

National Pollutant Discharge Elimination System (NPDES) Permit Program

**F A C T S H E E T**

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio  
for the **Ashtabula Wastewater Treatment Plant**

Public Notice No.: 11-10-054  
Public Notice Date: October 28, 2011  
Comment Period Ends: November 27, 2011

OEPA Permit No.: 3PE00002\*ND  
Application No.: OH0023914

Name and Address of Applicant:

**City of Ashtabula  
4400 Main Avenue  
Ashtabula, Ohio 44004**

Name and Address of Facility Where  
Discharge Occurs:

**Ashtabula Wastewater Treatment Plant  
303 Woodland Avenue  
Ashtabula, Ohio 44004  
Ashtabula County**

Receiving Water: **Lake Erie**

Subsequent  
Stream Network: **NA**

**Introduction**

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations, 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, 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 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**

The wasteload allocation placed copper and mercury in Group 5. Therefore, a limit is now included for copper, and a variance for mercury is included in the permit. Monitoring will remain the same for mercury, while the monitoring frequency for copper will increase from once a month to once every two weeks.

The wasteload allocation placed free cyanide, total recoverable zinc, and di-n-butyl phthalate in Group 4. No limits are proposed for these parameters, but monitoring is still required. The monitoring frequency for cyanide and zinc will increase from once a month to once every two weeks. The monitoring frequency for di-n-butyl phthalate will be quarterly.

Limits for carbonaceous biochemical oxygen demand (COBD<sub>5</sub>), total suspended solids (TSS), oil and grease, pH, chlorine, E. coli, and acute and chronic toxicity are proposed to continue from the current permit. There will also be an additional E. coli 7-day average due to water quality standards. Monitoring requirements will remain the same for these parameters. Toxicity limits and monitoring will continue from the previous permit.

New water-quality-based limits are needed for phosphorus because of phosphorus treatment standards (OAC 3645-33-06 (C)). Previously, the International Joint Commission (IJC) provided limits for phosphorus in Lake Erie. The IJC no longer applies, though, so water quality standards for phosphorus are obtained from Ohio Administrative Code Section 3745-33-06. For the Lake Erie basin, a 30-day average of 1.0 (mg/l) is required. Phosphorus monitoring requirements will remain at the same frequency as in the previous permit.

This permit renewal is proposed for a term of approximately **5 years**, expiring on **July 31, 2016**. This schedule will allow the Ashtabula WWTP permit to be on a similar schedule with the other facilities within the same watershed basin.

## Table of Contents

Introduction.....	1
Summary of Permit Conditions.....	2
Procedures for Participation in the Formulation of Final Determinations .....	4
Location of Discharge/Receiving Water Use Classification.....	5
Facility Description.....	5
Description of Existing Discharge .....	6
Assessment of Impact on Receiving Waters.....	6
Development of Water-Quality-Based Effluent Limits .....	7
Reasonable Potential/ Effluent Limits/Hazard Management Decisions .....	8
Other Requirements .....	11

## List of Figures

Figure 1 Approximate Location of Ashtabula wastewater treatment plant .....	13
---	----

## List of Tables

Table 1. Effluent Characterization Based on Pretreatment Data .....	14
Table 2. Effluent Characterization Based on Self Monitoring Data .....	15
Table 3. Summary of Acute Toxicity Test Results .....	18
Table 4. Summary of Chronic Toxicity Test Results.....	20
Table 5. Effluent Data for the Ashtabula WWTP .....	22
Table 6. Water Quality Criteria in the Study Area.....	23
Table 7. Instream Conditions and Discharger Flow.....	24
Table 8. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria .....	25
Table 9. Parameter Assessment for Outfall 001.....	26
Table 10. Final Effluent Limits and Monitoring Requirements for Outfall 001.....	27

## **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 and Compliance Section  
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 draft permit, contact Katie Holcomb by phone at (614) 644-4824 or by email at [katie.holcomb@epa.state.oh.us](mailto:katie.holcomb@epa.state.oh.us).

### **Location of Discharge/Receiving Water Use Classification**

The Ashtabula Wastewater Treatment Plant discharges to Lake Erie at lake mile 1130.70. The approximate location of the facility is shown in Figure 1.

This segment of Lake Erie is described by Ohio EPA River Code: 24-800, County: Ashtabula, Ecoregion: Lake Plain. Lake Erie is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-31): Exceptional Warmwater Habitat (EWH), Superior High Quality Water, Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Public Water Supply, and Bathing Waters (BW).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric 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 Ashtabula Wastewater Treatment Plant has an average daily design flow of 12.0 million gallons per day. The treatment plant was originally constructed in 1955, with the most recent upgrade occurring in 1995. Treatment plant processes include:

- bar screening;
- influent pumping;
- grit removal;
- comminution;
- pre-aeration;
- primary settling;
- activated sludge aeration;
- final clarification;
- phosphorus removal;
- chlorination; and

- de-chlorination

Sludge is processed by anaerobic digestion, and dewatered by means of a centrifuge and a belt filter press. Sludge is ultimately disposed in a landfill. The process design capacity of the sewage sludge treatment system is 18,000 dry tons per year, with 489.10 dry tons of sludge being generated in the last year. The last major modification to the sewage sludge treatment system occurred on August 10, 2006.

