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 Meander Wastewater Treatment Plant (WWTP)

Public Notice No.: 14-09-009
Public Notice Date: September 10, 2014
Comment Period Ends: October 10, 2014

Ohio EPA Permit No.: 3PK00011*JD
Application No.: OH0045721

Name and Address of Applicant:

Mahoning County Commissioners/Sanitary Engineering
761 Industrial Road
Youngstown

Name and Address of Facility Where Discharge Occurs:

Meander WWTP
3264 State Rt. 46
Mineral Ridge

Receiving Water: Meander Creek

Subsequent Stream Network: Mahoning River to Beaver River to 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 (CWA) and Ohio Water Pollution Control Law, Chapter 6111 of the Ohio Revised Code (ORC). 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 (CWA). Many of these have already been established by the United States Environmental Protection Agency (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works 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 (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

The effluent limits and monitoring requirements proposed for the following parameters are the same as in the current permit, although some monitoring frequencies have changed: flow, temperature, dissolved oxygen, 5-day carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), ammonia, total phosphorus, nitrite+nitrate-nitrogen, total Kjeldahl nitrogen (TKN), oil and grease, pH, cadmium, chromium, dissolved hexavalent chromium, copper, lead, nickel, and zinc.

Annual chronic toxicity monitoring with the determination of acute endpoints monitoring is proposed for the life of the permit. This satisfies the minimum testing requirements of rule 3745-33-07(B)(11) of the Ohio Administrative Code (OAC) for Whole Effluent Toxicity (WET) and will adequately characterize toxicity in the plant's effluent.

Final effluent limits are proposed for *Escherichia coli.* New WQS for *E. coli* became effective in March 2010 and take the place of fecal coliform limits.

New water-quality-based limits are needed for free cyanide because this parameter falls into group 5 of the Parameter Assessment (Table 10) in the WLA for the Meander WWTP and has the reasonable potential to contribute to exceedances of WQS. Monthly and daily maximum limits to protect numeric water quality criteria are proposed for free cyanide.

Current permit limits for silver and mercury are being removed because effluent data shows that they no longer have the reasonable potential to contribute to exceedances of WQS. Monitoring requirements for silver and mercury will remain in the permit.

New monitoring for total filterable residue (total dissolved solids [TDS]) is proposed because effluent data shows that there may be reasonable potential to contribute to exceedances of water quality standards.

New NPDES permits no longer authorize the use of method 4500 CN-I from Standard Methods for free cyanide testing. Either method ASTM D7237-10 or OIA-1677-09 shall be used as soon as possible to monitor free cyanide.

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

Table of Contents

List of Figures

List of Tables

Procedures for Participation in the Formulation of Final Determinations

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

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

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

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

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

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

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

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

For additional information about this fact sheet or the draft permit, contact Allison Cycyk (330)963-1132, allison.cycyk@epa.ohio.gov, or Andy Bachman, (614) 644-3075, andrew.bachman@epa.ohio.gov.

Information Regarding Certain Water Quality Based Effluent Limits

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

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

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

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

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

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

Location of Discharge/Receiving Water Use Classification

The Meander WWTP discharges to Meander Creek at river mile (RM) 1.98 near Niles. Figure 1 shows the approximate location of the facility.

This segment of Meander Creek is described by Ohio EPA River Code: 18-015, U.S. EPA River Reach #: OH05030103-12, County: Trumbull, Ecoregion: Erie/Ontario Lake Plain. Meander Creek is designated for the following uses under Ohio's WQS (OAC 3745-1-25): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class A Primary Contact Recreation (PCR). Although Meander Creek is a stream designated as "Class B," the Meander WWTP discharge dominates the stream it discharges to and the Mahoning River, which is designated "Class A" is less than ten miles downstream. Without a Class A designation to Meander WWTP, goals for impaired streams could not be met at the Mahoning River and thus a "Class A" designation has been proposed for the Meander WWTP discharge.

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

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

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

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

Facility Description

The Meander WWTP was originally constructed in 1977. The Meander WWTP facility is an advanced treatment facility with an average design flow of 4 million gallons per day (MGD). The treatment plant includes the following equipment and/or wet processes:

- Influent pumping
- Screening
- Grit removal
- Activated sludge – pure oxygen
- Biological nitrification
- Secondary clarification
- Sand filtration
- Ferric chloride addition
- Ultraviolet disinfection

Table 1: Sludge Removed from the Meander WWTP 2008-2012

Year	Dry Tons Landfilled
2008	643
2009	637
2010	619
2011	558
2012	543

Sludge processing includes mechanical dewatering centrifuge, gravity thickening, and polymer addition. Table 1 shows the total tons of sludge removed from the Meander WWTP from 2008 through 2012, based upon discharge monitoring report (DMR) data.

The plant serves 50% of the possible service area. The collection system for the Meander WWTP is 100 percent separate sanitary sewers. The pretreatment program was approved on February 19, 1986. According to the permit renewal application, there are five industrial users responsible for 0.168 MGD of daily flow into the plant. Four of these facilities are categorical, accounting for 0.098 MGD of flow and one is non-categorical accounting for 0.70 MGD of flow.

Description of Existing Discharge

Table 2 shows the annual effluent flow rates for the Meander WWTP based upon DMR data. The flow rates have remained relatively consistent across this period.

Table 2: Effluent Flow Rates for Outfall 001 2008-2012

Year	Annual Flow in MGD		
	50th Percentile	95th Percentile	Maximum
2008	3.438	6.2883	7.045
2009	3.17	5.6188	6.796
2010	3.102	5.8576	6.731
2011	3.477	6.5932	6.938
2012	3.264	5.992	7.256

Table 3 presents chemical specific data compiled from data reported in annual pretreatment reports.

Table 4 presents a summary of unaltered DMR data for outfall 3PK00011001. Data are presented for the period from January, 2008 through December 2012, and current permit limits are provided for comparison.

Table 5 summarizes the chemical specific data for outfall 3PK00011001 by presenting the average and maximum PEQ values.

Table 6 summarizes the results of acute and chronic WET tests of the final effluent.

The Meander WWTP reports SSO occurrences under station 300 in its NPDES permit. No overflow occurrences were reported from January 2008 through December 2012.

