

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 **City of St. Marys Wastewater Treatment Plant**

Public Notice No.: 11-03-065
Public Notice Date: March 29, 2011
Comment Period Ends: April 28, 2011

OEPA Permit No.: **2PD00026*RD**
Application No.: **OH0021415**

Name and Address of Applicant:

City of St. Marys
101 East Spring Street
St. Marys, Ohio 45885

Name and Address of Facility Where
Discharge Occurs:

City of St. Marys Wastewater Treatment Plant
410 Defiance Road
St. Marys, Ohio 45885
Auglaize County

Receiving Water: **St. Marys River**

Subsequent
Stream Network: **Maumee River to
Lake Erie**

Introduction

Development of a Fact Sheet for NPDES permits is required 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 and other treatment-technology based standards, existing effluent quality, instream biological, chemical and physical conditions, and the allocations of pollutants to meet Ohio Water Quality Standards. 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 majority of limits and monitoring requirements contained in the existing permit are proposed to continue in the draft renewal permit, with a few exceptions. Based upon reasonable potential analysis, monitoring for strontium and bromomethane has been removed. In addition, limits for fecal coliform have been replaced with limits for *E. coli* due to new water quality standards. The permittee has requested renewal of the mercury variance, which is authorized in the proposed permit at slightly more stringent limits. Also, monitoring for whole effluent toxicity has been included at a frequency of once per year, and has been included in order to be consistent with federal NPDES permit application requirements.

Part II of the permit continues a requirement to use analytical methods sensitive enough to provide data which can be properly compared to the wasteload allocation.

This permit renewal is proposed for a term of approximately **five years**, expiring on **January 31, 2016**. This schedule will allow the St. Marys WWTP permit to be on a similar schedule with the other facilities within the same watershed basin.

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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
Lazarus Government Center
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 Justin Williams [phone: (419) 373-3022; email: justin.williams@epa.state.oh.us] in Ohio EPA's Northwest District Office or Mike McCullough [phone: (614) 644-4824; email: mike.mccullough@epa.state.oh.us] in Ohio EPA's Central Office.

Location of Discharge/Receiving Water Use Classification

The St. Marys wastewater treatment works (WWTP) discharges to the St. Marys River at River Mile (RM) 98.6 in Auglaize County. (The location of the discharge is shown in Figure 1.) The following designated uses are applicable to this segment of the St. Marys River: warmwater habitat (WWH), agricultural water supply (AWS), industrial water supply (IWS), and primary contact recreation (PCR) Class A. This segment is further identified by Ohio EPA River Code 04-500, and U.S. EPA River Reach #04100004-003. The St. Marys River in the vicinity of the WWTP is in the Eastern Corn Belt Plains (ECBP) ecoregion.

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.

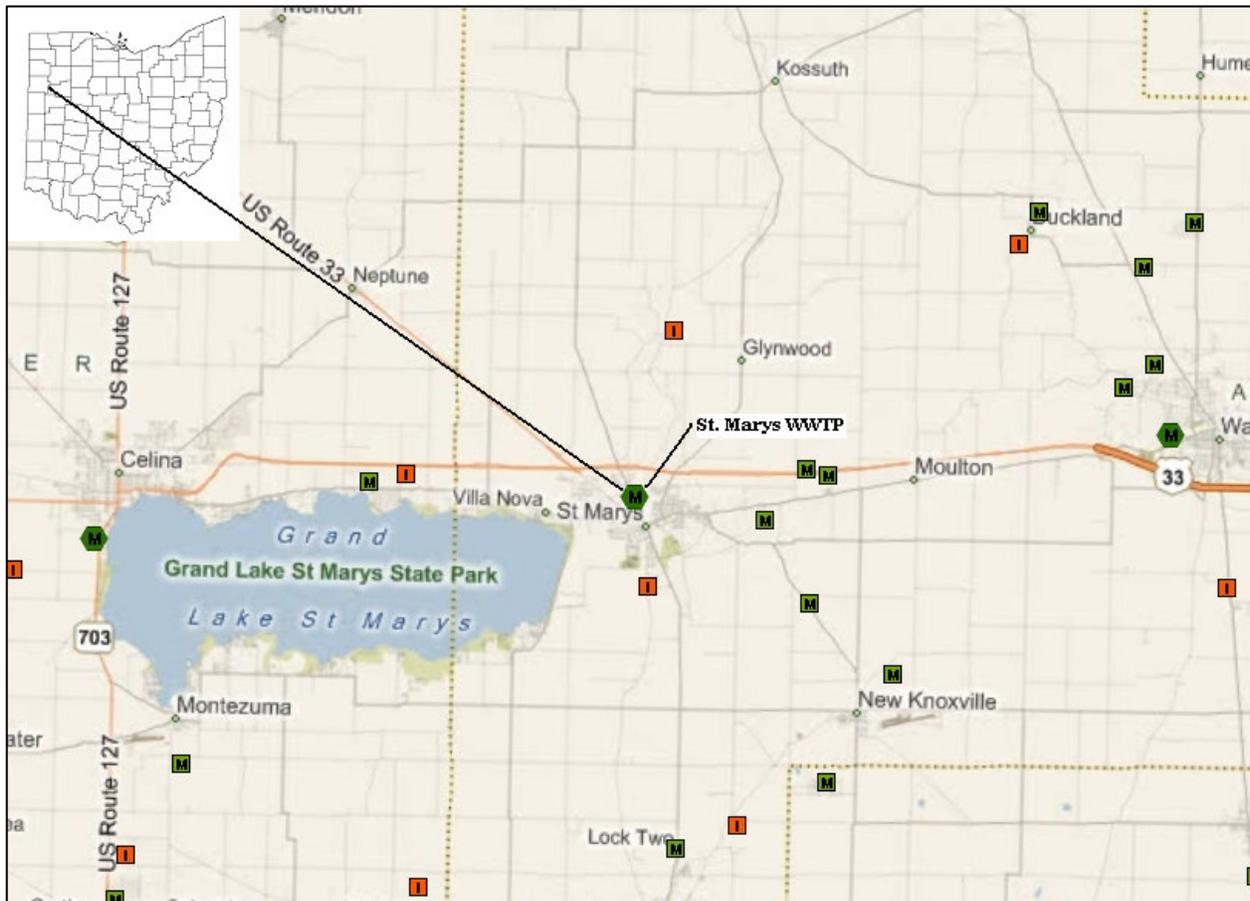


Figure 1. Location of St. Marys WWTP

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 St. Marys WWTP is designed to treat an average daily flow of 3.0 million gallons per day (MGD). The most recent major modification to the plant occurred in 2009 which increased the average design flow capacity and included an oxidation ditch biological treatment system. Treatment plant processes and/or equipment include:

- fine screening;
- grit removal;
- oxidation ditch;
- ferrous chloride addition for phosphorus removal;
- secondary clarification; and
- ultraviolet disinfection.

