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As of June 2010, all permits having a fact sheet that are going through a modification will have posted in pdf format the modification fact sheet attached to the front of the previous renewal fact sheet.

FACT SHEETS ARE ON NEXT PAGE

If you have any questions regarding this, please contact the NPDES or PPU sections in the Division of Surface Water.

**Attached are:**

**2PD00021\*JD & KD**

National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T

Regarding a Modification to an NPDES Permit To Discharge to Waters of the State of Ohio  
for the Bucyrus Wastewater treatment Plant Wastewater Treatment Plant

Public Notice No.: 10-10-024  
Public Notice Date: October 14, 2010  
Comment Period Ends: November 12, 2010

OEPA Permit No.: 2PD00021\*KD  
Application No.: OH0052922

Name and Address of Applicant:

City of Bucyrus  
500 South Sandusky Avenue  
Bucyrus, Ohio 44820

Name and Address of Facility Where  
Discharge Occurs:

Bucyrus Wastewater Treatment Plant  
1500 West Southern Avenue  
Bucyrus, Ohio

Receiving Water: Sandusky River

Subsequent  
Stream Network: Sandusky Bay, Lake Erie

Introduction

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

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

In accordance with the antidegradation rule, OAC 3745-1-05, the Director has determined that a lowering of water quality in the Sandusky River is necessary. Provision (F)(2)(d) was applied to this application. This provision excludes the need for the submittal and subsequent review of technical alternatives and social and economic issues related to the degradation. Other rule provisions, however, including public participation and appropriate intergovernmental coordination were required and considered prior to reaching this decision.

Procedures for Participation in the Formulation of Final Determinations

The proposed modification is tentative but shall become final on the effective date unless (1) an adjudication hearing is requested, (2) the Director withdraws and revises the proposed modification after consideration of the record of a public meeting or written comments, or (3) upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty (30) days of publication of this notice, any person may submit written comments, a statement as to why the proposed modification should be changed, a request for a public meeting on the

proposed modification and/or a request for notice of further actions concerning the modification. All communications timely received will be considered in the final formulation of the modification. If significant public interest is shown a public meeting will be held prior to finalization of the modification.

Within thirty (30) days of the issuance of the proposed modification any officer of an agency of the state or of a political subdivision, acting in his representative capacity or any person aggrieved or adversely affected by issuance of it may request an adjudication hearing by submitting a written objection in accordance with Ohio Revised Code Section 3745.07. Since all other conditions of the permit remain in effect, a hearing may not be requested on any issues other than the proposed modification. If an adjudication hearing is requested, the existing NPDES permit will remain in effect until the hearing is resolved. Following the finalization of the modification by the Director, any person who was a party to an adjudication hearing may appeal to the Environmental Review Appeals Commission.

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  
Lazarus Government Center  
P.O. Box 1049  
Columbus, Ohio 43216-1049**

Interested persons are invited to submit written comments upon the proposed modification. 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 Michelle Sharp, (419) 373-3019, [Michelle.Sharp@epa.ohio.gov](mailto:Michelle.Sharp@epa.ohio.gov) .

### Location of Discharge/Receiving Water Use Classification

The Bucyrus wastewater treatment plant discharges to the Sandusky River at River Mile 111.00. The approximate location of the facility is shown in Figure 1.

This segment of the Sandusky River is described by Ohio EPA River Code: 05-001, U.S. EPA River Reach #: 04100011-013, County: Crawford, Ecoregion: Eastern Corn Belt Plains. The Sandusky River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-12): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class B Primary Contact Recreation (PCR).

### Facility Description

The Bucyrus wastewater plant is an advanced treatment facility with an average design flow of 3.4 MGD (million gallons per day). Wet stream processes include influent pumping, screening and aerated grit removal, primary settling, activated sludge aeration, phosphorus removal, secondary clarification, tertiary filtration, and ultraviolet disinfection. Solid stream processes include sludge stabilization by aerobic digestion and lime addition followed by dewatering using a belt filter press. Ultimate sludge disposal is by land application at agronomic rates.

The plant has a raw wastewater bypass that discharges directly to the Sandusky River. In the NPDES permit, it is designated as station 2PD00021002 and has monitoring and reporting requirements. Discharge through this station is prohibited except under emergency conditions as authorized by federal regulation at 40 CFR 122.41(m) and provisions in Part III, Item 11 of the permit. The City did not report any discharges through station 002 during the period August 2005 through July 2010.

The Bucyrus collection system is approximately 80 percent combined sanitary and storm sewers and approximately 20 percent separate sanitary and storm sewers. The combined portion of the system has 21 combined sewer overflows (CSO) that discharge to the Sandusky River and 1 CSO that discharges to a tributary. Currently, U.S. EPA is the lead agency working with the City on development and implementation of a long-term control plan for its combined sewer overflows.

Bucyrus does not implement an approved industrial pretreatment program. Three industries discharge to the Bucyrus wastewater plant under indirect discharge permits issued by Ohio EPA:

Tekni-Plex Colorite, Bucyrus Division – manufactures reinforced PVC plastic and rubber garden hoses, permit number 2DP00018;

General Electric Bucyrus Lamp Plant – manufactures fluorescent light bulbs, permit number 2DP00076; and

Imasen Bucyrus Technology, Inc. – manufactures metal automotive seat assemblies, permit number 2DP00078.

### Description of Existing Discharge

Table 1 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 2PD00021001. Data are presented for the period August 2005 through July 2010.

## Basis of the Modification

The City of Bucyrus has applied for coverage under the general mercury variance, Rule 3745-33-07(D)(10) of the Ohio Administrative Code. 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 permittee believes that the plant will be 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 has determined that it meets the requirements of the Ohio Administrative Code. As a result, Ohio EPA is proposing a modification to the NPDES permit. Mercury variance provisions are being added as Items CC, DD and EE in Part II of the NPDES permit. The following requirements have been included in the draft modification:

- A variance-based monthly average effluent limit of 7.0 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.

## Other Changes

### *Escherichia coli Limits and Monitoring*

Fecal coliform limits have been replaced with *E. coli* limits at Outfall 001. At upstream and downstream Stations 801 and 901, *E. coli* monitoring has replaced fecal coliform monitoring.

### *Sludge Stations 581 and 584*

Monitoring for phosphorus and potassium has been added to both of these stations consistent with current rules.



Figure 1. Location of the Bucyrus wastewater treatment plant.

**Table 1. Effluent Characterization Using Self-Monitoring Data**

Summary of unaltered discharge monitoring report data for Bucyrus outfall 2PD00021001 (August 2005 - July 2010). All values are based on annual records unless otherwise indicated.

