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 MillerCoors, LLC

Public Notice No.: 15-03-014
Public Notice Date: March 10, 2015
Comment Period Ends: April 9, 2015

Ohio EPA Permit No.: **1IH00011*FD**
Application No.: **OH0072605**

Name and Address of Applicant:

MillerCoors, LLC
2525 Wayne Madison Road
Trenton, Ohio 45067

Name and Address of Facility Where Discharge Occurs:

MillerCoors, LLC
2525 Wayne Madison Road
Trenton, Ohio 45067
Butler County

Receiving Water:
Great Miami 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, 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. Many of these have already been established by U.S. Environmental Protection Agency (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 wasteload allocation 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: temperature, dissolved oxygen, pH, total filterable residue, nitrite plus nitrate, zinc and flow rate.

Concentration limits for biochemical oxygen demand – 5 day (BOD_5) and total suspended solids are proposed to continue from the current permit. Lower loading limits are proposed for these parameters based on a reasonable measure of average flow which is consistent with OAC 3745-2-05.

Monthly concentration limits are proposed to continue for ammonia. New daily maximum concentration and loading limits are proposed for ammonia to be consistent with OAC 3745-33-05. A lower monthly loading limit is proposed based on a reasonable measure of average flow which is consistent with OAC 3745-2-05.

Current monitoring requirements for total kjeldahl nitrogen are being removed from the permit because the TMDL report is in progress and no further information on this parameter is needed.

New limits for phosphorus are proposed based on plant design. New limits for phosphorus and ammonia become effective 24 months after the effective date of the permit.

In Part II of the permit, special conditions are included that address outfall signage.

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 Ashley Ward at (614) 644-4852 or Ashley.Ward@epa.ohio.gov or contact Robert Ostendorf at (937) 285-6107 or Robert.Ostendorf@epa.ohio.gov.

Information Regarding Certain Water Quality Based Effluent Limits

This draft permit may contain proposed water quality based effluent limitations 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 Ohio Revised Code 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 National Pollutant Discharge Elimination System (NDPES) 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 water quality based effluent limitations 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 water quality standard(s) 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

MillerCoors, LLC (MillerCoors) discharges to the Great Miami River at river mile 43.7. Figure 1 shows the approximate location of the facility.

This segment of the Great Miami River is described by Ohio EPA River Code: 14-001, U.S. EPA River Reach #: 05080002-009, County: Butler, Ecoregion: Eastern Corn Belt Plains. The Great Miami River is designated for the following uses under Ohio's water quality standards (OAC 3745-1-21): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class A Primary Contact Recreation (PCR).

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

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

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (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

Miller Brewing brews and packages malt beverages. The raw materials, which include water, barley, corn, yeast, and hops, are processed in the following operations:

- Brewing
- Fermentation
- Aging
- Filtration; and
- Packaging

Water is obtained through onsite wells.

Description of Existing Discharge

The wastewater generated at this facility is processed at the on-site wastewater treatment plant (WWTP) and then discharged through outfall 001 before flowing into the Great Miami River. Treatment processes

include screening, grit removal, chemical mixing, activated sludge, secondary clarification, and polishing lagoons. Sludge processing includes thickening and dewatering facilities.

MillerCoors currently belt presses the sludge from their wastewater treatment plant to form a dry, cake material that is provided for land application to farmers. They do not combine sanitary waste with their brewery waste; therefore they are not regulated under the sewage sludge program.

MillerCoors is undergoing a project to turn the industrial sludge into fish meal. Construction for the project is scheduled to be completed November 2015. Once completed, the facility anticipates lower phosphorus levels and possibly lower ammonia levels in the plant effluent.

The MillerCoors brewing operations are categorized under the Standard Industrial Classification Code (SIC) 2082 which is identified as "Malt Beverages". The fish meal operations are categorized under SIC 2048 which is identified as "Prepared Feed and Feed Ingredients for Animals and Fowls, Except Dogs and Cats". There are no federal effluent guidelines applicable to the MillerCoors discharge.

Table 1 shows the annual effluent flow rates for the MillerCoors WWTP from January 2008 through December 2013. The 95th percentile of monthly averages is 2.09 MGD.

Table 1. Flow rates for MillerCoors, January 2008 through December 2013.

	Flow in MGD				
Year	**50th**	**75th**	**95th**	**Maximum**	**Mean**
2008	1.881	2.1235	2.5847	4.115	1.8746
2009	1.916	2.162	2.5022	3.179	1.8795
2010	1.911	2.135	2.521	3.174	1.8882
2011	1.862	2.002	2.3036	3.65	1.873
2012	1.507	1.7073	2.0595	2.962	1.5015
2013	1.483	1.654	1.927	2.89	1.4835
2008-2013	1.766	2.0065	2.4073	4.115	1.7497

Table 2 presents chemical specific data compiled from the NPDES renewal application, data reported in discharge monitoring reports (DMRs), and data collected by Ohio EPA.

Table 3 presents a summary of unaltered DMR data for outfall 1IH00011001. Data are presented for the period January 2008 through September 2013, and current permit limits are provided for comparison.