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 Ohio EPA.

Assessment of Impact on Receiving Waters

During 2011, Ohio EPA completed physical, chemical and biological monitoring in advance of the more intensive lower Mahoning River monitoring that was conducted during 2013. This data will be used to reassess this assessment unit for Ohio EPA's 2016 Integrated Report. The analysis can be found at the following site: http://wwwapp.epa.ohio.gov/gis/mapportal/IR2014.html

Based on the 2011 data collected downstream of the Meander WWTP at Meander Creek near Niles, the stream is in partial attainment. Listed causes of impairment include sedimentation/siltation, low dissolved oxygen, organic enrichment (sewage), and nutrient/eutrophication. Municipal point source discharges and urban runoff/storm sewers are listed as sources of impairment.

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

Self-monitoring data (DMR)	January 2008 through December 2013
Pretreatment data	2008 through 2012

This data is evaluated statistically, and 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 5.

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 10 for a summary of the screening results

Wasteload Allocation

For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio WQS (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. WLAs using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations.

As in past modeling studies, all facilities discharging to the Mahoning River mainstem between the Leavittsburg dam and the Ohio-Pennsylvania boundary are considered interactive and are included in the WLA. The WLA contains a total of 23 outfalls from 6 municipal WWTPs and 7 industrial facilities, as follows:

Warren Steel Holdings (CSC Industries)	Thomas Steel Strip
RG Steel - Warren	ArcelorMittal-Warren
Warren WWTP	RMI-Niles
GenOn Niles Power	Niles WWTP

McDonald Steel	Campbell WWTP
Youngstown WWTP	Lowellville WWTP
Struthers WWTP	

Four dischargers located on tributaries are allocated separately from the mainstem discharges: Meander Creek WWTP (Meander Creek), Girard WWTP (Little Squaw Creek), Mosquito Creek WWTP (Mosquito Creek), and Boardman WWTP (Mill Creek). Travel time to and distance from the Mahoning River are considered large enough that, for modeling purposes, the effluents from the respective treatment plants are considered non-interactive with the direct dischargers to the Mahoning. Effluents from these four treatment plants were allocated to meet WQS for the conditions, habitat, and use designation for their particular receiving waters and separate Permit Support Documents were prepared for each facility.

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
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 8, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

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

The data used in the WLA are listed in Table 7 and Table 8. The WLA results to maintain all applicable criteria are presented in Table 9. The current ammonia limits have been evaluated using the wasteload allocation procedures and are protective of water quality standards for ammonia toxicity.

Whole Effluent Toxicity WLA

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

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

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For the Meander WWTP, the WLA values are 0.3 TU_a and 1.0 TU_c.

The chronic toxicity unit (TU_c) is defined as 100 divided by the concentration of effluent which has an inhibitory effect on 25% of the test organisms for the monitored effect, as compared to the control (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):

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

Where NOEC is No Observable Effect Concentration and LOEC is Lowest Observable Effect Concentration

The acute toxicity unit (TU_a) is defined as 100 divided by the concentration of effluent that is lethal to 50 percent of the exposed organisms (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.

When the acute WLA is less than 1.0 TU_a, it may be defined as:

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

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

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 9. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 5, 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 10.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 11 presents the final effluent limits and monitoring requirements proposed for the Meander WWTP outfall 3PK00011001 and the basis for their recommendation.

Oil and Grease, pH, and Dissolved Oxygen

Limits proposed for oil and grease, pH, and dissolved oxygen are based on WQS (OAC 3745-1), and are a continuation of existing permit limits.

$CBOD_5$, Phosphorous, TSS and Ammonia

Based on best engineering judgment, the limits proposed for $CBOD_5$, phosphorus, TSS and ammonia (summer and winter) are a continuation of existing permit limits. These are also design criteria for the treatment plant. Ohio EPA evaluated the existing permit limits, and they are adequate to maintain water quality.

Escherichia coli

Effluent limits are being proposed for *E. coli*. WQS for *E. coli* became effective in March 2010 and take the place of fecal coliform testing. For the Meander WWTP, monthly and weekly geometric mean concentrations of 126 and 284 per 100 ml are proposed. Class A Primary Contact Recreation *E. coli* standards apply to the Mahoning River, downstream of the receiving stream, Meander Creek.

Cadmium, Chromium, Dissolved Hexavalent Chromium, Lead, Nickel, Bis(2-ethylhexyl)phthalate, and Zinc

Ohio EPA risk assessment Table 10 places cadmium, chromium, dissolved hexavalent chromium, lead, zinc, bis(2-ethylhexyl)phthalate, and nickel in groups 2 and 3. This placement, as well as the data in Tables 3, 4 and 5, 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 quarterly frequency is proposed to document that these pollutants continue to remain at low levels, with the exception of bis(2-ethylhexyl)phthalate.

In the five samples collected for bis(2-ethylhexyl)phthalate via pretreatment sampling, there was only one detection of bis(2-ethylhexyl)phthalate and was 1.3µg/L, significantly lower than the allowable 8.4 µg/L (Table 9) to Meander Creek. Additional monitoring beyond the annual pretreatment monitoring is not required because of minimal detections of this parameter in the previous five years.

Mercury and Silver

Ohio EPA risk assessment Table 10 places mercury in group 3. This placement, as well as the data in Tables 3, 4 and 5, support that this parameter does not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Removal of the mercury limit is proposed. Monitoring at a continued monthly frequency is proposed to document that this pollutant continues to remain at low levels.

Ohio EPA risk assessment Table 10 places silver in group 4. Removal of the silver limit is proposed. This placement, as well as the data in Tables 3, 4 and 5, support that this parameter does 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).

Copper and Free Cyanide

The Ohio EPA risk assessment Table 10 places copper and free cyanide in group 5. This placement, as well as the data in Tables 3 and 4, indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. The WLA for copper would allow slightly less stringent limits than the existing limits for this parameter. However, the anti-backsliding provisions in the OAC 3745-33-05(E) require the more stringent limits to be imposed unless certain conditions are met, including an anti-degradation review. In this case, none of these conditions have been met so the existing limits are proposed to continue.