Parameter	Season	Units	# Obs.	Percentiles		Data Range
				50 <sup>th</sup>	95 <sup>th</sup>	
Water Temperature	Annual	C	1793	15.9	21.6	6.4-23.6
Dissolved Oxygen	Summer	mg/l	887	8.3	9.55	4.18-15
Dissolved Oxygen	Winter	mg/l	901	9.03	11.1	4.39-12.9
Residue, Total Dissolved	Annual	mg/l	56	362	887	0.6-1020
Total Suspended Solids	Annual	mg/l	684	3	18.3	0-116
Oil and Grease, Hexane	Annual	mg/l	8	0	0	0-0
Oil and Grease, Freon	Annual	mg/l	113	0	6.14	0-89.6
Nitrogen, Ammonia (NH <sub>3</sub> )	Summer	mg/l	337	0.05	1.39	0-9.44
Nitrogen, Ammonia (NH <sub>3</sub> )	Winter	mg/l	351	0.09	1.52	0-5.1
Nitrite Plus Nitrate, Total	Annual	mg/l	59	7.58	20.4	0-23.5
Phosphorus, Total (P)	Annual	mg/l	229	0.347	1.13	0-4.41
Cyanide, Free	Annual	mg/l	10	0	0	0-0
Iron, Total Recoverable	Annual	ug/l	2	55	64.9	44-66
Barium, Total Recoverable	Annual	ug/l	2	38.5	40.8	36-41
Nickel, Total Recoverable	Annual	ug/l	57	0	12	0-24
Strontium, Total Recoverable	Annual	ug/l	55	1030	1320	140-1600
Zinc, Total Recoverable	Annual	ug/l	57	22	43.2	0-419
Aluminum, Total Recoverable	Annual	ug/l	2	0	0	0-0
Cadmium, Total Recoverable	Annual	ug/l	20	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	57	0	8.92	0-15
Chromium, Total Recoverable	Annual	ug/l	10	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	59	0	9.1	0-24
Chromium, Dissolved Hexavalent	Annual	ug/l	27	0	7.7	0-14
Fecal Coliform	Annual	#/100 ml	306	4	345	0-3040
Flow Rate	Summer	MGD	885	1.92	5.69	0.82-10.3
Flow Rate	Winter	MGD	898	3.02	7.37	0.93-10.9
Flow Rate	Annual	MGD	1783	2.41	7	0.82-10.9
Mercury, Total (Low Level)	Annual	ng/l	55	1.48	15	0-171
Mercury, Total (Low Level)	Annual	ng/l	4	2.37	3.08	0.523-3.2
Acute Toxicity, C. dubia	Annual	TUa	9	0	0.6	0-1
Chronic Toxicity, C. dubia	Annual	TUc	12	0.5	3.35	0-5
Acute Toxicity, P. promelas	Annual	TUa	9	0	3	0-5
Chronic Toxicity, P. promelas	Annual	TUc	12	0	7.3	0-15
pH, Maximum	Annual	S.U.	1793	7.47	8.35	6.71-8.97
pH, Minimum	Annual	S.U.	1793	7.2	7.6	4.56-37.2
CBOD 5 day	Summer	mg/l	236	1.5	4.78	0-12
CBOD 5 day	Winter	mg/l	263	2	5.19	0-15.7

**Table 2. Modified final effluent limits and monitoring requirements for Bucyrus outfall 2PD00021001 and the basis for their recommendation.**

Parameter	Units	Effluent Limits				Basis <sup>b</sup>
		Concentration		Loading (kg/day) <sup>a</sup>		
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
<i>E. coli</i> Summer Only	#/100ml	161	362 <sup>c</sup>	--	--	WQS
Mercury, T.	ng/l	7.0	1700 <sup>d</sup>	0.0000901	0.02188 <sup>d</sup>	VAR

<sup>a</sup> Effluent loadings based on average design discharge flow of 3.4 MGD.

<sup>b</sup> Definitions: VAR = General mercury variance, Rule 3745-33-07(D)(10) of the Ohio Administrative Code; WQS = Ohio Water Quality Standards (OAC 3745-1-07).

<sup>c</sup> Weekly average limit.

<sup>d</sup> No change from current permit.

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 Bucyrus Wastewater Treatment Plant

Public Notice No.: 09-11-012  
Public Notice Date: November 5, 2009  
Comment Period Ends: December 4, 2009

OEPA Permit No.: 2PD00021\*JD  
Application No.: OH0052922

Name and Address of Applicant:

City of Bucyrus  
500 South Sandusky Avenue  
Bucyrus, Ohio 44820

Name and Address of Facility Where  
Discharge Occurs:

Bucyrus Wastewater Treatment Plant  
1500 West Southern Avenue  
Bucyrus, Ohio

Receiving Water: Sandusky River

Subsequent  
Stream Network: Sandusky Bay, Lake Erie

Introduction

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

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

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

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

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method,

the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

### Summary of Permit Conditions

The limits and monitoring proposed for the following parameters are the same as in the current permit, though some monitoring frequencies have changed: flow, temperature dissolved oxygen, CBOD<sub>5</sub>, total suspended solids, summer ammonia-nitrogen, oil and grease, pH, fecal coliform, phosphorus, nitrate+nitrite-nitrogen, free cyanide, cadmium, total chromium, dissolved hexavalent chromium, copper, lead, nickel, zinc and total dissolved solids.

Lowering the winter ammonia limits from 7.2/10.8 mg/l (monthly average/weekly average) to 5.9/8.8 mg/l is proposed. The new limits are based on the wasteload allocation. Operating data show that the plant is able to comply with the proposed limits.

*Mercury* New water quality based effluent limits are proposed for mercury. Mixing zones for mercury are not allowed beginning in November 2010. At that time, all mercury limits are set equal to water quality standards, a monthly average of 1.3 ng/l in the Lake Erie basin.

The interim limits, which last until October 31, 2010, are slightly higher than the final limits because they allow for dilution based on critical, upstream low flows. Since Bucyrus may have difficulty complying with the final monthly average limit for mercury and because cost effective measures for reducing mercury discharge concentrations may not be available, a compliance schedule for mercury has been included in the draft permit.

The compliance schedule gives Bucyrus the opportunity to evaluate its compliance options and to decide if it will request a variance from the mercury standards. The City must make this determination and submit a mercury variance application (if needed) no later than 4 months after the effective date of the permit.

New monitoring is proposed aluminum, barium and iron. These contaminants were detected in Ohio EPA samples at levels that indicate the potential for water quality concerns. The purpose of the monitoring is to obtain sufficient data to determine if there is an environmental risk from these metals.

Final effluent limits are proposed for whole effluent toxicity. They become effective 54 months after the permit effective date. Interim provisions require monitoring with triggers for accelerated testing and conducting a TRE (toxicity reduction evaluation).

Current monitoring requirements for strontium are being removed from the permit because data show that it does not pose an environmental hazard in the Bucyrus effluent.

The draft permit proposes a compliance schedule requiring the City to take the administrative steps necessary to develop and implement an Ohio EPA-approved industrial pretreatment program.

Special conditions address sanitary sewer overflow reporting, operator certification and operator of record, the regulation of storm water discharges at the wastewater plant and posting signs at all outfalls.

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## Procedures for Participation in the Formulation of Final Determinations

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

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

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

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

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

**Ohio Environmental Protection Agency  
Attention: Division of Surface Water  
Permits and Compliance Section  
P.O. Box 1049  
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For additional information about this fact sheet or the draft permit, contact Gary Stuhlfauth, (614) 644-2026, [gary.stuhlfauth@epa.state.oh.us](mailto:gary.stuhlfauth@epa.state.oh.us) .

## Location of Discharge/Receiving Water Use Classification

The Bucyrus wastewater treatment plant discharges to the Sandusky River at River Mile 111.00. The approximate location of the facility is shown in Figure 1.

This segment of the Sandusky River is described by Ohio EPA River Code: 05-001, U.S. EPA River Reach #: 04100011-013, County: Crawford, Ecoregion: Eastern Corn Belt Plains. The Sandusky River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-12): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric 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 Bucyrus wastewater plant is an advanced treatment facility with an average design flow of 3.4 million gallons per day. Wet stream processes include influent pumping, screening and aerated grit removal, primary settling, activated sludge aeration, phosphorus removal, secondary clarification, tertiary filtration, and ultraviolet disinfection. Solid stream processes include sludge stabilization by aerobic digestion and lime addition followed by dewatering using a belt filter press. Ultimate sludge disposal is by land application at agronomic rates.

The plant has a raw wastewater bypass that discharges directly to the Sandusky River. In the NPDES permit, it is designated as station 2PD00021002 and has monitoring and reporting requirements. Discharge through this station is prohibited except under emergency conditions as authorized by federal regulation at 40 CFR 122.41(m) and provisions in Part III, Item 11 of the permit. The City did not report any discharges through station 002 during the period November 2004 through August 2009.