The City of Ashtabula's collection system includes only separate sanitary sewers, and serves the City of Ashtabula, Ashtabula Township, Plymouth Township, Saybrook Township, and other locations throughout Ashtabula County, serving a total population of approximately 26,000 people. The city estimates the inflow and infiltration rate for the collection system at 2.5 million gallons per day, according to the NPDES permit application. The treatment facility includes two internal bypasses—station 602 which routes flow around primary treatment and station 603 which circumvents secondary treatment. The city has not reported any discharges from these bypasses since 2002.

Local industries contribute approximately 0.207 MGD to the flow received at Ashtabula's WWTP. Categorical industrial users discharge an average of 0.048 MGD to the Ashtabula sewer system, while non-categorical significant industrial users contribute 0.159 MGD.

The WWTP has an approved pretreatment program which was approved on June 6, 1986.

The water supply for the City of Ashtabula is Lake Erie.

### **Description of Existing Discharge**

The average design flow for the Ashtabula WWTP is 12.0 MGD, but the actual daily flow based upon monthly operating report submittals is normally considerably less. Daily flow has varied between 3.6 and 5.35 MGD based upon the 50<sup>th</sup> percentile values.

Table 1 presents chemical specific data compiled from data reported in annual pretreatment reports. Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 001. Data are presented for the period of January 2006 to July 2011, and current permit limits are provided for comparison. Tables 3 and 4 summarize the results of acute and chronic whole effluent toxicity tests of the final effluent.

Under the provisions of 40 CFR 122.21(j), the Director has waived the requirement for submittal of expanded effluent testing data as part of the NPDES renewal application. Ohio EPA has access to substantially identical information through the submission of annual pretreatment program reports and/or from effluent testing conducted by the Agency.

### **Assessment of Impact on Receiving Waters**

The *Ohio 2010 Integrated Water Quality Monitoring and Assessment Report* states that there has not been any Ohio EPA near-shore lake monitoring since 2002. Monitoring is scheduled for 2012 and a TMDL is scheduled for 2015 to address water quality impairments.

The *Integrated Report* is available at the following Ohio EPA internet site:  
<http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.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 Ashtabula WWTP were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to the Ohio EPA - Discharge Monitoring Report (DMR) data submitted by the permittee, compliance sampling data collected by Ohio EPA, and any other data submitted by the permittee, such as priority pollutant scans required by the NPDES application or by pretreatment, or other special conditions in the NPDES permit. The sources of effluent data used in this evaluation are as follows:

Self-monitoring data (DMR)	January 2006 through July 2011
NPDES Application data / Pretreatment data	2006 through 2010

Values of nickel less than 5.5 (ug/l) were considered outliers and removed. This changed the number of observations from 68 to 67. Values of zinc greater than 1200 (ug/l) were considered outliers and removed. This changed the number of observations from 72 to 71. Values of copper greater than 135 (ug/l) were considered outliers and removed. This changed the number of observations from 69 to 68. Values of chlorine greater than 0.15 (mg/l) were considered outliers and removed. This changed the number of observations from 1012 to 1011.

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. Average PEQ (PEQ<sub>avg</sub>) values represent the 95<sup>th</sup> percentile of monthly average data, and maximum PEQ (PEQ<sub>max</sub>) values represent the 95<sup>th</sup> percentile of all data points. The PEQ<sub>avg</sub> and PEQ<sub>max</sub> values are presented in Table 5.

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (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<sub>avg</sub> or PEQ<sub>max</sub> 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 5 for a summary of the screening results.

### *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 Ashtabula WWTP, the wasteload allocation values are 1.0 TU<sub>a</sub> and 11.0 TU<sub>c</sub>.

The chronic toxicity unit (TU<sub>c</sub>) is defined as 100 divided by the IC<sub>25</sub>:

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

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<sub>a</sub>) is defined as 100 divided by the LC<sub>50</sub> 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.

### **Wasteload Allocation**

For those parameters that require a wasteload allocation, 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 Water Quality Standards (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.

For direct dischargers to lakes, the waste load allocations for maximum criteria (or Outside Mixing Zone Maximum, OMZM) are set equal to the Inside Mixing Zone Maximum criteria. The values for the OMZM are left blank in Table 8 to indicate that any limits based upon a maximum WLA are actually represented by the Inside Mixing Zone Maximum criteria. The wasteload allocation values in Table 8 would allow the Ashtabula WWTP to maintain all applicable water quality criteria. Allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 6 and 7. The wasteload allocation results to maintain all applicable criteria are presented in Table 8.

### **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 8. The average PEL (PEL<sub>avg</sub>) is compared to the average PEQ (PEQ<sub>avg</sub>) from Table 5, and the PEL<sub>max</sub> is compared to the PEQ<sub>max</sub>. Based on the calculated percentage of

the allocated value  $[(PEQ_{avg} \div PEL_{avg}) \times 100, \text{ or } (PEQ_{max} \div PEL_{max}) \times 100]$ , the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 9.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 11 presents the final effluent limits and monitoring requirements proposed for the Ashtabula WWTP outfall 001. The limits and monitoring requirements for outfall 001 are as follows:

***Flow Rate, Water Temperature, Dissolved Oxygen, and Ammonia***

Monitoring is proposed to continue for flow rate, water temperature, dissolved oxygen, and ammonia to assist in the evaluation of effluent quality and treatment plant performance. This is in accordance with Ohio EPA guidance.

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

Limits proposed for oil and grease, pH, and E. coli are based on Water Quality Standards (OAC-3745-1). Monitoring is proposed to continue for all of these parameters.

