

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 Sawmill Creek Wastewater Treatment Plant

Public Notice No.: 13-05-041
Public Notice Date: May 15, 2013
Comment Period Ends: June 14, 2013

Ohio EPA Permit No.: 2PB00056*MD
Application No.: OH0053082

Name and Address of Applicant:

Erie County Commissioners
2900 Columbus Avenue
Sandusky, Ohio 44870

Name and Address of Facility Where
Discharge Occurs:

Sawmill Creek Service Area Wastewater Treatment Plant
117 North Rye Beach Road
Huron, Ohio

Receiving Water: Lake Erie

Subsequent
Stream Network: N/A

Introduction

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

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

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. 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 effluent limits and monitoring requirements proposed for the following parameters are the same as in the current permit, although some monitoring frequencies have changed: flow, temperature, dissolved oxygen, 5-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), ammonia-nitrogen, total phosphorus, nitrite+nitrate-nitrogen, oil and grease, pH, cadmium, chromium, copper, lead, nickel and zinc.

The Agency is proposing to renew the general mercury variance that was issued to the Sawmill Creek plant in August 2010. A slightly lower variance-based monthly average limit is proposed. The daily maximum limit is unchanged.

To be consistent with the provisions of the Agency's NPDES permit rules, a new weekly average effluent limit is proposed for *Escherichia coli*. The monthly average limit is unchanged.

A new limit is proposed for total residual chlorine on days during the recreation season when the station 602 bypass is active.

New quarterly monitoring is proposed for total filterable residue (total dissolved solids).

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

A compliance schedule is proposed for the County to develop and implement an infiltration/inflow reduction program in the portion of the Sawmill Creek collection system that is tributary to the Pipe Creek connection point to the Sandusky sewer system. This is followed by a schedule to conduct a no feasible alternatives analysis to address bypasses at the treatment plant and overflows on the collection system.

In Part II of the permit, special conditions are included that address sanitary sewer overflow (SSO) reporting; operator certification, minimum staffing and operator of record; mercury variance provisions; whole effluent toxicity testing; and outfall signage.

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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 Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049**

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

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

For additional information about this fact sheet or the draft permit, contact Gary Stuhlfauth, (614) 644-2026, Gary.Stuhlfauth@epa.ohio.gov.

Location of Discharge/Receiving Water Use Classification

The Sawmill Creek wastewater treatment plant discharges to Lake Erie at shoreline mile 1237.7. The approximate location of the facility is shown in Figure 1.

This area of Lake Erie is described by Ohio EPA River Code: 24-400, County: Erie, Ecoregion: Huron/Erie Lake Plains. Lake Erie is designated for the following uses under Ohio's water quality standards (OAC 3745-1-31): Exceptional Warmwater Habitat (EWH), Superior High Quality Water, Public Water Supply, (PWS), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Bathing Waters.

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 Sawmill Creek wastewater treatment plant has an average daily design flow of 1.200 MGD (million gallons per day). Wet stream processes are screening, flow equalization, activated sludge aeration (contact stabilization), phosphorus removal using ferrous chloride, final clarification, ultra violet disinfection (secondary effluent), and chlorination/dechlorination (equalization basin overflow). Solid stream processes are aerobic digestion with sludge disposal by hauling to the Huron Basin treatment plant or by land application at agronomic rates.

The plant has an internal secondary treatment bypass, station 602. When the plant's one million gallon equalization basin fills, it bypasses through station 602 and goes to a chlorine contact tank where it is disinfected and dechlorinated during the recreation season. The bypass flow then recombines with secondary treatment effluent for discharge through final outfall 001.

In February 2011, the plant began receiving an initial 0.500 MGD of wet weather flow from the Plum Brook lift station. The impact of wet weather flows on the plant will change again with the upgrade of the Sandusky Pier Track lift station in 2013.

The Sawmill Creek plant is served by a separate sanitary sewer system. Based on information in the 2012 NPDES renewal application, three significant non-categorical industrial users discharge to the treatment plant.