The Bucyrus collection system is approximately 80 percent combined sanitary and storm sewers and approximately 20 percent separate sanitary and storm sewers. The combined portion of the system has 21 combined sewer overflows (CSO) that discharge to the Sandusky River and 1 CSO that discharges to a tributary. On November 24, 2000, the City of Bucyrus submitted a *Combined Sewer Overflow Long Term Control Plan* (November 2000) to Ohio EPA. Ohio EPA conducted a review of this plan and determined that it was deficient and could not be approved.

Currently, U.S. EPA is the lead agency working with the City on development and implementation of a long-term control plan for its combined sewer overflows. In developing its long-term control plan, the City has completed

sampling and monitoring and has developed, calibrated and verified its hydraulic model. The City was to complete system characterization by the end of July 2009, develop control alternatives and submit the long-term control plan report to U.S. EPA by December 1, 2009. At this time, the City is on schedule to complete the work as planned.

Bucyrus does not implement an approved industrial pretreatment program. Three industries discharge to the Bucyrus wastewater plant under indirect discharge permits issued by Ohio EPA:

Tekni-Plex Colorite, Bucyrus Division – manufactures reinforced PVC plastic and rubber garden hoses, permit number 2DP00018;

General Electric Bucyrus Lamp Plant – manufactures fluorescent light bulbs, permit number 2DP00076; and

Imasen Bucyrus Technology, Inc. – manufactures metal automotive seat assemblies, permit number 2DP00078.

The draft permit proposes a compliance schedule requiring the City to take the administrative steps necessary to develop and implement an Ohio EPA-approved industrial pretreatment program. The City would have to complete this work and submit a request for the Director to approve the program within 12 months of the permit's effective date. Once approved, the City would have to immediately begin implementing the program.

### Description of Existing Discharge

Table 1 presents chemical specific data collected by Ohio EPA.

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 2PD00021001. Data are presented for the period June 2004 through April 2009, and current permit limits are provided for comparison.

Table 3 summarizes the chemical specific data for outfall 001 by presenting the average and maximum Projected Effluent Quality (PEQ) values.

Table 4 summarizes the results of acute and chronic whole effluent toxicity tests of the final effluent.

Under the provisions of 40 CFR 122.21(j), the Director has waived the requirement for submittal of expanded effluent testing data as part of the NPDES renewal application. Ohio EPA has access to substantially identical information through the submission of annual pretreatment program reports and/or from effluent testing conducted by the Agency.

### Assessment of Impact on Receiving Waters

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

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Indicators of exposure to these stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table

7-15). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

The results of the most recent Ohio EPA water quality survey of the Sandusky River in the vicinity of Bucyrus are included in the report, *Biological and Water Quality Study of Sandusky River and Selected Tributaries, 2001* (Ohio EPA; May 21, 2003). The entire report is available at the following Ohio EPA Internet site: <http://www.epa.state.oh.us/dsw/documents/2001SanduskyTSD.pdf>.

Figure 2 is the aquatic life use attainment table from that report for the mainstem of the Sandusky River upstream and downstream of Bucyrus. It shows that the river is in nonattainment immediately upstream of the Bucyrus treatment plant, recovering to partial and full attainment downstream of the plant.

Figure 3 is a summary table of the aquatic life attainment status from the same report. It provides information on the causes and sources of impairment within the assessment unit that includes Bucyrus.

#### *Total Phosphorus and TMDL (Total Maximum Daily Loads) Compliance*

The existing permit for the Bucyrus treatment plant included a special condition to comply with the total phosphorus wasteload allocation established in the *Total Maximum Daily Loads for the Upper Sandusky River Watershed, Final Report* (Ohio EPA; approved by U.S. EPA, September 29, 2004). For the Bucyrus plant, the TMDL established an allowable total phosphorus load of 6.4 kg/day, which was expressed as:

$$6.4 \text{ kg/day total phosphorus} = \text{med } Q_{\text{eff}} \times \text{med } P_{\text{eff}} \times F$$

where:

*med Q<sub>eff</sub>* = 5-year median daily effluent flow rate (MGD). This flow value is the median of the daily flows at station number 2PD00021001 for the previous 5 consecutive calendar years;

*med P<sub>eff</sub>* = median daily effluent total phosphorus concentration during January - December (mg/l); and

*F* = conversion factor, 3.7854.

Table 5 presents the median phosphorus concentrations, the 5-year median flows and the calculated total phosphorus load for the years 2005 through 2008. The loads range from 3.05 – 3.74 kg/day, and they are in compliance with the 6.4 kg/day allowable total phosphorus load.

The complete TMDL report is available at the following Ohio EPA Internet site: <http://www.epa.state.oh.us/dsw/tmdl/SanduskyRiverUpperTMDL.html>.

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

Self-monitoring data (DMR)	June 2004 through April 2009
Ohio EPA compliance sampling data	2008

The data were examined, and the following values were removed from the evaluation: total dissolved solids – 35 values that were less than 5 mg/l; strontium – two low (58 and 140 ug/l) and one high (3310 ug/l) values; zinc – one high value (419 ug/l); and mercury – one high value (171 ng/l).

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

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (WQS) and allowable wasteload allocation (WLA) values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQ<sub>avg</sub> or PEQ<sub>max</sub> is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 9 for a summary of the screening results.

*Wasteload Allocation* For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload allocations using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations.

The 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
Wildlife		Annual 90Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 7, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 6 and 7. The wasteload allocation results to maintain all applicable criteria are presented in Table 8. The current ammonia limits were evaluated using the wasteload allocation

procedures, and while the current summer limits are protective of water quality standards, the current winter limits are not.

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

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

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit ( $TU_c$ ) and 7Q10 flow for the average and the acute toxicity unit ( $TU_a$ ) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Bucyrus, the wasteload allocation values are 0.4  $TU_a$  and 1.05  $TU_c$ .

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

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

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

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

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

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

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

When the acute wasteload allocation is less than 1.0  $TU_a$ , it may be defined as:

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

The acute wasteload allocation for Bucyrus is 30 percent mortality in 100 percent effluent based on the dilution ratio of 1.2 to 1.

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

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum wasteload allocations are selected from Table 8. The average PEL ( $PEL_{avg}$ ) is compared to the average PEQ ( $PEQ_{avg}$ ) from Table 3, 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 9.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 10 presents the final effluent limits and monitoring requirements proposed for Bucyrus outfall 2PD00021001 and the basis for their recommendation.

Based on best engineering judgment, the limits proposed for dissolved oxygen, total suspended solids, 5-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) and summer ammonia-nitrogen are a continuation of existing permit limits. The summer ammonia-N limits were evaluated and are protective of the water quality standard for ammonia toxicity.

The proposed winter ammonia-N limits, 5.9 mg/l (monthly average) and 8.8 mg/l (weekly average) are lower than those in the current permit, 7.2 mg/l and 10.8 mg/l. Water quality modeling showed that the current limits were not protective of the water quality standard for ammonia toxicity. The proposed limits are based on the wasteload allocation results (Table 8). Plant operating data (Tables 2 and 3) show that the plant is able to comply with the proposed limits.

Limits proposed for oil and grease, pH, and fecal coliform are based on Water Quality Standards (OAC 3745-1-07) and are a continuation of existing permit limits.

Phosphorus is limited based on provisions of OAC 3745-33-06(C), and this is a continuation of the existing permit limits. In addition, it is proposed that the special condition in the current permit requiring compliance with the TMDL for total phosphorus of 6.4 kg/day be continued. As discussed previously, operating data show that the Bucyrus wastewater plant complied with the phosphorus TMDL from 2005 through 2008 (Table 5).

