ng/L to 2.9 ng/L. The PMP schedule developed from the original variance continues to be implemented, and reductions in mercury may be possible.

Diethyl phthalate and Total Filterable Residue

The Ohio EPA risk assessment (Table 8) places diethyl phthalate and total filterable residue 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. The PEQ values calculated for places diethyl phthalate and total filterable residue (Table 3) may not be representative of its actual levels in the plant effluent because they were each based a single value from the Ohio EPA compliance sampling data. 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.

Copper and Dissolved Hexavalent Chromium

Ohio EPA risk assessment (Table 8) places copper and dissolved hexavalent chromium in group 4. This placement, as well as the data in Tables 2 and 3 supports 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). Monitoring for copper increased in this permit.

Metals and Nitrite+Nitrate

Ohio EPA risk assessment (Table 8) places cadmium, chromium, lead, nickel, nitrite+nitrate and zinc in groups 2 and 3. This placement as well as the data in Tables 2 and 3 supports that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at the current frequency is proposed to document that these pollutants continue to remain at low levels.

Phenol, Chloroform and Strontium

Ohio EPA risk assessment (Table 8) places phenol, chloroform and strontium in group 2. These placements as well as the data in Tables 2 and 3 supports that these parameters do not have the reasonable potential to contribute to WQS exceedances, limits and monitoring are not necessary to protect water quality.

Dissolved Oxygen, Total Suspended Solids, Ammonia and CBOD₅

The limits proposed for dissolved oxygen, total suspended solids, ammonia and CBOD₅ are all based on plant design criteria. These limits are protective of WQS.

Oil and grease, pH, and Escherichia coli

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

Total Phosphorus

Phosphorus is limited based on provisions of OAC 3745-33-06(C).

Dissolved Orthophosphate

New monthly monitoring is proposed for dissolved orthophosphate (as P). This monitoring is required by Ohio Senate Bill 1, which was signed by the Governor on April 2, 2015. Monitoring for orthophosphate is proposed to further develop nutrient datasets for dissolved reactive phosphorus and to assist stream and watershed assessments and studies. Ohio EPA monitoring, as well as other in-stream monitoring, is taken via grab sample, orthophosphate is proposed to be collected by grab sample to maintain consistent data to support watershed and stream surveys. Monitoring will be done by grab sample, which must be filtered within 15 minutes of collection using a 0.45-micron filter. The filtered sample must be analyzed within 48 hours.

Sludge

Limits and monitoring requirements proposed for the disposal of sewage sludge by the following management practices are based on OAC 3745-40: land application, removal to sanitary landfill or transfer to another facility with an NPDES permit.

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.

Whole Effluent Toxicity Reasonable Potential

The *C. dubia* data in 2012 was taken out of the reasonable potential analysis because the result was not representative due to the upstream sample used for the make-up water being highly nutrient enriched. This enrichment interfered with the results of the effluent toxicity testing. To get more representative data in the future, the permit includes a requirement to use lab water as their primary control for the toxicity monitoring.

Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. Evaluating the toxicity data presented in Table 4 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6 does not show reasonable potential with respect to WET. While this indicates that the plant's effluent does not currently pose a toxicity problem, annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11). The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Other Requirements

Sanitary Sewer Overflow Reporting

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

Operator Certification

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

Operator of Record

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

Storm Water Compliance

In order to comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was authorized by the Ohio EPA on December 16, 2014. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than December 16, 2019, 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 maintain a sign at outfall 001 to Dug Run providing information about the discharge. Signage at outfall 001 is required pursuant to OAC 3745-33-08(A).

Phosphorus Optimization

The permittee shall prepare and submit a Phosphorus Discharge Optimization Evaluation plan to Ohio EPA Northwest District Office. The plan shall be completed and submitted to Ohio EPA no later than 12 months from the effective date of this permit. Details are in Part I.C of the permit.