For free cyanide, the risk assessment conducted for the previous Meander WWTP placed free cyanide in group 5, but this was based upon only one detection. Monitoring only was included in that permit using best engineering judgment and the discretion afforded by OAC 3745-33-07(A)(5). Three detections of free cyanide

were reported during the previous permit cycle indicating the facility does have a reasonable potential to contribute to WQS exceedances, and limits are necessary to protect water quality.

Currently there are two approved methods for free cyanide listed in 40 CFR 136.3 that have quantification levels lower than any water quality-based effluent limits:

- ASTM D7237-10 and OIA-1677-09 - Flow injection followed by gas diffusion amperometry

These methods will allow Ohio EPA to make more reliable water quality-related decisions regarding free cyanide. Because the quantification levels are lower than any WQBELs, it will also be possible to directly evaluate compliance with free cyanide limits.

New NPDES permits no longer authorize the use of method 4500 CN-I from Standard Methods for free cyanide testing. The new permits require permittees to begin using one of these approved methods as soon as possible. If a permittee must use method 4500 CN-I during the transition to an approved method, they are instructed to report the results on their DMR and enter "Method 4500 CN-I" in the remarks section.

Nitrate+Nitrite and TKN

The continuation of monitoring for nitrate+nitrite and TKN is proposed based on best engineering judgment. Monitoring nitrate+nitrite and TKN at the upstream and downstream stations is also proposed. The purpose of the monitoring is to maintain a data set tracking nutrient levels in the Mahoning River basin for a future Total Maximum Daily Load (TMDL) study.

Whole Effluent Toxicity Reasonable Potential

While WET data presented in Table 6 indicates that the Meander WWTP 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.

Meander Creek and Mahoning River downstream of the Meander WWTP are only in partial attainment due to sedimentation/siltation, low dissolved oxygen, organic enrichment (sewage), and nutrient/eutrophication possibly caused by WWTP discharges. The continuation of toxicity testing downstream of the Meander WWTP at outfalls 901 and 903 will continue a data set showing how toxic the stream is downstream of the facility. At these sites the permittee shall determine the percent affected of the species *Ceriodaphnia dubia* and *Pimephales promelas* annually. This testing is a continuation of the toxicity monitoring parameters in the current permit and is included to develop a toxic profile of the river segment downstream of the facility.

Total Filterable Residue (TDS)

New monitoring for TDS is proposed based on best engineering judgment. The Mahoning River watershed is stressed for TDS and shows impairment downstream of the treatment plant. Monitoring data will allow for additional data to be used in future permitting decisions.

Based on best engineering judgment, monthly monitoring is proposed for TDS at the final effluent and downstream of the facility at station 903 to gather a usable data set of TDS in the stream.

Ohio EPA evaluated instream TDS data collected in the Mahoning River at Lowellville, approximately one mile from the Ohio-Pennsylvania border (number of samples = 128, range = 164 – 650 mg/L, period of record = January 1999 – January 2012). The Agency calculated summer and winter concentrations to characterize instream TDS levels. These concentrations are 95th percentiles of the monthly averages and daily values of the

data. The calculated values are: monthly average – 364 mg/L (summer), 456 mg/l (winter); maximum – 423 mg/L (summer), 587 mg/L (winter).
These values are lower than the monthly average and maximum Pennsylvania TDS standards, 500 mg/L and 750 mg/L. This demonstrates that currently there is not reasonable potential for the instream TDS concentration to exceed the Pennsylvania standards at Lowellville, close to the state line. Based on this finding, WQBELs for TDS are not currently necessary for Ohio wastewater facilities discharging at their existing TDS loads.

Ohio EPA is pursuing a plan to begin regular TDS monitoring at a site in the lower part of the Mahoning River in Ohio. This monitoring would provide additional baseline data on ambient TDS concentrations with Ohio facilities discharging at their existing TDS loads. The Agency will consider options for reducing the TDS load to the Mahoning River if an upward trend in the ambient concentration is observed

Ohio EPA will evaluate proposals for new or increased TDS loadings to the Mahoning River from Ohio NPDES dischargers, which could be subject to provisions of Ohio's antidegradation rule (OAC 3745-1-05).

Sludge

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

Additional monitoring 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.

Other Requirements

Compliance Schedule

A ten month compliance schedule is proposed for the Meander WWTP to submit a technical justification for either revising its local industrial user limits or retaining its existing local limits. This schedule is proposed based on the schedules of other pretreatment programs that Mahoning County oversees. If revisions to local limits are required, Mahoning County must also submit a pretreatment program modification request.

Sanitary Sewer Overflow Reporting

Provisions for reporting SSOs are again proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports (it should be noted that if there are no SSO occurrences during a month, then zero should be reported on the 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 Meander WWTP to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall OEPA 3PK00011001.

Operator of Record

In December 2006, 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 OAC 3745-7-02. 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 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 Meander WWTP may seek permit coverage under the general permit for industrial storm water (permit # OHR000005) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the Meander WWTP 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 Meander Creek providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