**Table 1. Sludge Removed:
2006 – 2010**

Year	Land Application (in tons)
2006	354
2007	146
2008	139
2009	223
2010	598

The treatment plant also includes a 2.7 million gallon equalization basin (EQ basin). Wastewater is diverted to the EQ basin at the headworks of the plant when the influent flow exceeds 9.0 MGD. If the EQ basin becomes full, wastewater is bypassed directly to the St. Marys River through outfall 009. Table 2 on page 9 shows the reported bypasses at outfall 009 from 2006 through 2010. (See Figure 2 on the following page for a schematic of the treatment processes.)

Sludge is processed with anaerobic digestion, gravity thickening, and ultimately disposed by land application. (See Table 1 for the amount of sludge managed through land application during the past five years.)

Collection System

The collection system, which serves a population of 9,421 in the City of St. Marys and 3,254 in St. Marys Township bordering Grand Lake St. Marys, consists of 100 percent separate sanitary sewers. The estimated inflow and infiltration rate is 0.1 MGD. The water supply source for the service area is ground water.

The St. Marys collection system has experienced ongoing problems with sanitary sewer overflows (SSOs) in years past, and in September 2003, administrative orders were issued to the City to eliminate five

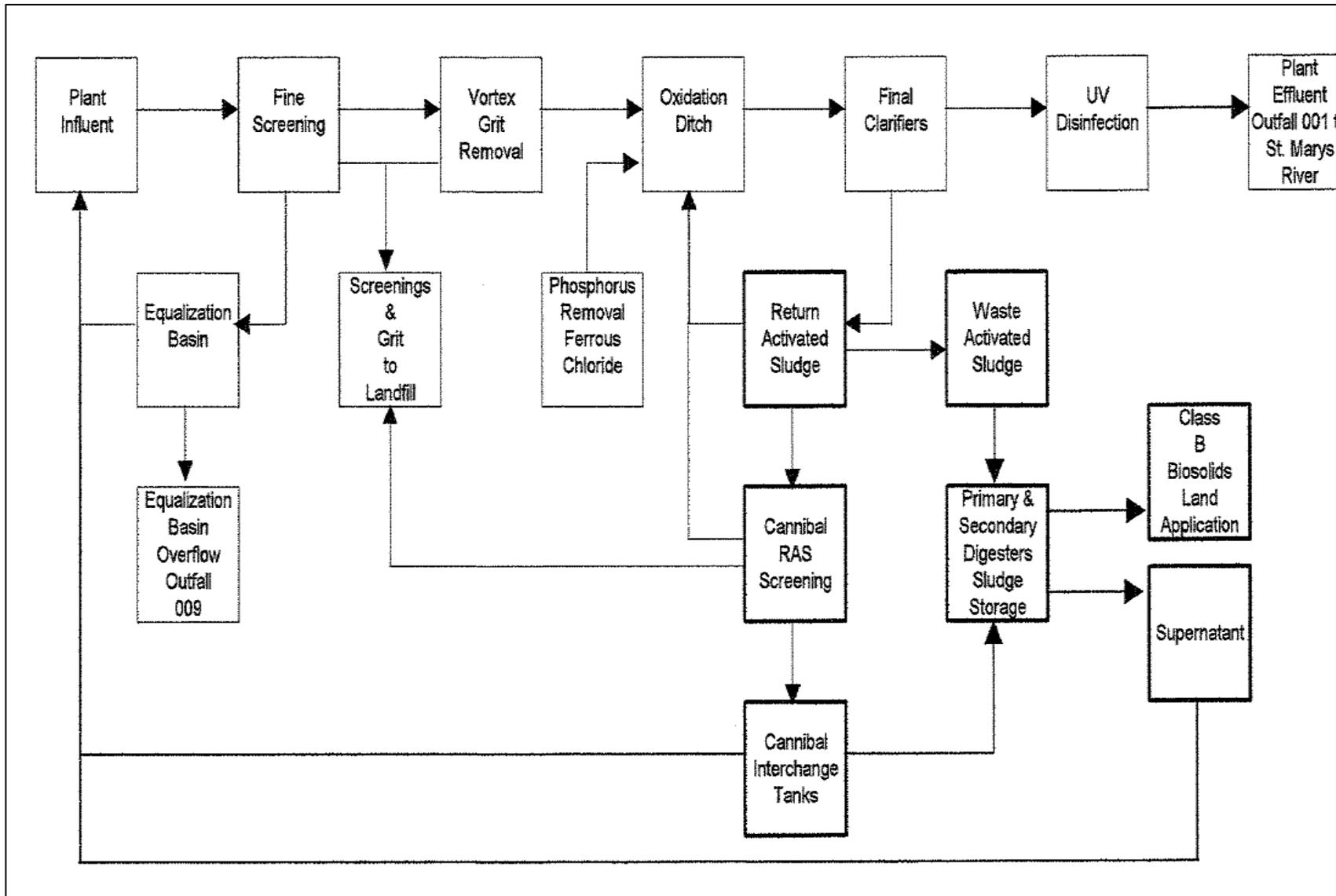


Figure 2. Wastewater Flow Schematic

SSOs and the bypass from the EQ basin by 2013. Under these orders, the City has developed and implemented an Overflow Response Plan, and has developed a Capacity, Management, Operation, and Maintenance (CMOM) program, and a System Evaluation and Capacity

Assurance Plan (SECAP). The CMOM and SECAP have been submitted to Ohio EPA, endorsed by the Agency, and implementation of the CMOM and SECAP is proceeding. In 2007, 27 SSO events were reported, while the City reported only 16 events in 2008, and six in both 2009 and 2010.

There are seven industrial users which discharge into the collection system, and four of these are categorical industrial users. The City does not currently operate an approved industrial pretreatment program, however they have submitted an application to become an Ohio EPA approved program.