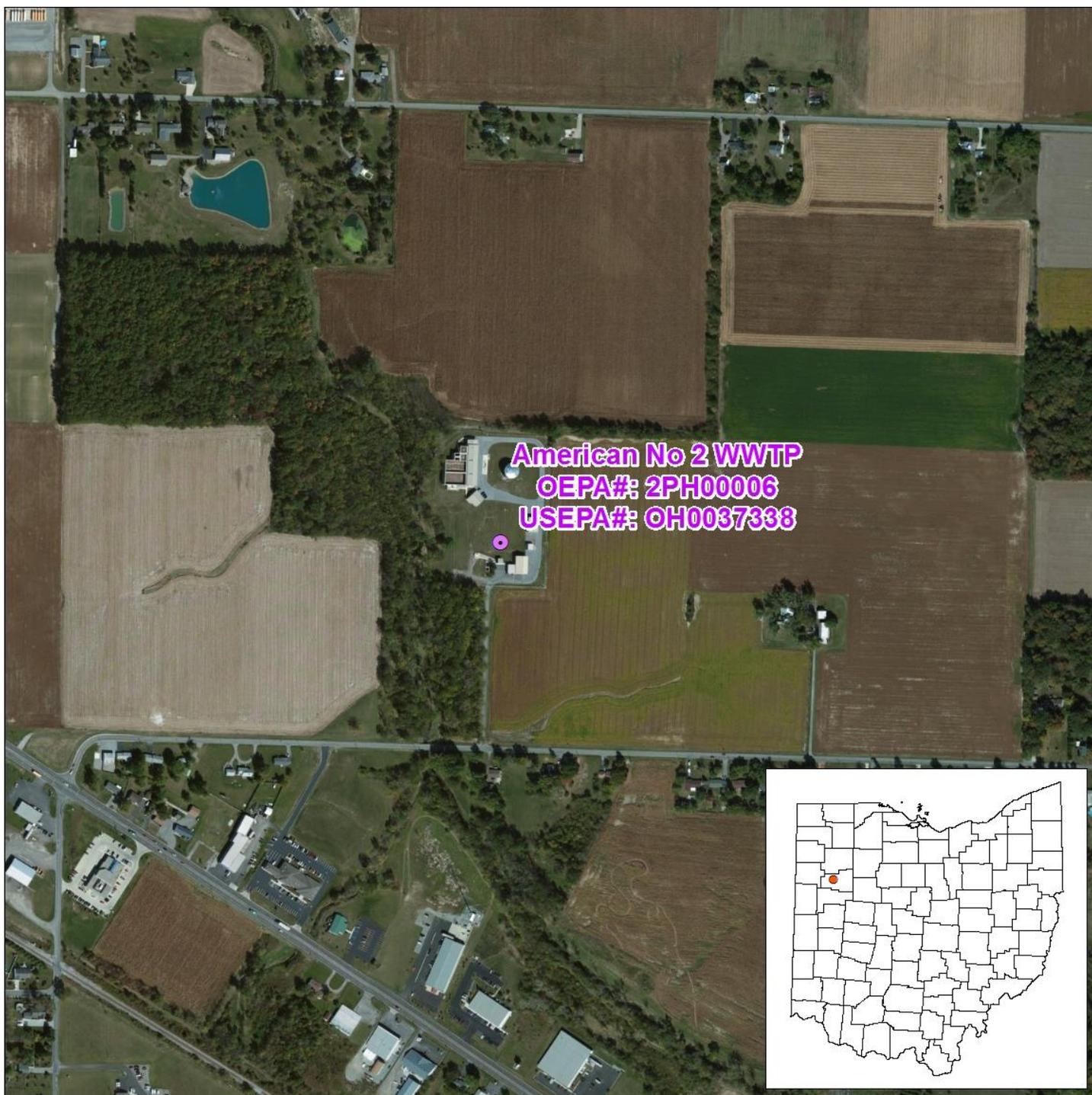


Figure 1. Approximate location of the American II wastewater treatment plant.

Table 1. Effluent Characterization and Decision Criteria

Parameter	Units	Ohio EPA 9/23/2013
Ammonia (Summer)	mg/L	AA (0.05)
Ammonia (Winter)	mg/L	--
Arsenic	µg/L	AA (2.0)
Barium	µg/L	15
Cadmium	µg/L	AA (0.2)
CBOD ₅ (Summer)	mg/L	2.1
CBOD ₅ (Winter)	mg/L	--
Chloroform	mg/L	0.57
Chromium	µg/L	AA (2.0)
Diethyl phthalate	µg/L	42
Dissolved Hexavalent Chromium	µg/L	--
Copper	µg/L	AA (2.0)
Cyanide, Free	µg/L	AA (5.0)
Dissolved Oxygen (Summer)	mg/L	8.71
Dissolved Oxygen (Winter)	mg/L	--
Total Filterable Residue	mg/L	460
Lead	µg/L	AA (2.0)
Mercury	µg/L	--
Nickel	µg/L	2.6
Nitrate+Nitrite	µg/L	2.02
Phenol	µg/L	5.0
Phosphorus	mg/L	0.105
Selenium	µg/L	AA (2.0)
Strontium	µg/L	833
Kjeldahl Nitrogen, Total	mg/L	1.21
Total Suspended Solids	mg/L	AA (5.0)
Zinc	µg/L	42

AA = below detection limit (method detection limit)

Table 2. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report for American No. 2 outfall 2PH00006001 (November 2009 - October 2014).

