

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for the ESAB Group, Inc.

Public Notice No.: 14-07-011
Public Notice Date: July 3, 2014
Comment Period Ends: August 2, 2014

Ohio EPA Permit No.: 3IC00071*MD
Application No.: OH0063789

Name and Address of Applicant:

Middle Road Properties LLC
3325 Middle Road
Ashtabula, Ohio 44005

Name and Address of Facility Where

Discharge Occurs:

Middle Road Properties LLC
3325 Middle Road
Ashtabula, Ohio 44005
Ashtabula County

Receiving Water: Storm sewer to 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 (Ohio EPA), as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act (CWA) and Ohio Water Pollution Control Law (Ohio Revised Code [ORC] 6111). 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 the United States EPA (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

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

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

Summary of Permit Conditions

Current monitoring requirements for all parameters except copper, mercury, and flow rate are being removed from the permit because the facility has shut down all production; there is no more process water being discharged. All water is storm water.

The ESAB Group Inc. (ESAB) is currently participating in Ohio's Voluntary Action Program (VAP) to remediate the former Ashtabula facility. The schedule of compliance will be coordinated with Ohio EPA Northeast District VAP personnel.

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

Table of Contents

	Page
Introduction	1
Summary of Permit Conditions.....	2
Procedures for Participation in the Formulation of Final Determinations	4
Information Regarding Certain Water Quality Based Effluent Limits	4
Location of Discharge/Receiving Water Use Classification.....	6
Facility Description.....	6
Description of Existing Discharge	6
Assessment of Impact on Receiving Waters	7
Development of Water-Quality-Based Effluent Limits	7
Reasonable Potential/ Effluent Limits/Hazard Management Decisions	9
Other Requirements	10

List of Figures

Figure 1. Approximate Facility Location.....	11
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List of Tables

Table 1. Effluent Characterization Using Self-Monitoring Data	12
Table 2. Projected Effluent Quality.....	14
Table 3. Water Quality Criteria in the Study Area.....	15
Table 4. Instream Conditions and Discharger Flow.....	16
Table 5. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria	17
Table 6. Parameter Assessment.....	18
Table 7. Final Effluent Limits for Outfall 002.....	19

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 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 Sara Hise, (614) 644-4824, sara.hise@epa.ohio.gov.

Information Regarding Certain Water Quality Based Effluent Limits

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

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

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

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

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

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

Location of Discharge/Receiving Water Use Classification

ESAB discharges to an open ditch that flows to a storm sewer pipe to Lake Erie. Figure 1 shows the approximate location of the facility.

This segment of Lake Erie is described by Ohio EPA River Code: 24-600, County: Ashtabula, Ecoregion: Eastern Great Lakes and Hudson Lowlands. Lake Erie is designated for the following uses under Ohio's WQS (OAC 3745-1-31): Exceptional Warmwater Habitat (EWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Public Water Supply (PWS), and Bathing Waters (BW). Lake Erie is also classified as a Superior High Quality Water (SHQW) under Ohio's antidegradation rule.

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

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

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (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. PWS designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for AWS and IWS.

Facility Description

ESAB used to manufacture carbon steel and alloy steel welding wires. Operations included wire drawing, roll forming, and metal finishing. Welded materials were manufactured from coils of steel wire that were reduced in diameter and spooled or cut to length. Some steel welding wire was treated with acid or alkali before packaging. Other wire was plated with copper before spooling and packaging.

All operations ceased in 2012 and the facility was completely shut down by December 31, 2012.

Description of Existing Discharge

The only water discharged from the site is storm water. The only outfall is outfall 002. ESAB is participating in Ohio's VAP and has completed a comprehensive Phase II site investigation and remedial actions in an effort to qualify the site for No Further Action status from the Ohio EPA.

Table 1 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 002. Current permit limits are provided for comparison.

Table 2 summarizes the chemical specific data for outfall 002 by presenting the average and maximum PEQ values.