Table 2. Bypasses at Outfall 009: 2006 – 2010

Year	Number of Bypasses	Flow (MGD)
2006	18	25.8
2007	14	78.7
2008	14	191.5
2009	6	58.9
2010	0	--

Description of Existing Discharge

Table 3 shows the annual effluent flow rates for the St. Marys WWTP from 2006 through November 2010 based upon Discharge Monitoring Report (DMR) data. The 50th percentile flow rates have been decreasing since 2006, while the 95th percentile flows and the maximum flows reported have shown more variability.

From 2006 through November 2010, St. Marys WWTP reported a total of 64 sample results which violated permit limits. As indicated in Table 4, the majority of these violations involved the 30-day average limits for mercury, and continued from 2006 through January 2009. Most of the remaining violations occurred in 2009 and 2010, including all of the ammonia exceedances.

In Table 6, effluent monitoring results are shown based upon an Ohio EPA bioassay. Table 7 presents a summary of unaltered monthly operation report data for the period January 2006 through November 2010 for the St. Marys WWTP as well as current permit limits, and monthly average PEQ_{avg} and daily maximum PEQ_{max} values.

Table 3. Effluent Flow Rates for St. Marys WWTP: 2006-2010

Year	Annual Flow in MGD		
	50 th Percentile	95 th Percentile	Maximum
2006	2.05	2.58	3.27
2007	1.75	2.66	3.02
2008	1.81	2.53	20.6*
2009	1.46	2.27	3.40
2010	1.45	3.27	5.70

* The City has confirmed that this flow rate is incorrect.

Table 4. Permit Limit Violations: 2006 – 2010

Parameter	Number of Violations	
	Concentration	Loading
Mercury	21	23
Total Suspended Solids	4	3
Phosphorus	0	3
Ammonia	6	3
Molybdenum ¹	1	0

¹ Permit violation at 581 sludge station.

Receiving Water Quality / Environmental Hazard Assessment

Table 5 shows a summary of the water quality assessment in this watershed found in Ohio EPA's [2010 Integrated Report](#), based upon the sampling conducted in 1991. The *Integrated Report* notes that the assessment data is more than ten years old, and therefore, may not reflect current conditions. Nevertheless, the data which is available indicates that aquatic life impairment is due to habitat alterations and flow alterations, and the sources of the impairments are natural conditions and agricultural activity.

Future biological and chemical monitoring in this watershed is scheduled for 2015. In addition, the development of total maximum daily loads (TMDLs) is scheduled for 2018 to address water quality impairments for this watershed.

Table 5. Division of Surface Water Watershed Assessment Unit Summary

Overview Information

Assessment Unit Name: Fourmile Creek – St. Marys River
 Hydrologic Unit Code: 04100004 01 06
 Assessment Unit Size: 16.5 square miles
 Priority Points: 3
 Monitoring Scheduled: 2015
 TMDL Scheduled: 2018

Land Use Statistics

Developed	Forest	Grass/Pasture	Row Crops	Other
20.4%	7.9%	3.6%	67.4%	0.7%

Aquatic Life Use Assessment

Reporting Category: 5hx
 Aquatic Life Uses: WWH, MWH-C, LRW
 Sampling Years: 1991
 Watershed Score: 0.0

Causes of Impairment:

- ▶ direct habitat alterations
- ▶ flow alteration

Sources of Impairment:

- ▶ channelization – agriculture
- ▶ natural

Comments: Available assessment data exceed 10 years in age; assessment unit will remain Category 5 until TMDLs are developed for all pollutants impairing all beneficial uses.

Recreation Use Assessment

Reporting Category: 3
 Assessment Unit Score: not calculated

Public Drinking Water Supply Assessment

Reporting Category: Not applicable
 Cause of Impairment: None
 Nitrate Watch List: No
 Pesticide Watch List: No

Fish Tissue Assessment

Reporting Category: 5h
 Causes of Impairment: None

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. The study area for the St. Marys River is depicted in Figure 3.

Parameter Selection

Effluent data for the St. Marys WWTP were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (Discharge Monitoring Reports)
Ohio EPA data (compliance, survey)

January 2006 through November 2010
May 2010

The effluent data were checked for outliers and two values were removed for nitrate+nitrite (0.6 mg/l and 1.0 mg/l). The remaining data was evaluated statistically, and Projected Effluent Quality (PEQ) values were calculated for each pollutant. PEQ_{avg} values represent the 95th percentile of monthly average data, and PEQ_{max} values represent the 95th percentile of all data points. The average and maximum projected effluent quality (PEQ) values are presented in Table 8. For a summary of the screening results, refer to the parameter groupings in Table 12.

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% of the applicable WQS, the parameter does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25% of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential (and needs to be limited) or if monitoring is required.

Wasteload Allocation

For those parameters that require a wasteload allocation (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 (WQS - 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

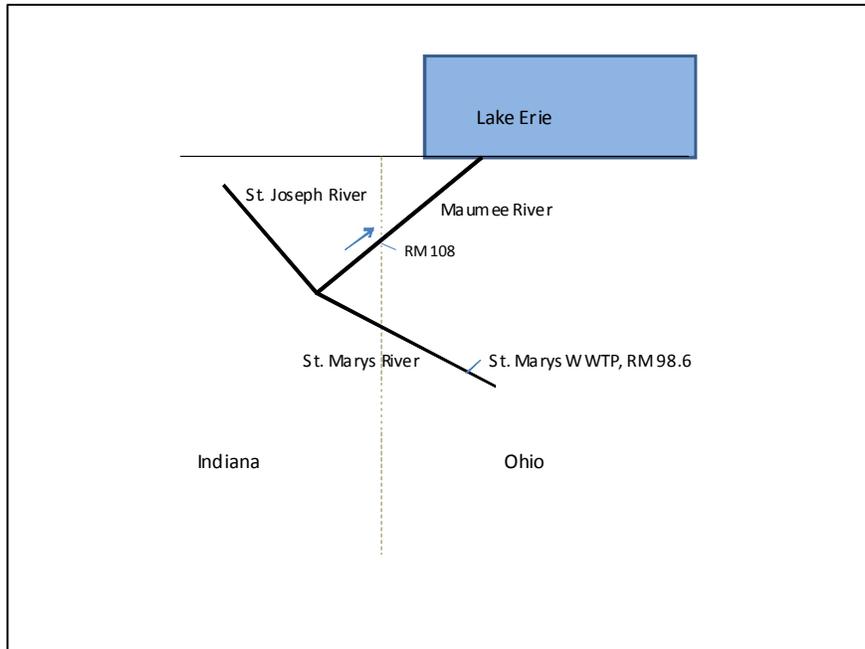


Figure 3. St. Marys River Study Area

WQS) - (upstream flow x background concentration)] / (effluent flow). Discharger WLAs are divided by the discharge flow so that the WLAs are expressed as concentrations.