The Ohio EPA risk assessment (Table 9) places copper and mercury in group 5. This placement as well as the data in Tables 2 and 3 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For mercury, the PEQ is greater than 100 percent of the wasteload allocation. For copper, the PEQ is between 75 and 100 percent of the wasteload allocation and certain conditions exist that increase the risk to the environment. Pollutants that meet these requirements must have permit limits under OAC Rule 3745-33-07(A)(1). The limits proposed for copper are based on wasteload allocation (Table 8) and are the same as the current limits.

Ohio's water quality standard implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] require a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applies 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 (12 ng/l in the Ohio River basin; 1.3 ng/l in the Lake Erie basin).

An interim table is proposed lasting until October 31, 2010 that includes mercury limits based on a wasteload allocation that allows for dilution based on critical, upstream low flows as specified in section 3745-2-05 of the Ohio Administrative Code (Table 8).

Beginning on November 1, 2010, a final table becomes effective that includes limits for mercury that are equal to the water quality standards (Tables 6 and 8). Since the Bucyrus wastewater plant may have difficulty complying with the final monthly average limit for mercury and because cost effective measures for reducing mercury discharge concentrations may not be available, a compliance schedule for mercury has been included in the draft permit.

The compliance schedule requires low level monitoring using Method 1631 and provides interim and final quantification levels. It also requires the permit holder to inform Ohio EPA that it can meet the final mercury limits, that it requests a compliance schedule to meet the final limits, or that it requests a variance from the mercury standards.

If the permittee believes that complying with the WQBELs is not possible, they may request a variance from the water quality standard. Ohio EPA would then review the variance application, and if approved, would proceed to modify the permit to incorporate variance-based mercury limits and conditions associated with the mercury variance.

Bucyrus is required to make the determination described above and submit a mercury variance application (if needed) no later than 4 months after the effective date of the permit. If the City does not apply for a mercury variance and the permit is not modified, water quality-based limits for mercury with no allowance for dilution will become effective in November 2010.

The Ohio EPA risk assessment (Table 9) places dissolved hexavalent chromium, aluminum and barium in group 5, which recommends limits to protect water quality. Using the discretion allowed the Director under OAC 3745-3-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants because their PEQ values may not be representative of the actual levels in the plant effluent.

From June 2004 until April 2009, dissolved hexavalent chromium was only detected once in 29 samples. Only two samples from 2008 were available for aluminum and barium. Aluminum was detected once at a level well below its wasteload allocation (Tables 1 and 8). Barium was detected in both samples but at levels well below its wasteload allocation (Tables 1 and 8). The purpose of the proposed monitoring is to collect additional data on the frequency of occurrence and variability of these pollutants in the plant's effluent.

Ohio EPA risk assessment (Table 9) places total dissolved solids (also referred to as total dissolved residue) and iron in group 4. This placement as well as the data in Tables 1, 2 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring for Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC Rule 3745-33-07(A)(2).

Ohio EPA risk assessment (Table 9) places cadmium, total chromium, free cyanide, lead, nickel, and zinc in groups 2 and 3. This placement as well as the data in Tables 2 and 3 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Continued monitoring at a low frequency is proposed to document that these pollutants continue to remain at low levels.

The following contaminants were included in Group 2 under the risk assessment procedure (Table 9), and based on best engineering judgment and OAC 3745-33-07(A), no monitoring is proposed: arsenic, strontium, tetrachloroethylene (Group 2).

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

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

#### *Whole Effluent Toxicity Reasonable Potential*

Evaluating the acute and chronic toxicity results in Table 4 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, gives a chronic PEQ of 2.4 TU<sub>c</sub> for *Ceriodaphnia dubia* and 2.0 TU<sub>c</sub> for fathead minnows.

Reasonable potential for toxicity is demonstrated, since the chronic PEQ exceeds the wasteload allocation of 1.05 TU<sub>c</sub>. Consistent with Procedure 6 and OAC 3745-33-07(B), final effluent limits are proposed for whole effluent toxicity.

The final toxicity limits are proposed to become effective 54 months after the effective date of the permit. They were derived from the wasteload allocation values of 0.4 TU<sub>a</sub> and 1.05 TU<sub>c</sub> using the procedures in section 5.4, "Permit Limit Derivation", of the *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001, U.S. EPA, March 1991). A coefficient of variation of 0.6 and an acute-to-chronic ratio of 10 were used in the calculations. Based on the calculations and OAC 3745-33-07(B)(10), a daily maximum limit of 1.7 TU<sub>c</sub> and a monthly average limit of 1.0 TU<sub>c</sub> are proposed.

During the interim period, the following conditions are proposed in regards to whole effluent toxicity:

- Quarterly monitoring for chronic toxicity using *C. dubia* and fathead minnows;
- Preparation of a work plan for an initial TRE (toxicity reduction evaluation) investigation;
- A trigger for accelerated testing using the affected species when toxicity greater than or equal to 1.0 TU<sub>c</sub> is observed;
- A trigger for initiating a TRE and developing a more detailed TRE work plan;
- If necessary, developing a schedule for implementing actions that will bring the discharge into compliance with the final toxicity limits; and
- A reopener clause for considering modification of the permit if toxicity is not detected during two years of monitoring.

#### Other Requirements

##### *Compliance Schedules*

Compliance schedules are proposed for:

- Submitting information to Ohio EPA within four months of the effective date of the permit on how the City will address compliance with the water quality-based effluent limits for mercury. This was previously discussed in more detail.
- Completing the administrative steps necessary to develop and implement an Ohio EPA-approved industrial pretreatment program. Within 12 months of the permit's effective date, the City must complete this work and submit a request for the Director to approve their program.
- Meeting whole effluent toxicity limits within 54 months of the permit's effective date. The City must submit a copy of an initial investigation TRE work plan within three months of the permit's effective date, conduct all of the bioassay testing required by the permit as well as submit annual status reports on its activities related to meeting the proposed toxicity limits.

##### *Sanitary Sewer Overflow Reporting*

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

#### *Operator Certification*

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

#### *Operator of Record*

In December 2006, Ohio Administrative Code rule revisions became effective which affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A of this NPDES permit is included to implement rule 3745-7-02 of the Ohio Administrative Code (OAC). It requires the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

#### *Storm Water Compliance*

Parts IV, V, and VI have been included in the draft permit 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, the City may submit a "No Exposure Certification" or seek permit coverage under the general permit for industrial storm water (permit # OHR000004) .

The permittee previously submitted a form for "No Exposure Certification", which was granted on October 30, 2003. However, compliance with the industrial storm water regulations must be re-affirmed every five years, and the City has not reapplied for the certification.

Parts IV, V, and VI will be removed from the final permit if: 1) the City submits a No Exposure Certification or a Notice of Intent (NOI) for coverage under the general permit for industrial storm water, 2) Ohio EPA determines that the facility meets the requirements for a No Exposure Certification or is eligible for coverage under the general permit, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