Assessment of Impact on Receiving Waters

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical, biological, and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio WQS and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to: NPDES permittee self-monitoring data; effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Indicators of exposure to these

stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices fails meet the biocriteria. Nonattainment means that either none of the applicable indices meet the biocriteria or one of the organism groups indicates poor or very poor performance. An aquatic life use attainment table (see Table 4) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

For more information, please see the Biological and Water Quality Study of the Lower Great Miami River and Select Tributaries located at:
http://www.epa.state.oh.us/portals/35/documents/GMR2012TSD.pdf

A Total Maximum Daily Load (TMDL) study is currently in progress for the Lower Great Miami River. This study is scheduled to be completed sometime in 2015 and will be posted on the Ohio EPA website at: http://www.epa.state.oh.us/dsw/tmdl/index.aspx#TMDL_Projects.

Table 4. Aquatic Life Use Attainment Table. *VG = Very good.

Sample Location River Mile	Aquatic Life Attainment Status	IBI	MIwb	ICI	Cause of Impairment	Sources
47.10 (Upstream)	Full	50	9.3	VG*		
45.30 (Upstream)	Full	39	8.9	40		
42.80 (Downstream)	Full	39	8	46		
34.20 (Downstream)	Full	49	9.4	32		
32.70 (Downstream)	Partial	40	10.1	14	Nutrients, Biochemical oxygen demand	Livestock, crop production, municipal point source discharges.
31.40 (Downstream)	Partial	35	9.6	44	Nutrients, Biochemical oxygen demand	Livestock, crop production, municipal point source discharges.

Ecoregion Biocriteria: Eastern Corn Belt Plains, WWH			
Index-Site Type	IBI	MIwb	ICI
Headwaters	40	NA	36
Wadeable	40	8.3	36
Boat	42	8.5	36

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 discharges to the Great Miami River within a large interactive segment (approx. RM 87 to 15) with multiple other dischargers. Wasteload allocations for conservative parameters in this interactive segment were calculated through use of the CONSWLA (CONservative Substance WasteLoad Allocation) model. The study area, showing relative positions of significant dischargers and tributaries, is depicted in Figure 2.

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

DMR data January 2008 through September 2013

Application Form 2C Data	2013
Ohio EPA Data (compliance, survey)	2011-12

The data were examined, and the following values were removed from the evaluation to give a more reliable projection of effluent quality: one value for TDS, of 3320 mg/L and one value for zinc, of 7305µg/L.

This data is evaluated statistically, and PEQ values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95th percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95th percentile of all data points. The average and maximum PEQ values are presented in Table 2.

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 5 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).

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
AWS		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

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

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

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

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For MillerCoors, the wasteload allocation values are 1.0 TU_a and 86.9 TU_c.

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

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

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

TU_c = 100/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 LC_{50} for the most sensitive test species:

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

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

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

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

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 MillerCoors outfall 1IH00011001 and the basis for their recommendation.

Water temperature and flow rate
Monitoring of water temperature and flow rate is proposed to continue from the existing permit in order to assist in the evaluation of effluent quality and treatment plant performance. This is in accordance with Ohio EPA guidance.

BOD_5 and total suspended solids
The limits proposed for BOD_5 and total suspended solids are proposed to continue from the existing permit and are based on best professional judgment. These limits are protective of WQS.

Dissolved oxygen and pH
Limits proposed for dissolved oxygen and pH are based on WQS (OAC 3745-1-07).

Ammonia
The monthly limit for ammonia is proposed to continue from the existing permit and is based on the WLA. A new daily maximum limit is proposed for ammonia to be consistent with OAC 3745-33-05 (C)(1)(a)(iii). The maximum concentration limit was calculated by multiplying the average limit by 1.5, a statistical multiplier recommended in the US EPA Technical Support Document for Water Quality-based Toxics Control.

Phosphorus
Limits for phosphorus are based on plant design. On June 10, 2008 Ohio EPA issued a Permit to Install (PTI) to the MillerCoors Trenton plant under application number 655971. The PTI application includes design numbers for phosphorus effluent quality of 1.4 mg/L average and 7.5 mg/L maximum. Per OAC 3745-33-05(E) the Director may establish limitations for any discharge based on the level of performance that a proposed treatment system is designed to achieve, as documented in an approved permit to install.

Barium, iron, lead, nitrite plus nitrate, strontium, total filterable residue and zinc
Ohio EPA risk assessment (Table 5) places barium, iron, lead, nitrite plus nitrate, strontium, total filterable residue and zinc in groups 2 and 3. This placement as well as the data in Tables 2 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a low frequency is proposed to continue for nitrite plus nitrate, total filterable residue and zinc to document that these pollutants continue to remain at low levels.

Whole Effluent Toxicity Reasonable Potential
Based on no toxicity data, process type and a lack of Group 4 or 5 parameters in Outfall 1IH00011001 effluent, MillerCoors is placed in Category 4 with respect to whole effluent toxicity and monitoring is not required. Chemical specific limits are sufficient to meet WQS.