Description of Existing Discharge

Table 1 presents a summary of unaltered discharge monitoring report (DMR) data for outfall 2PB00056001. Data are presented for the period January 2008 through December 2012.

Table 2 summarizes the chemical specific data for outfall 001 by presenting the average and maximum Projected Effluent Quality values.

In August 2012, the County conducted 48-hour acute screening toxicity tests on effluent from the Sawmill treatment plant. The effluent was not toxic to the fathead minnow and *Ceriodaphnia dubia* test organisms (0 percent mortality for fathead minnows, 5 percent mortality for *C. dubia*).

Table 3 summarizes the DMR data for the internal secondary treatment bypass, station 602.

The County reports sanitary sewer overflow (SSO) occurrences under station 300 in its NPDES permit. The County reported 7 SSOs in 2009, none in 2010, 18 in 2011 and none in 2012.

Assessment of Impact on Receiving Waters

The *Ohio 2012 Integrated Water Quality Monitoring and Assessment Report* states that there hasn't been any Ohio EPA near-shore lake monitoring since 2002. Monitoring is scheduled for 2013 and a TMDL (total maximum daily load) is scheduled for 2016 to address water quality impairments.

The *Integrated Report* is available at the following Ohio EPA internet site:
<http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx> .

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

Self-monitoring data (DMR)

January 2008 through December 2012

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

The PEQ values are used according to Ohio rules to compare to applicable 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 WLA is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a

WLA is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 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). Wasteload allocations for direct discharges to lakes are done using the following equation for average criteria: $WLA = (11 \times \text{Water Quality Criteria}) - (10 \times \text{Background Concentration})$. Allocations for maximum criteria are set equal to the Inside Mixing Zone Maximum values.

Ohio's water quality standard implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] required a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring mercury limits in their NPDES permit must meet water quality standards at the end-of-pipe, which are 1.3 ng/l (average) and 1700 ng/l (maximum) in the Lake Erie basin.

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, above. For the Sawmill Creek plant, the wasteload allocation values are 1.0 TU_a and 11 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.

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_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 2, and the PEL_{max} is compared to the PEQ_{max} . Based on the calculated percentage of the allocated value [$(PEQ_{avg} \div PEL_{avg}) \times 100$, or $(PEQ_{max} \div PEL_{max}) \times 100$], 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 Sawmill Creek outfall 2PB00056001 and the basis for their recommendation.

Based on best engineering judgment, it is proposed that the current limit for dissolved oxygen be continued.

The limits proposed for suspended solids and COD_5 are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned treatment works. For a facility required to meet secondary treatment standards, monitoring of ammonia-N is appropriate and is proposed. These are a continuation of existing permit conditions.

Limits proposed for oil and grease, pH, and *Escherichia coli* are based on water quality standards (OAC 3745-1-07). Bathing Water *E. coli* standards apply to Lake Erie. A new weekly average limit is proposed for *E. coli* consistent with the provision of OAC 3745-33-05(C).

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

A limit is proposed for total residual chlorine on days during the recreation season when the station 602 station bypass is active. The proposed limit is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. The effluent limit for chlorine at outfall 2PB00056001 is less than the quantification level of 0.050 mg/l. However, a pollutant minimization program is not required because the dosing rate of dechlorination chemicals ensures that the water quality based effluent limit is being met.

The Ohio EPA risk assessment (Table 6) places mercury in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality.

Renewal of Mercury Variance

The Sawmill Creek permit was modified in August 2010 to include a mercury variance and variance-based limits for mercury. Based on the monitoring results conducted during the term of the current permit and the new application information, the County has determined that the facility will not meet the 30-day average permit limit of 1.3 nanograms per liter (ng/l). However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/l. The permittee's application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the Sawmill Creek plant is eligible for the mercury variance under OAC 3745-33-07(D)(10)(a).