Figure 1. Location of the Meander WWTP

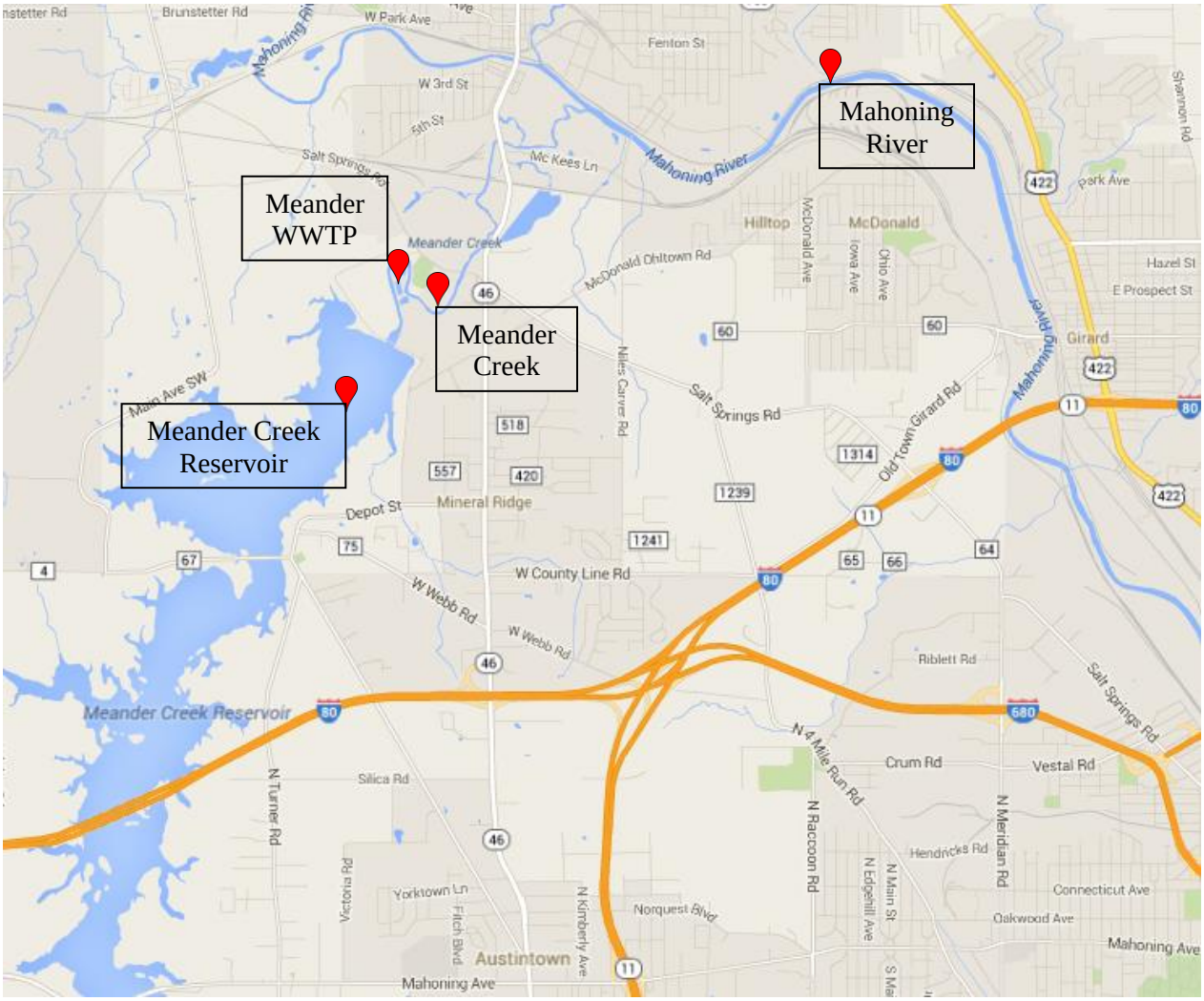

Figure 2. Meander Creek Study Area

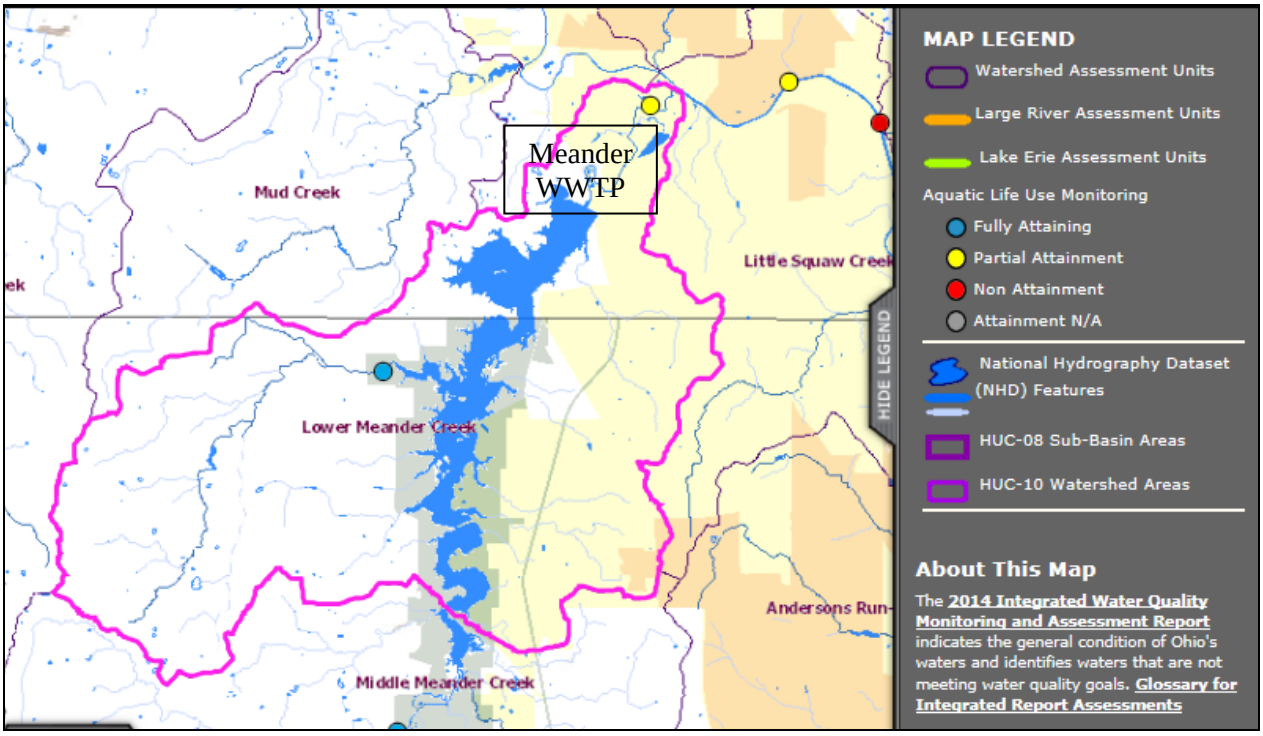

