National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for the Coshocton Wastewater Treatment Plant

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

Ohio EPA Permit No.: 0PD00004*KD
Application No.: OH0024775

Name and Address of Applicant:

City of Coshocton
760 Chestnut Street
Coshocton, Ohio 43812

Name and Address of Facility Where Discharge Occurs:

Coshocton Wastewater Treatment Plant
2742 County Road 271
Coshocton, Ohio

Receiving Water: Muskingum River

Subsequent
Stream Network: Ohio River

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations (CFR), Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency (Ohio EPA), as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act and Ohio Water Pollution Control Law (Ohio Revised Code [ORC] 6111). Decisions to award variances to Water Quality Standards (WQS) or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by the United States EPA (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ) or best engineering judgment (BEJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations (WLAs) are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may

represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

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

Summary of Permit Conditions

Final effluent limits will remain the same as in the existing permit except for mercury and silver. The current mercury variance will be renewed with a lower monthly average imit. Limits for silver have been removed, as well as monitoring for selenium.

Final effluent limits are proposed for *Escherichia coli*. New water quality standards for *E. coli* became effective in March 2010. A compliance schedule is proposed for meeting these new final effluent limits. Based on best engineering judgment, it is proposed that the plant comply with its current fecal coliform limits during the interim period.

Annual acute toxicity monitoring is proposed for the life of the permit. This satisfies the minimum testing requirements of OAC 3754-33-07(B)(11) and will adequately characterize toxicity in the plant's effluent.

In Part II of the permit, special conditions are included that address sanitary sewer overflow reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity testing; storm water compliance; outfall signage; downstream public water supply notification; 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 Ohio EPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

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

For additional information about this fact sheet or the draft permit, contact Aaron Pennington, (740) 380-5272, aaron.pennington@epa.state.oh.us, or Megan Zale, (614) 644-2027, Megan.Zale@epa.state.oh.us.

Location of Discharge/Receiving Water Use Classification

The Coshocton Wastewater Treatment Plant discharges to the Muskingum River at River Mile (RM) 108.56, downstream from the confluence of the Tuscarawas and Walhondling Rivers. Figure 1 shows the approximate location of the facility. The Muskingum River ultimately flows into the Ohio River.

This segment of the Muskingum River is described by Ohio EPA River Code: 17-001, U.S. EPA River Reach #: 05040004-071, County: Coshocton, Ecoregion: Western Allegheny Plateau. The Muskingum River is designated for the following uses under Ohio's WQS (OAC 3745-1-07): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (Ohio Administrative Code [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 Coshocton WWTP was constructed in 1954 and was upgraded to a secondary treatment facility with the addition of three primary settling tanks, a trickling filter, three final settling tanks, a secondary digester, chlorination equipment, and mechanical bar screen/grit removal equipment. This upgrade increased to the current average daily flow of 4.4 MGD with a peak hydraulic capacity of 10.6 MGD. Additional improvements made to the plant recently include renovations to tanks, digesters, and the chlorination system; replacement of sludge drying beds; and the addition of dechlorination equipment. Current wet stream processes include influent screening, grit removal, primary clarification, trickling filter secondary treatment, secondary clarification, chlorination, and dechlorination. Solid stream processes include primary and secondary anaerobic digestion followed by dewatering using a belt filter press. Sludge is ultimately disposed of by land application. The Coshocton WWTP collection system is separate and serves approximately 95% of the service area.

The City of Coshocton has been implementing an approved pretreatment program since March, 1985. Significant users which discharge to the plant include a pharmaceutical and chemical manufacturer, an ethanol producer, an excavator, a safety glove manufacturer, an iron product manufacturer, a foods producer, a hospital, and a waste handling service.

