

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 **Perrysburg Wastewater Treatment Plant**

Public Notice No.: 11-04-048  
Public Notice Date: April 21, 2011  
Comment Period Ends: May 21, 2011

OEPA Permit No.: **2PD00002\*KD**  
Application No.: **OH0021008**

Name and Address of Applicant:

**City of Perrysburg  
201 West Indiana Avenue  
Perrysburg, Ohio 43551**

Name and Address of Facility Where  
Discharge Occurs:

**Perrysburg WWTP  
1 West Boundary Street  
Perrysburg, Ohio 43551  
Wood County**

Receiving Water: **Maumee River**

Subsequent  
Stream Network: **Lake Erie**

**Introduction**

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

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

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations

(40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

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

### **Summary of Permit Conditions**

The current summer ammonia limits will not meet WQS in the Maumee River. The permit contains revised ammonia limits for the summer months, and a 3-year compliance schedule to allow time for the WWTP to meet limits. The revised limit is caused by lower water quality standards; these standards are defined by the higher pH values measured downstream from the WWTP.

The limits for coliform bacteria have been revised to comply with new water quality standards that went into effect on March 15, 2010. The E. coliform limits would be 126 per 100 milliliters (30-day) and 284 per 100 ml (daily maximum). It is our understanding that the plant discharge can currently meet the new limits.

The other limits on the basic operating parameters of the treatment plant (CBOD, suspended solids and phosphorus) are being continued from the current permit.

The draft permit would not continue the mercury variance for this discharge. Mercury concentrations in the effluent have been reduced during the current permit, and based on discussions with the City, we believe that the plant discharge can meet WQS for mercury.

Ohio EPA is proposing to remove the monitoring requirements for strontium because strontium does not have the reasonable potential to contribute to WQS exceedances. We have added a monitoring requirement for total dissolved solids to obtain background data in the event that a TDS-containing user proposes to discharge to the plant (such as a water plant or industrial discharge).

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## **Procedures for Participation in the Formulation of Final Determinations**

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

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

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

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

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

**Ohio Environmental Protection Agency  
Attention: Division of Surface Water  
Permits and Compliance Section  
P.O. Box 1049  
Columbus, Ohio 43216-1049**

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

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

For additional information about this fact sheet or the draft permit, contact Eric Nygaard at (614) 644-2024 ([eric.nygaard@epa.ohio.gov](mailto:eric.nygaard@epa.ohio.gov)) or Pat Tebbe at (419) 373-3016 ([patricia.tebbe@epa.ohio.gov](mailto:patricia.tebbe@epa.ohio.gov)) .

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

Perrysburg WWTP discharges to Maumee River at River Mile (RM) 14.5. The approximate location of the facility is shown in Figure 1.

This segment of the Maumee River is described by Ohio EPA River Code: 04-001, U.S. EPA River Reach #: 04100009-005, County: Wood, Ecoregion: Huron-Erie Lake Plain. The Maumee River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-11): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR – Class A).

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

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

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

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

## **Facility Description**

The Perrysburg WWTP was constructed in 1957 with the most recent upgrade in 2010. The WWTP is a secondary treatment facility with an average design flow of 5.4 million gallons per day (MGD). The current wet stream processes consist of bar screening, grit removal, preaeration, primary sedimentation, activated sludge aeration, outfall pumping, secondary clarification, phosphorus removal, chlorination, and dechlorination. Ultraviolet disinfection to replace the chlorination system is under construction and will be working by the time this permit is effective. Solid stream processes are anaerobic digestion, mechanical dewatering, and polymer addition. Treated sludge is disposed of by land application at agronomic rates.

The Perrysburg collection system is predominantly separate; a portion is combined (approximately 18 percent). The system has 4 combined sewer overflows (CSOs). City personnel inspect regulators daily,

Monday-Friday, to check for dry weather overflows and maintain inspection and maintenance records. The City has repaired and optimized the height of weirs in the regulators, and some separate sewer areas have been routed around combined areas. Based on operating experience, treatment plant personnel have developed wet weather operating procedures designed to maximize the treatment of wet weather flows. Perrysburg implements the nine minimum controls for CSOs under a CSO Operation and Control Plan that was approved on February 24, 1997. Sewer separation was the chosen alternative, and it is being implemented under an enforcement schedule in the NPDES permit. The date of separation is scheduled for 2014. The schedule of compliance will be continued to meet the completion of separation by 2014.

Perrysburg had a secondary bypass until late 2010. This bypass has been recently eliminated.

Perrysburg does not implement an approved pretreatment program. No significant industrial users discharge to the Perrysburg WWTP. The 10 current non-significant users contribute approximately 0.001 MGD to the WWTP flow.