#### *Outfall Signage*

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

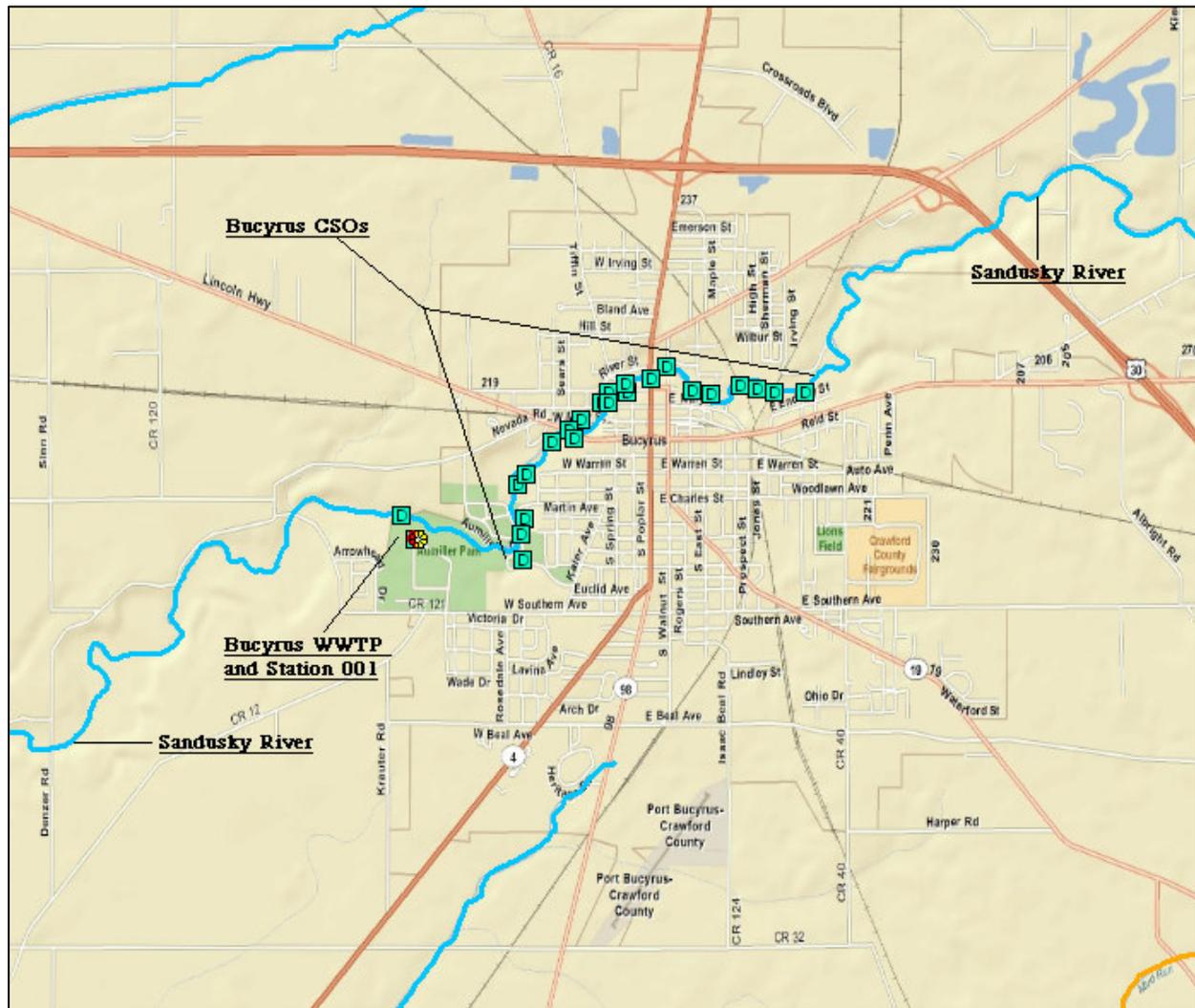


Figure 1. Approximate location of Bucyrus wastewater treatment plant.

**Table 1. Effluent Characterization Using Ohio EPA Data**

Summary of analytical results for Bucyrus outfall 2PD00021001. Units ug/l unless otherwise noted; OEPA = data from analyses by Ohio EPA; NA = not analyzed; ND = not detected (detection limit).

PARAMETER	OEPA 04/14/08	OEPA 03/04/08
Aluminum	ND(200)	2800
Arsenic	ND(2.0)	2.5
Barium	38	64
Dissolved solids, total (mg/l)	560	458
Copper	2.5	26
Iron	105	1700
Lead	ND(2.0)	7.8
Nickel	3.6	ND(40)
Strontium	994	528
Zinc	15	66
Tetrachloroethene	ND(0.5)	0.88

**Table 2. Effluent Characterization Using Self-Monitoring Data**

Summary of current permit limits and unaltered discharge monitoring report data for Bucyrus outfall 2PD00021001 (June 2004 – April 2009). 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; a = weekly average.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 <sup>th</sup>	95 <sup>th</sup>	
Water Temperature	Annual	C	Monitor		1793	16	21.7	6.4-23.6
Dissolved Oxygen	Summer	mg/l		5.0 min	887	8.3	6.7**	3.78-15
Dissolved Oxygen	Winter	mg/l		5.0 min	901	9.41	7.7**	4.39-12.9
pH, Maximum	Annual	S.U.		9.0	153	7.54	8.42	6.9-8.55
pH, Minimum	Annual	S.U.		6.5	153	6.9*	7.53	6.64-7.99
Residue, Total Dissolved	Annual	mg/l	Monitor		51	2.6	887	0.4-1020
Total Suspended Solids	Annual	mg/l	12	18 <sup>a</sup>	680	2.2	17.6	0-104
Oil and Grease, Freon Ext	Annual	mg/l		10	119	0	5.96	0-89.6
Nitrogen, Ammonia (NH3)	Summer	mg/l	2.0	3.0 <sup>a</sup>	336	0.07	1.03	0-9.44
Nitrogen, Ammonia (NH3)	Winter	mg/l	7.2	10.8 <sup>a</sup>	347	0.07	1.27	0-5.1
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		59	8.48	20.4	0-24.5
Phosphorus, Total (P)	Annual	mg/l	1.0	1.5 <sup>a</sup>	230	0.349	0.81	0-4.41
Cyanide, Free	Annual	mg/l	Monitor		9	0	0	0-0
Nickel, Total Recoverable	Annual	ug/l	Monitor		54	0	19	0-27
Strontium, Total Recoverable	Annual	ug/l	Monitor		54	1050	1520	58-3310
Zinc, Total Recoverable	Annual	ug/l	Monitor		59	22	43.1	0-419
Cadmium, Total Recoverable	Annual	ug/l	Monitor		18	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	Monitor		54	0	9.31	0-15
Chromium, Total Recoverable	Annual	ug/l	Monitor		11	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	23	41	54	0	10.8	0-24
Chromium, Dissolved Hexavalent	Annual	ug/l	Monitor		30	0	0	0-14
Fecal Coliform	Annual	#/100 ml	1000	2000 <sup>a</sup>	313	3.75	85.2	0-5100
Flow Rate	Summer	MGD	Monitor		883	1.94	5.91	0.82-10.3
Flow Rate	Winter	MGD	Monitor		889	3.25	7.49	0.93-10.9
Flow Rate	Annual	MGD	Monitor		1772	2.53	7.22	0.82-10.9
Mercury, Total (Low Level)	Annual	ng/l	Monitor		54	1.39	15.7	0-171
pH, Maximum	Annual	S.U.		9.0	1640	7.6	8.38	6.87-8.97
pH, Minimum	Annual	S.U.		6.5	1639	6.9*	7.62	4.56-37.2
CBOD 5 day	Summer	mg/l	10	15 <sup>a</sup>	228	1.9	5.05	0-12
CBOD 5 day	Winter	mg/l	10	15 <sup>a</sup>	262	2	5.3	0-15.7
Nickel, Total Recoverable	Annual	ug/l	126	1265	2	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	Monitor		5	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	23	41	5	0	11	0-13
Cadmium, Total Recoverable	Annual	ug/l	Monitor		5	0	0	0-0