The applicable waterbody uses for this facility’s discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia-N	Average	Summer/winter 30Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow
Wildlife		Annual 90Q10

Allocations are developed using a percentage of stream design flow (as specified in Table 10), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 9 and 10. The wasteload allocation results to maintain all applicable criteria are presented in Table 11. The discharge of ammonia was evaluated and the existing limits were determined to be adequate to maintain the water quality standards for this parameter.

Reasonable Potential

The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility’s effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 8) is compared to the average PEL, and the maximum PEQ value is compared to the maximum PEL. Based on the calculated percentage of the respective average and maximum comparisons, the parameters are assigned to “groups”, as listed in Table 12.

Whole Effluent Toxicity WLA

Whole effluent toxicity or “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 WLA calculations for chronic toxicity are similar to those for determining average aquatic life waste load allocations. For the St. Marys WWTP, the WLA values are 0.4 TU_a and 1.1 TU_c. The chronic toxicity unit (TU_c) is defined as 100 divided by the IC₂₅:

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

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_a , it may be defined as:

<u>Dilution Ratio</u> (downstream flow to discharger flow)	<u>Allowable Effluent Toxicity</u> (percent effects in 100% effluent)
up to 2 to 1	30
greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

The acute wasteload allocation for the St. Marys WWTP is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1.4 to 1.

Effluent Limits/Hazard Management Decisions

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Federal and State laws/regulation require that dischargers meet both treatment-technology-based limits and any more stringent standards needed to comply with state WQS. Permit limits are based on the more restrictive of the two. Table 13 shows the draft NPDES permit limits for the St. Marys WWTP, and the limits and monitoring requirements for outfall 001 are discussed in detail below.

Loading limits are based upon an average design flow rate of 3.0 MGD.

Oil and Grease, pH, Fecal Coliform, and E. coli

Limits proposed for oil and grease and pH are based on water quality standards (OAC 3745-1), and are a continuation of existing permit limits. With the adoption of new water quality standards for *E. coli*, limits for this parameter are proposed to replace fecal coliform limits. Since it is anticipated that the permittee will be able to meet the *E. coli* limits without changes to the facility, a compliance schedule has not been included in the permit.

Total Suspended Solids, Ammonia, CBOD₅, and Dissolved Oxygen

Proposed limits for total suspended solids (TSS), dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand (CBOD₅), and ammonia are all based upon treatment plant design, are a continuation of existing permit limits. Limits for ammonia were evaluated and have been shown to be protective of water quality.

Cadmium, Lead, and Mercury

The Ohio EPA risk assessment (Table 12) places cadmium, lead, and mercury in Group 5. For mercury, this placement as well as the data in Tables 7 and 8 shows that limits are necessary to protect water quality. Due to the mixing zone phaseout for bioaccumulative chemicals of concern such as mercury, dischargers must meet water quality standards at the point of discharge,¹ therefore, the reasonable potential analysis recommends limits for mercury based upon water quality standards.

The permittee has applied for renewal of the mercury variance granted under the existing permit. Based on the results of low-level mercury monitoring, the permittee has determined that its wastewater treatment plant cannot meet the 30-day average water quality-based effluent limit (WQBEL) of 1.3 nanograms per liter (ng/l). However, the discharge monitoring report (DMR) data for mercury demonstrates that the plant is able to achieve an annual average mercury effluent concentration of 12 ng/l. The variance application also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based on these factors, the permittee is eligible for coverage under the general mercury variance.

Ohio EPA has reviewed the mercury variance application and request for renewal, and has determined that it meets the requirements of the Ohio Administrative Code. Items U and V in Part II of the draft NPDES permit list the provisions of the mercury variance, and includes the following requirements:

- A variance-based monthly average effluent limit of 4.8 ng/l, which was developed from sampling data submitted by the permittee;
- A requirement that the permittee make reasonable progress to meet the water-quality-based effluent limit for mercury by implementing the plan of study, which has been developed as part of the Pollutant Minimization Program (PMP);
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration is less than or equal to 12 ng/l as specified in the plan of study;
- A summary of the elements of the plan of study;
- A requirement to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied, but that compliance with the monthly average water quality-based effluent limit for mercury has not been achieved.

The placement of cadmium and lead in risk assessment Group 5 is based upon only two samples for each pollutant, which may not be representative of effluent quality. As a result, monitoring only is proposed for cadmium and lead based upon the discretion granted to the director of Ohio EPA in rule 3745-33-07(A)(5) of the Ohio Administrative Code.

¹ As of November 2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) was no longer allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must continue to use a low level method for mercury sampling and analysis.

Total residual chlorine (TRC) has also been placed into Group 5. However, the St. Marys WWTP no longer uses chlorine for disinfection, so inclusion of this parameter in the permit is not necessary.

Copper

Ohio EPA risk assessment (Table 12) places copper in Group 4. This placement as well as the data in Tables 7 and 8 support that this parameter should not pose environmental hazards and limits are not necessary to protect water quality. Monitoring for copper is proposed to continue in the new permit.

Total Recoverable Chromium, Dissolved Hexavalent Chromium, Nickel, Total Dissolved Solids, and Zinc

Ohio EPA risk assessment (Table 12) places total recoverable chromium, dissolved hexavalent chromium (hexchrome), and nickel in Group 2, and lead total dissolved solids (or total filterable residue) and zinc in Group 3. This placement as well as the data in Tables 7 and 8 supports that these parameters should not pose environmental hazards and limits are not necessary to protect water quality. Although no detections were reported for two of these pollutants (i.e., total recoverable chromium and hexchrome), they are frequently found in wastewater from POTWs and Ohio EPA guidance recommends monitoring. For total filterable residue, Ohio EPA has become more concerned regarding the effects of this pollutant, and believes that additional data is important to evaluate protection of water quality, especially considering the fact that an investigation is currently underway to determine the need for more stringent limits for total filterable residue. Monitoring is proposed to continue for all of these parameters in order to ensure that concentrations remain at low levels.