### **Description of Existing Discharge**

Table 1 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 2PD00002001. Data are presented for the period July 2005-October 2010, and current permit limits are provided for comparison.

Table 2 summarizes the results of acute whole effluent toxicity tests of the final effluent.

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

The 2010 Ohio Integrated Water Quality Report lists historical data available for this river segment (RM 31.32 to the mouth). Comprehensive biological and water quality data collected in 1997, 1998, and 2002 were used in prior Integrated Reports which resulted in a Category 5 (impaired) listing for the aquatic life beneficial use of this mainstem assessment unit. These data have since exceeded the ten-year threshold and are now considered historical. However, while reflecting the current status that insufficient data are available to assess the aquatic life use status, the assessment unit will remain listed as impaired until TMDLs for all beneficial use impairments are completed and approved by the U.S. EPA. Led by the Natural Resources Conservation Service and the U.S. Army Corps of Engineers, federal, state, and local partners have initiated a comprehensive investigation of measures to improve fish and wildlife habitat, navigation, flood damage reduction, recreation, and water quality in the western Lake Erie basin including the Maumee, Ottawa and Portage River watersheds. For more information, see <http://www.wleb.org/>. The segment summary from the Integrated Water Quality Report is shown in the appendix to this fact sheet.

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

Self-monitoring data (DMR)

July 2005 – October 2010

This data was evaluated for outliers and 2 values for ammonia-N (winter) were removed from the data set (0.05 mg/l, 0.039 mg/l); one value for mercury was removed (6.72 mg/l).

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. Average PEQ (PEQ<sub>avg</sub>) values represent the 95<sup>th</sup> percentile of monthly average data, and maximum PEQ (PEQ<sub>max</sub>) values represent the 95<sup>th</sup> percentile of all data points. The average and maximum PEQ values are presented in Table 3.

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (WQS) and allowable wasteload allocation (WLA) values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQ<sub>avg</sub> or PEQ<sub>max</sub> is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 7 for a summary of the screening results.

*Wasteload Allocation* For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload allocations using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations. The Perrysburg WWTP and Lucas County Maumee WWTP were allocated together for most parameters due to the size of the plant discharges, the flows of the Maumee River and the relatively close proximity of the two plants. The exception was the ammonia wasteload allocation, which was done separately for each facility. Ammonia decays instream between the discharges to the point where concentrations have almost returned to background levels upstream from the Perrysburg WWTP. Also, pH conditions downstream from the two plants differ, suggesting that the limits for each plant should be site-specific. The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

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Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
Wildlife		Annual 90Q10
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 5, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 4 and 5. The wasteload allocation results to maintain all applicable criteria are presented in Table 6.

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

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

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit ( $TU_c$ ) and 7Q10 flow for the average and the acute toxicity unit ( $TU_a$ ) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Perrysburg WWTP, the wasteload allocation values are 0.78  $TU_a$  and 4.95  $TU_c$ .

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

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

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

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

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

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

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

When the acute wasteload allocation is less than 1.0 TU<sub>a</sub>, it may be defined as:

<u>Dilution Ratio</u> <u>(downstream flow to discharger flow)</u>	<u>Allowable Effluent Toxicity</u> <u>(percent effects in 100% effluent)</u>
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 wasteload allocation for the Perrysburg WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of less than 2 to 1.

### **Reasonable Potential/ Effluent Limits/Hazard Management Decisions**

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum wasteload allocations are selected from Table 6. The average PEL (PEL<sub>avg</sub>) is compared to the average PEQ (PEQ<sub>avg</sub>) from Table 3, and the PEL<sub>max</sub> is compared to the PEQ<sub>max</sub>. Based on the calculated percentage of the allocated value [(PEQ<sub>avg</sub> ÷ PEL<sub>avg</sub>) X 100, or (PEQ<sub>max</sub> ÷ PEL<sub>max</sub>) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 7.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 8 presents the final effluent limits and monitoring requirements proposed for Perrysburg WWTP outfall 2PD00002001 and the basis for their recommendation.

The limits recommended for suspended solids and CBOD<sub>5</sub> are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are required of all publicly owned treatment works discharging to effluent limited stream segments (with respect to conventional pollutants). For a facility required to meet secondary treatment standards, monitoring of dissolved oxygen is appropriate and is proposed.

Limits proposed for oil and grease, pH, and E. coliform are based on Water Quality Standards (OAC 3745-1-07).

The E. coli. limits replace the existing fecal coliform limits, and are based on new water quality standards that went into effect on March 15, 2010. The limits are based on the standards for Primary Contact Recreation Class A waters. Ohio EPA implements the seasonal average standard as a 30-day limit. Ohio EPA used U.S. EPA's permit derivation techniques to translate the average WQS to a 7-day average (from "Technical Support Document for Water Quality-Based Toxics Control" (EPA-505-2-90-001, March 1991).