Figure 3. Mahoning River Study Area

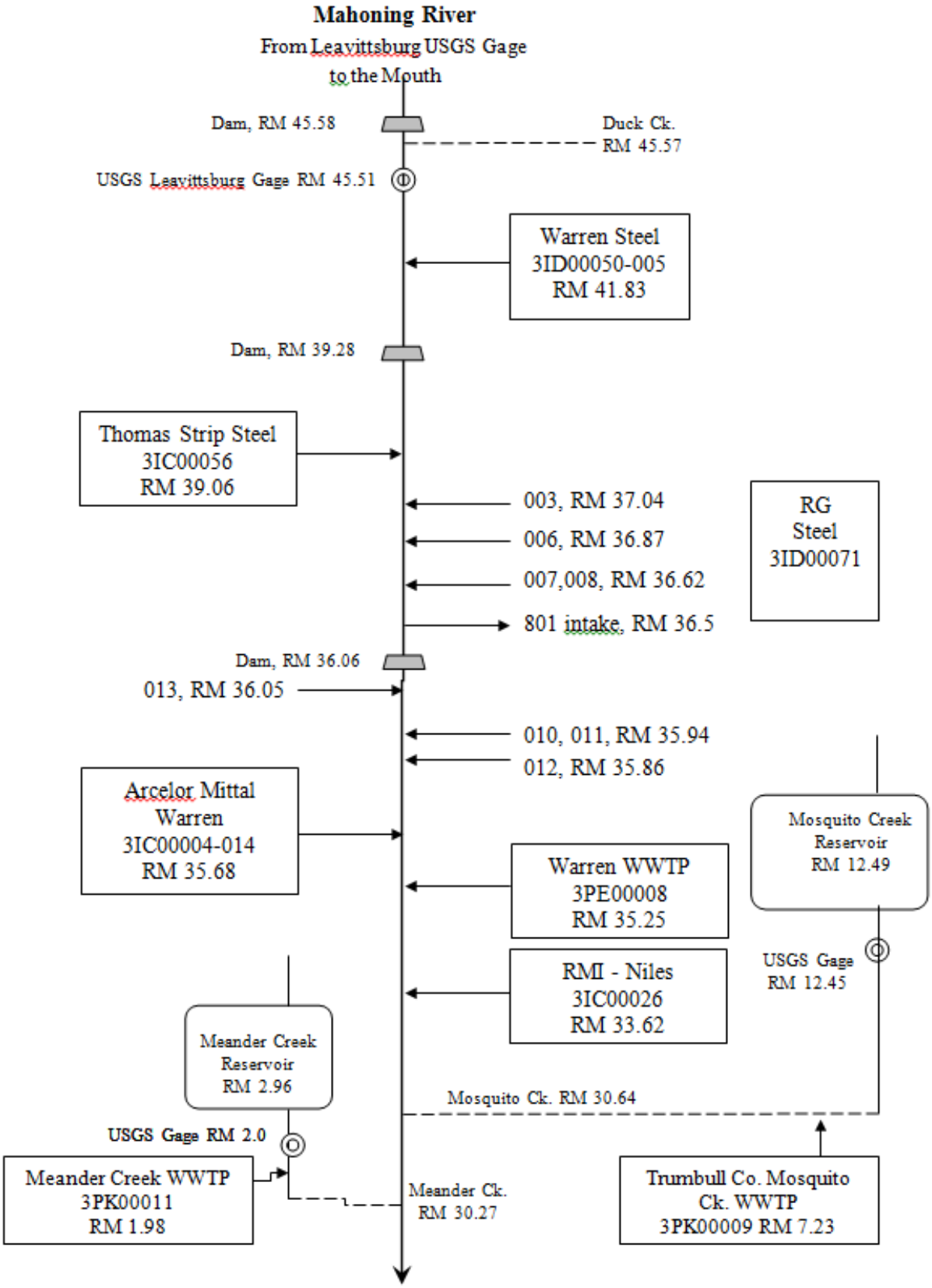

Figure 3. Mahoning River Study Area (continued)