The County submitted information supporting the renewal of the variance. The permittee has evaluated materials used at the treatment plant, contacted local dentists about implementing best management practices, and evaluated industrial users as part of its to reduce the amount of mercury being discharged. The average PEQ value for the most recent five years shows a slight reduction from the current monthly average variance-based limit of 3.5 ng/l. The County continues to implement the PMP schedule developed from the original variance, and further reductions in mercury may be possible.

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

- a mercury effluent limit developed from sampling data submitted by the County of 3.0 ng/l for the 30-day average limit;
- a requirement that the County make reasonable progress to meet the water-quality-based effluent limit for mercury by implementing the plan of study which has been developed as part of the pollutant minimization program;
- influent and effluent monitoring for mercury;
- a requirement that the average annual effluent concentration for mercury is less than or equal to 12 ng/l as specified in the plan of study;
- a requirement that the permittee use the most sensitive analytical method approved by U.S. EPA; and
- a requirement that the permittee submit a certification to Ohio EPA stating that all required permit conditions for the plan of study have been satisfied once these have been completed. In addition, the certification must state whether the plant has achieved compliance with the WQBEL for mercury.

Ohio EPA risk assessment (Table 6) places cadmium, chromium, copper, lead, nickel and zinc in groups 2 and 3. This placement as well as the data in Tables 1 and 2 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.

Based on best engineering judgment, quarterly monitoring is proposed for total filterable residue (total dissolved solids). No effluent data is available for this parameter, which is an emerging water quality issue for municipal wastewater treatment plants. The purpose of the monitoring is to obtain data on the level and variability of total dissolved solids in the Sawmill Creek effluent.

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

Additional monitoring requirements proposed at the final effluent and influent stations are included for all facilities in Ohio and vary according to the type and size of the discharge. In addition to permit compliance, this data is used to assist in the evaluation of effluent quality and treatment plant performance and for designing plant improvements and conducting future stream studies.

Whole Effluent Toxicity Reasonable Potential

Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. The results of a 2012 acute screening test indicate the plant's effluent does not currently pose a toxicity problem, and annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11). The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Other Requirements

Compliance Schedule

A compliance schedule is proposed for the County to initiate an Infiltration/Inflow (I&I) Study and Elimination Program in the service area tributary to the Pipe Creek connection point to the Sandusky sewer system. The schedule requires the County to complete this work no later than December 31, 2015.

Upon substantial completion of the I&I program, a second schedule is proposed for the County to conduct a comprehensive analysis of all feasible alternatives necessary to eliminate the bypass at the treatment plant and any overflows on the collection system. The schedule requires the County to submit a report containing the comprehensive analysis of alternatives no later than December 31, 2016. The County must begin implementing the report's recommendations no later than 30 days after Ohio EPA's acceptance of the report.

Sanitary Sewer Overflow Reporting

Provisions for reporting SSOs are again proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports; 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 County 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, rule revisions became effective that affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A of this NPDES permit is included to implement OAC 3745-7-02. It requires the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

Storm Water Compliance

The County submitted a *No Exposure Certification* for exclusion from the industrial storm water permitting requirements.