Phosphorus is limited based on provisions of OAC 3745-33-06(C). This rule applies to all publicly-owned treatment works in the Lake Erie Basin with a design flow of 1.0 MGD or more.

The *2010 Ohio Integrated Water Quality Monitoring and Assessment Report* (Ohio EPA) lists this segment of the Maumee River as impaired for aquatic life, based on historical data. Nutrients and organic enrichment/dissolved oxygen are listed as “high magnitude” causes, and major municipal point sources are listed among the “high magnitude” sources. Considering this information and the fact that municipal wastewater treatment plants discharge a nutrient load to the river, monthly monitoring for nitrate + nitrite is proposed based on best engineering judgment. Monitoring for phosphorus and nitrate + nitrite at the upstream and downstream stations also is proposed. The purpose of the monitoring is to maintain a nutrient data set for use in the future TMDL (total maximum daily loads) study.

The Ohio EPA risk assessment (Table 7) places ammonia (summer) and mercury in group 5. This placement as well as the data in Tables 1 and 3 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For these parameters PEQ is greater than 100 percent of the wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). For ammonia-N, the 30-day limit is based on the wasteload allocation; the 7-day limit is based on 1.5 times the 30-day limit, which is a standard statistical factor used to calculate 7-day limits from 30-day limits.

The revision in the wasteload allocation is primarily related to pH values measured downstream from the discharge. The pH measured by Perrysburg downstream from the discharge (75<sup>th</sup> percentile – 8.78 S.U.) causes the ammonia-N water quality standard to be reduced, thereby reducing the wasteload allocation.

The draft permit contains a compliance schedule to allow time for the facility to meet the new ammonia standard. Ohio EPA has initially provided a 3-year schedule to allow time for construction. Perrysburg may wish to build this schedule into a schedule to expand the treatment plant. Effluent flow data indicate that the plant is nearing its average design capacity.

The limits and monitoring requirements for mercury are based on WQS because of the mixing zone phase out for BCCs (bioaccumulative chemical of concern) that took effect on November 15, 2010. This phase-out requires that WQS for these chemicals be met at the discharge point. Ohio believes that Perrysburg may be able to meet this limit, with the mercury reduction done to date.

Ohio EPA risk assessment (Table 7) places cadmium, chromium, hexavalent chromium, copper, lead, nickel and zinc in groups 2/3. This placement as well as the data in Tables 1 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a low frequency is proposed to document that these pollutants continue to remain at low levels.

Monitoring for dissolved solids (total filterable residue) is also included in the draft permit to establish a baseline for future additions of dissolved solids to the sewer system.

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.

#### *Whole Effluent Toxicity Reasonable Potential*

We evaluated the acute toxicity results in Table 2 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6. Because there was no toxicity observed we could not calculate acute or chronic PEQ values. There is no reasonable potential for the Perrysburg WWTP to contribute to exceedances of WQS.

Based on best engineering judgment and the provisions of 40 CFR Part 132, Appendix F, Procedure 6, annual chronic toxicity testing with the determination of acute endpoints is proposed for the life of the permit. While the acute screening test submitted by Perrysburg in 2011 does not show evidence of toxicity, one test does not adequately characterize the Perrysburg WWTP discharge with respect to toxicity. The proposed monitoring will provide four tests conducted over the term of the permit and will provide data that is consistent with the NPDES application requirements at 40 CFR 122.21.

#### **Other Requirements**

##### *Sanitary Sewer Overflow Reporting*

Provisions for reporting sanitary sewer overflows (SSOs) are also proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports; telephone notification of Ohio EPA and the local health department, and 5-day follow up written reports for certain high risk SSOs; and preparation of an annual report that is submitted to Ohio EPA and made available to the public. Many of these provisions were already required under the "Noncompliance Notification", "Records Retention", and "Facility Operation and Quality Control" general conditions in Part III of Ohio NPDES permits.

##### *Operator Certification*

Operator certification requirements have been included in Part II, Item A. of the permit in accordance with rules adopted in December 2006. These rules require the Perrysburg WWTP to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001.