***Phosphorus***

Limits for phosphorus are based upon phosphorus treatment standards in OAC 3645-33-06 (C). Monitoring is proposed to continue twice a week.

***TSS, CBOD<sub>5</sub>, Chlorine***

The limits for total suspended solids (TSS), 5-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>), and total residual chlorine have been continued from the existing permit. These limits are based on plant design conditions. Monitoring for TSS, CBOD<sub>5</sub>, and chlorine is proposed to continue.

***Mercury***

Limits proposed for mercury are based on a mercury variance. Additional information about the mercury variance is given below. The monitoring frequency for mercury will continue at one sample every two weeks.

***Copper***

Limits proposed for copper are based on the wasteload allocation. Because of increased copper loading, a limit is now necessary. Monitoring will be increased from once a month to once every two weeks.

***Free Cyanide, Zinc, and Di-n-butyl phthalate***

Limits for free cyanide, zinc, and di-n-butyl phthalate are based on reasonable potential analysis. Monitoring frequency for cyanide and zinc will increase from once a month to once every two weeks. Monitoring will be quarterly for di-n-butyl phthalate.

***Cadmium, Lead, Nickel, Nitrate-N + Nitrite-N, Bis (2-ethylhexyl) phthalate, Total Recoverable Chromium and Hexavalent Chromium***

No limits are proposed for cadmium, lead, nickel, nitrate-n + nitrite-n, bis (2-ethylhexyl) phthalate, total recoverable chromium and hexavalent chromium because they exhibit no reasonable potential. No monitoring is proposed for bis (2-ethylhexyl) phthalate because it exhibits no reasonable potential, and so monitoring is not required under permit guidance. Monitoring is proposed to continue for cadmium, lead, nickel, nitrate-n + nitrite-n, total recoverable chromium and hexavalent chromium based on permit guidance.

Additional monitoring requirements proposed at the final effluent, influent, upstream/downstream and sludge stations are included based on 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, for designing plant improvements, and conducting future stream studies.

#### *Mercury Reasonable Potential and Mercury Variance*

The Ohio EPA risk assessment (Table 9) places mercury in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality.

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. Based on the results of low-level mercury monitoring, the permittee has determined that its wastewater treatment plant cannot meet the 30-day average water quality-based effluent limit (WQBEL) of 1.3 nanograms per liter (ng/l). However, the permittee believes that the plant will be able to achieve an annual average mercury effluent concentration of 12 ng/l. The variance application 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 on these factors, the permittee is eligible for coverage under the general mercury variance.

The Ohio EPA has reviewed the mercury variance application and has determined that it meets the requirements of the Ohio Administrative Code. Items X, Y, and Z in Part II of the draft NPDES permit list the provisions of the mercury variance, and includes the following requirements:

- A variance-based monthly average effluent limit of 7.9 ng/l, which was developed from sampling data submitted by the permittee;
- A requirement that the permittee 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 (PMP);
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration 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 to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied, but that compliance with the monthly average water quality-based effluent limit for mercury has not been achieved.

\*\*\*\*\*

The Ohio EPA risk assessment (Table 9) places copper and mercury in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are

necessary to protect water quality. For these parameters PEQ is greater than 500 percent of the wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). The thirty day average limit for mercury is based on the average PEQ for mercury from self-monitoring data. The daily maximum limit for copper is based on the wasteload allocation. The daily maximum limit for mercury is based on the antibacksliding rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)).

The Ohio EPA risk assessment (Table 9) places cyanide, zinc, di-n-butyl phthalate in group 4. This placement as well as the data in Tables 1 and 2 support that these parameters do not have the reasonable potential to exceed water quality standards, 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).

Ohio EPA risk assessment (Table 9) places bis (2-ethylhexyl) phthalate, cadmium, chlorine, lead, nickel, and nitrate plus nitrite in group 3. This placement as well as the data in Tables 1 and 2 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality.

Limits and monitoring requirements proposed for the disposal of sewage sludge by the following management practice are based on OAC 3745-40: removal to sanitary landfill.

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 Reason Potential*

Evaluating the acute and chronic toxicity results in Tables 3 and 4 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, gives an acute PEQ value of 2.52 TU<sub>a</sub> and an estimated chronic PEQ of 34.6 TU<sub>c</sub>. Reasonable potential for toxicity is demonstrated, since these values exceed the wasteload allocation values of 1.0 TU<sub>a</sub> and 11.0 TU<sub>c</sub>. Consistent with Procedure 6 and OAC 3745-33-07(B)(10), a monthly average limit of 11.0 TU<sub>c</sub> and a daily maximum limit of 1.0 TU<sub>a</sub> are proposed. Quarterly monitoring is proposed.

The previous permit had a toxicity reduction evaluation (TRE) requirement. The TRE implementation plan, approved in September of 2009, involved the following steps:

1. Obtain concurrence of Ohio EPA on the TRE strategy.
2. Data acquisition and evaluation of existing information.
3. Limited performance evaluation.
4. Establish baseline toxicity and variability of the effluent.
5. Evaluation of effluent persistence.
6. Toxicity identification evaluation (TIE).
7. Toxicity source evaluation.
8. Toxicity control evaluation.

To address the toxicity issue, the Ashtabula WWTP switched from using ferric chloride to liquid sodium aluminate. This seems to have reduced toxicity in the effluent, as the plant has not seen toxicity issues in over six months. Therefore, the TRE was affective for Ashtabula WWTP.