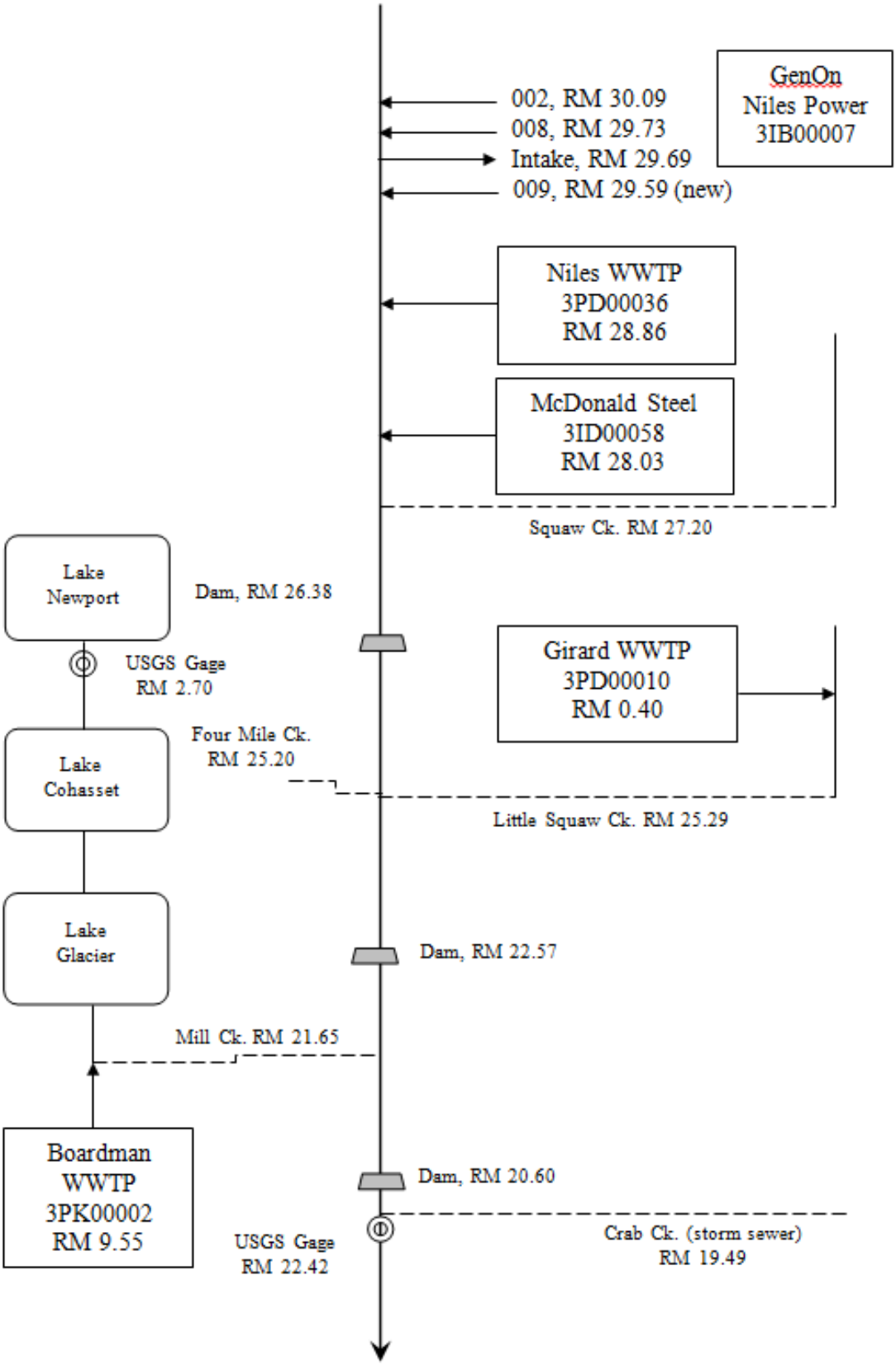

Figure 3. Mahoning River Study Area (continued)

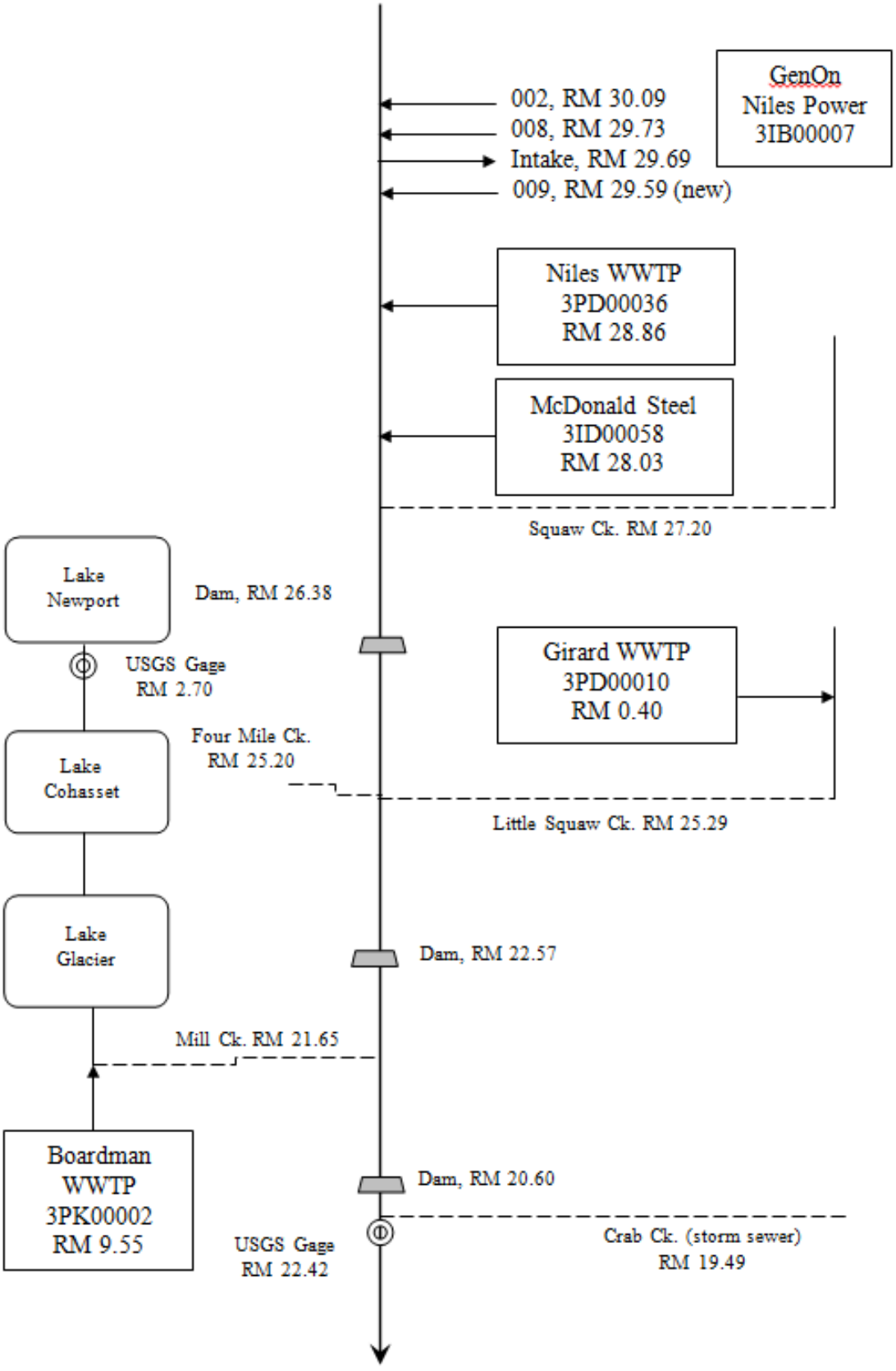

Table 3. Effluent Characterization Using Pretreatment Data

Summary of analytical results for the Meander WWTP outfall 3PK00011001. Units µg/L unless otherwise noted; PT = data from pretreatment program reports; AA = not detected (detection limit).

Parameter	PT	PT	PT	PT	PT
	4/9/2008	4/3/2009	6/17/2010	5/25/2011	4/18/2012
Nickel	AA (10)	AA (10)	AA (0.2)	AA (10)	19.6
Zinc	59	AA (10)	4	62.2	54.3
Copper	AA (10)	AA (10)	15	10	12.2
Mercury (ng/L)	AA (0.2)	3.4	AA (0.2)	AA (0.02)	AA (0.02)
Bis(2-ethylhexyl) Phthalate	AA (10)	AA (10)	1.3	AA (10)	AA (10)

Table 4. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report data for the Meander WWTP outfall OEPA 3PK00011001 (January 2008 - December 2012). 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.