Figure 1. Location of Coshocton WWTP

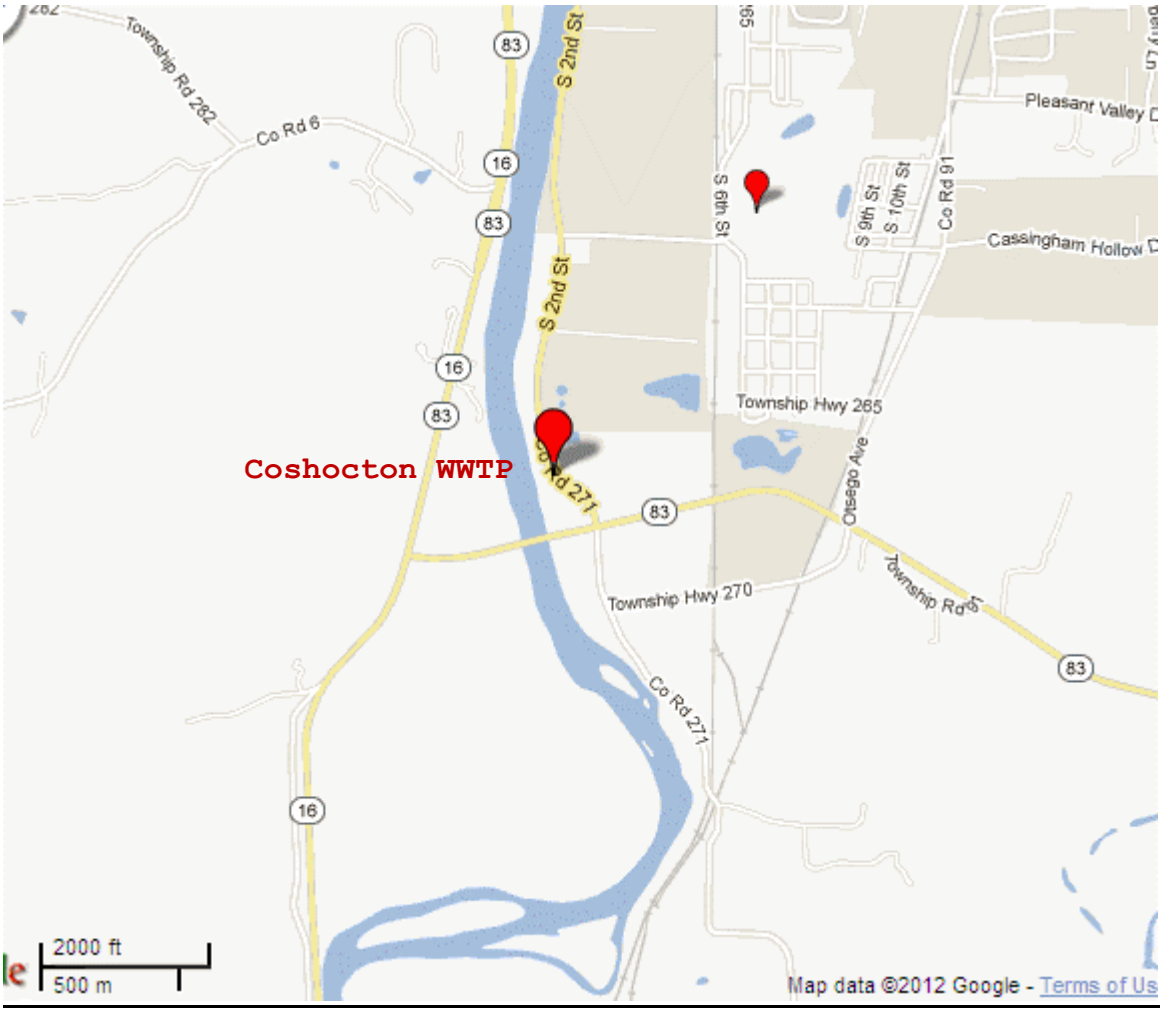
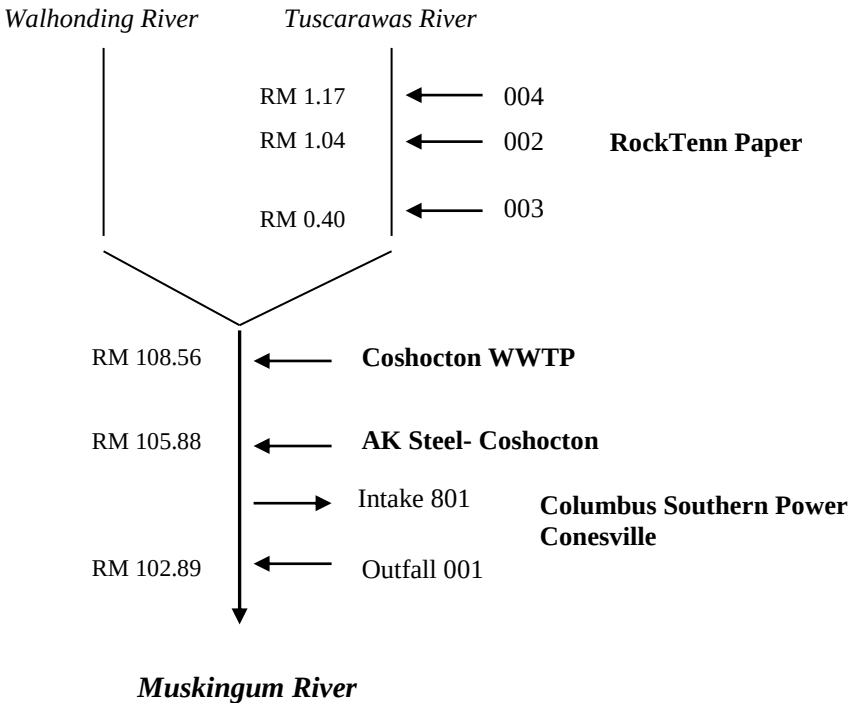


