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 Barberton Wastewater Treatment Plant

Public Notice No.: 11-05-066
Public Notice Date: May 24, 2011
Comment Period Ends: June 22, 2011

OEPA Permit No.: 3PD00004*KD
Application No.: OH0024007

Name and Address of Applicant:

City of Barberton
576 West Park Avenue
Barberton, Ohio 44203

Name and Address of Facility Where Discharge Occurs:

Barberton Wastewater Treatment Plant
5987 South Van Buren Avenue
Barberton, Ohio

Receiving Water: Tuscarawas River

Subsequent Stream Network: Muskingum River, Ohio River

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 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, $CBOD_5$, total suspended solids, ammonia-nitrogen, nitrite+nitrate-nitrogen, total Kjeldahl nitrogen, oil and grease, pH, total residual chlorine, free cyanide, cadmium, total chromium, dissolved hexavalent chromium, copper, lead, mercury, nickel and zinc.

New phosphorus limits are proposed based on the recommended wasteload allocation included in the report *Total Maximum Daily Loads for the Tuscarawas River Watershed* (Final Report; July 27, 2009; Ohio EPA). New final effluent limits are proposed for *Escherichia coli*, replacing the fecal coliform limits in the current permit. A two-year compliance schedule is proposed for meeting these new limits. Based on best engineering judgment, it is proposed that the plant comply with its current fecal coliform limits during the interim period.

Current permit limits for bis(2-ethylhexyl)phthalate are being removed because effluent data show that it no longer has the reasonable potential to contribute to exceedances of water quality standards. Continued monitoring is proposed.

New monitoring requirements for total dissolved solids (total filterable residue) and barium are proposed to obtain data on the frequency of occurrence and variability of these parameters in the Barberton effluent.

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.

Current monitoring requirements for antimony are being removed from the permit because data show that it does not pose an environmental hazard in the Barberton discharge.

In Part II of the permit, special conditions are included that address sanitary sewer overflow reporting; operator certification, minimum staffing and operator of record; outfall signage; and pretreatment program requirements.

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Procedures for Participation in the Formulation of Final Determinations

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

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

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

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

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

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits 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 the draft permit, contact Gary Stuhlfauth, (614) 644-2026, Gart.Stuhlfauth@epa.ohio.gov .

Location of Discharge/Receiving Water Use Classification

The Barberton wastewater treatment plant discharges to the Tuscarawas River at River Mile (RM) 109.14. Figure 1 shows the approximate location of the facility.

This segment of the Tuscarawas River is described by Ohio EPA River Code: 17-500, U.S. EPA River Reach #: 05040001-030, County: Summit, Ecoregion: Erie Drift Plain. The Tuscarawas River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-24): Modified Warmwater Habitat (MWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class A Primary Contact Recreation.

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 can not meet the Clean Water Act goals because of human-caused conditions that can not 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 Barberton wastewater treatment plant has an average daily design flow of 6.0 MGD (million gallons per day). Wet stream processes are screening and grit removal, flow equalization, primary settling, preaeration, trickling filtration, intermediate settling, activated sludge aeration, final clarification, chlorination, dechlorination and post aeration. Solid stream processes are sludge storage tanks, lime addition, dewatering using belt filter presses and disposal of stabilized sludge by land application (Class A biosolids) or by hauling to a landfill.

When influent flow rates exceed the capacity of secondary treatment, excess flow can be routed to equalization basins. Once sent to the equalization basins, wastewater is either returned to the secondary treatment process or bypassed to the river through station 002, depending on the influent flow rate. Table 5 provides information on discharges through station 002 from November 2005 through October 2010.

Barberton has a separate sanitary sewer system serving the city (population approximately 27,500) and about 4,100 residents in Summit County.

The City implements an Ohio EPA-approved industrial pretreatment program. Based on information in the 2010 NPDES renewal application, four categorical industrial users and seven significant noncategorical industrial users discharge approximately 0.320 MGD to the wastewater plant.

Description of Existing Discharge

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

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 3PD00004001. Data are presented for the period November 2005 through October 2010, and current permit limits are provided for comparison.

Table 3 summarizes the results of an acute screening whole effluent toxicity test of the final effluent.

Table 4 summarizes the chemical specific data for outfall 001 by presenting the average and maximum Projected Effluent Quality (PEQ) values.

Table 5 provides information on discharges through secondary bypass station 002 from November 2005 through October 2010.

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

Ohio EPA conducted a biological and water quality survey of the Tuscarawas River basin during 2004 and 2005. Based on the results of that survey, the Agency conducted a TMDL (total maximum daily loads) study for the Tuscarawas River basin to address the water quality impairments identified during the survey. The report, *Total Maximum Daily Loads for the Tuscarawas River Watershed* (Final Report; July 27, 2009; Ohio EPA) was approved by U.S. EPA on September 15, 2009. Figure 2 is a table from the report that shows the attainment status of the Tuscarawas River mainstem upstream and downstream of Barberton.

