

F A C T S H E E T

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for the
Tinkers Creek Watershed Wastewater Treatment Plant (WWTP) Dischargers:

- 1. Aurora Westerly WWTP**
- 2. Bedford WWTP**
- 3. Bedford Heights WWTP**
- 4. Portage County Streetsboro-Hudson
WWTP**
- 5. Solon Water Reclamation Facility**
- 6. Summit County Aurora Shores WWTP**
- 7. Twinsburg WWTP**

OEPA Permit No.:

- 1. 3PD00046 (Aurora Westerly)**
- 2. 3PD00005 (Bedford)**
- 3. 3PD00006 (Bedford Hts.)**
- 4. 3PK00014 (Portage Co. Streetsboro)**
- 5. 3PD00019 (Solon)**
- 6. 3PG00030 (Summit Co. Aurora Shores)**
- 7. 3PD00039 (Twinsburg)**

Application No.:

- 1. OH0098043 (Aurora Westerly)**
- 2. OH0024040 (Bedford)**
- 3. OH0024058 (Bedford Hts.)**
- 4. OH0090131 (Portage Co. Streetsboro)**
- 5. OH0027430 (Solon)**
- 6. OH0033871 (Summit Co. Aurora Shores)**
- 7. OH0027863 (Twinsburg)**

Public Notice No.:

- 1. 08-12-027 (Aurora Westerly)**
- 2. 08-12-028 (Bedford)**
- 3. 08-12-025 (Bedford Heights)**
- 4. 08-12-026 (Portage C. Streetsboro)**
- 5. 08-12-023 (Solon)**
- 6. 08-08-028 (Summit Co. Aurora Shores)
(Public noticed 8/27/08; Comment period
ended 9/27/08)**
- 7. 08-12-024 (Twinsburg)**

Public Notice Date: December 19, 2008
Comment Period Ends: January 18, 2009

Name and Address of Applicant:

**City of Aurora
Department of Public Service
158 West Pioneer Trail
Aurora, Ohio 44202**

Receiving Water: **Pond Brook via
Unnamed Tributary**

Name and Address of Applicant:

**City of Bedford
165 Center Road
Bedford, Ohio 44146**

Receiving Water: **Wood Creek**

Name and Address of Applicant:

**City of Bedford Heights
25301 Solon Road
Bedford Heights, Ohio 44146**

Receiving Water: **Hawthorne Creek via
Unnamed Tributary**

Name and Address of Applicant:

**Portage County Water Resources
449 South Meridian Street
Ravenna, Ohio 44266**

Receiving Water: **Tinkers Creek**

Name and Address of Facility Where
Discharge Occurs: _____

**Aurora Westerly WWTP
1230 W Garfield Rd
Aurora, Ohio 44202
Portage County**

Subsequent
Stream Network: **Tinkers Creek – Cuyahoga
River – Lake Erie**

Name and Address of Facility Where
Discharge Occurs: _____

**Bedford WWTP
705 W Glendale St
Bedford, Ohio 44146
Cuyahoga County**

Subsequent
Stream Network: **Tinkers Creek – Cuyahoga
River – Lake Erie**

Name and Address of Facility Where
Discharge Occurs: _____

**Bedford WWTP
25301 Solon Road
Bedford Heights, Ohio 44146
Cuyahoga County**

Subsequent
Stream Network: **Tinkers Creek – Cuyahoga
River – Lake Erie**

Name and Address of Facility Where
Discharge Occurs: _____

**Streetsboro-Hudson WWTP
9501 Jefferson St
Streetsboro, Ohio 44241
Portage County**

Subsequent
Stream Network: **Cuyahoga River – Lake Erie**

Name and Address of Applicant:

**City of Solon
34200 Bainbridge Road
Solon, Ohio 44139**

Receiving Water: **Beaver Meadow Run**

Name and Address of Facility Where
Discharge Occurs:

**Solon Central WRF
6951 Cochran Road
Solon, Ohio 44139
Cuyahoga County**

Subsequent
Stream Network: **Tinkers Creek – Cuyahoga
River – Lake Erie**

Name and Address of Applicant:

**Summit County
Department of Environmental Service
2525 State Road
Cuyahoga Falls, Ohio 44223**

Receiving Water: **Pond Brook**

Name and Address of Facility Where
Discharge Occurs:

**Aurora Shores WWTP
10200 Regatta Drive
Aurora, Ohio 44202
Summit County**

Subsequent
Stream Network: **Tinkers Creek – Cuyahoga
River – Lake Erie**

Name and Address of Applicant:

**City of Twinsburg
10075 Ravenna Road
Aurora, Ohio 44087**

Receiving Water: **Tinkers Creek**

Name and Address of Facility Where
Discharge Occurs:

**Twinsburg WWTP
10231 Ravenna Road
Twinsburg, Ohio 44087
Summit County**

Subsequent
Stream Network: **Cuyahoga River – 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.

A combined fact sheet is generated here to be consistent with the watershed-based approach currently utilized for addressing impairments identified in Tinkers Creek. The approved TMDL for the Lower Cuyahoga River recommended that a stressor identification study be completed for Tinkers Creek. This fact sheet is prepared in consideration of ongoing work with the study, tentatively to be completed in 2009.

Procedures for Participation in the Formulation of Final Determinations

Permit Renewals – Aurora Westerly, Bedford, Bedford Heights, Streetsboro-Hudson, Twinsburg
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.

Permit Modifications – Solon

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.