##### *Operator of Record*

In December 2006, Ohio Administrative Code rule revisions became effective which 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 represents language necessary to implement rule 3745-7-02 of the Ohio Administrative Code (OAC), and requires the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

##### *Storm Water Compliance*

In order to comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" which was signed in August 2006. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than August 31, 2011, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

*Outfall Signage*

Part II of the permit includes requirements for signs to be placed at each outfall to the Maumee River, providing information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

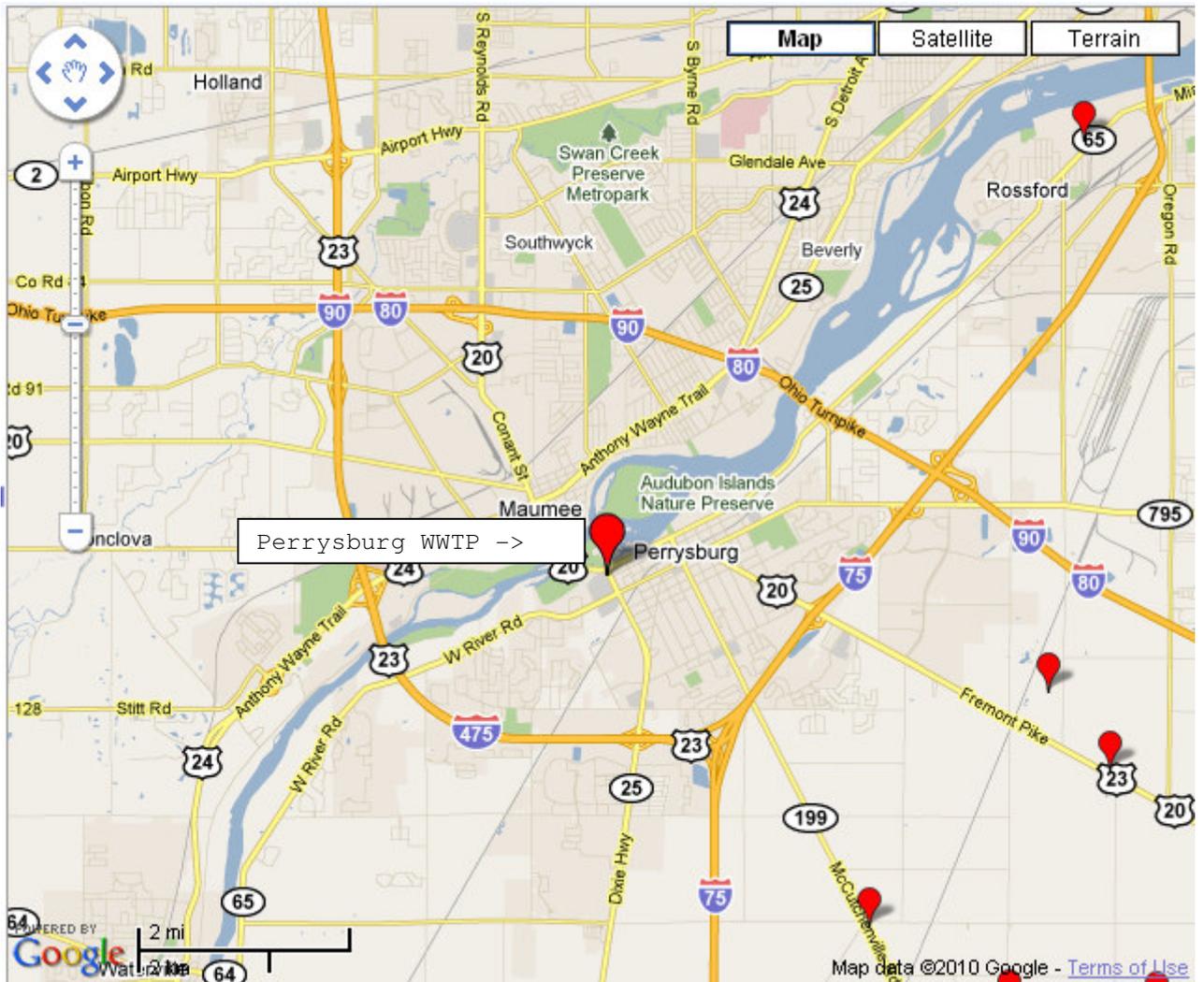


Figure 1. Approximate location of the Perrysburg WWTP. Balloons indicate NPDES permitted discharges. Large balloons are major dischargers.