The following excerpts are taken from that report (pages 63 – 64 and page 111):

4.1.4 Organic Enrichment/Dissolved Oxygen

The Tuscarawas River in the vicinity of the City of Barberton showed consistently low dissolved oxygen during several low flow surveys conducted by Ohio EPA in 2004 and 2005. Dissolved oxygen is assessed using the QUAL2K Dissolved Oxygen model, version 2.04 (Chapra, 2005).

Besides simulating D.O., QUAL2K is used to simulate the decay of organic and inorganic phosphorus in the stream, because excessive phosphorus is conducive to nuisance algae problems. The study area is found to be enriched with excessive phosphorus concentrations (downstream of the Barberton WWTP), when compared to typical phosphorus concentrations in streams that meet their use designation. Calibration of the model is developed using data collected during a stream survey conducted by the Ohio EPA during 14-16 September 2005. The decay rates for CBOD, ammonia, phosphorus and other parameters are determined from survey data, and used in the model. Other relevant parameters (such as reaeration, sediment oxygen demand, benthic algae, etc.) are calculated or estimated based on field observations, literature values or predictive equations recommended by Ohio EPA. The model results are compared to the observed data and the estimated inputs adjusted accordingly.

5.3 Tuscarawas River (below Wolf Creek to below Sippo Creek) [Excluding Chippewa Creek] – 030

This 11-digit HUC contains 19.9 river miles of the Tuscarawas River mainstem and small and medium sized tributaries. The severe dissolved oxygen (D.O.) problems that were observed upstream of Wolf Creek show substantial improvement in this hydrologic unit. The dissolved oxygen levels improve because the stream has a more pronounced slope and faster velocities that increase stream re-aeration. However, the stream receives large nutrient loads from the Barberton WWTP, Chippewa Creek and other tributaries, which stimulate excessive algal growth and contribute to pronounced D.O. swings and nutrient enrichment. The Tuscarawas River tributaries included in this watershed have a variety of impairments. The tributaries to the west of the Tuscarawas River have impairments similar to, but not as severe as, the Chippewa Creek tributaries. In general, the tributaries to the east of the Tuscarawas River are much more urbanized.

The complete TMDL report is available at the following Ohio EPA web site: http://epa.ohio.gov/Default.aspx?tabid=3780 .

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 Barberton wastewater plant were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to Ohio EPA - Discharge Monitoring Report (DMR) data submitted by the permittee, compliance sampling data collected by Ohio EPA, and any other data submitted by the permittee, such as priority pollutant scans required by the NPDES application or by pretreatment, or other special conditions in the NPDES permit. The sources of effluent data used in this evaluation are as follows:

Self-monitoring data (DMR)	November 2005 through October 2010
Pretreatment data	2005 - 2009

The data were examined, and the following values were removed from the evaluation to give a more reliable projection of effluent quality: winter ammonia-nitrogen – seven high values greater than 15 mg/l; copper – six low values; zinc – three low values.

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95^{th} percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95^{th} percentile of all data points. The average and maximum PEQ values are presented in Table 4.

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_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 9 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 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.

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
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 7, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

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

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. The current summer ammonia limits and the winter monitoring requirement have been evaluated using the wasteload allocation procedures and are protective of water quality standards for ammonia toxicity.

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

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

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_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 Barberton, the wasteload allocation values are 1.0 TU_a and 4.32 TU_c.

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

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

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

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

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

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

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

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum wasteload allocations are selected from Table 8. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 4, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [($PEQ_{avg} \div PEL_{avg}$) X 100, or ($PEQ_{max} \div PEL_{max}$) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 9.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 10 presents the final effluent limits and monitoring requirements proposed for Barberton outfall 3PD00004001 and the basis for their recommendation.

Based on best engineering judgment, the limits proposed for dissolved oxygen, total suspended solids, ammonia-nitrogen and 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) are all a continuation of existing permit limits. The current summer ammonia limits and the winter monitoring requirement were evaluated and are protective of water quality standards for ammonia toxicity.

Limits proposed for oil and grease, pH, and *Escherichia coli* are based on Water Quality Standards (OAC 3745-1-07). Class A Primary Contact Recreation *E. coli* standards apply to the Tuscarawas River.

Water quality standards for *E. coli* became effective in March 2010, and a two year compliance schedule is proposed for meeting these new final effluent limits. The schedule provides time during the summer disinfection season for the plant to evaluate the ability of its existing disinfection system to achieve the new limits and to make operational changes or equipment upgrades if necessary. Based on best engineering judgment, it is proposed that the plant comply with its current fecal coliform limits during the interim period.