Other Requirements

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

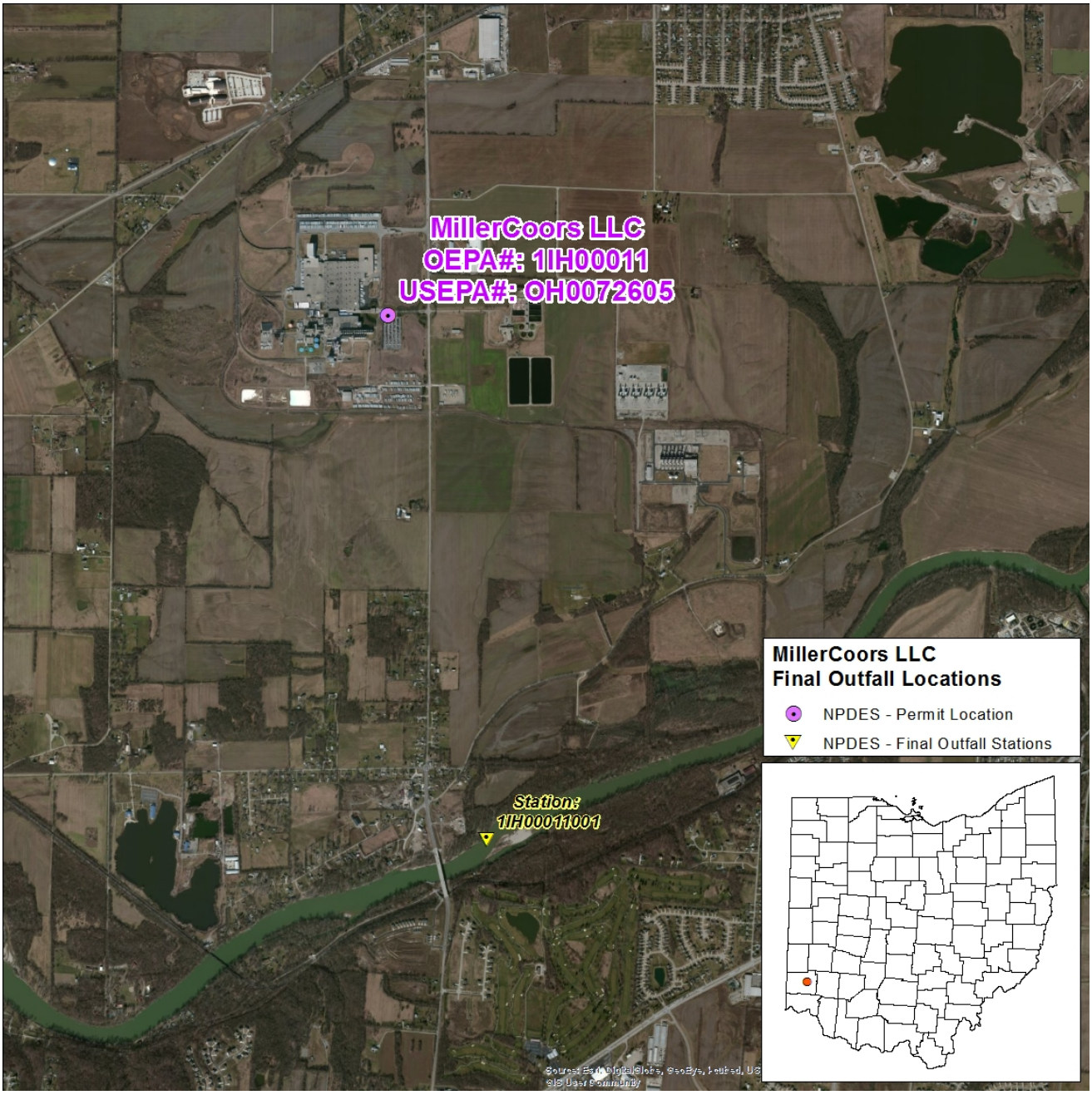

Figure 1. Location of MillerCoors.

Figure 2. Great Miami River Study Area (not to scale).