#### **Other Requirements**

### *Sanitary Sewer Overflow Reporting*

Provisions for reporting sanitary sewer overflows (SSOs) are also 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.1 of the permit in accordance with rules adopted in December 2006. These rules require the Ashtabula Wastewater Treatment Plant to have a Class IV wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 3PE00002001.

### *Operator of Record*

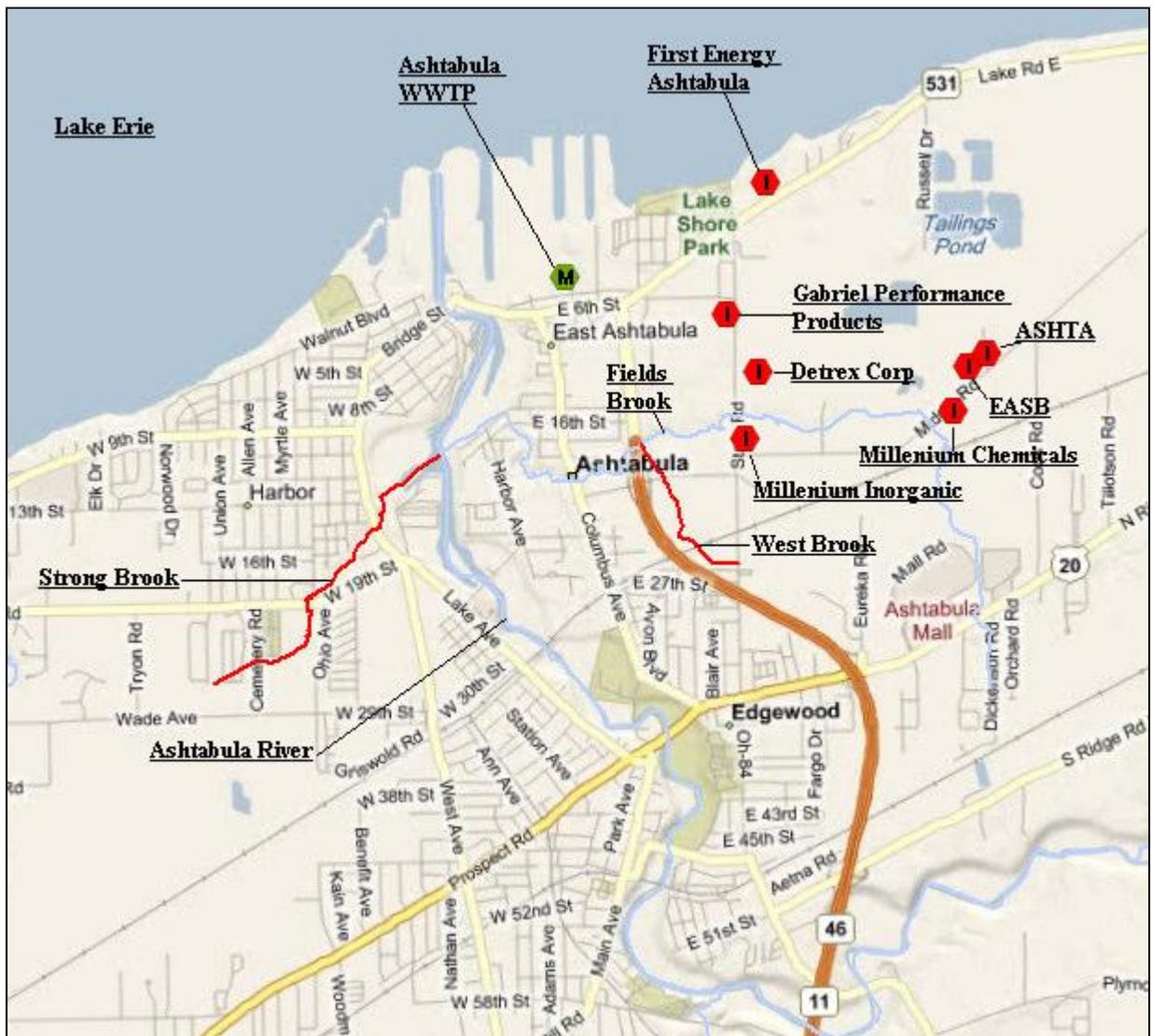
In December 2006, Ohio Administrative Code rule revisions became effective which affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A.2 of this NPDES permit represents language necessary to implement rule 3745-7-02 of the Ohio Administrative Code (OAC), and requires the permittee to designate one or more operator of record to oversee the technical operation of the Ashtabula Wastewater Treatment Plant.

### *Storm Water Compliance*

In order to comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed on July 28, 2011. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than July 28, 2016, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

### *Public Water Supply Notification*

An addition to rule 3745-33-08 of the Ohio Administrative Code requires that permittees discharging wastewater within 3000 feet of a downstream public water supply intake located on the same lake, must develop spill (or bypass) notification procedures in conjunction with the downstream public water supply operator. Since the Ohio American Water Company operates a public water supply intake less than 3000 feet downstream from the Ashtabula WWTP, Part II, Item U of the draft permit requires the development of notification procedures within six months after the effective date of the permit.



**Figure 1. Approximate Location of the Ashtabula Wastewater Treatment Plant**

**Table 1. Effluent Characterization Based on Pretreatment Data**

Summary of analytical results for the Ashtabula WWTP outfall 001. All values are in :g/l unless otherwise indicated. PT = data from, pretreatment program reports; 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ<sub>avg</sub> = monthly averages; PEQ<sub>max</sub> = daily maximum analytical results.