The proposed limit for total residual chlorine is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. This is a continuation of the existing permit limit.

Phosphorus is limited based on the recommended wasteload allocation included in the report *Total Maximum Daily Loads for the Tuscarawas River Watershed* (Final Report; July 27, 2009; Ohio EPA). A two year compliance schedule is proposed for meeting these new limits. The schedule provides time for the City to evaluate its existing treatment system and to design and construct the necessary plant upgrades.

A continuation of monitoring for nitrite+nitrate-nitrogen and total Kjeldahl nitrogen is proposed based on best engineering judgment. In addition, monitoring for total phosphorus and nitrite+nitrate-nitrogen is proposed at the upstream and downstream stations, 801 and 901. The purpose of the monitoring is to maintain a data base on nutrient loadings and ambient concentrations in the basin. This data will be available for future studies addressing nutrient-related water quality impairment.

The Ohio EPA risk assessment (Table 9) places barium 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 this pollutant. The PEQ values calculated for barium (Table 3) may not be representative of its actual levels in the plant effluent because it was based on a single data point. The purpose of the proposed monitoring is to collect additional data on the frequency of occurrence and variability of this pollutant in the plant's effluent.

Ohio EPA risk assessment (Table 9) places copper and mercury in group 4. This placement as well as the data in Tables 2 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring for Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC Rule 3745-33-07(A)(2).

In addition, the mercury effluent quality falls within 75 percent of the wasteload allocation. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II Item L of the draft permit.

Ohio EPA risk assessment (Table 9) places free cyanide, nickel, zinc, cadmium, lead, total chromium, dissolved hexavalent chromium, bis(2-ethylhexyl)phthalate and total dissolved solids (total filterable residue) in groups 2 and 3. This placement as well as the data in Tables 2 and 4 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring is proposed to document that these pollutants continue to remain at low levels.

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 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.

Bis(2-ethylhexyl)phthalate and chloroform are carcinogens detected in the Barberton effluent. The reasonable potential for the additive effects of these pollutants to exceed the risk levels specified in OAC 3745-33-07(A)(8) was evaluated. Reasonable potential was not demonstrated, so no limit is proposed for the additivity of carcinogens.

Whole Effluent Toxicity Reasonable Potential
Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. Evaluating the whole effluent toxicity data presented in Table 3 and other pertinent data under the provisions of OAC 3745-33-07(B) placed the Barberton wastewater plant in Category 4 with respect to whole effluent toxicity. 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

Schedule of Compliance
A six month compliance schedule is proposed for the City to submit a technical justification for either revising its local industrial user limits or retaining its existing local limits. If revisions to local limits are required, the City must also submit a pretreatment program modification request.

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

The two-year compliance schedule for meeting the final limits for total phosphorus and *E. coli* were previously discussed.

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 of the permit in accordance with rules adopted in December 2006. These rules require the Barberton wastewater treatment plant to have a Class IV wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001.

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

Storm Water Compliance
Parts IV, V, and VI have been included with the draft permit in order to ensure that any storm water flows from the facility site are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, the City of Barberton may seek permit coverage under the general permit for industrial storm water (permit # OHR000004) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the City submits a Notice of Intent (NOI) for coverage under the general permit for industrial storm water or submits a No Exposure Certification, 2) Ohio EPA determines that the facility is eligible for coverage under the general permit or meets the requirements for a No Exposure Certification, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

Outfall Signage
Part II of the permit includes requirements for the permittee to place a sign at each outfall to the Tuscarawas River providing information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