Assessment of Impact on Receiving Waters

No recent assessment data is available. Under the Great Lakes Restoration Initiative, sampling at near shore Lake Erie has been performed in 2011 and 2012 and is anticipated to continue.

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

Self-monitoring data (DMR)

January 2013 through December 2013

Outliers

The data were examined, and no values were removed from the evaluation to give a more reliable PEQ.

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

The PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no WLA is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a WLA is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 6 for a summary of the screening results.

Wasteload Allocation

For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio WQS (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. WLAs 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 (IMZM) values.

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

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10

AWS
Human Health (nondrinking)

Harmonic mean flow
Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 4, and allocations cannot exceed the IMZM criteria.

Ohio's WQS implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] required a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring mercury limits in their NPDES permit must meet WQS at the end-of-pipe (12 ng/l in the Ohio River basin; 1.3 ng/l in the Lake Erie basin).

The data used in the WLA are listed in Tables 4 and 5. The WLA 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.

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

The WLA calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For ESAB, the WLA values are 1.0 TU_a and 11.0 TU_c .

The chronic toxicity unit (TU_c) is defined as 100 divided by the estimate of the effluent concentration which causes a 25% reduction in growth or reproduction of test organisms (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):

$$TU_c = 100/\text{geometric mean of No Observed Effect Concentration and Lowest Observed Effect Concentration}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the concentration in water having 50% chance of causing death to aquatic life (LC_{50}) for the most sensitive test species:

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

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

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

Dilution Ratio
(downstream flow to discharger flow)

Allowable Effluent Toxicity
(percent effects in 100% effluent)

up to 2 to 1	30
greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

The acute WLA for ESAB is 30 percent mortality in 100 percent effluent based on the dilution ratio of 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 WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 5. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table __, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value $[(PEQ_{avg} \div PEL_{avg}) \times 100, \text{ or } (PEQ_{max} \div PEL_{max}) \times 100]$, the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 6.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 7 presents the final effluent limits and monitoring requirements proposed for ESAB outfall 3IC00071002 and the basis for their recommendation.

Outfall 002

Temperature, pH, Total Suspended Solids, Oil and Grease

All production has ceased at the facility. The only discharge is stormwater. These parameters are proposed to be removed.

Cadmium, Dissolved Hexavalent Chromium, Silver, Nickel, and Zinc

Ohio EPA risk assessment (Table 6) places these parameters 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. Since production at the facility has been terminated, monitoring for these parameters is proposed to be removed.

Flow Rate

Monitoring for this parameter is proposed to continue as part of stormwater monitoring.

Copper

The Ohio EPA risk assessment (Table 6) places copper in group 5. This placement, as well as the data in Tables 1 and 2, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For this parameter, the PEQ is greater than 100 percent of the WLA. Although production has ceased at this facility, copper was utilized extensively during production. Remediation of legacy copper contamination is currently in progress and it is expected until that until it is completed that copper will be detected in the storm water; therefore, a concentration limit is appropriate for this parameter. The loading limit is proposed to be removed since the flow rate is no longer dependent on a continuous wastestream. The current WLA would allow a slightly higher concentration limit for copper, but anti-backsliding provisions (ABS) in the OAC prevent the imposition of less stringent limits than those in the existing permit unless specific conditions have been satisfied. In the case of the ESAB, none of those conditions have been satisfied, so the existing concentration limit is proposed to continue.

Mercury

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

protect water quality. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), limits are proposed to be removed and monitoring only will remain in the permit. Any sources of mercury were expected to be removed when production was terminated; the current source of mercury is unknown. The purpose of the proposed monitoring is to collect additional data on the frequency of occurrence and variability of this pollutant in the site's stormwater in order to locate the source of this pollutant.

Internal Station 602

Production has ceased at this facility; therefore no limits or monitoring are required at this internal monitoring station. The station is proposed to be removed from the permit.