**Table 3. Projected Effluent Quality Values**

<b>Parameter</b>	<b>Units</b>	<b>Number of Samples</b>	<b>Number &gt; MDL</b>	<b>PEQ Average</b>	<b>PEQ Maximum</b>
Aluminum	ug/l	2	1	7767.2	10640
Ammonia-S	mg/l	233	180	0.53	0.94
Ammonia-W	mg/l	173	138	1.39	2.14
Arsenic - TR	ug/l	2	1	6.935	9.5
Barium	ug/l	2	2	177.536	243.2
Cadmium - TR	ug/l	23	0	--	--
Chromium - TR	ug/l	11	0	--	--
Chromium VI - Diss	ug/l	29	1	12.264	16.8
Copper - TR	ug/l	61	11	20.9	23
Cyanide - free	mg/l	11	0	--	--
Dissolved solids, T	mg/l	18	18	982	1386
Iron – TR	ug/l	2	2	4715.8	6460
Lead – TR	ug/l	61	6	10.95	15
Mercury - TR	ng/l	53	48	9.97	15.1
Nickel – TR	ug/l	57	13	19.7	27
Nitrate-N+Nitrite-N	mg/l	59	58	16.7	25.1
Strontium	ug/l	51	51	1330	1677
Tetrachloroethylene	ug/l	2	1	2.44112	3.344
Zinc - TR	ug/l	58	52	36.2	51.4

**Table 4. Summary of Toxicity Test Results**

Test Date(a)	<i>Ceriodaphnia dubia</i> 48 hours	<i>Fathead Minnows</i> 96 hours	<i>Ceriodaphnia dubia</i> 7 days	<i>Fathead Minnows</i> 7 days
	TUa <sup>b</sup>	TUa <sup>b</sup>	TUc <sup>b</sup>	TUc <sup>b</sup>
04/ 14, 16/08(O)*	BD	BD	--	--
03/4, 5/08(O)*	BD	BD	--	--
11/12/07(E) <sup>#</sup>	1.0	>5.0	>5.0/2.6 (IC <sub>25</sub> )	15.9
07/23/07(E)	BD	BD	1.4	BD
05/14/07(E)	BD	BD	BD	BD
02/16/07(E)	BD	BD	1.4	BD
11/13/06(E)	BD	BD	BD	1.1
07/17/06(E)	BD	0.4	1.1	1.2
05/15/06(E)	BD	BD	BD	BD
02/13/06(E)	BD	BD	BD	BD
11/16/05(E)	BD	BD	BD	BD
07/06/05(E)	BD	0.3	BD	1.0
05/16/05(O)	BD	BD	BD	BD
02/25/05(E)	BD	BD	BD	BD

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

<sup>b</sup> TUa = acute toxicity units, TUc = chronic toxicity units

\* = 48 hour screening test

<sup>#</sup> = Not included in reasonable potential evaluation, not representative

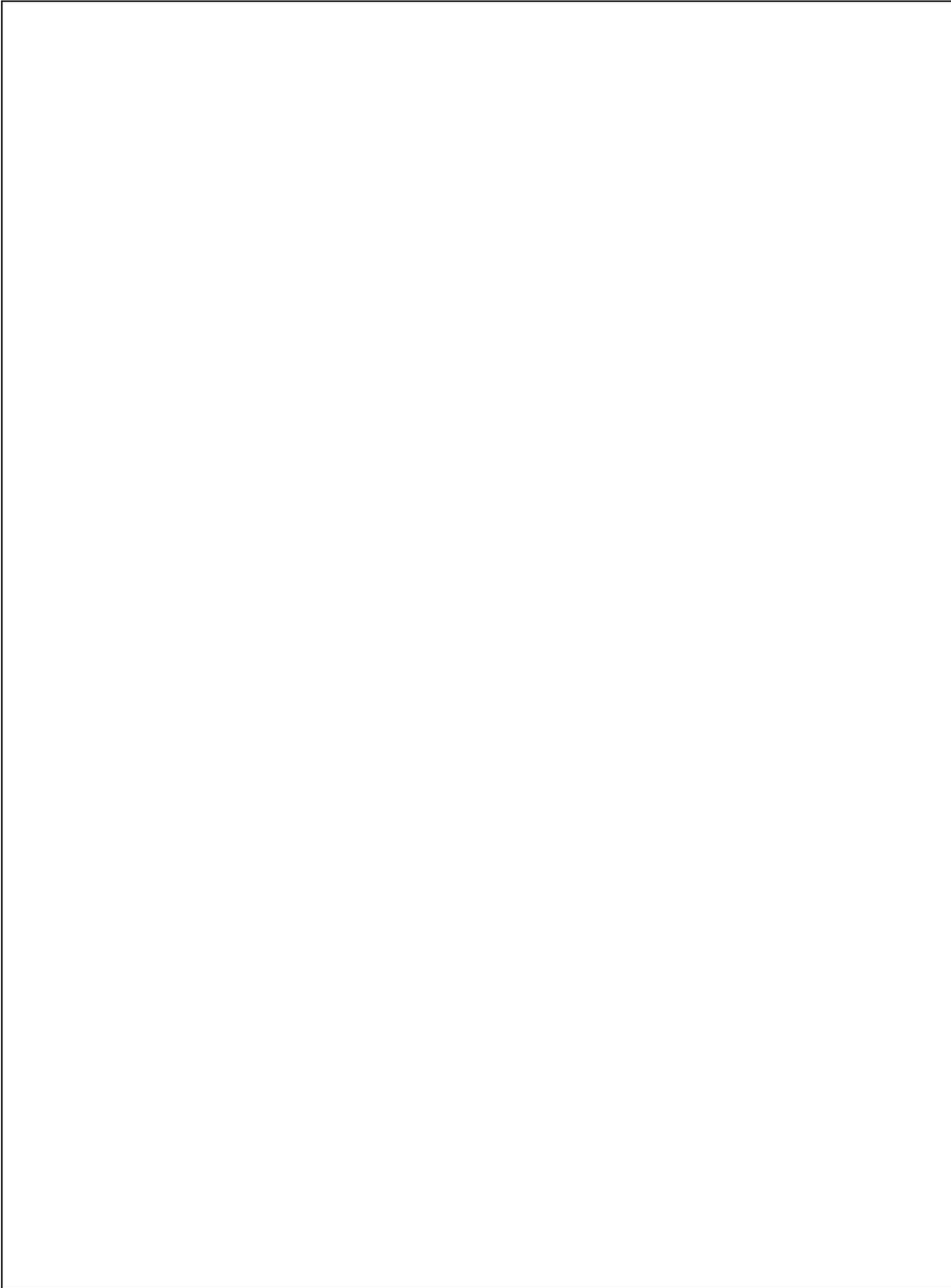


Table 1B. Aquatic life use attainment status of the Sandusky River basin, June-October, 2001. The Index of Biotic Integrity (IBI), Modified Index of Well Being (MIwb) and Invertebrate Community Index (ICI) scores are based on the performance of fish (IBI, MIwb) and macroinvertebrate (ICI) communities. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support biological communities.