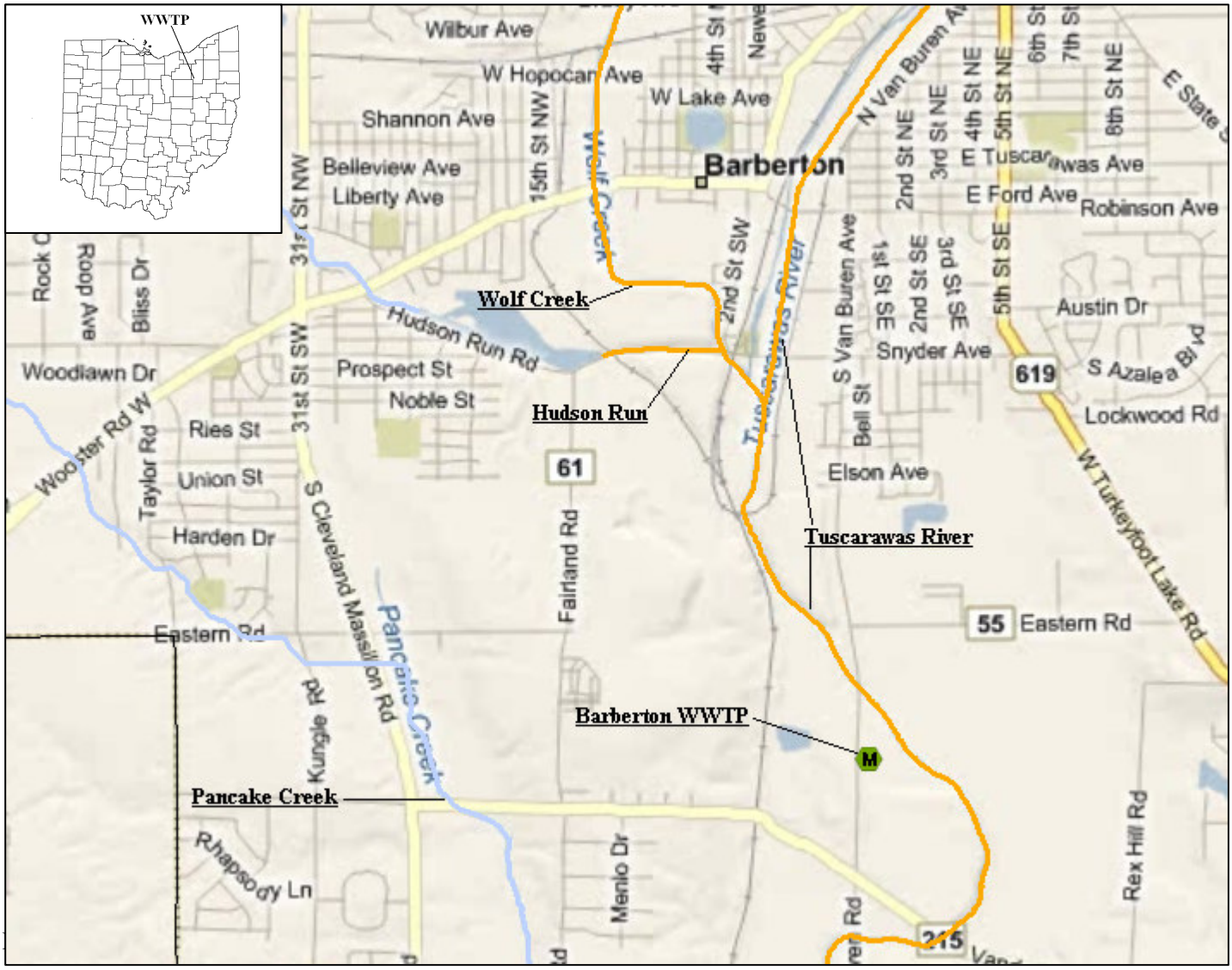
WWTP
Wilbur Ave
W Hopocan Ave
W Lake Ave
Shannon Ave
Belleview Ave
Liberty Ave
Barberton
Wolf Creek
Hudson Run Rd
Prospect St
Noble St
Hudson Run
Woodlawn Dr
Ries St
Union St
Harden Dr
Eastern Rd
Fairland Rd
61
Tuscarawas River
Elson Ave
Snyder Ave
Austin Dr
Lockwood Rd
619
55 Eastern Rd
Barberton WWTP
Pancake Creek
Rhapsody Ln
Menlo Dr
Rex Hill Rd
Cleveland Massillon Rd
Kungle Rd
Taylor Rd
Wooster Rd W
Bliss Dr
Roop Ave
31st St NW
31st St SW
15th St NW
2nd St SW
S Van Buren Ave
N Van Buren Ave
2nd St NE
3rd St NE
4th St NE
5th St NE
6th St NE
E Tuscarawas Ave
E Ford Ave
Robinson Ave
E State
1st St SE
2nd St SE
3rd St SE
5th St SE
Bell St
S Azalea Blvd
W Turkeyfoot Lake Rd

Table 1. Effluent Characterization Using Pretreatment Data

Summary of analytical results for Barberton outfall 3PD00004001. Units ug/l unless otherwise noted; OEPA = data from analyses by Ohio EPA; PT = data from pretreatment program reports; NA = not analyzed; ND = not detected (detection limit).