Table 1. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Perrysburg WWTP outfall 2PD00002001. All values are based on annual records unless otherwise indicated. N = Number of Analyses. \* = For pH, 5th percentile shown in place of 50th percentile; \*\* = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ<sub>avg</sub> = monthly average; PEQ<sub>max</sub> = daily maximum analytical results.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 <sup>th</sup>	95 <sup>th</sup>		# Obs.	PEQ <sub>ave</sub>	PEQ <sub>max</sub>
Water Temperature	Annual	C	Monitor		1979	15.5	20.6	5.6-22.2			
Total Precipitation	Annual	Inches	Monitor		1705	0	0.75	0-4			
Dissolved Oxygen	Summer	mg/l	Monitor		724	2.3	3.9	0.2-6.2	488	2.6957	3.8874
Dissolved Oxygen	Winter	mg/l	Monitor		628	2.7	5.37	0.2-10.1	298	3.4283	5.2125
Total Suspended Solids	Annual	mg/l	30	45 <sup>A</sup>	789	3	8	0-120	777	5.2912	9.684
Total Suspended Solids	Annual	kg/day	613	920 <sup>A</sup>	788	47.1	191	0-3320			
Oil and Grease, Hexane Extr Method	Annual	mg/l	--	10	65	0	0	0-0	64	--	--
Oil and Grease, Hexane Extr Method	Annual	kg/day	--	--	65	0	0	0-0			
Nitrogen, Ammonia (NH3)	Summer	mg/l	5.7	8.5 <sup>A</sup>	413	3.13	12.5	0-34.5	281	12.637	25.684
Nitrogen, Ammonia (NH3)	Winter	mg/l	--	--	376	3.95	12	0.037-20.7	180	8.185	17.983
Nitrogen, Ammonia (NH3)	Summer	kg/day	116.5	173.8 <sup>A</sup>	412	41.1	176	0-477			
Nitrogen, Ammonia (NH3)	Winter	kg/day	--	--	376	70.8	229	0.717-465			
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		65	6.64	13.6	1.63-16.1	64	11.689	17.318
Nitrite Plus Nitrate, Total	Annual	kg/day	--	--	65	92.9	183	19.5-234			
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5 <sup>A</sup>	282	0.305	1.09	0.07-2.35	277	0.73147	1.0719
Phosphorus, Total (P)	Annual	kg/day	20	31 <sup>A</sup>	282	5.59	16.9	0.979-43.1			
Nickel, Total Recoverable	Annual	ug/l	Monitor		20	0	0.2	0-4	20	4.088	5.6
Nickel, Total Recoverable	Annual	kg/day	--	--	20	0	0.00184	0-0.0368			
Strontium, Total Recoverable	Annual	ug/l	Monitor		17	1830	2440	1600-3320	17	2327.2	2785.9

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Strontium, Total Recoverable	Annual	kg/day	--	--	17	29	69.4	15.7-104			
Zinc, Total Recoverable	Annual	ug/l		Monitor	20	18.5	25.3	12-30	20	25.977	34.046
Zinc, Total Recoverable	Annual	kg/day	--	--	20	0.307	0.684	0.138-0.701			
Cadmium, Total Recoverable	Annual	ug/l		Monitor	20	0	0	0-0	20	--	--
Cadmium, Total Recoverable	Annual	kg/day	--	--	20	0	0	0-0			
Lead, Total Recoverable	Annual	ug/l		Monitor	20	0	0	0-0	20	--	--
Lead, Total Recoverable	Annual	kg/day	--	--	20	0	0	0-0			
Chromium, Total Recoverable	Annual	ug/l		Monitor	20	0	0	0-0	20	--	--
Chromium, Total Recoverable	Annual	kg/day	--	--	20	0	0	0-0			
Copper, Total Recoverable	Annual	ug/l		Monitor	20	0	0	0-0	20	--	--
Copper, Total Recoverable	Annual	kg/day	--	--	20	0	0	0-0			
Chromium, Dissolved Hexavalent	Annual	ug/l		Monitor	20	0	0	0-0	20	--	--
Chromium, Dissolved Hexavalent	Annual	kg/day	--	--	20	0	0	0-0			
Fecal Coliform	Annual	#/100 ml	1000	2000 <sup>A</sup>	532	49.5	535	0-27000			
Flow Rate	Annual	MGD		Monitor	1972	4.01	8.81	1.63-14			
Chlorine, Total Residual	Annual	mg/l	--	0.038	925	0	0	0-0.034	925	0.01489	0.0204
Chlorine, Total Residual	Annual	kg/day	--	--	921	0	0	0-1.16			
Mercury, Total	Annual	ng/l	3.0	3400	55	0.71	1.98	0-6.72	54	1.6295	2.4684
Mercury, Total	Annual	kg/day	0.000062	0.0695	55	05	05	0-0.0000824			
pH, Maximum	Annual	S.U.	--	9.0	186	7.08	7.28	6.77-7.39			
pH, Maximum	Annual	S.U.	--	9.0	1167	7.1	7.36	6.56-7.61			
pH, Minimum	Annual	S.U.	--	6.5	186	7.01	7.21	6.65-7.28			
pH, Minimum	Annual	S.U.	--	6.5	1167	7.02	7.26	6.5-7.48			
CBOD 5 day	Summer	mg/l	25	40 <sup>A</sup>	413	0	0	0-8.5	281	1.2912	2.4296
CBOD 5 day	Winter	mg/l	25	40 <sup>A</sup>	371	0	2.9	0-22.2	178	1.6259	3.4729
CBOD 5 day	Summer	kg/day	511	818 <sup>A</sup>	412	0	0	0-147			
CBOD 5 day	Winter	kg/day	511	818 <sup>A</sup>	371	0	81.9	0-614			

Table 2. Summary of acute toxicity test results on the Perrysburg wastewater treatment plant effluent.