Parameter	Season	Units	Current Permit Limits			Percentiles		Data Range
			30 day	Daily	# Obs.	50 th	95 th	
Water Temperature	Annual	°C	--	Monitor	1335	18	26	8-36
Dissolved Oxygen	Summer	mg/L	--	5.3 min	637	8.8	9.72	7.4-10.2
Dissolved Oxygen	Winter	mg/L	--	5.3 min	611	10	11	8.1-12.2
Dissolved Oxygen	Summer	kg/day	--	5.3 min	637	21.1	48.5	13.1-87.5
Dissolved Oxygen	Winter	kg/day	--	5.3 min	611	27.8	75.7	15.6-111
pH	Annual	S.U.	9.0 max	6.5 min	1248	6.9	7.1	6.6-7.5
Total Suspended Solids	Annual	mg/L	12	18 ^a	729	0	7.44	0-94.4
Total Suspended Solids	Annual	kg/day	54.5	81.8 ^a	729	0	22.6	0-277
Oil and Grease	Annual	mg/L	10 max	--	123	0	0	0-11
Oil and Grease	Annual	kg/day	10 max	--	123	0	0	0-27.1
Ammonia	Summer	mg/L	1.7	2.5 ^a	360	0.07	0.411	0-1.33
Ammonia	Winter	mg/L	3.7	5.5 ^a	369	0.45	2.55	0-3.75
Ammonia	Summer	kg/day	7.6	11.4 ^a	360	0.187	1.32	0-5.25
Ammonia	Winter	kg/day	16.7	25 ^a	369	1.43	9.29	0-22.3
Nitrate + Nitrite	Annual	mg/L	Monitor	--	63	2.51	5.39	0.27-9.38
Nitrate + Nitrite	Annual	kg/day	Monitor	--	63	6.74	20	0.574-26.3
Phosphorus	Annual	mg/L	1.0	1.5 ^a	246	0.39	0.868	0-1.1
Phosphorus	Annual	kg/day	4.5	6.8 ^a	246	1.1	3.29	0-7.59
Nickel	Annual	µg/L	Monitor	--	23	0	0	0-0
Nickel	Annual	kg/day	Monitor	--	23	0	0	0-0
Zinc	Annual	µg/L	Monitor	--	23	45	64.6	30-82
Zinc	Annual	kg/day	Monitor	--	23	0.122	0.171	0.0704-0.214
Cadmium	Annual	µg/L	Monitor	--	23	0	0	0-0
Cadmium	Annual	kg/day	Monitor	--	23	0	0	0-0
Lead	Annual	µg/L	Monitor	--	23	0	0	0-0
Lead	Annual	kg/day	Monitor	--	23	0	0	0-0
Chromium	Annual	µg/L	Monitor	--	23	0	0	0-0
Chromium	Annual	kg/day	Monitor	--	23	0	0	0-0
Copper	Annual	µg/L	Monitor	--	23	0	0	0-12
Copper	Annual	kg/day	Monitor	--	23	0	0	0-0.0317
Chromium, Dissolved Hexavalent	Annual	µg/L	Monitor	--	47	0	7.34	0-12
Chromium, Dissolved Hexavalent	Annual	kg/day	Monitor	--	47	0	0.0184	0-0.0317

Table 2. (Continued)