Temperature, Nitrate+Nitrite, Phosphorus, Total Kjeldahl Nitrogen, and Flow Rate

Monitoring is proposed to continue for temperature, and flow rate in order to assist in the evaluation of effluent quality and treatment plant performance, and in accordance with Ohio EPA guidance. Continued monitoring for nitrate+nitrite and phosphorus have been included to provide more information on the discharge of nutrients and ensure that the WWTP discharge does not cause concerns with regard to instream water quality. Limits for phosphorus are proposed to continue, and are based upon requirements in rule 3745-33-06 of the Ohio Administrative Code. Monitoring for total Kjeldahl nitrogen (TKN) has also been included to provide additional data for the upcoming watershed assessment. Ohio EPA's guidance for monitoring sanitary discharges also recommends monitoring for TKN for effluent-dominated streams.

Additional monitoring requirements proposed at the final effluent, influent, upstream/downstream and sludge stations are included for all facilities in Ohio and vary according to the type and size of the discharge. Limits and monitoring requirements proposed for the disposal of sewage sludge by land application are based on OAC 3745-40. 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. Phosphorus, nitrate+nitrite, and TKN have also been added to the upstream and downstream monitoring requirements to provide additional data for the upcoming watershed assessment, and because Ohio EPA's guidance for monitoring sanitary discharges recommends monitoring for these parameters when they are monitored for the effluent.

Other Requirements

Provisions for reporting system-wide sanitary sewer overflows (SSOs) are proposed to continue in this permit renewal under Station #300. 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. As stated on pages 7 and 9 of this document, the City is under orders to eliminate five SSOs and the bypass from the EQ basin by 2013.

The City submitted a “No Exposure Certification” (NEC) to address storm water issues at the WWTP in March 2010. This certification that no untreated storm water is discharged from areas potentially exposed to pollutants will expire in March 2015. At the expiration of the certification, the City must submit a new certification, or take alternative steps to address storm water generated at the WWTP.

The City has submitted an application to become an Ohio EPA-approved program for pretreatment. Part II of the permit includes a condition requiring the City to request a permit modification for incorporation of pretreatment requirements when the application is approved.

The existing permit included a requirement for the City to use analytical methods sensitive enough to provide data which can be properly compared to the wasteload allocation. However, data for a number of metals continue to be reported with method detection levels which are too high. Consequently, this condition has also been incorporated into the new permit.

Whole Effluent Toxicity Reasonable Potential

Ohio EPA conducted an acute toxicity test at the St. Marys WWTP in May 2010. This test showed no evidence of toxicity. However, annual toxicity testing for acute and chronic toxicity is proposed for the life of the permit in order to be consistent with the provisions of 40 CFR Part 122.21 for NPDES permit applications.

**Table 6. Effluent Characterization
Based Upon an Ohio EPA Bioassay**

Parameter	May 10, 2010
Barium (ug/l)	18.
Calcium (mg/l)	73.
Chloride (mg/l)	115.
Copper (ug/l)	2.8
Dissolved Solids, Total (mg/l)	694.
Hardness (mg/l)	285.
Iron (ug/l)	265.
Lead (ug/l)	< 2.0
Magnesium (mg/l)	25.
Manganese (ug/l)	42.
Nickel (ug/l)	4.0
Nitrate+Nitrite (mg/l)	13.7
Phosphorus (mg/l)	0.409
Strontium (ug/l)	2470.
TKN (mg/l)	1.41
Zinc (ug/l)	42.

Table 7.

Effluent Characterization and Decision Criteria: 2006 – 2010

Summary of current permit limits and unaltered discharge monitoring report (DMR) data for St. Marys WWTP Outfall 001, and Station 601, 801, and 901. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results. * Means “summer limits.”

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 th	95 th		# Obs.	PEQ _{ave}	PEQ _{max}
<u>Outfall 001</u>											
Water Temperature	Annual	C	Monitor only		1795	16	23	4-25			
Dissolved Oxygen	Summer	mg/l	Not less than 6.0		920	8.1	9.5	6.6-11.2	610	8.1997	9.0712
Dissolved Oxygen	Winter	mg/l	Not less than 6.0		875	9.5	11.2	6-12.2	420	10.091	11.128
Dissolved Oxygen	Summer	kg/day			920	44.4	83.5	25.7-701			
Dissolved Oxygen	Winter	kg/day			875	71.5	109	25.8-198			
Residue, Total Dissolved	Annual	mg/l	Monitor only		15	629	746	465-841	15	734.64	871.16
Residue, Total Dissolved	Annual	kg/day			15	4380	6870	3080-7090			
Total Suspended Solids	Annual	mg/l	24	36	777	7	21	0-144	777	13.094	26.646
Total Suspended Solids	Annual	kg/day	273	409	777	41.4	147	0-1270			
Oil and Grease, Hexane Extr Method	Annual	mg/l	Not more than 10.0		59	0	5.42	0-7.6	59	4.514	6.2916
Oil and Grease, Hexane Extr Method	Annual	kg/day			59	0	37.6	0-57.2			
Nitrogen, Ammonia (NH3)	Summer	mg/l	1.3	20.	442	0.06	1.5	0-7.13	294	2.128	2.2316
Nitrogen, Ammonia (NH3)	Winter	mg/l	5.1	7.6	429	0.098	6.82	0-18.1	207	29.741	18.469
Nitrogen, Ammonia (NH3)	Summer	kg/day	14.8	22.8	442	0.342	8.98	0-43.5			
Nitrogen, Ammonia (NH3)	Winter	kg/day	58.0	86.3	429	0.866	48.4	0-110			
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor only		59	11.9	21.5	0.6-26.8	57	19.478	27.328
Nitrite Plus Nitrate, Total	Annual	kg/day			59	82.6	128	3.8-181			
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5	566	0.52	1.09	0.04-2.15	566	0.76795	1.2539
Phosphorus, Total (P)	Annual	kg/day	11.4	17.1	566	3.26	8.16	0.278-37.4			
Nickel, Total Recoverable	Annual	ug/l	Monitor only		19	0	9.2	0-11	4	20.88	28.6
Nickel, Total Recoverable	Annual	kg/day			19	0	0.0854	0-0.122			
Strontium, Total Recoverable	Annual	ug/l	Monitor only		15	1970	2780	982-3210	15	2824	3805.8
Strontium, Total Recoverable	Annual	kg/day			15	13.2	25	9.21-25.7			

Table 7.

Effluent Characterization and Decision Criteria: 2006 – 2010

Summary of current permit limits and unaltered discharge monitoring report (DMR) data for St. Marys WWTP Outfall 001, and Station 601, 801, and 901. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results. * Means “summer limits.”