PARAMETER	PT 10/20/09	PT 09/18/08	PT 09/25/07	PT 09/26/06	PT 09/20/05
Arsenic	ND(1.0)	1.9	3.1	ND(1.0)	ND(1.0)
Barium	NT	NT	NT	NT	232
Beryllium	ND(0.2)	0.8	ND(0.2)	ND(0.2)	ND(0.2)
Copper	7	34	7	7	ND(2.0)
Nickel	15	5	ND(0.2)	ND(0.2)	ND(0.2)
Selenium	1.4	1.8	ND(1.0)	1.1	ND(1.0)
Zinc	110	67	69	11	52
Bromodichloromethane	ND(1.0)	ND(1.0)	11.7	6.4	ND(2.2)
Bis(2-ethylhexyl)phthalate	2.4	1.3	ND(2.5)	ND(2.5)	2.6
Chloroform	4.1	1.8	64.5	26.8	2.1
Dibromochloromethane	ND(1.0)	ND(1.0)	47.5	13.9	ND(1.0)

Table 2. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report data for Barberton outfall 3PD00004001 (November 2005 – October 2010). All values are based on annual records unless otherwise indicated. * = For minimum pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; a = weekly average.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Water Temperature	Annual	C	Monitor		1826	16.1	23.2	7.3-26.5
Dissolved Oxygen	Summer	mg/l		5.0 min	920	8.08	6.9**	6.04-12.3
Dissolved Oxygen	Winter	mg/l		5.0 min	906	9.23	8.5**	7-13
Total Suspended Solids	Annual	mg/l	18/30 S/W	30/45[a]	780	2	7	0-44
Oil and Grease, Hexane	Annual	mg/l		10	117	2	9	0-32
Nitrogen, Ammonia (NH3)	Summer	mg/l	2	3[a]	392	0.06	3.36	0-8.18
Nitrogen, Ammonia (NH3)	Winter	mg/l	Monitor		387	1.71	11.2	0-26.4
Nitrogen Kjeldahl, Total	Annual	mg/l	Monitor		51	2.23	12.3	0.19-17.4
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		60	9.38	20.8	1.04-38.1
Phosphorus, Total (P)	Annual	mg/l	Monitor		90	4.3	10.6	0.462-16.2
Cyanide, Free	Annual	mg/l	Monitor		60	0	0	0-0
Selenium, Total Recoverable	Annual	ug/l	--	--	3	2.1	2.1	0.0016-2.1
Nickel, Total Recoverable	Annual	ug/l	Monitor		55	0	5.9	0-12
Zinc, Total Recoverable	Annual	ug/l	Monitor		55	61	110	0.036-143
Cadmium, Total Recoverable	Annual	ug/l	Monitor		55	0	0	0-2.1
Lead, Total Recoverable	Annual	ug/l	Monitor		55	0	0	0-0
Chromium, Total Recoverable	Annual	ug/l	Monitor		55	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	Monitor		55	11	28.3	0-42
Chromium, Dissolved Hexavalent	Annual	ug/l	Monitor		55	0	0	0-0
Antimony, Total Recoverable	Annual	ug/l	Monitor		53	0	50.3	0-92
Fecal Coliform	Annual	#/100 ml	1000	2000[a]	401	5	300	0-18000
Pentachlorophenol	Annual	ug/l	--	--	8	0	0	0-0
Bis(2-ethylhexyl) Phthalate	Annual	ug/l	36	2100	60	0	4.43	0-9.7
Flow Rate	Summer	MGD	Monitor		920	3.78	5.68	2.53-11
Flow Rate	Winter	MGD	Monitor		906	4.6	8.84	2.53-12
Flow Rate	Annual	MGD	Monitor		1826	4.15	7.68	2.53-12
Chlorine, Total Residual	Annual	mg/l		0.038	920	0.02	0.03	0-0.03
Mercury, Total (Low Level)	Annual	ng/l	Monitor		60	4.95	12.8	0-16
pH, Maximum	Annual	S.U.		9.0	1826	7.39	7.69	6.77-8.53
pH, Minimum	Annual	S.U.		6.5	1826	6.85*	7.49	6.42-8.25
Solids, Dissolved	Annual	mg/l	--	--	104	1810	2310	992-2490
CBOD 5 day	Summer	mg/l	10	15[a]	392	2	5	0-26
CBOD 5 day	Winter	mg/l	25	40[a]	387	3	9	0-30

Table 3. Summary of Acute Toxicity Test Results

Test Date(a)	*Ceriodaphnia dubia 48 hours*								*Fathead Minnows 48 hours*							
	UP[b]	C[c]	LC_{50}[d]	EC_{50}[e]	%A[f]	%M[g]	TUa[h]	NF[i]	UP[b]	C[c]	LC_{50}[d]	EC_{50}[e]	%A[f]	%M[g]	TUa[h]	NF[i]
06/11/10(E)*	NT	0	>100	>100	0	0	BD	NT	NT	0	>100	>100	0	0	BD	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = median lethal concentration
[e] EC_{50} = median effects concentration
NT = not tested
* = 48 hour screening test

[f] %A = percent adversely affected in 100% effluent
[g] %M = percent mortality in 100% effluent
[h] TUa = acute toxicity units
[i] NF = near field sample in N/A
ND = not determined
BD = below detection