River Mile Invertebrate/Fish	IBI	MIwb	ICI <sup>a</sup>	QHEI	Attainment Status <sup>b</sup>	Comments
<b>Sandusky River</b>						
<i>Eastern Corn Belt Plains (ECBP) - WWH Use Designation</i>						
127.8/127.8	36 <sup>ns</sup>	7.5*	42	82.0	Partial	TR 13, Lower Leesville Rd.
120.8/120.0	37 <sup>ns</sup>	7.1*	48	57.0	Partial	CR 55, Locust Grove Rd.
116.2/114.9	40	7.6*	48	60.5	Partial	TR 82, Kiess Rd.
111.2/111.2	<u>24</u> *	6.0*	22*	44.0	<b>NON</b>	Ust. Bucyrus WWTP
110.4/110.4	36 <sup>ns</sup>	7.2*	18*	75.0	Partial	CR 121, Kerstetter Rd.
105.8/103.7	37 <sup>ns</sup>	9.0	VG	74.5	Full	TR 128, Shupp Rd.
98.7/98.7	44	9.0	44	82.5	Full	SR 231
93.8/93.8	32*	8.2 <sup>ns</sup>	48	67.0	Partial	TR 128
90.3/90.3	44	9.0	54	66.0	Full	TR 124
83.3/85.0	43	8.2 <sup>ns</sup>	46	59.0	Full	CR 55
78.4/77.9	48	8.1 <sup>ns</sup>	44	71.5	Full	CR 121
72.0/72.1	52	9.3	52	76.5	Full	TR 40 (Parker Bridge)
65.0/65.1	53	8.5	E	76.0	Full	CR 16
57.4/57.3	48	8.7	48	60.5	Full	CR 9
52.2/52.2	43	7.5*	<u>12</u> *	50.0	<b>NON</b>	Walnut Grove Campground
47.7/47.8	54	10.3	54	85.0	Full	CR 90
46.8/46.8	53	9.7	48	84.5	Full	From CR 90

**Ecoregion Biocriteria: E. Corn Belt Plains (ECBP)**

INDEX - Site Type	LRW	MWH channel modified	MWH impounded	WWH	EWH
IBI Headwater - Wading/ Boat	18/18	24/24	-/30	40/ 42	50
MIwb Wading/ Boat	4.0/4.0	6.2/5.8	-/6.6	8.3/ 8.5	9.4/ 9.6
ICI	8	22	-	36	46

\* Significant departure from ecoregion biocriterion; poor and very poor results are underlined.

ns Nonsignificant departure from biocriterion ( $\leq 4$  IBI or ICI units;  $\leq 0.5$  MIwb units).

a Narrative evaluation used in lieu of ICI (E=Exceptional; G=Good; MG=Marginally Good; F=Fair; P=Poor).

b Use attainment status based on one organism group is parenthetically expressed.

N/A Not Applicable. The MIwb is not applicable to headwater sites.

Figure 2. Aquatic life attainment table from *Biological and Water Quality Study of Sandusky River and*

*Selected Tributaries, 2001 (Ohio EPA; May 21, 2003).*

Table 1A Aquatic life use attainment status for each of eight Watershed Assessment Units and for the Sandusky Large River Unit sampled in 2001. The assessment unit score is an average grade of aquatic life use status. The method of calculation is presented in the 2002 Integrated Water Quality Monitoring and Assessment Report ([www.epa.state.oh.us/dsw/tmdl/2002IntReport/2002OhioIntegratedReport.html](http://www.epa.state.oh.us/dsw/tmdl/2002IntReport/2002OhioIntegratedReport.html)). An assessment unit score of 80 is used as the benchmark above which a watershed is considered to be in good condition relative to aquatic life uses. A maximum assessment unit score of 100 is possible if all monitored sites meet designated aquatic life uses. The comments provided for each assessment unit include principal causes and sources of impact on aquatic life and recreational uses and significant contaminants in sediment and fish tissue.

Sandusky River - Bucyrus headwaters to ust. Broken Sword Cr. AU# 0400011 020	Total	Aquatic Life Attainment Status						Assessment Unit Score
		Full		Partial		NON		
		#	%	#	%	#	%	
Sites < 50mi <sup>2</sup> drainage area	20	6	30	2	10	12	60	32
Miles of assessed streams with > 50mi <sup>2</sup> and < 500mi <sup>2</sup> drainage area	22.1	10.4	47	10.3	47	1.4	6	
<b>Comments</b> Sedimentation and enrichment associated with the predominant agricultural land use were the most common impacts on aquatic life use attainment. Minimal sustained flow during the summer months limited pool depths and availability of riffle habitat at some sites. Two distinct areas impacted by organic loadings were the Sandusky River within the City of Bucyrus due to combined sewer overflows (CSOs) and Westerly Creek within the Village of Crestline due to failed septic systems, urban runoff and the wastewater treatment plant (WWTP). The compound of greatest concern regarding enrichment impacts is phosphate (PO <sub>4</sub> ) because it is often growth limiting. Elevated levels of mercury were documented in sediment tested around the City of Bucyrus. A review of the annual Toxic Release Inventory report indicated that the General Electric Lamp Plant disposed of 49 pounds of mercury into the sewer system in 2000 and 19.8 pounds in 2001. The discharge of mercury via the Bucyrus WWTP and CSOs needs to be corrected. The Ohio Department of Health advises that meals of largemouth bass caught in the Sandusky River be limited to one per month because of mercury levels. The meal advice for carp is one per week and channel catfish one per month because of PCB levels.								

Figure 3. Aquatic life attainment status summary from *Biological and Water Quality Study of Sandusky River and Selected Tributaries, 2001* (Ohio EPA; May 21, 2003).

Year	Median P Conc. (mg/l)	5-Year Median Flow (MGD)	Total P Load (kg/day)*
2005	0.38	2.60	3.74
2006	0.309	2.68	3.13
2007	0.297	2.71	3.05
2008	0.345	2.66	3.47

\* Allowable total phosphorus load = 6.4 kg/day

**Table 6. Water Quality Criteria in the Study Area**

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Wildlife	Average			Maximum Aquatic Life	
			Human Health	Agri-culture	Aquatic Life		
Aluminum	ug/l	--	4500	--	--	--	--
Ammonia-S	mg/l	--	--	--	1.8	--	--
Ammonia-W	mg/l	--	--	--	3.3	--	--
Arsenic - TR	ug/l	--	580	100	150	340	680
Barium	ug/l	--	160000	--	220	2000	4000
Cadmium - TR	ug/l	--	730	50	5.5	14	28
Chromium - TR	ug/l	--	14000	100	200	4100	8300
Chromium VI - Diss	ug/l	--	14000	--	11	16	31
Copper - TR	ug/l	--	64000	500	22	36	73
Cyanide - free	mg/l	--	48	--	0.0052	0.022	0.044
Dissolved solids - Total	mg/l	--	--	--	1500	--	--
Iron - TR	ug/l	--	--	5000	--	--	--
Lead - TR	ug/l	--	--	100	23	450	890
Mercury - TR	ng/l	1.3	3.1	10000	910	1700	3400
Nickel - TR	ug/l	--	43000	200	120	1100	2200
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--
Strontium	ug/l	--	1400000	--	21000	40000	81000
Tetrachloroethylene	ug/l	--	1800	--	53	430	850
Zinc - TR	ug/l	--	35000	25000	280	280	570