Parameter	Season	Units	Current Permit Limits			Percentiles		Data Range
			30 day	Daily	# Obs.	50 th	95 th	
E. coli	Annual	mL #/100	126	284 ^a	288	1	100	1-548
Flow Rate	Summer	MGD	Monitor	--	920	0.624	1.35	0.412-2.49
Flow Rate	Winter	MGD	Monitor	--	906	0.732	2	0.361-3.18
Flow Rate	Annual	MGD	Monitor	--	1826	0.668	1.68	0.361-3.18
Mercury	Annual	ng/L	4.5	1700 max	60	1.54	6.36	0.503-6.68 0.00000108-
Mercury	Annual	kg/day	0.00002	0.0077	60	0.00000342	0.0000147	0.0000164
Acute Toxicity, Ceriodaphnia dubia	Annual	TU _a	Monitor	--	3	0	0	0-0
Chronic Toxicity, Ceriodaphnia dubia	Annual	TU _c	Monitor	--	3	0	1.26	0-1.4
Acute Toxicity, Pimephales promelas	Annual	TU _a	Monitor	--	3	0	0	0-0
Chronic Toxicity, Pimephales promelas	Annual	TU _c	Monitor	--	3	0	0	0-0
CBOD 5 day	Summer	mg/L	10	15 ^a	360	2.7	4.41	0-6.1
CBOD 5 day	Winter	mg/L	10	15 ^a	363	2.9	4.5	0-14
CBOD 5 day	Summer	kg/day	45.4	68.1 ^a	360	6.46	14.1	0-24.5
CBOD 5 day	Winter	kg/day	45.4	68.1 ^a	363	8.02	24.6	0-63.6

* = For minimum pH, 5th percentile shown in place of 50th percentile

** = For dissolved oxygen, 5th percentile shown in place of 95th percentile

a = Weekly average

CBOD = Carbonaceous biochemical oxygen demand

S.U. = Standard units

Table 3. Projected Effluent Quality Values

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	240	175	0.18318	0.38666
Ammonia (Winter)	mg/L	180	170	1.9812	4.2608
Cadmium	µg/L	24	0	--	--
Chloroform	µg/L	1	1	2.57982	3.534
Chromium	µg/L	24	0	--	--
Chromium, Dissolved Hexavalent	µg/L	47	7	7.0699	10.642
Copper	µg/L	24	1	11.388	15.6
Cyanide, Free	mg/L	1	0	--	--
Diethyl phthalate	µg/L	1	1	190.092	260.4
Total Filterable Residue	mg/L	1	1	2081.96	2852
Lead	µg/L	24	0	--	--
Mercury	ng/L	60	49	2.8957	4.5727
Nickel	µg/L	24	1	7.592	10.4
Nitrate + Nitrite	mg/L	64	64	4.8798	7.2187
Phenol	µg/L	1	1	22.63	31
Strontium	µg/L	1	1	3770.158	5164.6
Zinc	µg/L	24	24	61.964	80.866

PEQ = Projected Effluent Quality

MDL = Method Detection Limit

Table 4. Summary of Acute and Chronic Toxicity Test Results

Discharge Monitoring Report Data from Station 2PH00006001				
<i>Ceriodaphnia Dubia</i>			<i>Pimephales promelas</i>	
Date	Acute Toxicity (TU _a)	Chronic Toxicity (TU _c)	Acute Toxicity (TU _a)	Chronic Toxicity (TU _c)
4/17/2012	AA	AA	AA	AA
4/5/2013	AA	AA	AA	AA
4/11/2014	AA	AA	AA	AA

Ohio EPA Bioassay Data																
<i>Ceriodaphnia dubia</i>									<i>Pimephales promelas</i>							
Collection Date	24 Hours				48 Hours				24 Hours				48 Hours			
	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a
9/23/2013	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
9/24/2013	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
9/23/13-9/24/13 ^a	0	0	5	ND	0	0	5	ND	0	0	0	ND	0	0	0	ND

TU_c = chronic toxicity units

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

a = 24-hour composite sample

C = laboratory control water

%M = percent mortality in 100% effluent

ND = not determined

TU_a = acute toxicity units

UP = percent mortality in upstream control water

Table 5. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum	
			Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (Summer)	mg/L	--	--	--	1.8	--	--
Ammonia (Winter)	mg/L	--	--	--	7.1	--	--
Cadmium	µg/L	--	730	50	5.1	13	26
Chloroform	µg/L	--	1700c	--	140	1300	2600
Chromium	µg/L	--	14000	100	180	3800	7700
Chromium, Dissolved Hexavalent	µg/L	--	14000	--	11	16	31
Copper	µg/L	--	64000	500	20	33	67
Cyanide, Free	mg/L	--	48	--	0.0052	0.022	0.044
Diethyl phthalate	µg/L	--	--	--	220	980	2000
Total Filterable Residue	mg/L	--	--	--	1500	--	--
Lead	µg/L	--	--	100	21	400	790
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Nickel	µg/L	--	43000	200	110	1000	2000
Nitrate + Nitrite	mg/L	--	--	100	--	--	--
Phenol	µg/L	--	2400	--	400	4700	9400
Strontium	µg/L	--	1400000	--	21000	40000	81000
Zinc	µg/L	--	35000	25000	260	260	520