Table 4. Projected Effluent Quality Values

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-S	mg/l	262	255	0.66	1.23
Ammonia-W	mg/l	186	186	8.672	11.88
Antimony	ug/l	53	10	65.6	84.2
Arsenic - TR	ug/l	5	2	5.2049	7.13
Barium - TR	ug/l	1	1	1050.032	1438.4
Beryllium - TR	ug/l	5	1	1.3432	1.84
Bis(2-ethylhexyl)phthalate	ug/l	65	32	4.37	6.9
Bromodichloromethane	ug/l	5	2	19.6443	26.91
Cadmium - TR	ug/l	55	1	1.533	2.1
Chlorine - TRes	mg/l	920	818	0.01314	0.018
Chloroform	ug/l	5	5	108.2955	148.35
Chromium - TR	ug/l	55	0	--	--
Chromium VI - Diss	ug/l	55	0	--	--
Copper - TR	ug/l	49	38	27.5	42.9
Cyanide - free	mg/l	60	0	--	--
Dibromochloromethane	ug/l	5	2	79.7525	109.25
Dissolved solids (ave)	mg/l	104	104	1966	2430
Lead - TR	ug/l	55	0	--	--
Mercury - TR	ng/l	60	59	11.68	16
Nickel - TR	ug/l	60	15	10.3	12.4
Nitrate-N + Nitrite-N	mg/l	60	60	24	38
Phosphorus – T	mg/l	90	90	9.46	14.4
Selenium - TR	ug/l	8	6	2.9127	3.99
Zinc - TR	ug/l	52	52	108	160

Table 5. Station 002 Bypass Discharges

Summary of monthly operating report data for bypass discharges for the period November 2005 through October 2010.

Year	Days Bypassing	Total Volume (MG)	Average Volume (MG)	Range (MG)
2007	6	13.074	2.179	0.076-5.530
2008	10	32.510	3.251	0.430-5.640
2009	1	1.780		
2010	0			

Table 2.4 Aquatic life use (ALU) and recreation use (RU) attainment status for the Tuscarawas River (excluding all tributaries). Area shaded red indicates NON or partial attainment status.

Stream & RM	Attainment Status		QHEI	Impairment Cause	Impairment Source	Addressed in TMDL?
	ALU	RU				
Assessment Unit 05040001 Tuscarawas River (headwaters to the Muskingum River)						
Tuscarawas River (17-500) WWH – Eastern Ontario Lake Plain (EOLP)						
126.7	NON	NON	70.5	Habitat alteration, siltation, organic enrichment, pathogen	Suburbanization, channelization	Yes
123.1	PART	FULL	70.5	Flow alteration, organic enrichment, nutrients	Suburbanization, channelization	Yes
122.7	PART	FULL	62.5	Flow alteration, organic enrichment, nutrients	Suburbanization, channelization	Yes
122.5	PART	FULL	71.0	Flow alteration, organic enrichment, nutrients	Suburbanization, channelization	Yes
120.1	FULL	FULL	75.0			Yes
119.3	FULL	FULL	58.0			Yes
Tuscarawas River (17-500) MWH – (EOLP) – Channel modification from RM 112.9-103.2						
110.8	PART	FULL	74.0	Flow alteration, organic enrichment, nutrients, dissolved solids	Suburbanization, channelization	Yes
Tuscarawas River (17-500) WWH – (EOLP)						
100.0	PART	NON	71.5	Organic enrichment, suspended solids, nutrients, TDS, pathogen	Chippewa Creek, Barberton WWTP, PPG Lime Lakes	Yes
94.5/94.2	PART	NON	63.0	Organic enrichment, suspended solids, nutrients, TDS, pathogen	Chippewa Creek, Barberton WWTP, PPG Lime Lakes	Yes

Figure 2. Attainment Status for Tuscarawas River mainstem upstream and downstream from Barberton. From *Total Maximum Daily Loads for the Tuscarawas River Watershed* (Final Report; July 27, 2009; Ohio EPA).