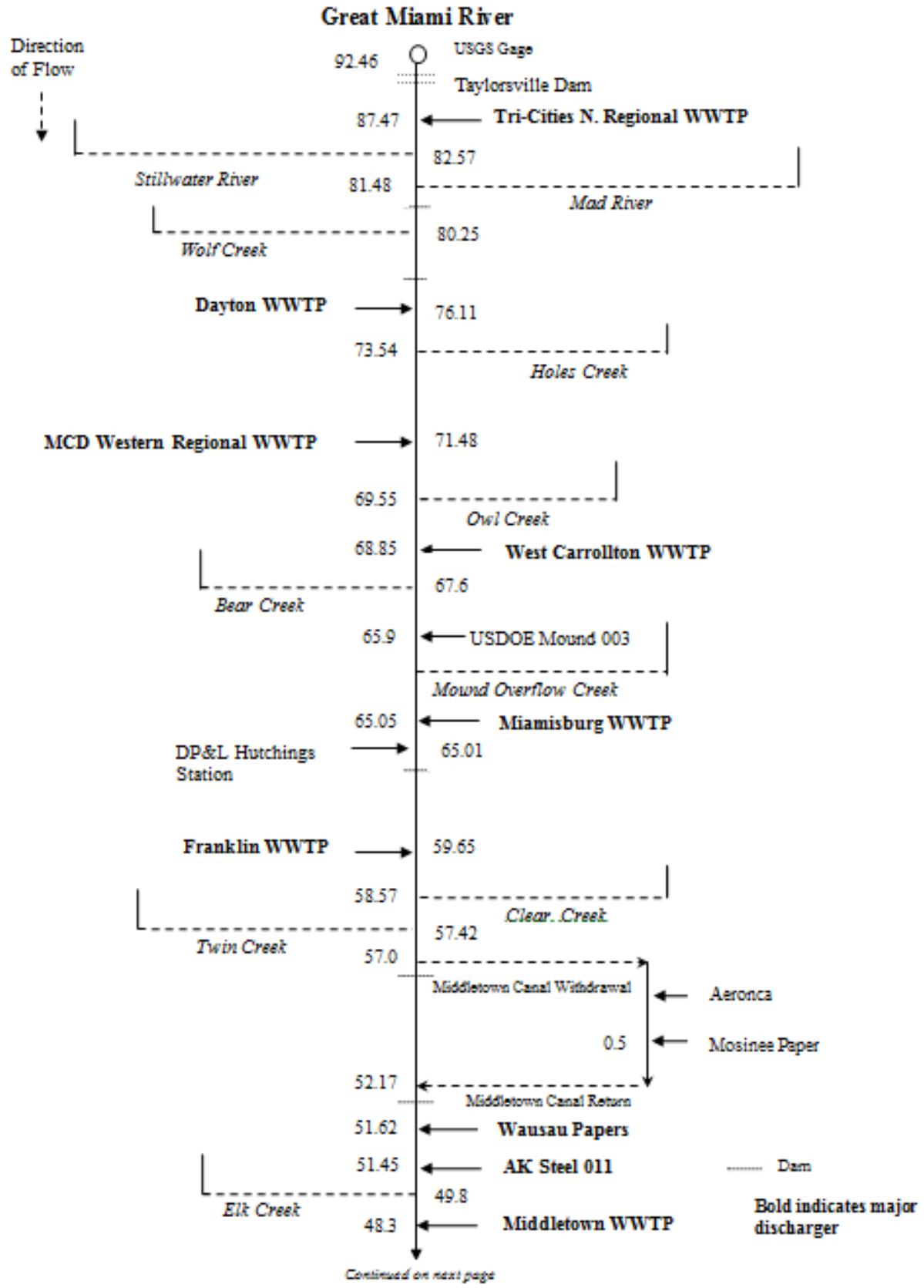

Figure 2. Great Miami River Study Area - Continued.