			Current Permit Limits			Percentiles		
Parameter	**Season**	**Units**	**30 day**	**Daily**	**# Obs.**	**50th**	**95th**	**Data Range**
Water Temperature	Annual	C	-	-	1245	17	21.4	6.5-23.7
Dissolved Oxygen	Summer	mg/L	-	5.0	635	9	10.5	6.1-14.1
Dissolved Oxygen	Winter	mg/L	-	5.0	610	9.8	12.1	5.1-17.2
Total Suspended Solids	Annual	mg/L	20	30[a]	724	6.4	16.4	0-45.8
Oil and Grease	Annual	mg/L	10	-	82	2.9	7.1	0-9.1
Ammonia	Summer	mg/L	1.9	2.85[a]	365	0.39	14.4	0-38.5
Ammonia	Winter	mg/L	5.0	7.5[a]	367	1.6	9.22	0-16.1
Nitrogen Kjeldahl, Total	Annual	mg/L	-	-	120	3.1	16.5	0.2-43.5
Nitrite Plus Nitrate	Annual	mg/L	-	-	120	10.9	22.4	0.45-28.1
Phosphorus	Annual	mg/L	1.0	1.5[a]	267	0.4	1.1	0-1.81
Cyanide, Free	Annual	mg/L	-	-	60	0	0.00125	0-0.1
Nickel	Annual	µg/L	-	-	20	4.6	27	0-40.4
Silver	Annual	µg/L	1.3	4.9	60	0	0.164	0-1.03
Zinc	Annual	µg/L	-	-	33	40.5	63.3	13.1-74.5
Cadmium	Annual	µg/L	-	-	33	0	0.27	0-0.39
Lead	Annual	µg/L	-	-	33	0	3.24	0-6.8
Chromium	Annual	µg/L	-	-	20	0.45	12.3	0-15.6
Copper	Annual	µg/L	16	26	62	7.4	12.2	0-31.5
Chromium, Dissolved Hexavalent	Annual	µg/L	-	-	60	0	0	0-0
Fecal Coliform	Annual	#/100 ml	1000	2000[a]	364	75	7270	0-77000
Flow Rate	Annual	MGD	-	-	1827	3.27	6.26	0.2-7.26
Mercury	Annual	ng/L	12	1100	60	2.3	6.71	0-11.6
Acute Toxicity, *Ceriodaphnia dubia*	Annual	TU_a	-	-	4	0	0	0-0
Chronic Toxicity, *Ceriodaphnia dubia*	Annual	TU_c	-	-	4	0	1.2	0-1.41
Acute Toxicity, *Pimephales promelas*	Annual	TU_a	-	-	4	0	0	0-0
Chronic Toxicity, *Pimephales promelas*	Annual	TU_c	-	-	4	0	0	0-0
pH, Maximum	Annual	S.U.	-	9.0	1245	6.6	7.6	6.5-8.8
pH, Minimum	Annual	S.U.	-	6.5	1245	6.6	7.6	6.5-8.8
Carbonaceous Biochemical Oxygen Demand (5 day)	Annual	mg/L	12	18[a]	357	4.3	7.9	0-13

Table 5. Effluent Data for the Meander WWTP- Projected Effluent Quality Values

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-Summer	mg/L	196	185	1.7078	3.466
Ammonia-Winter	mg/L	159	152	4.5762	9.9285
Bis(2-ethylhexyl)phthalate	µg/L	5	1	2.183	2.99
Cadmium	µg/L	33	3	0.34164	0.468
Chromium	µg/L	21	11	18.295	26.608
Chromium, Dissolved Hexavalent	µg/L	60	0	--	--
Copper	µg/L	67	63	14.75	22.559
Cyanide – free	mg/L	60	3	0.073	0.1
Lead	µg/L	33	10	5.9568	8.16
Mercury (BCC)	ng/L	65	60	4.6148	6.9346
Nickel	µg/L	26	14	41.394	64.577
Nitrate + Nitrite	mg/L	107	107	19.537	26.956
Phosphorus	mg/L	267	258	0.97024	1.4451
Silver	µg/L	60	4	0.7519	1.03
Total Kjeldahl Nitrogen	mg/L	120	120	13.744	20.852
Zinc	µg/L	38	37	59.8235	81.95

Pretreatment data were combined with the DMR data. PEQ = Projected Effluent Quality, MDL = Method Detection Level, BCC= Bioaccumulative Chemical of Concern

Table 6. Summary of Acute and Chronic Toxicity Test Results for the Meander WWTP

Test Date	*Ceriodaphnia dubia 48 hours*	*Fathead Minnows 96 hours*	*Ceriodaphnia dubia 7 days*	*Fathead Minnows 7 days*
	TUa[a]	TUa[a]	TUc[a]	TUc[a]
2008	-	-	-	-
9/1/2009	BD	BD	BD	BD
9/17/2010	BD	BD	BD	BD
9/1/2011	BD	BD	1.41	BD
9/30/2012	BD	BD	BD	BD

[a] TU_a = acute toxicity units, TU_c = chronic toxicity units
BD = Below Detection

Table 7. Water Quality Criteria in the Meander Creek Study Area

Parameter	Units	Inside	Outside Mixing Zone Criteria				
			Average			Maximum	Mixing
			Human	Agri-	Aquatic	Aquatic	Zone
			Health	culture	Life	Life	Maximum
Ammonia – Summer	mg/L		--	--	2.1	--	--
Ammonia – Winter	mg/L		--	--	7.9	--	--
Arsenic	µg/L		--	100.	150.	340.	680.
Bis(2-ethylhexyl)phthalate	µg/L		59.	--	8.4	1100.	2100.
Bromomethane	µg/L		4000.	--	16.	38.	75.
Cadmium	µg/L		--	50.	4.4	10.	21
Dissolved Hexavalent Chromium	µg/L		--	--	11.	16.	31.
Chromium	µg/L		--	100.	160.	3300.	6600.
Copper	µg/L		1300.	500.	18.	28.	56.
Cyanide, free	µg/L		220000.	--	12.	46.	92.
Lead	µg/L		--	100.	17.	310.	630.
Mercury [A]	ng/L		12.	10000.	910.	1700.	3400.
Molybdenum	µg/L		--	--	20000.	190000.	370000.
Nickel	µg/L		4600.	200.	98.	880.	1800.
Nitrate+Nitrite	mg/L		--	100.	--	--	--
Selenium	µg/L		11000.	50.	5.0	--	--
Silver	µg/L		_	_	1.3	5.7	11.0
Strontium	µg/L		--	--	21000.	40000.	81000.
Zinc	µg/L		69000.	25000.	220.	220.	450.