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 th	95 th		# Obs.	PEQ _{ave}	PEQ _{max}
Zinc, Total Recoverable	Annual	ug/l	Monitor only		19	23	61.4	0-65	19	53.738	85.941
Zinc, Total Recoverable	Annual	kg/day			19	0.178	0.521	0-0.653			
Cadmium, Total Recoverable	Annual	ug/l	Monitor only		27	0	2.1	0-3	2	8.322	11.4
Cadmium, Total Recoverable	Annual	kg/day			27	0	0.0151	0-0.0283			
Lead, Total Recoverable	Annual	ug/l	Monitor only		19	0	1.2	0-12	1	54.31	74.4
Lead, Total Recoverable	Annual	kg/day			19	0	0.00889	0-0.0889			
Chromium, Total Recoverable	Annual	ug/l	Monitor only		19	0	0	0-0	19	--	--
Chromium, Total Recoverable	Annual	kg/day			19	0	0	0-0			
Copper, Total Recoverable	Annual	ug/l	Monitor only		27	0	16.2	0-21	27	14.896	25.309
Copper, Total Recoverable	Annual	kg/day			27	0	0.104	0-0.163			
Chromium, Dissolved Hexavalent	Annual	ug/l	Monitor only		19	0	0	0-0	19	--	--
Chromium, Dissolved Hexavalent	Annual	kg/day			19	0	0	0-0			
Fecal Coliform	Annual	#/100 ml	1000	2000	384	56	407	1-1400			
Bromomethane	Annual	ug/l	Monitor only		15	0	0	0-0	15	--	--
Bromomethane	Annual	kg/day			15	0	0	0-0			
Flow Rate	Summer	MGD			920	1.45	2.48	0.804-20.6			
Flow Rate	Winter	MGD			875	1.98	2.73	0.84-5.7			
Flow Rate	Annual	MGD	Monitor only		1795	1.68	2.63	0.804-20.6			
Chlorine, Total Residual	Annual	mg/l			557	0	0.02	0-0.03	557	0.01752	0.024
Chlorine, Total Residual	Annual	kg/day			557	0	0.171	0-0.779			
Mercury, Total (Low Level)	Annual	ng/l	5.2	1700	77	2.02	6.71	0-14.2	77	4.8325	7.3705
Mercury, Total (Low Level)	Annual	kg/day	0.000059	0.0194	77	0.000015	4.49E-05	0-0.000109			
pH, Maximum	Annual	S.U.	Not more than 9.0		1795	7.5	7.8	6.9-8.6			
pH, Minimum	Annual	S.U.	Not less than 6.5		1795	7.4	7.7	6.5-8.3			
CBOD 5 day	Summer	mg/l	10	15	363	1.7	4.8	0.3-7.2	249	2.5823	4.4047
CBOD 5 day	Winter	mg/l	20	31.6	347	2.4	4.8	0.6-30	166	3.719	6.0366
CBOD 5 day	Summer	kg/day	114	171	363	10.1	27.2	1.68-148			

Table 7.

Effluent Characterization and Decision Criteria: 2006 – 2010

Summary of current permit limits and unaltered discharge monitoring report (DMR) data for St. Marys WWTP Outfall 001, and Station 601, 801, and 901. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results. * Means “summer limits.”

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 th	95 th		# Obs.	PEQ _{ave}	PEQ _{max}
CBOD 5 day	Winter	kg/day	228	359	347	18.1	39.6	2.76-136			

Outfall 601

pH	Annual	S.U.			1795	7.6	7.8	6.3-9.5			
Total Suspended Solids	Annual	mg/l			771	152	458	8-1780			
Nickel, Total Recoverable	Annual	ug/l			19	0	10.1	0-11			
Zinc, Total Recoverable	Annual	ug/l			19	60	251	18-306			
Cadmium, Total Recoverable	Annual	ug/l			27	0	3	0-26			
Lead, Total Recoverable	Annual	ug/l			19	0	12.4	0-16			
Chromium, Total Recoverable	Annual	ug/l			19	0	16.2	0-36			
Copper, Total Recoverable	Annual	ug/l			27	36	153	0-154			
Chromium, Dissolved Hexavalent	Annual	ug/l			19	0	1	0-10			
Mercury, Total (Low Level)	Annual	ng/l			59	32.5	170	5.59-1670			
CBOD 5 day	Summer	mg/l			361	104	160	23.4-263			
CBOD 5 day	Winter	mg/l			304	79.3	160	16.5-338			

Outfall 801

Water Temperature	Annual	C			145	14	24	0-27			
Dissolved Oxygen	Summer	mg/l			73	7.4	9.6	3.3-10.7			
Dissolved Oxygen	Winter	mg/l			72	12.1	14.1	7.5-14.9			
pH	Annual	S.U.			145	8	8.38	6.9-9.3			
Nitrogen, Ammonia (NH3)	Summer	mg/l			73	0.061	0.89	0-15.2			
Nitrogen, Ammonia (NH3)	Winter	mg/l			72	0.125	1.5	0-5.31			

Table 7.

Effluent Characterization and Decision Criteria: 2006 – 2010

Summary of current permit limits and unaltered discharge monitoring report (DMR) data for St. Marys WWTP Outfall 001, and Station 601, 801, and 901. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results. * Means “summer limits.”

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50 th	95 th		# Obs.	PEQ _{ave}	PEQ _{max}
Fecal Coliform	Annual	#/100 ml			67	470	1680	30-6080			
<u>Outfall 901</u>											
Water Temperature	Annual	C			145	14	25	0-28			
Dissolved Oxygen	Summer	mg/l			73	7.8	9.8	5.3-11.1			
Dissolved Oxygen	Winter	mg/l			72	12.2	14.4	8.1-14.9			
pH	Annual	S.U.			145	8	8.38	6.9-13.1			
Nitrogen, Ammonia (NH3)	Summer	mg/l			73	0.03	0.594	0-13.3			
Nitrogen, Ammonia (NH3)	Winter	mg/l			72	0.135	1.52	0-3.8			
Hardness, Total (CaCO3)	Annual	mg/l			19	262	317	120-362			
Nickel, Total Recoverable	Annual	ug/l			19	0	16	0-16			
Zinc, Total Recoverable	Annual	ug/l			19	46	64	0-73			
Cadmium, Total Recoverable	Annual	ug/l			19	0	4.1	0-5			
Lead, Total Recoverable	Annual	ug/l			19	0	18.2	0-20			
Chromium, Total Recoverable	Annual	ug/l			19	0	9.4	0-13			
Copper, Total Recoverable	Annual	ug/l			19	13	56.9	0-74			
Chromium, Dissolved Hexavalent	Annual	ug/l			19	0	0	0-0			
Fecal Coliform	Annual	#/100 ml			66	395	1710	11-8540			