PARAMETER	PT 12/21/2006	PT 11/29/2007	PT 11/20/2008	PT 11/19/2009	PT 12/16/2010	PEQ <sub>avg</sub>	PEQ <sub>max</sub>
Bis (2-ethylhexyl) phthalate	ND	ND	ND	ND	12.4	12.7	17.36
Cadmium	NA	ND	ND	ND	ND	4.4	6.0
Chlorine	NA	NA	NA	NA	NA	0.009	0.012
Chloroform	ND	ND	ND	ND	ND	0	0
Chromium-TR	NA	ND	5.01	ND	ND	5.9	8.6
Chromium VI-Diss	NA	NA	NA	NA	NA	0	0
Copper-TR	NA	ND	71.5	ND	18.9	12.2	38.7
Cyanide-free	ND	ND	ND	ND	ND	0.03	0.04
Lead-TR	NA	ND	ND	ND	ND	33.5	45.9
Mercury-TR	NA	ND	ND	ND	NA	7.9	11.8
Nickel-TR	NA	ND	21.3	ND	ND	26.9	40.4
Nitrate-N + Nitrite-N	NA	NA	NA	NA	NA	27.3	38.5
Phosphorus	NA	NA	NA	NA	NA	0.8	1.1
Zinc-TR	262	64.4	139	66.7	117	170.2	240.2
Di-n-butyl phthalate	ND	ND	ND	44.2	ND	200.0	274.0

**Table 2. Effluent Characterization Based on Self-Monitoring Data**

Summary of current permit limits and unaltered monthly operating report (MOR) data for Ashtabula WWTP outfalls 001, 300, 586, 601, 602, 603, and 801 (January 2006 to July 2011). All values are based on annual records unless otherwise indicated. N = Number of Analyses. \* = For pH, 5th percentile shown in place of 50th percentile; \*\* = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ<sub>avg</sub> = monthly average; PEQ<sub>max</sub> = daily maximum analytical results.

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>ave</sub>	PEQ <sub>max</sub>
<b><u>Outfall 001</u></b>											
Water Temperature	Annual	C	-	-	2038	16	23	7-26			
Dissolved Oxygen	Summer	mg/l	-	-	1012	0.3	7.1	0.1-8.2	671	2.4505	5.5025
Dissolved Oxygen	Winter	mg/l	-	-	1026	0.4	6.9	0.1-7.4	510	2.0737	4.9128
Total Suspended Solids	Annual	mg/l	20	30 <sub>A</sub>	1401	6.5	13.6	1-268	1401	8.8014	15.453
Oil and Grease, Hexane Extr Method	Annual	mg/l	-	10	291	0.6	2.6	0-6.2	291	2.9815	4.0859
Nitrogen, Ammonia (NH <sub>3</sub> )	Summer	mg/l	-	-	699	0.16	2.11	0-13.6	467	0.51849	1.2159
Nitrogen, Ammonia (NH <sub>3</sub> )	Winter	mg/l	-	-	700	0.3	4.3	0-15.9	341	0.67339	1.5872
Nitrite Plus Nitrate, Total	Annual	mg/l	-	-	181	15.9	29.9	3.2-97.5	181	27.345	38.527
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5 <sub>A</sub>	589	0.59	0.98	0.17-1.77	589	0.75973	1.1115
Cyanide, Free	Annual	mg/l	-	-	67	0	0	0-0.04	65	0.0292	0.04
Nickel, Total Recoverable	Annual	ug/l	-	-	67	0	27.7	0-55.4	67	26.916	40.448
Zinc, Total Recoverable	Annual	ug/l	-	-	67	96.3	226	30.3-1240	71	170.19	240.16
Cadmium, Total Recoverable	Annual	ug/l	-	-	67	0	0	0-6.03	61	4.402	6.03
Lead, Total Recoverable	Annual	ug/l	-	-	67	0	0	0-45.9	67	33.51	45.9
Chromium, Total Recoverable	Annual	ug/l	-	-	67	0	7.95	0-9.13	68	5.8751	8.6093
Copper, Total Recoverable	Annual	ug/l	-	-	67	0	23	0-137	68	25.205	38.726
Chromium, Dissolved Hexavalent	Annual	ug/l	-	-	67	0	0	0-0	67	--	--
Fecal Coliform	Annual	#/100 ml	-	-	506	16.5	1630	1-56000			
E. coli	Annual	#/100 ml	126	-	442	20	2900	0-80000			

Bis(2-ethylhexyl) Phthalate	Annual	ug/l	-	-	16	0	0	0-0	17	12.67	17.36
Flow Rate	Summer	MGD	-	-	1004	2.8	6.88	1.4-14.4			
Flow Rate	Winter	MGD	-	-	1020	5.8	14	1.9-24.7			
Flow Rate	Annual	MGD	-	-	2024	4.4	11.1	1.4-24.7			
Chlorine, Total Residual	Annual	mg/l	-	0.038	1012	0.02	0.02	0-0.19	1011	0.00876	0.012
Mercury, Total (Low Level)	Annual	ng/l	12	1100	143	3.55	11.9	0-24.7	143	7.9046	11.766
Acute Toxicity, C. dubia	Annual	TUa	-	1.0	22	0	0.95	0-1.8			
Chronic Toxicity, C. dubia	Annual	TUc	11	-	21	0	1.8	0-5.8			
Acute Toxicity, P. promelas	Annual	TUa	-	1.0	21	0	0.5	0-0.8			
Chronic Toxicity, P.promelas	Annual	TUc	11	-	20	0	18.2	0-18.2			
pH, Maximum	Annual	S.U.	-	9.0	2038	7.2	7.7	6.5-8.6			
pH, Minimum	Annual	S.U.	-	6.5	2038	7.1	7.5	5.6-8.3			
CBOD 5 day	Summer	mg/l	15	23 <sub>A</sub>	696	1.6	4.03	0-15	468	2.0816	4.1847
CBOD 5 day	Winter	mg/l	15	23 <sub>A</sub>	698	2.7	6.73	0-36	341	3.6642	6.0565