c = carcinogen

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
<i>Stream Flows</i>				
1Q10	cfs	annual	0.59	USGS Station 04187500
7Q10	cfs	annual	0.77	USGS Station 04187500
30Q10	cfs	summer	0.95	USGS Station 04187500
30Q10	cfs	winter	0.95	USGS Station 04187500
90Q10	cfs	annual	3.15	
Harmonic Mean	cfs	annual	2.09	USGS Station 04187500
Mixing Assumption	%	average	25	
Mixing Assumption	%	maximum	100	
<i>Hardness</i>	mg/L	annual	251	Average of Station P04P14
<i>pH</i>	S.U.	summer	7.3	eDMR 901 data 2009-2014 n=20
<i>pH</i>	S.U.	winter	7.55	eDMR 901 data 2009-2014 n=15
<i>Temperature</i>	°C	summer	23.05	eDMR 901 data 2009-2014 n=20
<i>Temperature</i>	°C	winter	6.3	eDMR 901 data 2009-2014 n=15
<i>American II WWTP flow</i>	cfs	annual	1.86	Permit Renewal Application

Table 6. (Continued)

Parameter	Units	Season	Value	Basis
<i>Background Water Quality</i>				
Ammonia	mg/L	summer	0.0528	STORET; 2010; n=5; 1<MDL; Station P04K10, average
Ammonia	mg/L	winter	0.1	BWQR; 1988; n=40; 3<MDL; Maumee Basin, 50th %tile
Cadmium	µg/L	--	0.25	BWQR; 1988; n=107; 69<MDL; Maumee Basin, 50th %tile
Chloroform	µg/L	--	--	No representative data available.
Chromium	µg/L	--	15	BWQR; 1988; n=102; 72<MDL; Maumee Basin, 50th %tile
Chromium, Dissolved Hexavalent	µg/L	--	0	BWQR; 1988; n=22; 4<MDL; Maumee Basin, 50th %tile
Copper	µg/L	--	5	BWQR; 1988; n=269; 75<MDL; Maumee Basin, 50th %tile
Cyanide, Free	mg/L	--	--	No representative data available.
Diethyl phthalate	µg/L	--	--	No representative data available.
Total Filterable Residue	mg/L	--	398	STORET; 2010; n=5; 0<MDL; Station P04K10, average
Lead	µg/L	--	2	BWQR; 1988; n=247; 92<MDL; Maumee Basin, 50th %tile
Mercury	ng/L	--	--	No representative data available.
Nickel	µg/L	--	20	BWQR; 1988; n=62; 51<MDL; Maumee Basin, 50th %tile
Nitrate + Nitrite	mg/L	--	2.45	STORET; 2010; n=5; 0<MDL; Station P04K10, average
Phenol	µg/L	--	--	No representative data available.
Strontium	µg/L	--	--	No representative data available.
Zinc	µg/L	--	15	BWQR; 1988; n=130; 41<MDL; Maumee Basin, 50th %tile

WWTP = Wastewater Treatment Plant

eDMR = Electronic Discharge Monitoring Report

USGS = United States Geological Survey

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

BWQR = Background Water Quality and Modeling Data

n = Number of samples

MDL = Method Detection Limit

cfs = cubic feet per second

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

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum Aquatic Life	
		Wildlife	Human Health	Agri-culture	Aquatic Life		
Ammonia (Summer)	mg/L	--	--	--	--	--	--
Ammonia (Winter)	mg/L	--	--	--	--	--	--
Cadmium	µg/L	--	935	64	5.6	17	26
Chloroform	µg/L	--	2178	--	154	1712	2600
Chromium	µg/L	--	17929	124	197	5001	7700
Chromium, Dissolved Hexavalent	µg/L	--	17933	--	12	21	31
Copper	µg/L	--	81977	639	22	42	67
Cyanide, Free	mg/L	--	61	--	0.0057	0.029	0.044
Diethyl phthalate	µg/L	--	--	--	243	1291	2000
Total Filterable Residue	mg/L	--	--	--	1614	--	--
Lead	µg/L	--	--	128	23	526	790
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Nickel	µg/L	--	55074	251	119	1311	2000
Nitrate-N + Nitrite-N	mg/L	--	--	127	--	--	--
Phenol	mg/L	--	3074	--	441	6191	9400
Strontium	µg/L	--	1793280	--	23173	52688	81000
Zinc	µg/L	--	44828	32019	285	338	520