Table 6. Water Quality Criteria in the Study Area

		Outside Mixing Zone Criteria				Inside Mixing Zone
		Average			Maximum	
Parameter	Units	Human Health	Agri-culture	Aquatic Life	Aquatic Life	Maximum
Ammonia-S	mg/l	--	--	2.3	--	--
Ammonia-W	mg/l	--	--	3.3	--	--
Antimony - TR	ug/l	4300	--	190	900	1800
Arsenic - TR	ug/l	--	100	150	340	680
Barium - TR	ug/l	--	--	220	2000	4000
Beryllium	ug/l	280	100	64	550	1100
Bis(2-ethylhexyl)phthalate	ug/l	59[c]	--	8.4	1100	2100
Bromodichloromethane	ug/l	460[c]	--	--	--	--
Cadmium - TR	ug/l	--	50	5.8	16	31
Chlorine - TRes	mg/l	--	--	0.011	0.019	0.038
Chloroform	ug/l	4700[c]	--	140	1300	2600
Chromium - TR	ug/l	--	100	210	4400	8900
Chromium VI - Diss	ug/l	--	--	11	16	31
Copper – TR	ug/l	1300	500	24	39	79
Cyanide - free	mg/l	220	--	0.012	0.046	0.092
Dibromochloromethane	ug/l	340[c]	--	--	--	--
Dissolved solids (ave)	mg/l	--	--	1500	--	--
Lead – TR	ug/l	--	100	26	500	990
Mercury - TR	ng/l	12	10000	910	1700	3400
Molybdenum - TR	ug/l	--	--	20000	190000	370000
Nickel - TR	ug/l	4600	200	130	1200	2400
Nitrate-N + Nitrite-N	mg/l	--	100	--	--	--
Selenium - TR	ug/l	11000	50	5	--	--
Silver - TR	ug/l	--	--	1.3	11	21
Zinc - TR	ug/l	69000	25000	300	300	610

c = Carcinogen

Table 7. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	26.45	USGS 03116000
7Q10	cfs	annual	30.86	USGS 03116000
30Q10	cfs	summer	35.26	USGS 03116000
		winter	37.91	USGS 03116000
Harmonic Mean	cfs	annual	75	USGS 03116000
Mixing Assumption	%	average	100	
	%	maximum	100	
Hardness	mg/l	annual	300	Station 901, n=55, 2005-10
pH	S.U.	summer	7.8	Station 901, n=20, 2005-10
		winter	8.0	Station 901, n = 15, 2005-10
Temperature	C	summer	23	Station 901, n=20, 2005-10
		winter	5.4	Station 901, n=15, 2005-10
Barberton WWTP flow	cfs	annual	9.284	DSW, 2A Application
Background Water Quality				
Ammonia-S	mg/l		0.135	DMR; 2005-10; n=20; 0<MDL; Station 801
Ammonia-W	mg/l		0.21	DMR; 2005-10; n=15; 0<MDL; Station 801
Antimony - TR	ug/l		0	No representative data available.
Arsenic - TR	ug/l		3.9	STORET; 2003-05; n=63; 6<MDL; Stations R06-P04,S34,P88
Barium - TR	ug/l		79	STORET; 2003-05; n=63; 0<MDL; Stations R06-P04,S34,P88
Beryllium - TR	ug/l		0	No representative data available.
Bis(2-ethylhexyl)phthalate	ug/l		0	No representative data available.
Bromodichloromethane	ug/l		0	No representative data available.
Cadmium - TR	ug/l		0.1	STORET; 2003-05; n=63; 62<MDL; Stations R06-P04,S34,P88
Chlorine - TRes	mg/l		0	No representative data available.
Chloroform	ug/l		0	No representative data available.
Chromium - TR	ug/l		0	STORET; 2003-05; n=63; 63<MDL; Stations R06-P04,S34,P88
Chromium VI - Diss	ug/l		0	No representative data available.
Copper - TR	ug/l		0	STORET; 2003-05; n=63; 63<MDL; Stations R06-P04,S34,P88
Cyanide - free	mg/l		0	No representative data available.
Dibromochloromethane	ug/l		0	No representative data available.
Dissolved solids (ave)	mg/l		506	STORET; 2003-05; n=63; 0<MDL; Stations R06-P04,S34,P88
Lead - TR	ug/l		1	STORET; 2003-05; n=63; 48<MDL; Stations R06-P04,S34,P88
Mercury - TR	ng/l		0	No representative data available.
Molybdenum - TR	ug/l		0	No representative data available.
Nickel - TR	ug/l		0	STORET; 2003-05; n=63; 63<MDL; Stations R06-P04,S34,P88
Nitrate-N + Nitrite-N	mg/l		0.53	STORET; 2003-05; n=63; 2<MDL; Stations R06-P04,S34,P88
Selenium - TR	ug/l		0	STORET; 2003-05; n=63; 63<MDL; Stations R06-P04,S34,P88
Silver - TR	ug/l		0	No representative data available.
Zinc - TR	ug/l		5	STORET; 2003-05; n=63; 40<MDL; Stations R06-P04,S34,P88