### **Outfall 300**

Overflow Occurrence	Annual	No./Month	-	-	21	0	1	0-2			
---------------------	--------	-----------	---	---	----	---	---	-----	--	--	--

### **Outfall 586**

Sludge Fee Weight	Annual	dry tons	-	-	271	3.17	3.79	0.74-7.2			
Sludge Weight	Annual	Dry Tons	-	-	216	3.07	6.36	0.7-9.71			

### **Outfall 601**

Total Suspended Solids	Annual	mg/l	-	-	1400	96	180	19-298			
Cyanide, Total	Annual	mg/l	-	-	68	0	0.0549	0-0.11			

Nickel, Total Recoverable	Annual	ug/l	-	-	68	0	35.4	0-266
Zinc, Total Recoverable	Annual	ug/l	-	-	67	231	3110	59.4-22600
Cadmium, Total Recoverable	Annual	ug/l	-	-	67	0	21.3	0-42.1
Lead, Total Recoverable	Annual	ug/l	-	-	67	0	0	0-41.7
Chromium, Total Recoverable	Annual	ug/l	-	-	67	11.2	96.7	0-200
Copper, Total Recoverable	Annual	ug/l	-	-	67	36.4	94	0-167
Chromium, Dissolved Hexavalent	Annual	ug/l	-	-	67	0	0	0-93.7
Mercury, Total (Low Level)	Annual	ng/l	-	-	144	25.7	106	3.71-282
pH, Maximum	Annual	S.U.	-	-	2038	7.3	7.7	5.4-10.6
pH, Minimum	Annual	S.U.	-	-	2037	7	7.3	4.8-9
CBOD 5 day	Summer	mg/l	-	-	694	106	157	6.9-193
CBOD 5 day	Winter	mg/l	-	-	697	64	119	1.5-202

**Outfall 602**

Bypass Total Hours Per Day	Annual	Hrs/Day	-	-	1	0	0	0-0
----------------------------	--------	---------	---	---	---	---	---	-----

**Outfall 603**

Bypass Occurrence	Annual	No./Day	-	-	1	0	0	0-0
-------------------	--------	---------	---	---	---	---	---	-----

**Outfall 801**

48-Hr. Acute Toxicity C. dubia	Annual	% Affected	-	-	20	0	0.5	0-10	20	10.22	14
96-Hr. Acute Toxicity P. promela	Annual	% Affected	-	-	20	2	12.5	0-22	20	23.323	39.601
7-Day Chronic Toxicity C. dubia	Annual	% Affected	-	-	20	0	10	0-10	20	10.22	14
7-Day Chronic Toxicity P. promelas	Annual	% Affected	-	-	20	9	30.1	0-32	20	48	83.539

**Table 3. Summary of Acute Toxicity Test Results**

Test Date(a)	<i>Ceriodaphnia dubia</i> 48 hours			<i>Fathead Minnows</i> 96 hour		
	UP <sup>b</sup>	LC <sub>50</sub> <sup>d</sup>	TUa <sup>c</sup>	UP <sup>b</sup>	LC <sub>50</sub> <sup>d</sup>	TUa <sup>c</sup>
3/28/2006 (E)	BD	BD	BD	BD	200	0.5
6/30/2006 (E)	BD	BD	BD	2	BD	BD
9/15/2006 (E)	BD	BD	BD	12	BD	BD
12/15/2006 (E)	BD	BD	BD	BD	BD	BD
1/24/2007 (E)	NT	100	1	NT	NT	NT
3/16/2007 (E)	BD	BD	BD	2	BD	BD
6/29/2007 (E)	10	BD	BD	BD	BD	BD
8/17/2007 (E)	BD	55.6	1.8	22	BD	BD
12/14/2007 (E)	BD	BD	BD	12	BD	BD
3/14/2008 (E)	BD	BD	BD	5	BD	BD
6/13/2008 (E)	BD	BD	BD	5	125	0.8
8/15/2008 (E)	BD	BD	BD	BD	BD	BD
12/8/2008 (E)	BD	BD	BD	10	250	0.4
3/17/2009 (E)	BD	BD	BD	BD	BD	BD
6/9/2009 (E)	BD	BD	BD	5	BD	BD

Fact Sheet for NPDES Permit Renewal, Ashtabula WWTP, 2011

9/22/2009 (E)	NT	BD	BD	NT	BD	BD
12/6/2009 (E)	BD	BD	BD	10	500	0.2
3/7/2010 (E)	BD	BD	BD	BD	BD	BD
6/8/2010 (E)	BD	BD	BD	BD	200	0.5
12/5/2010 (E)	BD	BD	BD	2	BD	BD
3/15/2011 (E)	BD	BD	BD	BD	BD	BD
6/14/2011 (E)	BD	BD	BD	8	BD	BD