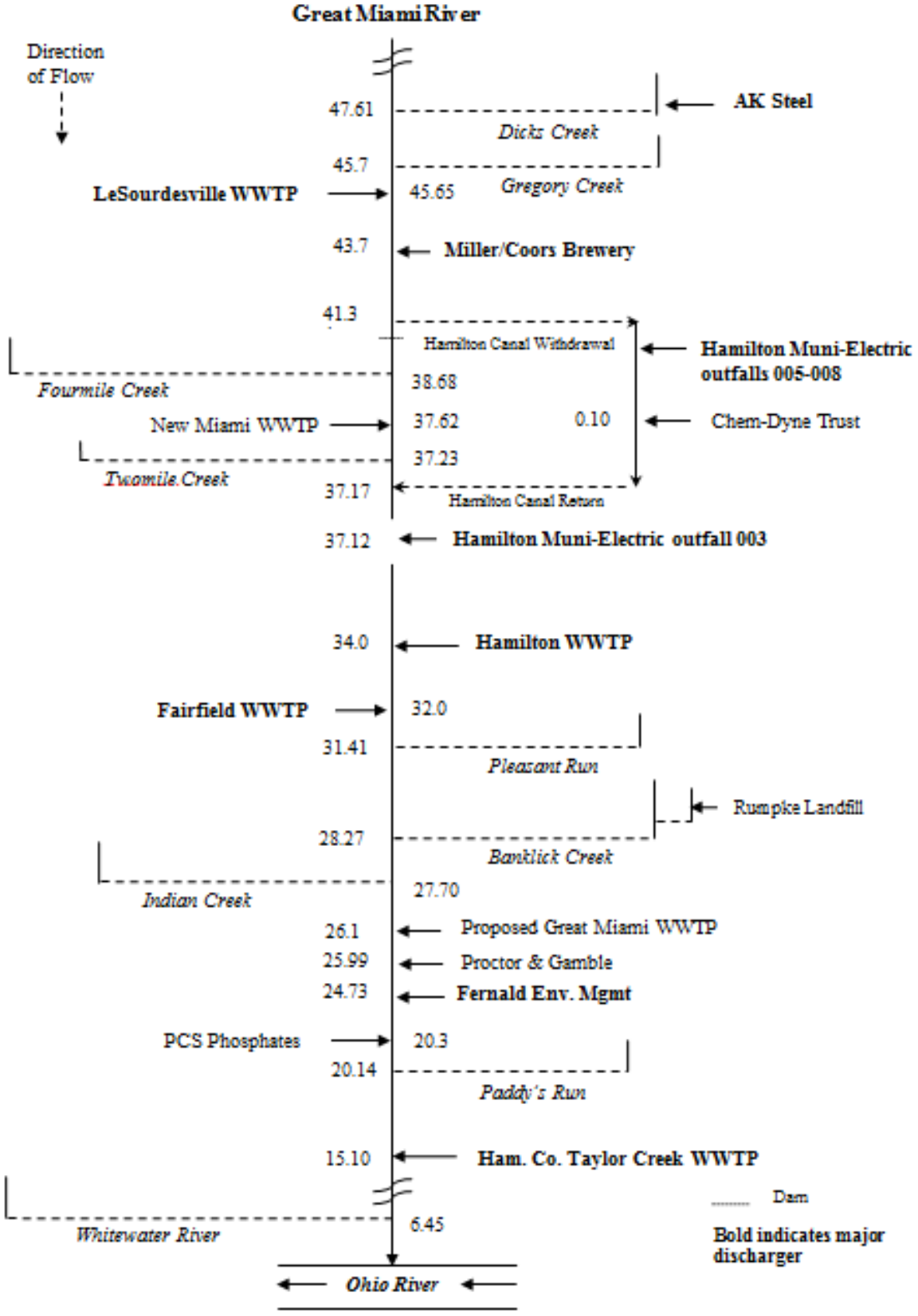

Table 2. Effluent Data for MillerCoors.

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Self-Monitoring (DMR) Data					
Total Dissolved Solids (TDS)	mg/L	202	202	904.5	1239
Ammonia, Summer	mg/L	112	90	1.112	1.742
Ammonia, Winter	mg/L	74	58	2.267	3.105
Nitrate+Nitrite	µg/L	228	208	18.20	19.75
Phosphorus	mg/L	194	194	5.446	7.931
Zinc	µg/L	285	257	139.9	202.2
Combined Other Data [A]					
Barium	µg/L	5	5	68.84	94.30
Iron	µg/L	5	1	201.5	276.0
Lead	µg/L	5	2	11.75	16.10
Strontium	µg/L	5	5	268.6	368.0
Sulfate	mg/L	1	1	543.1	744.0

[A] Combined other data sources include Application Form 2.C. data and Ohio EPA data.

Table 3. Effluent Characterization Using Self-Monitoring Data.

Summary of current permit limits and unaltered discharge monitoring report data for MillerCoors outfall 1IH00011001 (January 2008 - September 2013). 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.

			Current Permit Limits			Percentiles			Decision Criteria		
Parameter	Season	Units	30 day	Daily	# Obs.	50th	95th	Data Range	# Obs.	PEQ_{ave}	PEQ_{max}
Water Temperature	Annual	°C	Monitor		2084	23.5	34.4	2.2-38.6			
Dissolved Oxygen	Summer	mg/L	5.0 min	--	1065	6.94	8.76	5.04-11.7	725	7.057	8.0549
Dissolved Oxygen	Winter	mg/L	5.0 min	--	1019	9.7	13.1	6.21-14.1	509	11.129	14.094
Biochemical Oxygen Demand, 5 Day	Summer	mg/L	45	90	154	5	25.4	0-122	104	27.558	41.158
Biochemical Oxygen Demand, 5 Day	Winter	mg/L	45	90	150	6	19.3	0-179	79	12.548	20.37
pH	Annual	S.U.	6.5 min	9.0 max	1510	8.32	8.72	6.11-8.97			
Residue, Total Dissolved	Annual	mg/L			203	1040	1350	434-3320	203	1271.2	1470.2
Total Suspended Solids	Annual	mg/L	86	172	293	15.5	49.8	0-156	293	37.579	55.782
Nitrogen, Ammonia (NH3)	Summer	mg/L	2.5	--	158	0.552	1.33	0-7.79	112	1.1118	1.742
Nitrogen, Ammonia (NH3)	Winter	mg/L	2.5	--	145	0.414	1.06	0-3.45	74	1.0757	1.6699
Nitrogen Kjeldahl, Total	Annual	mg/L	Monitor		117	3.44	7.71	0-14.8	117	5.7068	7.7882
Nitrite Plus Nitrate, Total	Annual	mg/L	Monitor		228	1.06	14.2	0-31.4	228	18.198	19.749
Phosphorus, Total (P)	Annual	mg/L	Monitor		194	2.77	6.24	0.16-11.6	194	5.4461	7.9306
Zinc, Total Recoverable	Annual	µg/L	Monitor		286	74.9	171	0-7310	286	157.6	231.76
Flow Rate	Annual	MGD	Monitor		2083	1.78	2.42	0-4.12			

Definitions: PEQ = Projected Effluent Quality.

Table 5. Parameter Assessment.

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

Phosphorus	Sulfate	

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

Iron	Nitrate+Nitrite	Strontium

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

Barium	Lead	Total filterable residue
Zinc		

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

No parameters meet the criteria of this group.