Table 8. Summary of Effluent Limits to Maintain Applicable WQ Criteria

		Outside Mixing Zone Criteria				Inside
		Average			Maximum	Mixing
		Human	Agri-	Aquatic	Aquatic	Zone
Parameter	Units	Health	culture	Life	Life	Maximum
Ammonia-S	mg/l	--	--	10.5	--	--
Ammonia-W	mg/l	--	--	15.9	--	--
Antimony - TR	ug/l	39037	--	822	3464	1800
Arsenic - TR	ug/l	--	876	636	1298	680
Barium – TR	ug/l	--	--	689	7473	4000
Beryllium - TR	ug/l	2542	908	277	2117	1100
Bis(2-ethylhexyl)phthalate	ug/l	536	--	36	4234	2100
Bromodichloromethane	ug/l	4176	--	--	--	--
Cadmium - TR	ug/l	--	453	25	61	31
Chlorine - TRes	mg/l	--	--	0.048	0.073	0.038
Chloroform	ug/l	42669	--	605	5004	2600
Chromium - TR	ug/l	--	908	908	16936	8900
Chromium VI - Diss	ug/l	--	--	48	62	31
Copper - TR	ug/l	11802	4539	104	150	79
Cyanide - free	mg/l	1997	--	0.052	0.18	0.092
Dibromochloromethane	ug/l	3087	--	--	--	--
Dissolved solids (ave)	mg/l	--	--	4804	--	--
Lead - TR	ug/l	--	900	109	1922	990
Mercury - TR	ng/l	12	10000	910	1700	3400
Molybdenum – TR	ug/l	--	--	86480	731308	370000
Nickel – TR	ug/l	41761	1816	562	4619	2400
Nitrate-N + Nitrite-N	mg/l	--	904	--	--	--
Selenium – TR	ug/l	99863	454	22	--	--
Silver - TR	ug/l	--	--	5.6	42	21
Zinc – TR	ug/l	626370	226920	1281	1140	610

Table 9. Parameter Assessment

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

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

Arsenic - TR	Beryllium - TR	Bromodichloromethane
Chromium - TR	Chromium VI - Diss	Cyanide - free
Dibromochloromethane	Lead – TR	Molybdenum - TR
Nickel - TR	Nitrate-N+Nitrite-N	Silver - TR

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

Antimony - TR	Bis(2-ethylhexyl)phthalate	Chlorine – T Res
Chloroform	Cadmium - TR	Selenium - TR
Dissolved solids (ave)	Zinc - TR	

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.

Mercury - TR	Copper - TR

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

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum
Barium	ug/l	Annual	689	4000

Mercury - TR requires a permit tracking requirement in accordance with OAC 3745-33-07(A)(2) since the PEQ is > or = 75 percent of the PEL.

Table 10. Final Effluent Limits and Monitoring Requirements

		Effluent Limitations				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Basis[b]
Temperature	°C	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Dissolved Oxygen	mg/l	5.0 minimum		--	--	BEJ, EP
Suspended Solids	mg/l					
Summer		18	27[c]	409	613[c]	BEJ, EP
Winter		30	45[c]	681	1022[c]	BEJ, EP
Oil and Grease	mg/l	--	10	--	--	WQS, EP
Ammonia-N	mg/l					
Summer		2.0	3.0[c]	45.4	68.1[c]	BEJ, EP
Winter		- - - - - - - - - - - - Monitor - - - - - - - - - - - -				BEJ, EP
Total Kjeldahl-N	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Nitrite(N) + Nitrate(N)	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Phosphorus, Total	mg/l	1.0	1.5	22.7	34.1	TMDL
Cyanide, Free	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Barium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Nickel, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Zinc, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Cadmium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Lead, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Chromium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Copper, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Hex. Chromium (Dissolved)	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Fecal Coliform						
Summer Only (Interim)	#/100ml	1000	2000[c]	--	--	BEJ, EP
E. coli						
Summer Only (Final)	#/100ml	126	284[c]	--	--	WQS
Bis(2-ethylhexyl) phthalate	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				BEJ
Flow	MGD	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Chlorine, Total Residual						
Summer	mg/l	--	0.038	--	--	WLA/IMZM, EP
Mercury, T.	ng/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Whole Effluent Toxicity						
Acute	TUa	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
Chronic	TUc	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
pH	S.U.	- - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - -				WQS, EP
Total Filterable Residue (Dissolved Solids)	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
$CBOD_5$	mg/l					
Summer		10	15[c]	227	341[c]	BEJ, EP
Winter		25	40[c]	568	908[c]	BEJ, EP

Table 10. Final Effluent Limits and Monitoring Requirements (Continued)

[a] Effluent loadings based on average design discharge flow of 6.0 MGD.

[b] Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits [OAC 3745-33-07(A)]; TMDL = *Total Maximum Daily Loads for the Tuscarawas River Watershed* (Final Report; July 27, 2009; Ohio EPA); WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]; WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1-07).

[c] Weekly average limit.