Test Date(a)	<i>Ceriodaphnia dubia</i> 48 hours						<i>Fathead Minnows</i> 96 hour					
	UP <sup>b</sup>	C <sup>c</sup>	LC <sub>50</sub> <sup>d</sup>	%M <sup>g</sup>	TUa <sup>h</sup>	NF <sup>i</sup>	UP <sup>b</sup>	C <sup>c</sup>	LC <sub>50</sub> <sup>d</sup>	%M <sup>g</sup>	TUa <sup>h</sup>	NF <sup>i</sup>
02/03/11 (E)	NT	0	>100	0	<1.0	NT	NT	0	>100	0	<1.0	NT

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

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

<sup>c</sup> C = laboratory water control

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

<sup>e</sup> EC<sub>50</sub> = median effects concentration

NT = not tested

<sup>f</sup> %A = percent adversely affected in 100% effluent

<sup>g</sup> %M = percent mortality in 100% effluent

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

<sup>i</sup> NF = near field sample in the Maumee River

ND = not determined

BD = below detection

**Table 3. Effluent Data for the Perrysburg**

<b>Parameter</b>	<b>Units</b>	<b>Number of Samples</b>	<b>Number &gt; MDL</b>	<b>PEQ Average</b>	<b>PEQ Maximum</b>
Aluminum	ug/l			--	--
Ammonia-S	mg/l	281	280	12.64	25.68
Ammonia-W	mg/l	180	180	8.18	17.98
Barium	ug/l			--	--
Chlorides	mg/l			--	--
Chlorine - TRes	mg/l	925	6	0.014892	0.0204
Chloroform (Trichloromethane)	ug/l			--	--
Copper - TR	ug/l			--	--
Dissolved solids	mg/l			--	--
Iron - TR	ug/l			--	--
Magnesium	mg/l			--	--
Manganese - TR	ug/l			--	--
Mercury - TR	ng/l	53	44	1.35	1.95
Nickel - TR	ug/l	20	1	4.088	5.6
Nitrate-N + Nitrite-N	mg/l	64	64	11.69	17.32
Phosphorus	mg/l	277	277	0.73	1.07
Strontium	ug/l	17	17	2327	2786
TKN	mg/l			--	--
Zinc - TR	ug/l	20	20	26	34

**Table 4.**

**Water Quality Criteria in the Study Area**

Parameter	Units	Outside Mixing Zone Criteria				Maximum Aquatic Life	Inside Mixing Zone Maximum
		Wildlife	Average				
			Human Health	Agri-culture	Aquatic Life		
Aluminum	ug/l	--	4500	--	--	--	--
Ammonia-S	mg/l	--	--	--	0.2	--	--
Ammonia-W	mg/l	--	--	--	2.7	--	--
Barium	ug/l	--	160000	--	220	2000	4000
Chlorides	mg/l	--	--	--	--	--	--
Chlorine - TRes	mg/l	--	--	--	0.011	0.019	0.038
Chloroform (Trichloromethane)	ug/l	--	1700c	--	140	1300	2600
Copper - TR	ug/l	--	64000	500	18	28	56
Dissolved solids (ave)	mg/l	--	--	--	1500	--	--
Iron - TR	ug/l	--	--	5000	--	--	--
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	61000	--	--	--	--
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	3400
Nickel - TR	ug/l	--	43000	200	98	880	1800
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Strontium	ug/l	--	1400000	--	21000	40000	81000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	35000	25000	220	220	450

**Table 5. Instream Conditions and Discharger Flow**

<u>Parameter</u>	<u>Units</u>	<u>Season</u>	<u>Value</u>	<u>Basis</u>
<i>Stream Flows</i>				
1Q10	cfs	annual	57	USGS Gage # 04193500
7Q10	cfs	annual	97	USGS Gage # 04193500
		summer	0	
		winter	0	
30Q10	cfs	summer	144	USGS Gage # 04193500
		winter	346	USGS Gage # 04193500
Harmonic Mean	cfs	annual	753	USGS Gage # 04193500
Mixing Assumption	%	average	25	
	%	maximum	100	
<i>Hardness</i>	mg/l	annual	210	Perrysburg 901, N=59
<i>pH</i>	S.U.	summer	8.78	Perrysburg 901, N=23
		winter	8.12	Perrysburg 901, N=10
<i>Temperature</i>	C	summer	25.25	Perrysburg 901, N=23
		winter	3.5	Perrysburg 901, N=10