Group 5: Maximum PEQ $\geq$ 100% of the maximum PEL or average PEQ $\geq$ 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.

No parameters meet the criteria of this group.

Definitions: PEL = Projected effluent limit;
PEQ = Projected effluent quality;
WLA = Wasteload allocation;
WQS = Water quality standards.

Table 6. Instream Conditions and Discharger Flow.

Parameter	Units		Value	Basis
Upstream Flows				
GMR at Taylorsville				
7Q10	cfs	annual	58.4	USGS gage #03263000, 1970-2012 data
1Q10	cfs	annual	42.0	USGS gage #03263000, 1970-2012 data
30Q10	cfs	summer	73.0	USGS gage #03263000, 1970-2012 data
	cfs	winter	180.3	USGS gage #03263000, 1970-2012 data
Harmonic Mean Flow	cfs	annual	299.9	USGS gage #03263000, 1970-2012 data
Mixing Assumption	%	average	100	Stream-to-discharge ratio
(GMR & Tribs.)	%	maximum	100	Stream-to-discharge ratio
Stillwater River at Mouth				
7Q10	cfs	annual	24.2	USGS gage #03266000, 1970-2012 data
1Q10	cfs	annual	20.4	USGS gage #03266000, 1970-2012 data
30Q10	cfs	summer	29.8	USGS gage #03266000, 1970-2012 data
	cfs	winter	79.4	USGS gage #03266000, 1970-2012 data
Harmonic Mean Flow	cfs	annual	143.3	USGS gage #03266000, 1970-2012 data
Mad River at Mouth				
7Q10	cfs	annual	177.8	USGS gage #03270000, 1970-2012 data
1Q10	cfs	annual	166.9	USGS gage #03270000, 1970-2012 data
30Q10	cfs	summer	210.0	USGS gage #03270000, 1970-2012 data
	cfs	winter	264.7	USGS gage #03270000, 1970-2012 data
Harmonic Mean Flow	cfs	annual	482.7	USGS gage #03270000, 1970-2012 data
Wolf Creek at Mouth				
7Q10	cfs	annual	5.13	USGS gage #03271000, 1986-2012 data
1Q10	cfs	annual	4.18	USGS gage #03271000, 1986-2012 data
30Q10	cfs	summer	5.77	USGS gage #03271000, 1986-2012 data
	cfs	winter	14.1	USGS gage #03271000, 1986-2012 data
Harmonic Mean Flow	cfs	annual	23.3	USGS gage #03271000, 1986-2012 data
Twin Creek at Mouth				
7Q10	cfs	annual	5.04	USGS gage #03272000, 1970-2012 data
1Q10	cfs	annual	4.50	USGS gage #03272000, 1970-2012 data
30Q10	cfs	summer	7.26	USGS gage #03272000, 1970-2012 data
	cfs	winter	32.4	USGS gage #03272000, 1970-2012 data
Harmonic Mean Flow	cfs	annual	44.9	USGS gage #03272000, 1970-2012 data
Four Mile Creek at Mouth				
7Q10	cfs	annual	6.67	USGS gage #03272700, 1970-2012 data
1Q10	cfs	annual	5.84	USGS gage #03272700, 1970-2012 data
30Q10	cfs	summer	8.90	USGS gage #03272700, 1970-2012 data
	cfs	winter	24.6	USGS gage #03272700, 1970-2012 data
Harmonic Mean Flow	cfs	annual	50.2	USGS gage #03272700, 1970-2012 data

Table 6. Instream Conditions and Discharger Flow - Continued.

Parameter	Units		Value	Basis
Holes Creek at Mouth				
7Q10	cfs	annual	1.16	USGS gage #03271300, 2002-2012 data
1Q10	cfs	annual	1.13	USGS gage #03271300, 2002-2012 data
30Q10	cfs	summer	3.54	USGS gage #03271300, 2002-2012 data
	cfs	winter	11.9	USGS gage #03271300, 2002-2012 data
Harmonic Mean Flow	cfs	annual	9.07	USGS gage #03272000, 2002-2012 data
Indian Creek at Mouth				
7Q10	cfs	annual	0.2	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.2	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.3	USGS gage #03274200, 1961-69 data
	cfs	winter	0.8	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	1.17	USGS gage #03272800, 1960-72 data
Clear Creek at Mouth				
7Q10	cfs	annual	0.4	USGS gage #03271700, 1959-69 data
1Q10	cfs	annual	0.4	USGS gage #03271700, 1959-69 data
30Q10	cfs	summer	0.6	USGS gage #03271700, 1959-69 data
	cfs	winter	2.5	USGS gage #03271700, 1959-69 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1970-2012 data
Elk Creek at Mouth				
7Q10	cfs	annual	0.4	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.4	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.6	USGS gage #03272200, 1960-67 data
	cfs	winter	2.1	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1970-2012 data
Bear Creek at Mouth				
7Q10	cfs	annual	0.85	USGS gage #03272000, 1970-2012 data
1Q10	cfs	annual	0.76	USGS gage #03272000, 1970-2012 data
30Q10	cfs	summer	1.23	USGS gage #03272000, 1970-2012 data
	cfs	winter	5.48	USGS gage #03272000, 1970-2012 data
Harmonic Mean Flow	cfs	annual	7.59	USGS gage #03272000, 1970-2012 data
Gregory Creek at Mouth				
7Q10	cfs	annual	0.26	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.26	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.39	USGS gage #03272200, 1960-67 data
	cfs	winter	1.35	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	1.93	USGS gage #03272000, 1970-2012 data
Pleasant Run at Mouth				
7Q10	cfs	annual	0.04	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.04	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.06	USGS gage #03274200, 1961-69 data
	cfs	winter	0.16	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.23	USGS gage #03272800, 1960-72 data