Figure 2. Muskingum River Study Area



Description of Existing Discharge

Table 1 presents a summary of unaltered monthly operation report data for the period from January, 2007 through April, 2012 as well as the current permit limits.

Table 2 presents chemical data collected by Ohio EPA in 2011 and pretreatment data reported by the City of Coshocton, 2007 to 2011.

Table 3 summarizes the data for the Coshocton WWTP. Average and maximum projected effluent quality toxicity (PEQ) values calculated from the MOR data are presented.

Table 4 presents results from acute toxicity tests conducted by the City in accordance with the NPDES permit on the final discharge. Pimephales promelas (fathead minnows), and Ceriodaphnia dubia (water fleas) were the test organisms. Ohio EPA screening results are also included.

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

Fish and macroinvertebrate communities were sampled in the Muskingum River during 2006. Sampling stations located upstream and downstream from the Coshocton WWTP, AK Steel Coshocton plant, AEP Conesville EGS and AEP Muskingum River EGS were assessed. Results revealed full attainment of the Muskingum River WWH aquatic life use designation at sites located immediately downstream from all four facilities. Based on biological monitoring results from 2006, these facilities were not causing impairment to the Muskingum River biological communities. Continuous water quality monitors were placed at locations upstream and downstream from the two AEP power plants. Water temperature levels were within water quality standards criteria downstream of the Conesville plant; however, elevated water temperatures were noted downstream from the Muskingum River plant. Dissolved oxygen measurements were within acceptable levels. A current total maximum daily load (TMDL) study is not yet available; however, a technical support document (TSD) is available at http://www.epa.ohio.gov/portals/35/documents/MuskingumTSD2007.pdf.

Development of Water-Quality-Based Effluent Limits

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

This facility is considered to be interactive for conservative parameters with the CSP-Conesville Plant, the AK Steel-Coshocton Works and Rock-Tenn Paper. All of these entities discharge to the Muskingum and the Tuscarawas River in the vicinity of the Coshocton WWTP. The CONSWLA (conservative substance wasteload allocation) model was used to distribute effluent loadings between these entities.

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

Self-monitoring data (DMR)	January 2007 through April 2012
NPDES Application data / Pretreatment data	2007 through 2011
Ohio EPA compliance sampling data	2011

This data is evaluated statistically, and PEQ values are calculated for each pollutant. PEQ_{avg} values represent the 95th percentile of monthly average data, and PEQ_{max} values represent the 95th percentile of all data points. The average and maximum PEQ values are presented in Table 3.

The PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no WLA is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a WLA is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 8 for a summary of the screening results which shows parameter groupings.

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. 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 6, 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 (12 ng/l in the Ohio River basin; 1.3 ng/l in the Lake Erie basin).

The data used in the WLA are listed in Tables 5 and 6. The WLA results to maintain all applicable criteria are presented in Table 7.

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

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). WLAs can then be calculated using TUs as if they were water quality criteria.

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Coshocton WWTP, the wasteload allocation values are 1.0 TU_a and 77.4 TU_c.

The chronic toxicity unit (TU_c) is defined as 100 divided by the estimate of the effluent concentration which causes a 25% reduction in growth or reproduction of test organisms (IC_{25}):

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

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

TU_c = 100/geometric mean of No Observed Effect Concentration and Lowest Observed Effect Concentration

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

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

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

<u>Reasonable Potential/ Effluent Limits/Hazard Management Decisions</u>

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 7. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 3, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [($PEQ_{avg} \div PEL_{avg}$) X 100, or ($PEQ_{max} \div PEL_{max}$) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 8.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 9 presents the final effluent limits and monitoring requirements proposed for Coshocton WWTP outfall 001 and the basis for their recommendation.