Outfall Signage

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

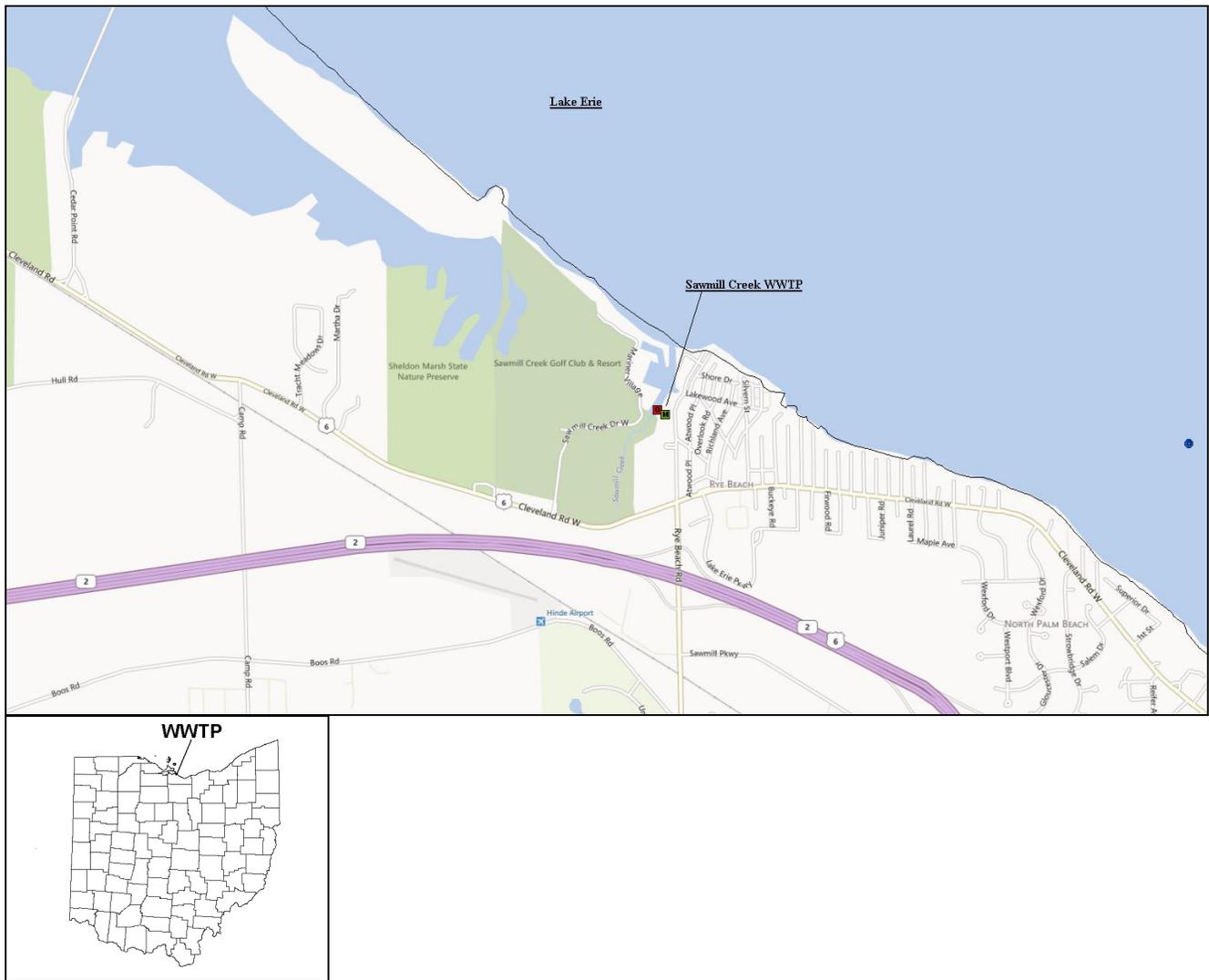


Figure 1. Location of Sawmill Creek wastewater treatment plant.