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<i>Lucas Co. Maumee flow</i>	cfs	annual	34.8	Design flow (22.5 MGD)
<i>Perrysburg flow</i>	cfs	annual	8.36	Design flow (5.4 MGD)

*Background Water Quality*

Aluminum	ug/l		939	STORET; 2005-10; n=41; 8<MDL; Median value
Ammonia-S	mg/l		0.036	Perrysburg 801; 2005-10; n=23; 3<MDL; Median
Ammonia-W	mg/l		0.09	Perrysburg 801; 2005-10; n=11; 1<MDL; Median
Barium	ug/l		50	STORET; 2005-10; n=41; 0<MDL; Median value
Chlorides	mg/l		42.75	STORET; 2005-10; n=42; 0<MDL; Median value
Chlorine - TRes	mg/l		0	No representative data available.
Chloroform (Trichloromethane)	ug/l		0	No representative data available.
Copper - TR	ug/l		5.3	STORET; 2008-10; n=9; 5<MDL; Mean value
Dissolved solids	mg/l		343.5	STORET; 2005-10; n=42; 0<MDL; Median value
Iron - TR	ug/l		1400	STORET; 2005-10; n=41; 0<MDL; Median value
Magnesium	mg/l		53.8	STORET; 2005-10; n=41; 0<MDL; Median value
Manganese - TR	ug/l		46	STORET; 2005-10; n=41; 0<MDL; Median value
Mercury - TR	ng/l		0	No representative data available.
Nickel - TR	ug/l		5.7	STORET; 2008-10; n=9; 1<MDL; Mean value
Nitrate-N + Nitrite-N	mg/l		3.88	Lucas Co. 801; 2005-10; n=59; 5<MDL; Median value
Phosphorus	mg/l		0.22	Lucas Co. 801; 2005-10; n=59; 0<MDL; Median value
Strontium	ug/l		716	STORET; 2005-10; n=41; 0<MDL; Median value
TKN	mg/l		0.96	STORET; 2005-10; n=41; 0<MDL; Median value
Zinc - TR	ug/l		5	STORET; 2005-10; n=41; 21<MDL; 1/2 MDL

**Table 6.**

**Summary of Effluent Limits to Maintain Applicable WQ Criteria**

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum Aquatic Life	
			Human Health	Agri-culture	Aquatic Life		
Aluminum	ug/l	--	20032	--	--	--	--
Ammonia-S	mg/l	--	--	--	3.7	--	--
Ammonia-W	mg/l	--	--	--	sec	--	--
Barium	ug/l	--	857650	--	316	4575	4000
Chlorides	mg/l	--	--	--	--	--	--
Chlorine - TRes	mg/l	--	--	--	0.017	0.044	0.038
Chloroform (Trichloromethane)	ug/l	--	9115	--	219	3017	2600
Copper - TR	ug/l	--	343124	2658	25	58	56
Dissolved solids (ave)	mg/l	--	--	--	2150	--	--
Iron - TR	ug/l	--	--	20702	--	--	--
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	326862	--	--	--	--
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	3400
Nickel - TR	ug/l	--	230527	1047	150	2035	1800
Nitrate-N + Nitrite-N	mg/l	--	--	519	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Strontium	ug/l	--	7503226	--	32397	91881	81000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	187637	134020	341	504	450

Sec – Secondary treatment meets the winter ammonia allocation.

**Table 7. Parameter Assessment**

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

Chlorides	Magnesium	Phosphorus
TKN		

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

Aluminum	Barium	Cadmium - TR
Chloroform (Trichloromethane)	Chromium +6	Chromium - TR
Copper - TR	Dissolved solids	Iron - TR
Lead - TR	Manganese - TR	Nickel - TR
Nitrate-N + Nitrite-N	Strontium	Zinc - TR

*Group 3:* PEQ<sub>max</sub> < 50 percent of maximum PEL and PEQ<sub>avg</sub> < 50 percent of average PEL. No limit recommended; monitoring optional.

No parameters fit this group.

*Group 4:* PEQ<sub>max</sub> >= 50 percent, but < 100 percent of the maximum PEL or PEQ<sub>avg</sub> >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Chlorine - TRes

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

Limits to Protect Numeric Water Quality Criteria

<u>Parameter</u>	<u>Units</u>	<u>Period</u>	<u>Recommended Effluent Limits</u>	
			<u>Average</u>	<u>Maximum</u>
Ammonia-S	mg/l		3.7	--
Mercury - TR	ng/l		1.3	1700

Table 8. Final effluent limits and monitoring requirements for Perrysburg WWTP outfall 2PD00002001 and the basis for their recommendation.