Ohio EPA risk assessment (Table 8) places cadmium, copper, chromium, free cyanide, hexavalent chromium, lead, nickel, silver, total dissolved solids, and zinc in groups 2 and 3. This placement as well as the data in Tables 1, 2 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a low frequency is proposed to document that these pollutants continue to remain at low levels.

The limits recommended for total suspended solids and $CBOD_5$ are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned

treatment works. For a facility required to meet secondary treatment standards, monitoring of ammonia-N and dissolved oxygen is appropriate and is proposed.

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 Muskingum River.

Water quality standards for *E. coli* became effective in March 2010, and a compliance schedule is proposed for meeting these new final effluent limits no later than the beginning of the 2014 disinfection season. 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.

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

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

Mercury Reasonable Potential and Mercury Variance The Ohio EPA risk assessment (Table 8) places mercury in group 5. This placement as well as the data in Tables 1, 3 and 5 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality.

The Coshocton WWTP permit was modified in 2010 to include a mercury variance, and variance-based limits for mercury. Based on the monitoring results from 2011, and the new application information, the City has determined that the facility will not meet the 30-day average permit limit of 12 nanograms per liter (ng/l). However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/l. The permittee’s application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the Coshocton WWTP is eligible for the mercury variance under Rule 3745-33-07(D)(10)(a) of the Ohio Administrative Code (OAC).

The City submitted information supporting the renewal of the variance. The permittee mailed letters on mercury reduction to the medical and dental facilities, automobile repair centers, and schools in the discharge area to reduce the amount of mercury being discharged. The calculation of the PEQavg value from January 2011 to August 2012 compared to the PEQavg calculated at the time the original variance was issued shows a reduction from 83 ng/L to 37 ng/L. The PMP schedule developed from the original variance continues to be implemented, and further reductions in mercury may be possible.

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

- mercury effluent limits developed from sampling data submitted by the City of 37 ng/l for the 30-day average limit;

- a requirement that the Coshocton WWTP make reasonable progress to meet the water-quality-based effluent limit for mercury by implementing the plan of study which has been developed as part of the pollutant minimization program;

- influent and effluent monitoring for mercury;

- a requirement that the average annual effluent concentration for mercury is less than or equal to 12 ng/l as specified in the plan of study;

- a summary of the elements of the plan of study;

- a requirement for Coshocton WWTP to use the most sensitive analytical method approved by U.S. EPA; and

- a requirement that Coshocton WWTP submit a certification to Ohio EPA stating that all required permit conditions for the plan of study have been satisfied once these have been completed. In addition, the certification must state that compliance with the WQBEL for mercury has not been achieved.

Ohio EPA has reviewed the mercury variance application and has determined that it meets the requirements of the Ohio Administrative Code. Items X and Y 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 37 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.

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 and influent 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.

<u>Other Requirements</u>

Sanitary Sewer Overflow Reporting
Provisions for reporting sanitary sewer overflows (SSOs) are again proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports; telephone

notification of Ohio EPA and the local health department, and 5-day follow up written reports for certain high risk SSOs; and preparation of an annual report that is submitted to Ohio EPA and made available to the public. Many of these provisions were already required under the “Noncompliance Notification”, “Records Retention”, and “Facility Operation and Quality Control” general conditions in Part III of Ohio NPDES permits.

Operator Certification
Operator certification requirements have been included in Part II, Item A of the permit in accordance with rules adopted in December 2006. These rules require the Coshocton WWTP to have a Class III 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
In order to comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was issued on February 11, 2008. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than February 11, 2013, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

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

Table 1. Effluent Characterization Using Ohio EPA data, Pretreatment Data, and/or Form 2C data

Summary of current permit limits and unaltered monthly operating report (MOR) data for Coshocton WWTP outfall 0PD0004001. All values are based on annual records unless otherwise indicated. N = Number of Analyses. A = 7 day average