<sup>a</sup> O = EPA test; E = entity test

<sup>b</sup> UP = upstream control water

<sup>c</sup> TUa = acute toxicity units

<sup>d</sup> LC<sub>50</sub> = median lethal concentration

NT = not tested

BD = below detection

**Table 4. Summary of Chronic Toxicity Test Results**

Test Date (a)	<i>Ceriodaphnia dubia</i> 7-Day		<i>Fathead Minnows</i> 7-day	
	UP <sup>c</sup>	TU <sub>c</sub> <sup>b</sup>	UP <sup>c</sup>	TU <sub>c</sub> <sup>b</sup>
3/28/2006 (E)	BD	BD	BD	5.8
6/30/2006 (E)	BD	BD	8	BD
9/15/2006 (E)	BD	BD	18	BD
12/15/2006 (E)	BD	BD	2	1.8
1/24/2007 (E)	ND	ND	ND	ND
3/16/2007 (E)	BD	1.8	15	BD
6/29/2007 (E)	10	BD	2	BD
8/17/2007 (E)	BD	1.8	32	18.2
12/14/2007 (E)	BD	BD	30	BD
3/14/2008 (E)	BD	BD	10	BD
6/13/2008 (E)	BD	BD	5	5.8
8/15/2008 (E)	BD	BD	2	BD
12/8/2008 (E)	BD	BD	18	5.8
3/17/2009 (E)	BD	BD	8	BD
6/9/2009 (E)	BD	BD	20	BD
9/22/2009 (E)	ND	BD	ND	BD
12/6/2009 (E)	BD	BD	25	ND
3/7/2010 (E)	10	BD	2	18.2
6/8/2010 (E)	BD	5.8	2	1.8
12/5/2010 (E)	BD	BD	22	2.0
3/15/2011 (E)	BD	BD	5	BD
6/14/2011 (E)	BD	BD	10	BD

<sup>a</sup>O = EPA test; E = entity test

<sup>b</sup>TU<sub>c</sub> = chronic toxicity units based on LOEC and NOEC

°UP = upstream control water  
BD = below detection  
NT = not tested

**Table 5. Effluent Data for the Ashtabula 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	467	436	0.51849	1.2159
Ammonia-W	mg/l	341	327	0.67339	1.5872
Bis(2-ethylhexyl)phthalate	ug/l	17	1	12.6728	17.36
Cadmium - TR	ug/l	61	2	4.4019	6.03
Chlorine (wwh,ewh, mwh,cwh) - TRes	mg/l	1011	1006	0.00876	0.012
Chloroform (Trichloromethane)	ug/l			--	--
Chromium - TR	ug/l	68	14	5.8751	8.6093
Chromium VI - Diss	ug/l	67	0	--	--
Copper - TR	ug/l	68	24	25.205	38.726
Cyanide - free	mg/l	65	2	0.0292	0.04
Lead - TR	ug/l	67	2	33.507	45.9
Mercury - TR (BCC)	ng/l	143	142	7.9046	11.766
Nickel - TR	ug/l	67	13	26.916	40.448
Nitrate-N + Nitrite-N	mg/l	181	181	27.345	38.527
Phosphorus	mg/l	589	589	0.75973	1.1115
Zinc - TR	ug/l	71	71	170.19	240.16
Di-n-butyl phthalate	ug/l	1	1	200.0492	274.04

**Table 6. Water Quality Criteria in the Study Area**

Parameter	Units	Outside Mixing Zone Criteria					Maximum Aquatic Life	Inside Mixing Zone Maximum
		Wildlife	Average					
			Human Health	Agri-culture	Aquatic Life			
Ammonia-S	mg/l	--	--	--	--	--	--	
Ammonia-W	mg/l	--	--	--	--	--	--	
Bis(2-ethylhexyl)phthalate	ug/l	--	32c	--	8.4	1100	2100	
Cadmium - TR	ug/l	--	730	50	3.2	6.6	13	
Chlorine - TRes	mg/l	--	--	--	0.011	0.019	0.038	
Chloroform	ug/l	--	1700c	--	140	1300	2600	
Chromium - TR	ug/l	--	14000	100	110	2400	4800	
Chromium VI - Diss	ug/l	--	14000	--	11	16	31	
Copper - TR	ug/l	--	64000	500	12	19	38	
Cyanide - free	mg/l	--	48	--	0.0052	0.022	0.044	
Lead - TR	ug/l	--	--	100	9.9	190	380	
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	3400	
Nickel - TR	ug/l	--	43000	200	69	620	1200	
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--	
Phosphorus	mg/l	--	--	--	--	--	--	
Zinc - TR	ug/l	--	35000	25000	160	160	320	
Di-n-butyl phthalate	ug/l	--	31	--	--	--	--	

**Table 7. Instream Conditions and Discharger Flow**

<u>Parameter</u>	<u>Units</u>	<u>Season</u>	<u>Value</u>	<u>Basis</u>
Mixing Assumption	%	average	--	
	%	maximum	--	
<i>Hardness</i>	mg/l	annual	140	
<i>Ashtabula WPCP flow</i>	cfs	annual	18.6	
<i>Background Water Quality</i>				
Bis(2-ethylhexyl)phthalate	ug/l		0	No representative data available.
Cadmium - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Chlorine- TRes	mg/l		0	No representative data available.
Chloroform (Trichloromethane)	ug/l		0	No representative data available.
Chromium - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Chromium VI - Diss	ug/l		0	No representative data available.
Copper - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Cyanide - free	mg/l		0	No representative data available.
Lead - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Mercury - TR	ng/l		0	Station LEASH001; 2002; n=3; 3<MDL;
Nickel - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Nitrate-N + Nitrite-N	mg/l		0.4475	Station 300893; 2010; n=4; 0<MDL;
Phosphorus	mg/l		0.008	Station 300893; 2010; n=4; 3<MDL;
Zinc - TR	ug/l		0	Station 300893; 2010; n=4; 4<MDL;
Di-n-butyl phthalate	ug/l		0	No representative data available.