Table 6. Instream Conditions and Discharger Flow - Continued.

Parameter	Units		Value	Basis
Banklick Creek at Mouth				
7Q10	cfs	annual	0.01	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.01	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
	cfs	winter	0.05	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.07	USGS gage #03272800, 1960-72 data
Twomile Creek at Mouth				
7Q10	cfs	annual	0.02	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.02	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
	cfs	winter	0.06	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.10	USGS gage #03272800, 1960-72 data
Paddy's Run at Mouth				
7Q10	cfs	annual	0.03	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.03	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.05	USGS gage #03274200, 1961-69 data
	cfs	winter	0.13	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.19	USGS gage #03272800, 1960-72 data
MillerCoors outfall 001 effluent flow				
	cfs (mgd) avg.		3.23 (2.09)	DSW
Instream Hardness	mg/L	annual	303.	STORET/DMRs; 753 values, 2008-2013
Background Water Quality for the Great Miami River				
Antimony	µg/L	annual	0.	No representative data available.
Arsenic	µg/L	annual	1.0	STORET; 18 values,10 <MDL, 2009-10
Barium	µg/L	annual	92.	STORET; 18 values, 0 <MDL, 2009-10
Benzene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Benzo(a)pyrene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
3,4-Benzofluoranth.	µg/L	annual	0.	No representative data available.
Beryllium	µg/L	annual	0.	No representative data available.
Bis 2EHP	µg/L	annual	0.66	STORET; 5 values, 3 <MDL, 2009
Boron	µg/L	annual	0.	No representative data available.
Cadmium	µg/L	annual	0.	STORET; 18 values,18 <MDL, 2009-10
Chlorine, total res	µg/L	annual	0.	No representative data available.
Chlorobenzene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Chloroform	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Chromium^{+6}, diss	µg/L	annual	0.	No representative data available.
Chromium, total	µg/L	annual	1.0	STORET; 18 values,17<MDL, 2009-10
Copper	µg/L	annual	2.1	STORET; 18 values, 5<MDL, 2009-10
Cyanide, free	µg/L	annual	0.	No representative data available.
Dibenzo(a,h)anthrac.	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
1,2-Dichloroethane	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009

Table 6. Instream Conditions and Discharger Flow - Continued.

Parameter	Units		Value	Basis
1,1-Dichloroethylene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
2,4-Dimethylphenol	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Ethylbenzene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Fluoride	µg/L	annual	0.	No representative data available.
Heptachlor epoxide	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Hexachlorobenzene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Indeno(1,2,3,-cd)pyr.	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Iron	µg/L	annual	468.	STORET; 18 values, 0<MDL, 2009-10
Lead	µg/L	annual	1.0	STORET; 18 values, 17<MDL, 2009-10
Mercury	ng/L	annual	0.	No representative data available.
Molybdenum	µg/L	annual	0.	No representative data available.
Napthalene	µg/L	annual	0.	STORET; 6 values, 6 <MDL, 2009
Nickel	µg/L	annual	2.95	STORET; 18 values, 0<MDL, 2009-10
Nitrate+Nitrite	mg/L	annual	1.26	STORET; 26 values, 2<MDL, 2009-10
Phenols	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Selenium	µg/L	annual	0.	STORET; 18 values,18 <MDL, 2009-10
Silver	µg/L	annual	0.	No representative data available.
TDS	mg/L	annual	412.	STORET; 26 values, 0<MDL, 2009-10
Tetrachloroethylene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Thallium	µg/L	annual	0.	No representative data available.
Toluene	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
1,2,4-Trimethylbenz.	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Xylenes	µg/L	annual	0.	STORET; 3 values, 3 <MDL, 2009
Zinc	µg/L	annual	5.0	STORET; 18 values, 13<MDL, 2009-10

Definitions: DMR = Discharge monitoring reports;
DSW = Ohio Environmental Protection Agency, Division of Surface Water;
MDL = Minimum detection level;
STORET = Storage and retrieval;
USGS = United States Geographical Survey.