[A] Bioaccumulative Chemical of Concern (BCC)

Table 8. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	0	USGS gage #03097500, 1929-51 data
7Q10	cfs	annual	0	USGS gage #03097500, 1929-51 data
		summer	0	USGS gage #03097500, 1929-51 data
		winter	0	USGS gage #03097500, 1929-51 data
30Q10	cfs	summer	0	USGS gage #03097500, 1929-51 data
		winter	0	USGS gage #03097500, 1929-51 data
90Q10	cfs	annual	0	
Harmonic Mean	cfs	annual	0	USGS gage #03097500, 1929-51 data
Mixing Assumption	%	average	100	
	%	maximum	100	
Hardness	mg/L	annual	214	eDMR data; station 903; 2009-2012
pH	S.U.	summer	6.88	eDMR data; station 903; 2009-2012
		winter	7	eDMR data; station 903; 2009-2012
Temperature	ºC	summer	21.7	eDMR data; station 903; 2009-2012
		winter	10.6	eDMR data; station 903; 2009-2012
Meander WWTP flow	cfs	annual	6.2	NPDES application
Background Water Quality				
Low flow = 0… data not used				

*Note USGS= United States Geological Survey, RM=River Mile, cfs=cubic feet per second, eDMR = electronic Monitoring Report, OEPA=Ohio Environmental Protection Discharge Agency, MDL=Method Detection Limit, eDMR = electronic Discharge Monitoring Report

Table 9. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

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

Parameter	Units	Average			Maximum	Inside
		Human Health	Agri Supply	Aquatic Life	Aquatic Life	Mixing Zone Maximum
Ammonia - Summer	mg/L	--	--	2.1	--	--
Ammonia - Winter	mg/L	--	--	7.9	--	--
Arsenic [B]	µg/L	--	100.	150.	340.	680.
Bis(2-ethylhexyl)phthalate	µg/L	59.	--	8.4	1100.	2100.
Bromomethane	µg/L	4000. [A]	--	16.	38.	75.
Cadmium [B]	µg/L	--	50. [A]	4.4	10.	21.
Chromium [B]	µg/L	--	100.	160.	3300.	6600.
Dissolved Hexavalent Chromium [B]	µg/L	--	--	11.	16.	31.
Copper	µg/L	1300. [A]	500. [A]	18.	28.	56.
Cyanide free [B]	µg/L	220000. [A]	--	12.	46.	92.
Lead	µg/L	--	100.	17.	310.	630.
Mercury [C]	ng/L	12.	10000. [A]	910.	1700.	3400.
Molybdenum [B]	µg/L	--	--	20000.	190000.	370000.
Nickel	µg/L	4600. [A]	200.	98.	800.	1800.
Nitrate+Nitrite	mg/L	--	100.	--	--	--
Selenium [B]	µg/L	11000.	50.	5.0	--	--
Silver	µg/L	--	--	1.3	5.7	11.
Zinc	µg/L	69000. [A]	25000. [A]	220.	220.	450.

[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); no mixing zone allowed after 11/15/2010, criteria must be met at end-of-pipe unless the requirements for an exception are met as listed in 3745-2-08.

Table 10. Parameter Assessment

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

Phosphorus	Total Kjeldahl Nitrogen	

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

Cadmium - TR	Chromium	Dissolved Hexavalent Chromium
Nitrate + Nitrite		

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

Lead	Mercury (BCC)	Nickel
Zinc	Bis(2-ethylhexyl)phthalate	
Ammonia-Winter		

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.

Silver	Ammonia-Summer

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Period	Recommended Effluent Limits Average	Maximum
Copper	µg/L		18	28
Cyanide - free	mg/L		0.012	0.046

Copper becomes a Group 5 parameter based upon the loading test [OAC 3745-2-06(B)].

Table 11. 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 - - - - - - - - - - - -				
Dissolved Oxygen	mg/L	- - - - - - - - - - Not less than 5.0 - - - - - - - - -				WQS, EP
Total Suspended Solids	mg/L	20.0	30.0[c]	303	454[c]	PD, EP
Oil and Grease	mg/L	--	10.0	--	--	WQS, EP
Ammonia	mg/L					
Summer		1.9	2.85[c]	28.8	43.1[c]	PD, EP
Winter		5.0	7.5[c]	75.7	113.6[c]	PD, EP
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Nitrite + Nitrate	mg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Phosphorus	mg/L	1.0	1.5[c]	15.2	22.9[c]	PD, EP
Free Cyanide	µg/L	12	46	0.182	0.699	RP
Nickel	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Silver	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Zinc	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Cadmium	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Lead	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Chromium	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Copper	µg/L	16	26	0.24	0.39	RP, ABS
Dissolved Hexavalent Chromium	µg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
E. coli						
Summer Only	#/100ml	126	284[c]	--	--	WQS, BEJ
Flow	MGD	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Total Filterable Residue	mg/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, BEJ
Mercury	ng/L	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M, EP
Whole Effluent Toxicity – *C. dubia* and *P. promelas*						
Acute	TUa	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
Chronic	TUc	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
pH	S.U.	- - - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - - -				WQS
$CBOD_5$[d]	mg/L	12.0	18.0[c]	181.7	272.7[c]	PD, EP

[a] Effluent loadings based on average design discharge flow of 4.0 MGD.

[b] Definitions: ABS = Antibacksliding Rule [OAC 3745-33-05(F) and 40 CFR Part 122.44(l)];
BEJ = Best Engineering Judgment;
EP = Existing Permit;
M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges;
PD = Plant Design Criteria;
RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits [OAC 3745-33-07(A)];
WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]
WQS = Ohio Water Quality Standards (OAC 3745-1-07).

[c] Weekly average limit.

[d] $CBOD_5$ = 5-day carbonaceous biochemical oxygen demand.