			Current Permit			Period = Jan07 thru Apr12		
Parameter	Season	Units	30 Day	Daily	N	50 PCTL	95 PCTL	Range
Water Temperature	Annual	C	Monitor		1947	14	22	0-25
Dissolved Oxygen	Summer	mg/l	Monitor		920	5.7	7.61	1.4-9.7
Dissolved Oxygen	Winter	mg/l	Monitor		1027	7.9	10.5	2.8-12.9
Residue, Total Dissolved	Annual	mg/l	Monitor		64	649	952	4-1050
Total Suspended Solids	Annual	mg/l	30	45[A]	796	14.5	28.3	1-55
Oil&Grease, Hexane Extr Method	Annual	mg/l	-	10	126	0	4	0-7
Nitrogen, Ammonia (NH3)	Summer	mg/l	Monitor		366	2.29	12.1	0.05-21.2
Nitrogen, Ammonia (NH3)	Winter	mg/l	Monitor		420	3.09	11.4	0-22.1
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		64	9.39	18	0.78-22.3
Phosphorus, Total (P)	Annual	mg/l	Monitor		47	12	16.7	5.22-21
Cyanide, Free	Annual	mg/l	Monitor		63	0	0	0-0
Selenium, Total Recoverable	Annual	ug/l	Monitor		48	0	0	0-0
Nickel, Total Recoverable	Annual	ug/l	Monitor		31	0	20	0-30
Silver, Total (Ag)	Annual	ug/l	Monitor		16	0	1.97	0-2.64
Silver, Total Recoverable	Annual	ug/l	2.9	12	49	0	1.5	0-5
Zinc, Total Recoverable	Annual	ug/l	Monitor		32	46.5	66.8	22-90
Cadmium, Total Recoverable	Annual	ug/l	Monitor		31	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	Monitor		32	0	3	0-3
Chromium, Total Recoverable	Annual	ug/l	Monitor		31	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	Monitor		64	15	23	0-27
Selenium, Total (Se)	Annual	ug/l	Monitor		15	0	0	0-0
Chromium, Dissolved Hexavalent	Annual	ug/l	Monitor		63	0	0	0-0
Fecal Coliform	Summer	#/100 ml	1000	2000[A]	373	184	2100	1-7200
Flow Rate	Summer	MGD	Monitor		920	1.5	2.3	0.9-4.8
Flow Rate	Winter	MGD	Monitor		1027	1.7	3.3	0.09-14.3
Flow Rate	Annual	MGD	Monitor		1947	1.6	3	0.09-14.3
Chlorine, Total Residual	Annual	mg/l	-	0.038	920	0.03	0.03	0-0.18
Mercury, Total (Low Level)	Annual	ng/l	83	1700	63	28.5	95.4	1-188
Acute Toxicity, C. dubia	Annual	TUa	Monitor		4	0	0	0-0
Acute Toxicity, P. promelas	Annual	TUa	Monitor		4	0	1.28	0-1.5
pH, Maximum	Annual	S.U.	-	9	1947	7.5	7.9	6.5-8.6
pH, Minimum	Annual	S.U.	-	6.5	1947	7.2	7.6	5.9-8.1
CBOD 5 day	Summer	mg/l	25	40[A]	365	13	39	3-50
CBOD 5 day	Winter	mg/l	25	40[A]	451	15	34	3-62

Table 2. Effluent Characterization Using Ohio EPA and Pretreatment Data

Summary of analytical resuilts for the Coshocton WWTP outfall 0PD00004001. All values are in ug/L unless otherwise indicated. PT = data from pretreatment program reports; OEPA = data from analyses by Ohio EPA; NA = not analyzed

Parameter	OEPA 1/25/2011	PT 7/18/2007	PT 7/22/2008	PT 7/15/2009	PT 7/15/2010
Aluminum	207	NA	NA	NA	NA
Ammonia, mg/L	7.11	NA	NA	NA	NA
Antimony	NA	<3	<4	<4	<8
Arsenic	<2.0	<4	<6	<20	<6
Barium	26	NA	NA	NA	NA
Beryllium	NA	<1	<1	<1	<1
Copper	21.9	<10	17	17	13
Iron	602	NA	NA	NA	NA
Nickel	3.9	<20	20	20	<20
Nitrate+Nitrite, mg/L	8.93	NA	NA	NA	NA
Phosphorus, mg/L	11	NA	NA	NA	NA
Silver	0.28	<1	<1	<1	<1
Strontium	136	NA	NA	NA	NA
TKN, mg/L	12.8	NA	NA	NA	NA
TSS, mg/L	42	NA	NA	NA	NA
Zinc	85	49	112	52	59
Cyanide, total	<10	0.026	0.029	<0.02	0.034
Gamma-BHC	NA	<2.5	<0.25	<2.5	<0.25
Bis(2-EHP)	<10.9	<10	<10	<10	12.1