Parameter	Units	<u>Effluent Limits</u>				Basis <sup>b</sup>
		Concentration		Loading (kg/day) <sup>a</sup>		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow	MGD	-----	Monitor	-----		M <sup>c</sup>
Temperature	°C	-----	Monitor	-----		M <sup>c</sup>
Precipitation	inches	-----	Monitor	-----		M <sup>c</sup>
Dissolved Oxygen	mg/l	-----	Monitor	-----		M <sup>c</sup>
CBOD <sub>5</sub>	mg/l	25	40 <sup>d</sup>	511	818 <sup>d</sup>	STR
Suspended Solids	mg/l	30	45 <sup>d</sup>	613	920 <sup>d</sup>	STR
Dissolved Solids	mg/l	-----	Monitor	-----		M <sup>c</sup>
Ammonia-N	mg/l					
Summer		3.7	5.7 <sup>d</sup>	75.6	117 <sup>d</sup>	WLA, BEJ
Winter		-----	Monitor	-----		M <sup>c</sup>
Nitrate/Nitrite-N	mg/l	-----	Monitor	-----		M <sup>c</sup>
Phosphorus	mg/l	1.0	1.5 <sup>d</sup>	20	31 <sup>d</sup>	OAC
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	-----	6.5 to 9.0	-----		WQS
E. coliform	#/100ml					
Mar.-Nov.		126	284 <sup>d</sup>	--	--	WQS
Cadmium, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Chromium, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Hex. Chromium (Dissolved)	µg/l	-----	Monitor	-----		M <sup>c</sup>
Copper, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Lead, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Mercury, T.	ng/l	1.3	1700	0.0000269	0.035	WLA
Nickel, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Zinc, T. R.	µg/l	-----	Monitor	-----		M <sup>c</sup>
Whole Effluent Toxicity						
Acute	TUa	-----	Monitor (w/o trigger)	-----		FAR
Chronic	TUc	-----	Monitor (w/o trigger)	-----		FAR

Table 8. Con't.

- <sup>a</sup> Effluent loadings based on average design discharge flow of 5.4 MGD.
- <sup>b</sup> Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; FAR = Federal Application Requirement under 40 CFR 122.21(j); M = Monitoring; OAC = Phosphorus treatment standards – OAC 3745-33-06; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); STR = Secondary Treatment Regulation, 40 CFR Part 133; WET = Whole Effluent Toxicity (OAC 3745-33-07(B)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).
- <sup>c</sup> Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.
- <sup>d</sup> 7 day average limit.

## **Appendix - Ohio Integrated Water Quality Report Summary**

Waterbody: Maumee River  
Segment: Beaver Creek to Maumee Bay  
Length: 31.32 miles  
Priority Points: 4  
Monitoring Scheduled: 2016  
TMDL Scheduled: 2019

### **Aquatic Life Use Assessment**

Reporting Category: 5h  
Aquatic Life Uses: WWH  
Sampling Years: 1997, 1998, 2002  
Sites Monitored: 11  
Total Miles Monitored: 19.12  
Assessment Unit Score: 85.4  
Miles in Full Attainment: 16.32 (85.40%)  
Miles in Partial Attainment: 0.00 (0.00%)  
Miles in Non Attainment: 2.80 (14.60%)

#### Causes of Impairment:

- direct habitat alterations
- flow alteration
- nutrients
- siltation
- total toxics
- turbidity
- unionized ammonia

#### Sources of Impairment:

- channelization - agriculture
- combined sewer overflows
- major municipal point source
- nonirrigated crop production

Comments: Comprehensive biological and water quality data collected in 1997, 1998, and 2002 were used in prior Integrated Reports which resulted in a Category 5 (impaired) listing for the aquatic life beneficial use of this mainstem assessment unit. These data have since exceeded the ten-year threshold and are now considered historical. However, while reflecting the current status

that insufficient data are available to assess the aquatic life use status, the assessment unit will remain Category 5 until TMDLs for all beneficial use impairments are completed and approved by the U.S. EPA. Led by the Natural Resources Conservation Service and the U.S. Army Corps of Engineers, federal, state, and local partners have initiated a comprehensive investigation of measures to improve fish and wildlife habitat, navigation, flood damage reduction, recreation, and water quality in the western Lake Erie basin including the Maumee, Ottawa and Portage River watersheds. For more information, see <http://www.wleb.org/>.

### **Recreation Use Assessment**

Reporting Category: 3i  
Assessment Unit Score: Not calculated

### **Public Drinking Water Supply Assessment**

Reporting Category: 1  
Cause of Impairment: None  
Nitrate Watch List: Yes  
Pesticide Watch List: Yes

### **Fish Tissue Assessment**

Reporting Category: 5  
Causes of Impairment: PCBs  
PCB Concentration: 137 ppb