Table 1. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report data for Sawmill Creek outfall 2PB00056001 (January 2008 - December 2012). All values are based on annual records unless otherwise indicated. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; a = weekly average.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Water Temperature	Annual	C	Monitor		1827	16	24	7-26
Dissolved Oxygen	Summer	mg/l		5.0 min	920	6.5	5.3**	5-15
Dissolved Oxygen	Winter	mg/l		5.0 min	906	7.9	6.1**	5-12.3
pH	Annual	S.U.		6.5-9.0	1534	6.7*	7.5	6.2-8.1
Total Suspended Solids	Annual	mg/l	30	45 ^a	507	5.3	16.7	0-48.8
Oil and Grease, Hexane	Annual	mg/l		10	96	0	1.63	0-16.6
Nitrogen, Ammonia (NH3)	Summer	mg/l	Monitor		236	0.62	7.57	0-14.9
Nitrogen, Ammonia (NH3)	Winter	mg/l	Monitor		94	3.75	13	0.05-14.2
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		60	11.3	21.8	0.33-25.8
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5 ^a	150	0.45	0.901	0.06-1.19
Nickel, Total Recoverable	Annual	ug/l	Monitor		21	4	8	0-8
Zinc, Total Recoverable	Annual	ug/l	Monitor		21	22	31	14-45
Cadmium, Total Recoverable	Annual	ug/l	Monitor		21	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	Monitor		21	0	0	0-0
Chromium, Total Recoverable	Annual	ug/l	Monitor		21	0	4	0-5
Copper, Total Recoverable	Annual	ug/l	Monitor		21	0	5	0-5
Fecal Coliform	Annual	#/100 ml	--	--	143	45	319	1-15000
E. coli	Annual	#/100 ml	126	--	194	50	216	1-1990
Flow Rate	Summer	MGD	Monitor		920	0.469	1.29	0.152-3.33
Flow Rate	Winter	MGD	Monitor		907	0.587	2.18	0.0328-7.75
Flow Rate	Annual	MGD	Monitor		1827	0.51	1.96	0.0328-7.75
Mercury, Total (Low Level)	Annual	ng/l	3.5	1700	19	0.939	2.86	0-6.27
CBOD 5 day	Summer	mg/l	25	40 ^a	234	2	4	0-7
CBOD 5 day	Winter	mg/l	25	40 ^a	258	3	10	0-35

Table 2. Projected Effluent Quality Values

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Cadmium	ug/l	21	0	--	--
Chromium	ug/l	21	2	4.745	6.5
Copper	ug/l	21	7	4.745	6.5
Lead	ug/l	21	0	--	--
Mercury	ng/l	19	17	3.034	5.19
Nickel	ug/l	21	11	6.73	9.88
Nitrate +Nitrite	mg/l	60	60	18.834	25.8
Phosphorus	mg/l	150	150	0.732	1.01
Zinc	ug/l	21	21	31.6	42.4

Table 3. Summary of DMR data for Station 602, internal secondary treatment bypass.

Year	n	Total	Average	Range
<u>2008</u>				
Flow (MG)	21	18.494	0.880	0.011-3.76
TSS (mg/l)	13	--	30.3	13-56.8
CBOD ₅ (mg/l)	13	--	20.3	5-50
<u>2009</u>				
Flow (MG)	9	8.949	0.994	0.029-2.934
TSS (mg/l)	7	--	19.5	14.3-29.7
CBOD ₅ (mg/l)	7	--	12.4	6-19
<u>2010</u>				
Flow (MG)	2	1.938	0.969	0.075-1.863
TSS (mg/l)	2	--	28	20-36
CBOD ₅ (mg/l)	2	--	20	20-20
<u>2011</u>				
Flow (MG)	28	27.639	0.987	0.005-3.58
TSS (mg/l)	28	--	21.9	8.4-45.3
CBOD ₅ (mg/l)	20	--	29.8	9-30
<u>2012</u>				
Flow (MG)	2	0.681	0.3405	0.34-0.341
TSS (mg/l)	2	--	22.25	15-29.5
CBOD ₅ (mg/l)	2	--	17	14-20

TSS = total suspended solids

Table 4. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum	
			Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Cadmium	ug/l	--	730	50	3.2	6.6	13
Chlorine	mg/l	--	--	--	0.011	0.019	0.038
Chromium	ug/l	--	14000	100	110	2400	4800
Copper	ug/l	--	64000	500	12	19	38
Lead	ug/l	--	--	100	9.9	190	380
Mercury	ng/l	1.3	3.1	10000	910	1700	3400
Nickel	ug/l	--	43000	200	69	620	1200
Nitrate + Nitrite	mg/l	--	--	100	--	--	--
Zinc	ug/l	--	35000	25000	160	160	320