Table 3. Effluent Data for Coshocton WWTP

Parameter	Units		# of Samples	# > MDL	Average PEQ	Maximum PEQ
Self-Monitoring (DMR) Data						
Total Dissolved Solids	mg/l		62	62	797.6	946.8
Ammonia	mg/l	S	244	244	6.751	14.54
Ammonia	mg/l	W	209	208	7.918	15.94
NO_3+NO_2	mg/l		65	65	16.26	22.27
Phosphorus	mg/l		48	48	15.57	20.26
Cyanide, free	µg/l		63	0	--	--
Selenium	µg/l		63	0	--	--
Nickel	µg/l		37	7	24.09	33.0
Silver	µg/l		71	15	1.969	2.738
Zinc	µg/l		38	38	71.53	94.94
Cadmium	µg/l		31	0	--	--
Lead	µg/l		37	11	2.409	3.3
Chromium, tot.	µg/l		31	0	--	--
Copper	µg/l		70	57	20.43	26.34
Chromium $^{+6}$, diss.	µg/l		63	0	--	--
Chlorine, tot. res.	µg/l		920	873	27.07	49.03
Mercury	ng/l		63	63	107.1	169.2
Ohio EPA and Pretreatment Data						
Aluminum	µg/l		1	1	936.1	1283.
Barium	µg/l		1	1	117.7	161.2
Calcium	mg/l		1	1	190.1	260.4
Iron	µg/l		1	1	2725.	3732.
Magnesium	mg/l		1	1	72.42	99.20
Manganese	µg/l		1	1	321.3	440.2
Potassium	mg/l		1	1	90.52	124.0
Sodium	mg/l		1	1	724.2	992.0
Strontium	µg/l		1	1	615.5	843.2
Chloride	mg/l		1	1	1113.	1525.
Phenolics	µg/l		6	1	50.44	69.09
Toluene	µg/l		6	1	2.354	3.224
Bis(2-ethylhexyl)phthalate[A]	µg/l		6	1	18.55	25.41
Cyanide, total	mg/l		6	4	0.057	0.078

[A] Carcinogen

Table 4. Summary of acute toxicity test results on the Coshocton WWTP effluent

Test Date	**Acute - 24 hours *(Ceriodaphnia dubia)***	**Acute - 24 hours *(Pimephales promelas)***
	TUa[b]	TUa[b]
8/7/2008	AA	1.5
8/18/2009	AA	AA
8/11/2010	AA	AA
1/24/2011[a]	AA	AA
1/25/2011[a]	AA	AA
8/25/2011	AA	AA

[a] Ohio EPA bioassay test
[b] Acute toxicity units
AA = below minimum detection limit

Table 5. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Outside Mixing Zone Criteria: Average: Agri-culture	Outside Mixing Zone Criteria: Average: Aquatic Life	Outside Mixing Zone Criteria: Maximum Aquatic Life	Inside Mixing Zone Maximum
Antimony	µg/l	4300.	--	190.	900.	1800.
Arsenic	µg/l	--	100.	150.	340.	680.
Barium	µg/l	--	--	220.	2000.	4000.
Beryllium	µg/l	280.	100.	49.	420.	840.
Bis(2-Ethylhexyl)phthalate	µg/l	59.	--	8.4	1100.	2100.
Boron	µg/l	--	--	3900.	33000.	65000.
Cadmium	µg/l	--	50.	5.1	13.	26.
Chlorine, tot. res.	µg/l	--	--	11.	19.	38.
$Chromium^{+6}$, diss.	µg/l	--	--	11.	16.	31.
Chromium, tot.	µg/l	--	100.	190.	3900.	7800.
Cobalt	µg/l	--	--	24.	220.	440.
Copper	µg/l	1300.	500.	21.	34.	68.
Cyanide, free	µg/l	--	--	12.	46.	92.
Fluoride	µg/l	--	2000.	--	--	--
Iron	µg/l	--	5000.	--	--	--
Lead	µg/l	--	100.	21.	400.	810.
Mercury [A]	ng/l	12.	10000.	910.	1700.	3400.
Molybdenum	µg/l	--	--	20000.	190000.	4700.
Naphthalene	µg/l	--	--	21.	170.	340.
Nickel	µg/l	4600.	200.	120.	1000.	2100.
NO_3+NO_2	mg/l	--	100.	--	--	--
Selenium	µg/l	11000.	50.	5.0	--	--
Silver	µg/l	--	--	1.3	8.0	16.0
Strontium	µg/l	--	--	21000.	40000.	81000.
Tetrachloroethylene	µg/l	89.	--	53.	430.	850.
Thallium	µg/l	6.3	--	17.	79.	160.
Tin	µg/l	--	--	180.	1600.	3200.
Toluene	µg/l	200000.	--	62.	560.	1100.
Total Dissolved Solids	mg/l	--	--	1500.	--	--
Zinc	µg/l	69000.	25000.	260.	260.	530.