Table 8. Parameter Assessment

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

No parameters meet these criteria

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

Cyanide, Free	Cadmium	Lead
Nitrate + Nitrite	Chromium	Phenol
Chloroform	Strontium	Nickel

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

Zinc

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

Chromium, Dissolved Hexavalent Copper

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

Limits to Protect Numeric Water Quality Criteria

<u>Parameter</u>	<u>Units</u>	<u>Period</u>	<u>Recommended Effluent Limits</u>	
			<u>Average</u>	<u>Maximum</u>
Diethyl phthalate	µg/L	Annual	243	1291
Total Filterable Residue	mg/L	Annual	1614	--
Mercury	ng/L	Annual	1.3	1700

PEQ = Projected Effluent Quality

PEL = Projected Effluent Limit

WLA = Wasteload Allocation procedures (OAC 3745-2)

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

Table 9. Final Effluent Limits and Monitoring Requirements

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b	
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum		
Water Temperature	°C	----- Monitor -----					EP, M
Dissolved Oxygen	mg/L	5.3 minimum		--	--	EP, PD	
pH	S.U.	6.5 - 9.0		--	--	WQS, EP	
Total Suspended Solids	mg/L	12	18 ^c	54.5	81.8 ^c	EP, PD	
Oil & Grease	mg/L	--	10	--	--	WQS, EP	
Ammonia							
Summer	mg/L	1.7	2.5 ^c	7.6	11.4 ^c	EP, PD	
Winter	mg/L	3.7	5.5 ^c	16.7	25.0 ^c	EP, PD	
Nitrate+Nitrite	mg/L	----- Monitor -----					BEJ, EP
Phosphorus	mg/L	1.0	1.5 ^c	4.5	6.8 ^c	EP, PTS	
Orthophosphate, Dissolved (as P)	mg/L	----- Monitor -----					SB1
Nickel	µg/L	----- Monitor -----					EP, M
Zinc	µg/L	----- Monitor -----					EP, M
Cadmium	µg/L	----- Monitor -----					EP, M
Lead	µg/L	----- Monitor -----					EP, M
Chromium	µg/L	----- Monitor -----					EP, M
Copper	µg/L	----- Monitor -----					RP
Hexavalent Chromium (Dissolved)	µg/L	----- Monitor -----					RP
<i>E. coli</i>	#/100 mL	126	284	--	--	WQS, EP	
Diethyl phthalate	µg/L	----- Monitor -----					WLA, RP
Flow Rate	MGD	----- Monitor -----					EP, M
Mercury	ng/L	2.9	1700	0.000014	0.0077	WLA (max), VAR (avg)	

Table 9. (Continued)

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Acute Toxicity						
<i>Ceriodaphnia dubia</i>	TU _a	----- Monitor -----				WET
<i>Pimephales promelas</i>	TU _a	----- Monitor -----				WET
Chronic Toxicity						
<i>Ceriodaphnia dubia</i>	TU _c	----- Monitor -----				WET
<i>Pimephales promelas</i>	TU _c	----- Monitor -----				WET
Total Filterable Residue	mg/L	----- Monitor -----				BEJ
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	10	15 ^c	45.4	68.1 ^c	EP, PD

a = Effluent loadings based on average design discharge flow of 1.2 MGD.

b = Definitions

BEJ = Best Engineering Judgment

EP = Existing Permit

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

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

WLA = Wasteload Allocation procedures (OAC 3745-2)

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

PD = Plant Design

MGD = Million gallons per day

PTS = Phosphorus Treatment Standards (OAC 3745-33-06 (C))

SB1 = Implementation of Senate Bill 1 (ORC 6111.03)

S.U. = Standard Units

TU_a = acute toxicity units

TU_c = chronic toxicity units

VAR = mercury variance-based limits, OAC 3745-33-07(D)(10)

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

P = Phosphorus