**Table 7. Instream Conditions and Discharger Flow**

<b>Parameter</b>	<b>Units</b>	<b>Season</b>	<b>Value</b>	<b>Basis</b>
<i>Stream Flows</i>				
1Q10	cfs	annual	0.79	USGS 04196000
7Q10	cfs	annual	1.08	USGS 04196000
30Q10	cfs	summer	1.77	USGS 04196000
		winter	4.22	USGS 04196000
Harmonic Mean	cfs	annual	8.17	USGS 04196000
Mixing Assumption	%	average	25	
	%	maximum	100	
<i>Hardness</i>	mg/l	annual	276	STORET U02P30/31, 2001, n = 15
<i>pH</i>	S.U.	summer	7.8	SWIMS 901, 2004-09, n = 19
		winter	8	SWIMS 901, 2004-09, n = 15
<i>Temperature</i>	C	summer	20.75	SWIMS 901, 2004-09, n = 19
		winter	10.05	SWIMS 901, 2004-09, n = 15
<i>Bucyrus WWTP flow</i>	cfs	annual	5.26	DSW
<i>Background Water Quality</i>				
Aluminum	ug/l		243	STORET; 2001; n=5; 3<MDL; Station U02S18, mean
Ammonia-S	mg/l		0.06	SWIMS; 2004-09; n=20; 6<MDL; Station 801, median
Ammonia-W	mg/l		0.08	SWIMS; 2004-09; n=15; 4<MDL; Station 801, median
Arsenic - TR	ug/l		3.26	STORET; 2001; n=5; 1<MDL; Station U02S18, mean
Barium	ug/l		74.2	STORET; 2001; n=5; 0<MDL; Station U02S18, mean
Cadmium - TR	ug/l		0	STORET; 2001; n=5; 5<MDL; Station U02S18
Chromium - TR	ug/l		0	STORET; 2001; n=5; 5<MDL; Station U02S18
Chromium VI - Diss	ug/l		0	No representative data available.
Copper - TR	ug/l		0	STORET; 2001; n=5; 5<MDL; Station U02S18
Cyanide - free	mg/l		0	No representative data available.
Dissolved solids - T	mg/l		458	STORET; 2001-04; n=13; Stations U02S18, U02G26, U02P05, median
Iron - TR	ug/l		501	STORET; 2001; n=5; 0<MDL; Station U02S18, mean
Lead - TR	ug/l		0	STORET; 2001; n=5; 5<MDL; Station U02S18
Mercury - TR (BPO)	ng/l		0	No representative data available.
Mercury - TR (APO)	ng/l		0	No representative data available.
Nickel - TR	ug/l		0	STORET; 2001; n=5; 5<MDL; Station U02S18
Nitrate-N + Nitrite-N	mg/l		0.05	STORET; 2001-04; n=13; Stations U02S18, U02G26, U02P05, median
Strontium	ug/l		1120	STORET; 2001; n=5; 0<MDL; Station U02S18, mean
Tetrachloroethylene	ug/l		0	No representative data available.
Zinc - TR	ug/l		6.4	STORET; 2001; n=5; 4<MDL; Station U02S18, mean

**Table 8. 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		
Aluminum	ug/l	--	6153	--	--	--	--
Ammonia-S	mg/l	--	--	--	--	--	--
Ammonia-W	mg/l	--	--	--	5.9	--	--
Arsenic - TR	ug/l	--	804	138	158	391	680
Barium	ug/l	--	222100	--	227	2289	4000
Cadmium - TR	ug/l	--	1013	69	5.8	16	28
Chromium - TR	ug/l	--	19436	139	210	4716	8300
Chromium VI - Diss	ug/l	--	19436	--	12	18	31
Copper - TR	ug/l	--	88852	694	23	41	73
Cyanide - free	mg/l	--	67	--	0.0055	0.025	0.044
Dissolved solids (ave)	mg/l	--	--	--	1553	--	--
Iron - TR	ug/l	--	--	6747	--	--	--
Lead - TR	ug/l	--	--	139	24	518	890
Mercury - TR (BPO)*	ng/l	1.5	4.3	13883	957	1955	3400
Mercury - TR (APO)*	ng/l	1.3	3.1	10000	910	1700	3400
Nickel - TR	ug/l	--	59697	278	126	1265	2200
Nitrate-N + Nitrite-N	mg/l	--	--	139	--	--	--
Strontium	ug/l	--	1943196	--	22020	45839	81000
Tetrachloroethylene	ug/l	--	2499	--	56	495	850
Zinc - TR	ug/l	--	48588	34705	294	321	570

\* BPO - Before mixing zone phase out

APO - After mixing zone phase out

Under sections 3745-2-05(A)(2)(iv) and 3745-2-08(L) of the Ohio Administrative Code, mixing zones for mercury and other bioaccumulative chemicals of concern are not allowed after November 15, 2010.

**Table 9. Parameter Assessment**

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

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

Arsenic - TR	Cadmium - TR	Chromium - TR
Cyanide - free	Nickel - TR	Nitrate-N+Nitrite-N
Strontium	Tetrachloroethylene	Zinc - TR

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

Lead - TR

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

Dissolved solids (ave)                      Iron - 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>
Aluminum	ug/l	Annual	6153	--
Ammonia-W	mg/l	Winter	5.9	--
Barium	ug/l	Annual	227	2289
Chromium VI - Diss	ug/l	Annual	12	18
Copper - TR	ug/l	Annual	23	41
Mercury - TR (BPO)*	ng/l	Annual	1.5	1955
Mercury - TR (APO)*	ng/l	Annual	1.3	1700

Barium becomes a Group 5 parameter based upon the loading test [OAC 3745-2-06(B)].

Copper - TR becomes a Group 5 parameter based upon the loading test [OAC 3745-2-06(B)].

\* BPO - Before mixing zone phase out

APO - After mixing zone phase out

Under sections 3745-2-05(A)(2)(iv) and 3745-2-08(L) of the Ohio Administrative Code, mixing zones for mercury and other bioaccumulative chemicals of concern are not allowed after November 15, 2010.

**Table 10. Final Effluent Limits and Monitoring Requirements.**

Parameter	Units	Effluent Limitations				Basis <sup>b</sup>
		Concentration		Loading (kg/day) <sup>a</sup>		
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow	MGD	-----	Monitor	-----		M
Temperature	°C	-----	Monitor	-----		M
Dissolved Oxygen	mg/l	5.0 minimum		--	--	BEJ, EP
CBOD <sub>5</sub>	mg/l	10	15 <sup>c</sup>	129	193 <sup>c</sup>	BEJ, EP
Suspended Solids	mg/l	12	18 <sup>c</sup>	154	232	BEJ, EP
Ammonia-N	mg/l					
Summer		2.0	3.0 <sup>c</sup>	26	39 <sup>c</sup>	BEJ, EP
Winter		5.9	8.8 <sup>c</sup>	76	113 <sup>c</sup>	WLA
Oil and Grease	mg/l	--	10	--	--	WQS, EP
pH	S.U.	-----	6.5 to 9.0	-----		WQS, EP
Fecal Coliform						
Summer Only	#/100ml	1000	2000 <sup>c</sup>	--	--	WQS, EP
Phosphorus, Total	mg/l	1.0	1.5 <sup>c</sup>	13.0	19.5 <sup>c</sup>	PT, EP
Nitrate(N) + Nitrite(N)	mg/l	-----	Monitor	-----		M
Aluminum, T. R.	µg/l	-----	Monitor	-----		RP
Barium, T. R.	µg/l	-----	Monitor	-----		RP
Cyanide, Free	mg/l	-----	Monitor	-----		M
Cadmium, T. R.	µg/l	-----	Monitor	-----		M
Chromium, T. R.	µg/l	-----	Monitor	-----		M
Hex. Chromium (Dissolved)	µg/l	-----	Monitor	-----		RP
Copper, T. R.	µg/l	23	41	0.30	0.53	WLA
Iron, T. R.	µg/l	-----	Monitor	-----		RP
Lead, T. R.	µg/l	-----	Monitor	-----		M
Mercury, T.	ng/l					
Interim (until 11/1/10)		1.5	1955	0.000019	0.02516	WLA
Final (beginning 11/1/10)	1.3	1700	0.000017	0.02188	WLA	
Nickel, T. R.	µg/l	-----	Monitor	-----		M
Zinc, T. R.	µg/l	-----	Monitor	-----		M
Dissolved Solids, Total	mg/l	-----	Monitor	-----		RP
Whole Effluent Toxicity						
Chronic	TUc	1.0	1.7	--	--	WET

<sup>a</sup> Effluent loadings based on average design discharge flow of 3.4 MGD.

<sup>b</sup> **Definitions:** BEJ = Best Engineering Judgment; 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); RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits [OAC 3745-33-07(A)]; WET = Requiring water quality-based effluent limits and monitoring requirements for whole effluent toxicity in NPDES permits [40 CFR Part 132, Appendix F, Procedure 6 and OAC 3745-33-07(B)]; WLA = Wasteload Allocation procedures (OAC 3745-2); WQS = Ohio Water Quality Standards (OAC 3745-1-07).

<sup>c</sup> Weekly average limit.