Table 8.**Effluent Data for the St. Marys WWTP**

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-S	mg/l	294	192	2.128	2.2316
Ammonia-W	mg/l	207	137	8.38	11.48
Barium ^a	ug/l	1	1	81.468	111.6
Bromomethane	ug/l	15	0	--	--
Cadmium - TR	ug/l	2	2	8.322	11.4
Chlorides ^a	mg/l	1	1	520.49	713
Chlorine - TRes	mg/l	147	96	0.01752	0.024
Chromium - TR	ug/l	19	0	--	--
Chromium VI - Diss	ug/l	19	0	--	--
Copper - TR	ug/l	27	5	14.896	25.309
Dissolved solids	mg/l	15	15	734.64	871.16
Iron - TR ^a	ug/l	1	1	1199.39	1643
Lead - TR	ug/l	2	1	33.288	45.6
Magnesium ^a	mg/l	1	1	113.15	155
Manganese - TR ^a	ug/l	1	1	190.092	260.4
Mercury - TR	ng/l	77	76	4.8325	7.3705
Nickel - TR	ug/l	5	5	18.469	25.3
Nitrate-N + Nitrite-N	mg/l	57	57	19.478	27.328
Phosphorus	mg/l	566	566	0.76795	1.2539
Strontium	ug/l	15	15	2824	3805.8
TKN ^a	mg/l	1	1	6.38166	8.742
Zinc - TR	ug/l	19	17	53.738	85.941

^a Data source is an Ohio EPA bioassay.

Table 9.

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		
Ammonia-S	mg/l	--	--	--	0.8	--	--
Ammonia-W	mg/l	--	--	--	2.8	--	--
Arsenic - TR	ug/l	--	580	100	150	340	680
Barium	ug/l	--	160000	--	220	2000	4000
Bromomethane	ug/l	--	2600	--	16	38	75
Cadmium - TR	ug/l	--	730	50	5.2	13	27
Chlorides	mg/l	--	--	--	--	--	--
Chlorine - TRes	mg/l	--	--	--	0.011	0.019	0.038
Chromium - TR	ug/l	--	14000	100	190	4000	7900
Chromium VI - Diss	ug/l	--	14000	--	11	16	31
Copper - TR	ug/l	--	64000	500	21	35	69
Cyanide - free	mg/l	--	48	--	0.0052	0.022	0.044
Dissolved solids	mg/l	--	--	--	1500	--	--
Iron - TR	ug/l	--	--	5000	--	--	--
Lead - TR	ug/l	--	--	100	22	420	830
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	61000	--	--	--	--
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	3400
Molybdenum	ug/l	--	10000	--	20000	190000	370000
Nickel - TR	ug/l	--	43000	200	120	1100	2100
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Selenium - TR	ug/l	--	3100	50	5	--	--
Silver	ug/l	--	11000	--	1.3	8.4	17
Strontium	ug/l	--	1400000	--	21000	40000	81000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	35000	25000	270	270	540

Table 10. 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	1.74	Index gage 04185795 plus upstream dischargers
7Q10	cfs	annual	2.02	Index gage 04185795 plus upstream dischargers
30Q10	cfs	summer	2.92	Index gage 04185795 plus upstream dischargers
		winter	4.65	Index gage 04185795 plus upstream dischargers
Harmonic Mean	cfs	annual	9.26	Index gage 04185795 plus upstream dischargers
Mixing Assumption	%	average	25	
	%	maximum	100	
<i>Hardness</i>	mg/l	annual	262	901 Station, n=19, 2006-2010
<i>pH</i>	S.U.	summer	8.1	901 Station, n=49, 2006-2010
		winter	8.1	901 Station, n=34, 2006-2010
<i>Temperature</i>	C	summer	24	901 Station, n=49, 2006-2010
		winter	6	901 station, n=34, 2006-2010
<i>St. Marys WWTP flow</i>	cfs	annual	4.64	Current design flow
<i>Background Water Quality</i>				
Ammonia-S	mg/l		0.076	n=49; 19<MDL ^a
Ammonia-W	mg/l		0.24	n=34; 6<MDL ^a
Arsenic - TR	ug/l		0	No representative data available.
Barium	ug/l		79	^b
Bromomethane	ug/l		0	No representative data available.
Cadmium - TR	ug/l		0	n=9; 9<MDL ^c
Chlorides	mg/l		20	n=121; 0<MDL ^d
Chlorine - TRes	mg/l		0	No representative data available.
Chromium - TR	ug/l		15	n=102; 72<MDL ^d
Chromium VI - Diss	ug/l		0	No representative data available.
Copper - TR	ug/l		0	n=9; 9<MDL ^c
Cyanide - free	mg/l		0	No representative data available.
Dissolved solids	mg/l		448	n=81; 0<MDL ^d
Iron - TR	ug/l		1360	n=8; 0<MDL ^c

Table 10. Instream Conditions and Discharger Flow

<u>Parameter</u>	<u>Units</u>	<u>Season</u>	<u>Value</u>	<u>Basis</u>
Lead - TR	ug/l		2.6	n=9; 4<MDL ^c
Magnesium	mg/l		28.3	n=283; 0<MDL ^d
Manganese - TR	ug/l		0	No representative data available.
Mercury - TR	ng/l		0	No representative data available.
Molybdenum	ug/l		0	No representative data available.
Nickel - TR	ug/l		20	n=62; 51<MDL ^d
Nitrate-N + Nitrite-N	mg/l		0.87	n=466; 58<MDL ^d
Phosphorus	mg/l		0.18	n=503; 21<MDL ^d
Selenium - TR	ug/l		0	No representative data available.
Silver	ug/l		0	No representative data available.
Strontium	ug/l		1460	^b
TKN	mg/l		1	No representative data available.
Zinc - TR	ug/l		13.9	n=9; 4<MDL ^c

^a Source of data is Discharge Monitoring Reports (DMRs) for the 801 upstream station, from 2006 through 2010. The 50th percentile value is represented.

^b Source of data is reference sites in the Eastern Corn Belt Plains ecoregion. The number of observations is 682, and the data was collected in 1999 through 2003.