[A] Bioaccumulative Chemical of Concern (BCC)

Table 6. Instream Conditions and Discharger Flow

Parameter	Units		Value	Basis
Tuscarawas River				
7Q10	cfs	annual	271.	USGS gage #03129000, 1937-97 data
1Q10	cfs	annual	258.	USGS gage #03129000, 1937-97 data
30Q10	cfs	summer	310.	USGS gage #03129000, 1937-97 data
		winter	549.	USGS gage #03129000, 1937-97 data
Harmonic Mean Flow	cfs	annual	1092.	USGS gage #03129000, 1937-97 data
Mixing Assumption	%	average	97	Stream-to-discharge ratio
	%	maximum	97	Stream-to-discharge ratio
Walhonding River				
7Q10	cfs	annual	233.	USGS gage #03138500, 1937-91 data
1Q10	cfs	annual	94.1	USGS gage #03138500, 1937-91 data
30Q10	cfs	summer	279.	USGS gage #03138500, 1937-91 data
		winter	417.	USGS gage #03138500, 1937-91 data
Harmonic Mean Flow	cfs	annual	836.	USGS gage #03138500, 1937-91 data
Mixing Assumption	%	average	97	Stream-to-discharge ratio
	%	maximum	97	Stream-to-discharge ratio
Instream Hardness	mg/l			
Tusc. below Rock	Tenn Paper	annual	255.	STORET; 12 values, 2003-05
Muskingum comb. stations		annual	255.	STORET; 25 values, 2006
Discharge Flows	cfs	outfall #		
Coshocton WWTP		001	6.81	Design
AK Steel		001	3.96	95th percentile monthly avg flows 2007-12
CSP -Conesville		001	243.	95th percentile monthly avg flows 2007-12
		801 (Intake)	209.	CSP
Rock-Tenn Paper		002	12.2	95th percentile monthly avg flows 2007-12
		003	4.10	95th percentile monthly avg flows 2007-12
		004	0.240	95th percentile monthly avg flows 2007-12

Table 6. Instream Conditions and Discharger Flow (continued)

Parameter	Units		Value	Basis
Background Water Quality				
All Segments				
Bis(2-Ethylhexyl) Phthalate	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Chlorine, total res	µg/l	annual	0.	No representative data available.
Chromium^{+6}, diss	µg/l	annual	0.	No representative data available.
Cyanide, free	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Molybdenum	µg/l	annual	0.	No representative data available.
Naphthalene	µg/l	annual	0.	No representative data available.
Silver	µg/l	annual	0.	No representative data available.
Strontium	µg/l	annual	0.	No representative data available.
Tetrachloroethylene	µg/l	annual	0.	No representative data available.
Thallium	µg/l	annual	0.	No representative data available.
Tin	µg/l	annual	0.	No representative data available.
Tuscarawas River				
Arsenic	µg/l	annual	2.	STORET; 8 values, 3<MDL, 2003-04
Barium	µg/l	annual	57.	STORET; 8 values, 0<MDL, 2003-04
Cadmium	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Chromium, tot.	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Copper	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Iron	µg/l	annual	2175.	STORET; 8 values, 0<MDL, 2003-04
Lead	µg/l	annual	2.2	STORET; 8 values, 5<MDL, 2003-04
Nickel	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
NO_3+NO_2	mg/l	annual	1.65	STORET; 8 values, 0<MDL, 2003-04
Selenium	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
TDS	mg/l	annual	396.	STORET; 8 values, 0<MDL, 2003-04
Zinc	µg/l	annual	16.3	STORET; 8 values, 3<MDL, 2003-04
Walhonding River				
Arsenic	µg/l	annual	2.7	STORET; 6 values, 0<MDL, 2007
Barium	µg/l	annual	60.8	STORET; 6 values, 0<MDL, 2007
Cadmium	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Chromium, tot.	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Copper	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Iron	µg/l	annual	848.	STORET; 6 values, 0<MDL, 2007
Lead	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Nickel	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
NO_3+NO_2	mg/l	annual	1.2	STORET; 6 values, 0<MDL, 2007
Selenium	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
TDS	mg/l	annual	296.	STORET; 6 values, 0<MDL, 2007
Zinc	µg/l	annual	8.0	STORET; 6 values, 4<MDL, 2007