Table 5. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
<i>Erie Co. Sawmill Creek flow</i>	cfs	annual	1.857	2A application
<i>Background Water Quality</i>				
Cadmium	ug/l		0.25	BWQR; 1988; n=1696; 1365<MDL; Statewide 50th percentile
Chlorine	mg/l		0	No representative data available.
Chromium	ug/l		15	BWQR; 1988; n=1641; 1388<MDL; Statewide 50th percentile
Copper	ug/l		5	BWQR; 1988; n=2867; 1597<MDL; Statewide 50th percentile
Lead	ug/l		2	BWQR; 1988; n=2814; 1458<MDL; Statewide 50th percentile
Mercury	ng/l		0	No representative data available.
Nickel	ug/l		20	BWQR; 1988; n=1259; 1105<MDL; Statewide 50th percentile
Nitrate- + Nitrite	mg/l		0.73	BWQR; 1988; n=5852; 515<MDL; Statewide 50th percentile
Zinc	ug/l		15	BWQR; 1988; n=2284; 1117<MDL; Statewide 50th percentile

Table 6. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum Aquatic Life	
			Human Health	Agri-culture	Aquatic Life		
Cadmium	ug/l	--	8028	548	33	--	13
Chlorine	mg/l	--	--	--	0.12	--	0.038
Chromium	ug/l	--	153850	950	1060	--	4800
Copper	ug/l	--	703950	5450	82	--	38
Lead	ug/l	--	--	1080	89	--	380
Mercury	ng/l	1.3	3.1	10000	910	--	3400
Nickel	ug/l	--	472800	2000	559	--	1200
Nitrate + Nitrite	mg/l	--	--	1093	--	--	--
Zinc	ug/l	--	384850	274850	1610	--	320

Table 7. Parameter Assessment

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

Phosphorus

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

Cadmium
Nickel

Chromium
Nitrate + Nitrite

Lead
Chlorine

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

Copper

Zinc

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.

No parameters in this group.

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>
Mercury	ng/l	Annual	1.3	1700

Table 8. Final Effluent Limits and Monitoring Requirements

Parameter	Units	Effluent Limitations				Basis ^b
		Concentration		Loading (kg/day) ^a		
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Temperature	°C	----- Monitor -----				M
Dissolved Oxygen	mg/l	5.0 minimum		--	--	BEJ, EP
Suspended Solids	mg/l	30	45 ^c	137	205 ^c	BEJ, BPT, EP
Oil and Grease	mg/l	--	10	--	--	WQS, EP
Ammonia-N	mg/l	----- Monitor -----				BEJ, EP
Nitrite(N) + Nitrate(N)	mg/l	----- Monitor -----				M
Phosphorus, Total	mg/l	1.0	1.5 ^c	4.55	6.82 ^c	PT
Nickel	µg/l	----- Monitor -----				M
Zinc	µg/l	----- Monitor -----				M
Cadmium	µg/l	----- Monitor -----				M
Lead	µg/l	----- Monitor -----				M
Chromium	µg/l	----- Monitor -----				M
Copper	µg/l	----- Monitor -----				M
<i>E. coli</i>						
Summer Only	#/100ml	126	284 ^c	--	--	WQS
Flow	MGD	----- Monitor -----				M
Chlorine, Total Residual						
Summer	mg/l	--	0.038	--	--	BEJ, WLA/IMZM
Mercury	ng/l	3.0	1700	0.000014	0.00773	VAR(avg),WLA(max)
Whole Effluent Toxicity – <i>C. dubia</i> and <i>P. promelas</i>						
Acute	TUa	----- Monitor -----				WET
Chronic	TUc	----- Monitor -----				WET
pH	S.U.	----- 6.5 to 9.0 -----				WQS, EP
Total Filterable Residue (Dissolved Solids)	mg/l	----- Monitor -----				M
CBOD ₅	mg/l	25	40 ^c	114	182 ^c	BEJ, BPT, EP

^a Effluent loadings based on average design discharge flow of 1.2 MGD.

^b **Definitions:** BEJ = Best Engineering Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PT = Phosphorus treatment required under OAC 3745-33-06(C); VAR = mercury variance-based limits, OAC 3745-33-07(D)(10); WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1-07).

^c Weekly average limit.