Table 7. Water Quality Criteria in the Great Miami River 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.
Benzene [C]	µg/L	710.	--	160.	700.	1400.
3,4-Benzofluoranthene [D]	µg/L	0.49	--	--	--	--
Benzo(a)pyrene [C]	µg/L	0.49	--	--	--	--
Beryllium [A]	µg/L	280.	100.	65.	560.	1100.
Bis(2-ethylhexyl)phthalate [C]	µg/L	59.	--	8.4	1100.	2100.
Boron	µg/L	--	--	3900.	33000.	65000.
Cadmium [A]	µg/L	--	50.	5.9	16.	32.
Chlorine, tot. res.	µg/L	--	--	11.	19.	38.
Chlorobenzene	µg/L	21000.	--	47.	420.	850.
Chloroform [C]	µg/L	4700.	--	140.	1300.	2600.
Chromium^{+6}, diss.	µg/L	--	--	11.	16.	31.
Chromium -TR [A]	µg/L	--	100.	210.	4500.	8900.
Copper [A]	µg/L	1300.	500.	24.	40.	80.
Cyanide, free	µg/L	220000.	--	12.	46.	92.
Dibenzo(a,h)anthracene [C]	µg/L	0.49	--	--	--	--
1,2-Dichloroethane [C]	µg/L	990.	--	2000.	9600.	19000.
1,1-Dichloroethylene [C]	µg/L	32.	--	210.	1900.	3800.
2,4-Dimethylphenol	µg/L	2300.	--	15.	140.	280.
Ethylbenzene	µg/L	29000.	--	61.	550.	1100.
Fluoride	µg/L	--	2000.	--	--	--
Heptachlor Epoxide [C]	µg/L	0.0011	--	--	--	--
Hexachlorobenzene [B C]	µg/L	0.0077	--	--	--	--
Ideno(1,2,3-c,d)pyrene [C]	µg/L	0.49	--	--	--	--
Iron	µg/L	--	5000.	--	--	--
Lead [A]	µg/L	--	100.	26.	500.	1000.
Mercury [B]	ng/L	12.	10000.	910.	1700.	3400.
Molybdenum	µg/L	--	--	20000.	190000.	370000.
Naphthalene	µg/L	--	--	21.	170.	340.
Nickel [A]	µg/L	4600.	200.	130.	1200.	2400.
Nitrate+Nitrite	mg/L	--	100.	--	--	--
Phenol	µg/L	4600000.	--	400.	4700.	9400.
Selenium	µg/L	11000.	50.	5.0	--	--
Silver [A]	µg/L	--	--	1.3	11.	22.
Strontium	µg/L	--	--	21000.	40000.	81000.

[A] Aquatic Life Criteria is hardness-based.
[B] Bioaccumulative Chemical of Concern
[C] Carcinogen
[D] Use Criteria for Benzo(b)fluoranthene

Table 7. Water Quality Criteria in the Study Area - Continued.

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Tetrachloroethylene [C]	µg/L	89.	--	53.	430.	850.
Thallium	µg/L	6.3	--	17.	79.	160.
Toluene	µg/L	200000.	--	62.	560.	1100.
Total Dissolved Solids (TDS)	mg/L	--	--	1500.	--	--
1,2,4-Trimethylbenzene	µg/L	--	--	15.	140.	280.
Xylenes	µg/L	--	--	27.	240.	480.
Zinc [A]	µg/L	69000.	25000.	310.	310.	610.

[A] Aquatic Life Criteria is hardness-based.
[C] Carcinogen

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

		Average			Maximum	Inside
Parameter	Units	Human Health	Agri Supply	Aquatic Life	Aquatic Life	Mixing Zone Maximum
Barium	µg/L	--	--	330	3614	4000
Lead	µg/L	--	377	45	829	1000
Total filterable residue	mg/L	--	--	2360	--	--
Zinc	µg/L	25750[A]	93340[A]	533	507	610

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

Table 9. Final Effluent Limits and Monitoring Requirements.

Parameter	Units	Effluent Limits				Basis
		Concentration		Loading (kg/day)		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	Monitor		--	--	M
Temperature	°C	Monitor		--	--	M
Dissolved Oxygen	mg/L	5.0 min	--	--	--	WQS
Biochemical Oxygen Demand, 5 day	mg/L	45	90	481	961	EP/BPJ
pH	mg/L	6.5 min	9.0 max	--	--	WQS
Total Suspended Solids	mg/L	86	172	918	1840	EP/BPJ
Ammonia, Summer	mg/L	2.5	3.8	26.7	40.6	EP/WLA
Ammonia, Winter	mg/L	Monitor		--	--	BTJ
Nitrite plus Nitrate	mg/L	Monitor		--	--	EP/BEJ
Phosphorus	mg/L	1.4	7.5	15	80.1	PD
Zinc	mg/L	Monitor		--	--	M
Total Filterable Residue	mg/L	Monitor		--	--	EP/PD

Effluent loadings based on average design discharge flow of 2.09 MGD.

Definitions: BPJ = Best Professional Judgment;
BTJ = Best Technical Judgment;
EP = Existing Permit;
M = Best engineering judgment of Permit Guidance 2: Determination of Sampling Frequency Formula for Industrial Waste Discharges;
PD = Plant design (OAC 3745-33-05(E));
WLA = Wasteload Allocation procedures (OAC 3745-2);
WQS = Ohio Water Quality Standards (OAC 3745-1-07).