^c Source of data is water quality Station P01W11 from 1981 through 1991.

^d Source of data is “Background Water Quality Report” containing data through February 1988. The 50th percentile value is based upon Maumee River watershed dataset.

Table 11. 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		
Ammonia-S	mg/l	--	--	--	1.3	--	--
Ammonia-W	mg/l	--	--	--	--	--	--
Arsenic - TR	ug/l	--	869 ^a	150	166	468	680
Barium	ug/l	--	239788 ^a	--	235	2720	4000
Bromomethane	ug/l	--	3897 ^a	--	18	52	75
Cadmium - TR	ug/l	--	1094 ^a	75	5.8	18	27
Chlorides	mg/l	--	--	--	--	--	--
Chlorine - TRes	mg/l	--	--	--	0.012	0.026	0.038
Chromium - TR	ug/l	--	20977 ^a	142	209	5494	7900
Chromium VI - Diss	ug/l	--	20985 ^a	--	12	22	31
Copper - TR	ug/l	--	95931 ^a	749	23	48	69
Cyanide - free	mg/l	--	72	--	0.0058	0.03	0.044
Dissolved solids	mg/l	--	--	--	1614	--	--
Iron - TR	ug/l	--	--	6816	--	--	--
Lead - TR	ug/l	--	--	149	24	577	830
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	91434	--	--	--	--
Mercury - TR	ng/l	1.3	3.1	10000 ^a	910	1700	3400
Molybdenum	ug/l	--	14989	--	22177	261250	370000
Nickel - TR	ug/l	--	64444 ^a	290	131	1505	2100
Nitrate-N + Nitrite-N	mg/l	--	--	149	--	--	--
Phosphorus	mg/l	--	--	--	--	--	--
Selenium - TR	ug/l	--	4647	75	5.5	--	--
Silver	ug/l	--	16488 ^a	--	1.4	12	17
Strontium	ug/l	--	2097763 ^a	--	23127	54453	81000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	52455 ^a	37466 ^a	298	366	540

^a Allocation must not exceed the Inside Mixing Zone Maximum.

Table 12.

Parameter Assessment

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

Chlorides TKN	Magnesium	Phosphorus
------------------	-----------	------------

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

Bromomethane Iron - TR Nitrate-N + Nitrite-N	Chromium - TR Manganese - TR Strontium	Chromium VI - Diss Nickel - TR
--	--	-----------------------------------

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

Barium	Dissolved solids	Zinc - TR
--------	------------------	-----------

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Copper - TR

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

Limits to Protect Numeric Water Quality Criteria

<u>Parameter</u>	<u>Units</u>	<u>Period</u>	<u>Recommended Effluent Limits</u>	
			<u>Average</u>	<u>Maximum</u>
Cadmium - TR	ug/l		5.8	18
Chlorine - TRes	mg/l		0.012	0.026
Lead - TR	ug/l		24	577
Mercury - TR	ng/l		1.3	1700

Table 13.

Final Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limits				Basis ^b
		Concentration		Loading (kg/day) ^a		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Temperature	°C	----- Monitor -----				M ^c
Dissolved Oxygen	mg/l	----- Not less than 6.0 -----				EP/PD
Suspended Solids	mg/l	24.0	36.0 ^d	273.	409. ^d	PD
Oil and Grease	mg/l	Not to exceed 10.0 at any time				WQS
Ammonia-N	mg/l					
Summer		1.3	2.0 ^d	14.8	22.8 ^d	EP
Winter		5.1	7.6 ^d	58.0	86.3 ^d	EP
Total Kjeldahl Nitr.	mg/l	----- Monitor -----				BEJ
Nitrate+Nitrite-N	mg/l	----- Monitor -----				BEJ
Phosphorus	mg/l	1.0	1.5 ^d	11.4	17.1 ^d	Phos.
Nickel, T. R.	ug/l	----- Monitor -----				BEJ
Zinc, T. R.	ug/l	----- Monitor -----				BEJ
Cadmium, T. R.	ug/l	----- Monitor -----				RP, BEJ
Lead, T. R.	ug/l	----- Monitor -----				RP, BEJ
Chromium, T. R.	ug/l	----- Monitor -----				BEJ
Copper, T. R.	ug/l	----- Monitor -----				RP
Chromium, Dissolved						
Hexavalent	ug/l	----- Monitor -----				BEJ
<i>E. coli</i>						
Summer	#/100 ml	126	284 ^d	--	--	WQS
Flow	MGD	----- Monitor -----				M ^c
Mercury, T.R.	ng/l	4.8	1700	0.000055	0.0194	MVAR
Acute Toxicity	TU _a					
<i>Ceriodaphnia dubia</i>		----- Monitor -----				FAR
<i>Pimephales promelas</i>		----- Monitor -----				FAR
Chronic Toxicity	TU _c					
<i>Ceriodaphnia dubia</i>		----- Monitor -----				FAR
<i>Pimephales promelas</i>		----- Monitor -----				FAR
pH	S.U.	----- 6.5 to 9.0 -----				WQS
Residue, Total						
Filterable	mg/l	----- Monitor -----				BEJ
CBOD ₅	mg/l					
Summer		10.0	15.0 ^d	114.	171. ^d	PD
Winter		20.0	31.6 ^d	228.	359. ^d	PD

^a The effluent loading limits are based on an average design flow rate of 3.0 MGD.

^b Definitions: **ABS** = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(I));
 Anti-Deg = Anti-degradation Rule (OAC 3745-1-05);
 BEJ = Best Engineering Judgment;
 EP = Existing Permit;
 FAR = Federal Application Requirements for biomonitoring;
 M = Division of Surface Water Guidance #1, “National Pollutant Discharge Elimination System: Monitoring Frequency Requirements for Sanitary Discharges”;
 MVAR = Mercury Variance-based limit [OAC 3745-33-07(D)(10)];
 MZP = Mixing Zone Phaseout for determination of permit limits for pollutants such as mercury;
 PD = Plant Design Criteria;
 Phos. = Ohio Administrative Code 3745-33-06(C);
 RP = Reasonable Potential procedures for evaluating exceedance of water quality standards, and requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A));
 ST = 40 CFR, Part 133, Secondary Treatment Regulation;
 WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ;
 WLA = Wasteload Allocation procedures (OAC 3745-2);
 WQS = Ohio Water Quality Standards (OAC 3745-1).

^c Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

^d 7-day average limit.