Table 4. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Arsenic [B]	µg/l	--	17480.[A]	7143.[A]	11630.[A]	680.
Barium	µg/l	--	--	1315.	11220.[A]	4000.
Bis(2-ethylhexl)phthalate	µg/l	16915.[A]	--	651.	60650.[A]	2100.
Cadmium [B]	µg/l	--	14330.[A]	395.[A]	717.[A]	26.
Chlorine, total res summer	µg/l	--	--	118. [A]	150.[A]	38.
Chromium^{+6}, dissolved [B]	µg/l	--	--	852.[A]	882.[A]	31.
Chromium, tot.[B]	µg/l	--	13150.[A]	6789.	99510.[A]	7800.
Copper	µg/l	35080.[A]	13490.[A]	164. [A]	195.[A]	68.
Cyanide, free [B]	µg/l	63040000.[A]	--	929.[A]	2536.[A]	92.
Iron	µg/l	--	36260.	--	--	--
Lead [B]	µg/l	--	17290.[A]	940.[A]	13420.[A]	810.
Mercury [C]	ng/l	12.	10000.[A]	910.	1700.	3400.
Molybdenum [B]	µg/l	--	--	1549000.[A]	10480000.[A]	370000.
Nickel [B]	µg/l	361700.[A]	15720.[A]	2716.[A]	14020.[A]	2100.
Selenium [B]	µg/l	410200.	1865.	54.	--	--
Silver	µg/l	--	--	101.[A]	441.[A]	16.
TDS	mg/l	--	--	9314.	--	--
Zinc	µg/l	8927000.[A]	3233000.[A]	8714.[A]	6183.[A]	530.

[A] Allocation must not exceed the Inside Mixing Zone Maximum.

[B] Parameter would not require a WLA based on reasonable potential procedures, but allocation requested for use in pretreatment program.

[C] Bioaccumulative Chemical of Concern (BCC); criteria must be met at end-of-pipe unless the requirments for an exclusion are met as listed in 3745-2-08.

Table 8. Parameter Assessment

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

Aluminum	Calcium	Chloride
Cyanide, total	Magnesium	Manganese
Phenolics	Phosphorus	Potassium
Sodium		

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

Arsenic	Cadmium	Chromium^{+6}, diss.
Chromium, tot.	Cyanide, free	Lead
Molybdenum	Nickel	NO_3+NO_2
Selenium	Strontium	Toluene

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

Barium	Bis(2EHP)	Copper
Iron	Silver	TDS
Zinc		

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

No parameters meet the criteria of this group.

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Chlorine, total res	µg/l	summer only	---	38.
Mercury	ng/l	annual	12.	1700.

Table 9. Final effluent limits and monitoring requirements for Coshocton WWTP outfall 0PD00004001 and the basis for their recommendation

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Avg	Daily Max	30 Day Avg	Daily Max	Basis[b]
Ammonia-N	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				EP, M
Cadmium, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
CBOD5 (Summer)	mg/L	25	40[c]	416	666[c]	BPT, EP
Chlorine (Summer)	mg/L	- - - - Not to exceed 0.038 mg/L at any time - - -				WLA/IMZM
Chromium, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Copper, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Cyanide, Free TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Dissolved Oxygen	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				
Dissolved Solids, Total	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
E. coli (Summer)						
Interim	#/100mL	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				WQS
Final	#/100mL	126	284[c]	--	--	WQS
Flow	MGD	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Hex. Chromium, Dissolved	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Lead, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Mercury, TR	ng/L	37	1700	0.000616	0.028	VAR
Nickel, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Nitrate+Nitrite-N	mg/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Oil and Grease	mg/L	- - - - - Not to exceed 10 mg/L at any time - - - - -				WQS
pH	S.U.	- - - - - - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - - - - -				WQS
Phosphorus	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BEJ
Silver	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BEJ
Suspended Solids	mg/L	30	45[c]	500	750[c]	BPT, EP
Temp	degrees C	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Zinc, TR	ug/L	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M
Acute toxicity	TUa	- - - - - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				WET

[a] Effluent loadings based on average design discharge flow of 4.4 MGD.

[b] Definitions: ABS = Antibacksliding Rule [OAC 3745-33-05(E) and 40 CFR Part 122.44(l)]; BEJ = Best Engineering Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; WLA = Wasteload Allocation procedures (OAC 3745-2); IMZM = Inside Mixing Zone Maximum; VAR = Mercury Variance; WQS = Ohio Water Quality Standards (OAC 3745-1-07); WET = Whole effluent toxicity requirements.

[c] 7 day average limit