Whole Effluent Toxicity Reasonable Potential

Production at ESAB has terminated and there are no process waters being discharged from the site. Therefore, there is no reasonable potential for acute and chronic toxicity. The only discharges from the site are storm water. The monitoring and limits for acute and chronic toxicity are proposed to be removed.

Other Requirements

Storm Water Compliance

Parts IV, V, and VI have been included with the draft permit in order to ensure that any storm water flows from the facility site are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, ESAB may seek permit coverage under the general permit for industrial stormwater (permit # OHR000005) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) ESAB submits a Notice of Intent (NOI) for coverage under the general permit for industrial stormwater or submits a No Exposure Certification, 2) Ohio EPA determines that the facility is eligible for coverage under the general permit or meets the requirements for a No Exposure Certification, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

Parts IV, V, and VI have been updated to make individual permits consistent with Ohio EPA's Industrial Storm Water General Permit. The language includes more detail on storm water pollution prevention requirements, and benchmark values that define the goals of pollution prevention efforts. These are not discharge limitations; if pollution prevention measures cannot achieve the benchmarks, the facility may provide information to document this.

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. Approximate Facility Location

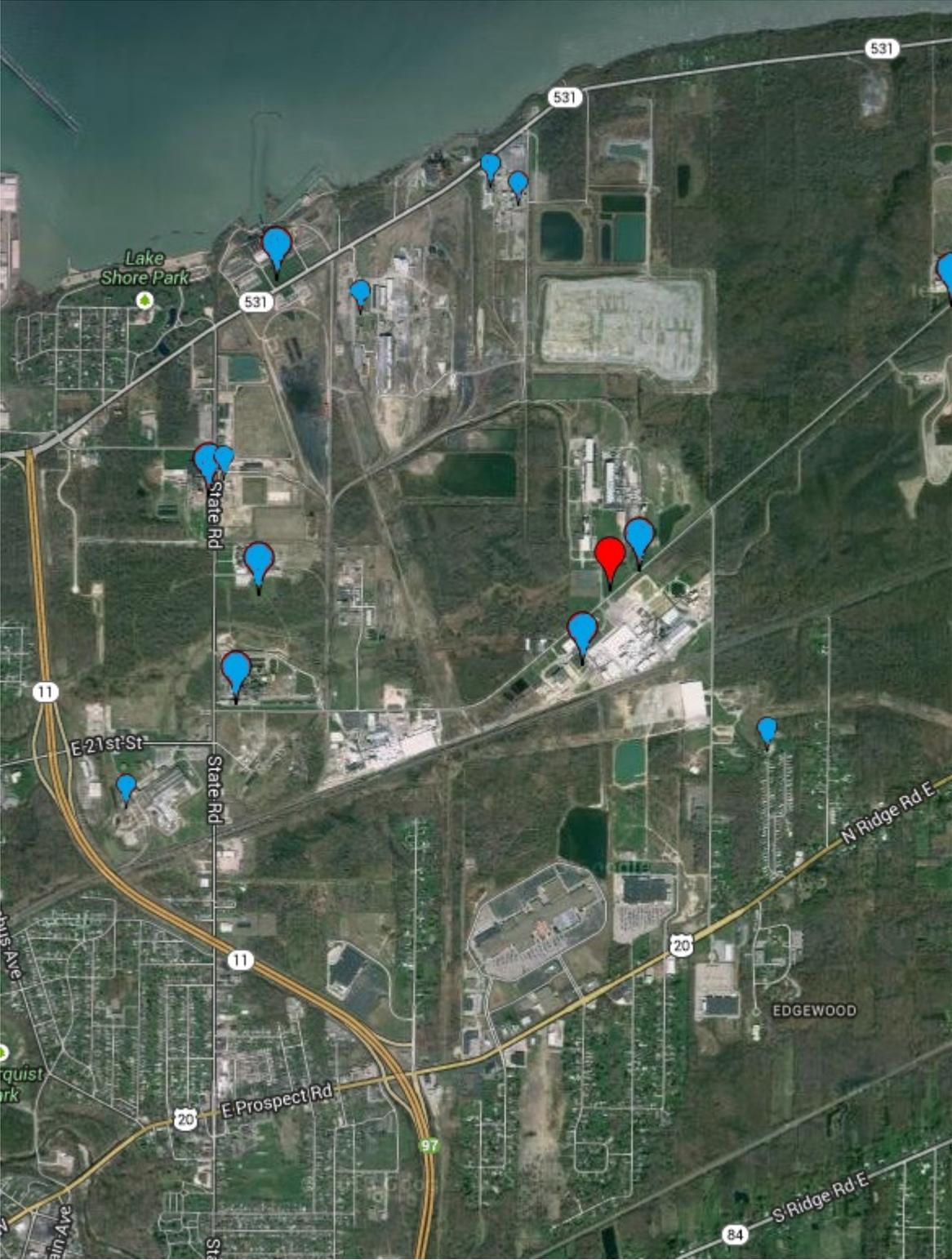


Table 1. Effluent Characterization Using Self-Monitoring Data

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
<u>Outfall 002</u>								
Water Temperature	Annual	°C	Monitor		53	9.6	19.8	2-23
pH	Annual	S.U.	6.5 - 9.0		53	7.79	7.86	7.21-7.88
Total Suspended Solids	Annual	mg/L	Monitor		53	6	23.4	0-28
Oil and Grease	Annual	mg/L	Monitor		53	0	3.34	0-6.8
Nickel	Annual	µg/L	Monitor		4	0	20.9	0-24.6
Silver, Total	Annual	µg/L	Monitor		12	0	0	0-0
Zinc	Annual	µg/L	Monitor		12	14.3	37.9	10.2-56.2
Cadmium	Annual	µg/L	Monitor		12	0	0.522	0-1.16
Copper	Annual	µg/L	-	38	12	37.9	429	0-856
		kg/day	-	0.21	-	-	-	-
Chromium, Dissolved Hexavalent	Annual	µg/L	Monitor		4	0	0	0-0
Flow Rate	Annual	MGD	Monitor		365	0.024	0.028	0.005-0.028
Mercury	Annual	ng/L	30.3	1700	12	12.1	79	0.59-87.4
		kg/day	0.000167	0.00934	-	-	-	-
<u>Acute Toxicity</u>								
<i>Ceriodaphnia dubia</i>	Annual	TUa	-	1	4	0	0.34	0-0.4
<i>Pimephales promelas</i>	Annual	TUa	-	1	4	0	0	0-0
<u>Chronic Toxicity</u>								
<i>Ceriodaphnia dubia</i>	Annual	TUc	11	-	4	0	0	0-0
<i>Pimephales promelas</i>	Annual	TUc	11	-	4	0	0	0-0
<u>Internal Monitoring Station 602</u>								
Total Suspended Solids	Annual	mg/L	39	85	10	0	12.1	0-22
		kg/day	14.4	31.8	-	-	-	-
Oil and Grease	Annual	mg/L	19.3	47.8	10	0	3.65	0-4.1
		kg/day	7.3	17.8	-	-	-	-