**Table 8. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria**

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum	
			Human Health	Agri- culture	Aquatic Life	Aquatic Life	
Ammonia-S	mg/l	--	--	--	--	--	--
Ammonia-W	mg/l	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/l	--	352	--	92	--	2100
Cadmium - TR	ug/l	--	8030	550	35	--	13
Chlorine- TRes	mg/l	--	--	--	0.12	--	0.038
Chloroform	ug/l	--	18700	--	1540	--	2600
Chromium - TR	ug/l	--	154000	1100	1210	--	4800
Chromium VI - Diss	ug/l	--	154000	--	121	--	31
Copper - TR	ug/l	--	704000	5500	132	--	38
Cyanide - free	mg/l	--	528	--	0.057	--	0.044
Lead - TR	ug/l	--	--	1100	109	--	380
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	--
Nickel - TR	ug/l	--	473000	2200	759	--	1200
Nitrate-N + Nitrite-N	mg/l	--	--	1096	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	385000	275000	1760	--	320
Di-n-butyl phthalate	ug/l	--	341	--	--	--	--

**Table 9. Parameter Assessment for Outfall 001**

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

Phosphorus

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

Chloroform (Trichloromethane)      Chromium - TR      Chromium VI - Diss

*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.

Bis(2-ethylhexyl)phthalate      Cadmium - TR      Chlorine - TRes  
Lead - TR      Nickel - 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.

Cyanide - free      Zinc - TR      Di-n-butyl phthalate

*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>
Copper - TR	ug/l		--	38
Mercury - TR (BCC)	ng/l		1.3	1700

**Table 10. Final Effluent Limits and Monitoring Requirements for Outfall 001**

Parameter	Units	Effluent Limits				Basis <sup>b</sup>
		Concentration		Loading (kg/day) <sup>a</sup>		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	-----	Monitor	-----	-----	EP/M <sup>c</sup>
Temperature	NC	-----	Monitor	-----	-----	EP/M <sup>c</sup>
Dissolved Oxygen	mg/l	-----	Monitor	-----	-----	EP/M <sup>c</sup>
CBOD <sub>5</sub>	mg/l	15	23 <sup>d</sup>	682	1050 <sup>d</sup>	EP/PD
Suspended Solids	mg/l	20	30 <sup>d</sup>	909	1370 <sup>d</sup>	EP/PD
Ammonia-N	mg/l	-----	Monitor	-----	-----	EP/M <sup>c</sup>
Phosphorus	mg/l	1.0	1.5	45.5	68.2	PTS
Oil and Grease	mg/l	--	10	--	--	EP/WQS
pH	S.U.	-----	6.5 to 9.0	-----	-----	EP/WQS
Chlorine, tot. res.	mg/l	--	0.038	--	--	EP/PD
Cyanide, Free	mg/l	-----	Monitor	-----	-----	EP/RP
Cadmium, tot. rec.	µg/l	-----	Monitor	-----	-----	EP/BPJ
Chromium, tot. rec.	µg/l	-----	Monitor	-----	-----	EP/BPJ
Chromium <sup>+6</sup>	µg/l	-----	Monitor	-----	-----	EP/BPJ
Copper, tot. rec.	µg/l	--	38.0	--	1.73	WLA
Lead, tot. rec.	µg/l	-----	Monitor	-----	-----	EP/BPJ
E. Coli	#/100 ml	126	284 <sup>d</sup>	--	--	EP/WQS
Mercury, tot. rec.	ng/l	7.9	1100	--	--	WLA/ABS
Nickel, tot. rec.	µg/l	-----	Monitor	-----	-----	EP/BPJ
Zinc, tot. rec.	µg/l	-----	Monitor	-----	-----	EP/RP
Di-n-butyl phthalate		-----	Monitor	-----	-----	RP
Whole Effluent Toxicity						
Acute	TUa	--	1.0	--	--	WET
Chronic	TUc	11.0	--	--	--	WET

Table 11. Con't.

- <sup>a</sup> Effluent loadings based on average design discharge flow of 12.0 MGD.
- <sup>b</sup> Definitions:       **ABS** = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I))  
                              **BPJ** = Best Professional Judgment  
                              **EP** = Existing Permit  
                              **M** = Monitoring Guidance  
                              **PD** = Plant Design Criteria  
                              **PTS** = Phosphorus Treatment Standards (OAC 3645-330-06 (C))  
                              **RP** = Reasonable Potential for requiring water quality-based effluent limits and  
                              monitoring requirements in NPDES permits (3745-33-07(A))  
                              **WET** = Whole Effluent Toxicity (OAC 3745-33-07(B))  
                              **WLA** = Wasteload Allocation procedures (OAC 3745-2)  
                              **WQS** = Ohio Water Quality Standards (OAC 3745-1).
- <sup>c</sup> Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.
- <sup>d</sup> 7 day average limit.