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Cyanide, Total	Annual	mg/L	0.277	0.511	3	0	0.00675	0-0.0075
		kg/day	0.103	0.19	-	-	-	-
Cadmium, Total	Annual	µg/L	111	294	3	0	0	0-0
		kg/day	0.041	0.109	-	-	-	-
Chromium, Total	Annual	µg/L	729	1180	3	0	0	0-0
		kg/day	0.271	0.439	-	-	-	-
Copper, Total	Annual	µg/L	882	1432	3	0	561	0-623
		kg/day	0.328	0.532	-	-	-	-
Lead, Total	Annual	µg/L	528	519	3	11.2	81.5	0-89.3
		kg/day	0.096	0.193	-	-	-	-
Nickel, Total	Annual	µg/L	1014	1696	3	0	10.3	0-11.4
		kg/day	0.377	0.63	-	-	-	-
Silver, Total	Annual	µg/L	102	205	3	0	0	0-0
		kg/day	0.038	0.076	-	-	-	-
Zinc, Total	Annual	µg/L	731	1413	3	14.1	18.8	11.4-19.3
		kg/day	0.272	0.525	-	-	-	-
Flow Rate	Annual	MGD	Monitor		12	0.0115	0.02	0.007-0.02
Mercury	Annual	ng/L	Monitor		3	5.91	34.5	5.02-37.7
Total Toxic Organics	Annual	µg/L	-	908	-	-	-	-
		kg/day	-	0.337	-	-	-	-
pH, Maximum	Annual	S.U.	9.0 maximum		12	8.8	8.86	8.72-8.88
pH, Minimum	Annual	S.U.	6.0 minimum		12	8.04	8.1	8-8.11

All values are based on annual records unless otherwise indicated. * = For minimum pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile

Table 2. Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Cadmium	µg/L	11	1	1.43956	1.972
Chromium, Dissolved Hexavalent	µg/L	4	0	--	--
Copper	µg/L	12	8	62.046	97.438
Mercury	ng/L	12	12	56.714	90.863
Nickel	µg/L	4	1	46.6908	63.96
Silver	µg/L	12	0	--	--
Zinc	µg/L	12	12	29.143	46.452

MDL = method detection limit

PEQ = projected effluent quality

Table 3. 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	µg/L	--	730	50	3.4	7.1	14
Chromium, Dissolved Hexavalent	µg/L	--	14000	--	11	16	31
Copper	µg/L	--	64000	500	13	21	41
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Nickel	µg/L	--	43000	200	74	660	1300
Silver	µg/L	--	11000	--	1.3	3.2	6.4
Zinc	µg/L	--	35000	25000	170	170	340

Table 4. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
<i>ESAB Group flow</i>	cfs	annual	0.034	50 th percentile of monthly average flows
<i>Background Water Quality</i>				
Cadmium	µg/L		0	Ohio EPA; 2000-2011; n=10; 10<MDL; Ohio Station A01W09
Chromium, Dissolved Hexavalent	µg/L		0	No representative data available.
Copper	µg/L		0	Ohio EPA; 2000-2011; n=5; 5<MDL; Ohio Station A01W09
Mercury	ng/L		0	No representative data available.
Nickel	µg/L		11.6	Ohio EPA; 2000-2011; n=10; 5<MDL; Ohio Station A01W09
Silver	µg/L		0	No representative data available.
Zinc	µg/L		5	Ohio EPA; 2000-2011; n=10; 8<MDL; Ohio Station A01W09

MDL = method detection limit

n = number of samples

Ohio EPA = Ohio Environmental Detection Agency

Table 5. 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	µg/L	--	8030	550	37	--	14
Chromium, Dissolved Hexavalent	µg/L	--	154000	--	121	--	31
Copper	µg/L	--	704000	5500	143	--	41
Mercury	ng/L	1.3	3.1	10000	910	--	3400
Nickel	µg/L	--	472884	2084	698	--	1300
Silver	µg/L	--	121000	--	14	--	6.4
Zinc	µg/L	--	384950	274950	1820	--	340

Table 7. Final Effluent Limits for Outfall 002

Parameter	Units	Concentration		Loading (kg/day)		Basis ^a
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Flow Rate	MGD	----- Monitor -----				M
Copper	µg/L	-	38	-	-	WLA
Mercury	ng/L	----- Monitor -----				RP

^a Definitions: **BEJ** = Best Engineering Judgment
M = BEJ of Permit Guidance 2: Determination of Sampling Frequency Formula for Industrial Waste Discharges
RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A))
WLA = Wasteload Allocation procedures (OAC 3745-2)