Permit Renewals and Modifications

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

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

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

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

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

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

Location of Discharge/Receiving Water Use Classification

Table 1 includes a list of NPDES dischargers and discharge points along with appropriate stream descriptions. The approximate location of the dischargers is shown in Figure 1. A stream diagram is shown in Figure 2.

Table 1. Discharge locations for Tinkers Creek watershed WWTPs					
Discharger	Receiving Stream (River Mile)	Ohio EPA River Code	HUC 14	Ecoregion	Use Designations
Aurora Westerly	Pond Brook via unnamed tributary (0.55)	19-008 (Pond Brook)	04110002-050-040	EOLP	MWH, AWS, IWS, PCR
Bedford	Wood Creek (1.27)	19-043	04110002-050-050	EOLP	WWH, AWS, IWS, PCR
Bedford Heights	Hawthorne Creek via unnamed tributary (0.04)	19-064 (Hawthorne Creek)	04110002-050-050	EOLP	WWH, AWS, IWS, PCR
Portage County Streetsboro	Tinkers Creek (26.2)	19-007	04110002-050-030	EOLP	WWH, AWS, IWS, PCR
Solon	Beaver Meadow Run (1.1)	19-046	04110002-050-050	EOLP	WWH, AWS, IWS, PCR
Summit County Aurora Shores	Pond Brook (3.7)	19-008	04110002-050-040	EOLP	MWH, AWS, IWS, PCR
Twinsburg	Tinkers Creek (15.65)	19-007	04110002-050-050	EOLP	WWH, AWS, IWS, PCR

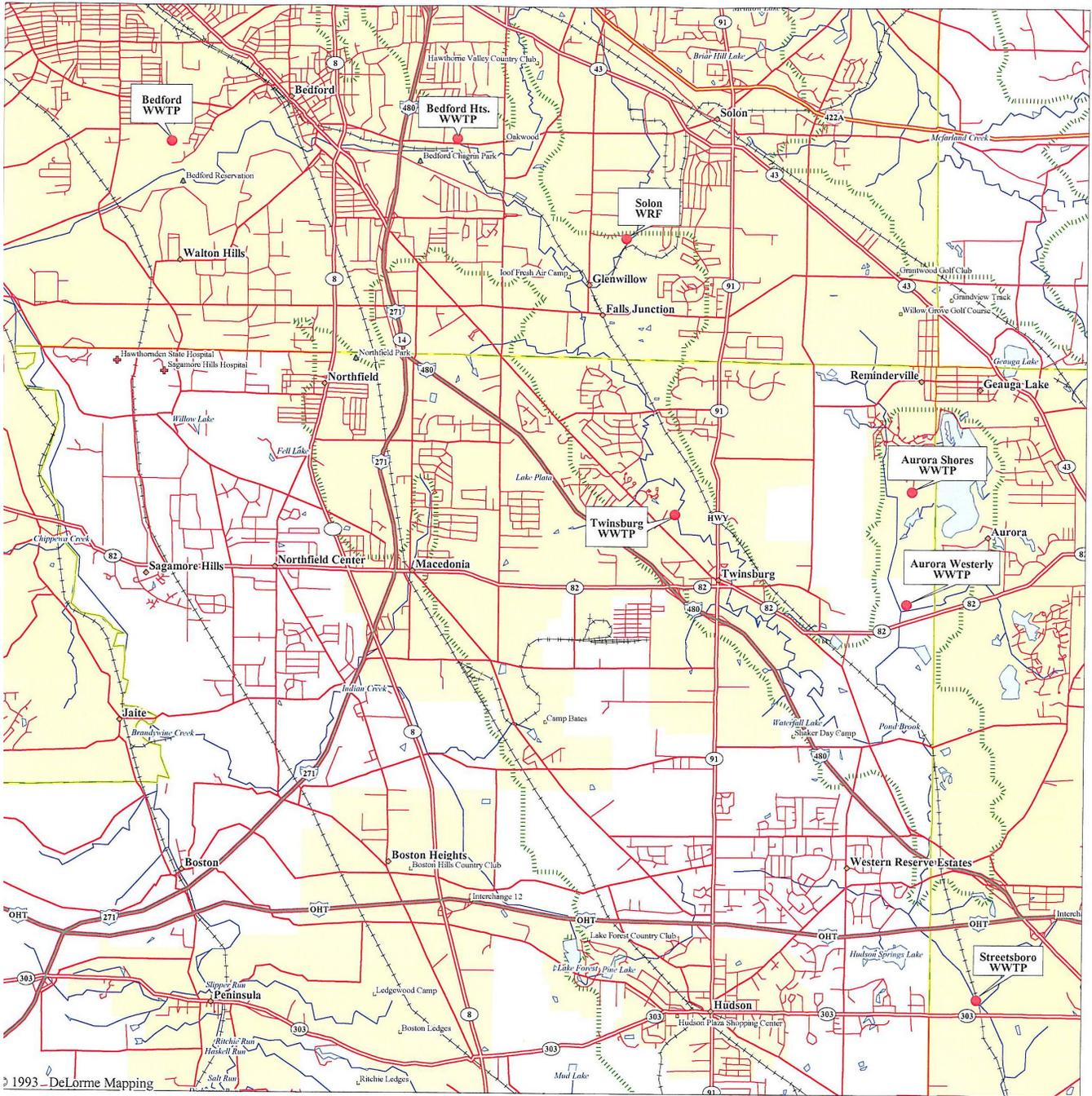


Figure 1- Tinkers Creek watershed discharger location map

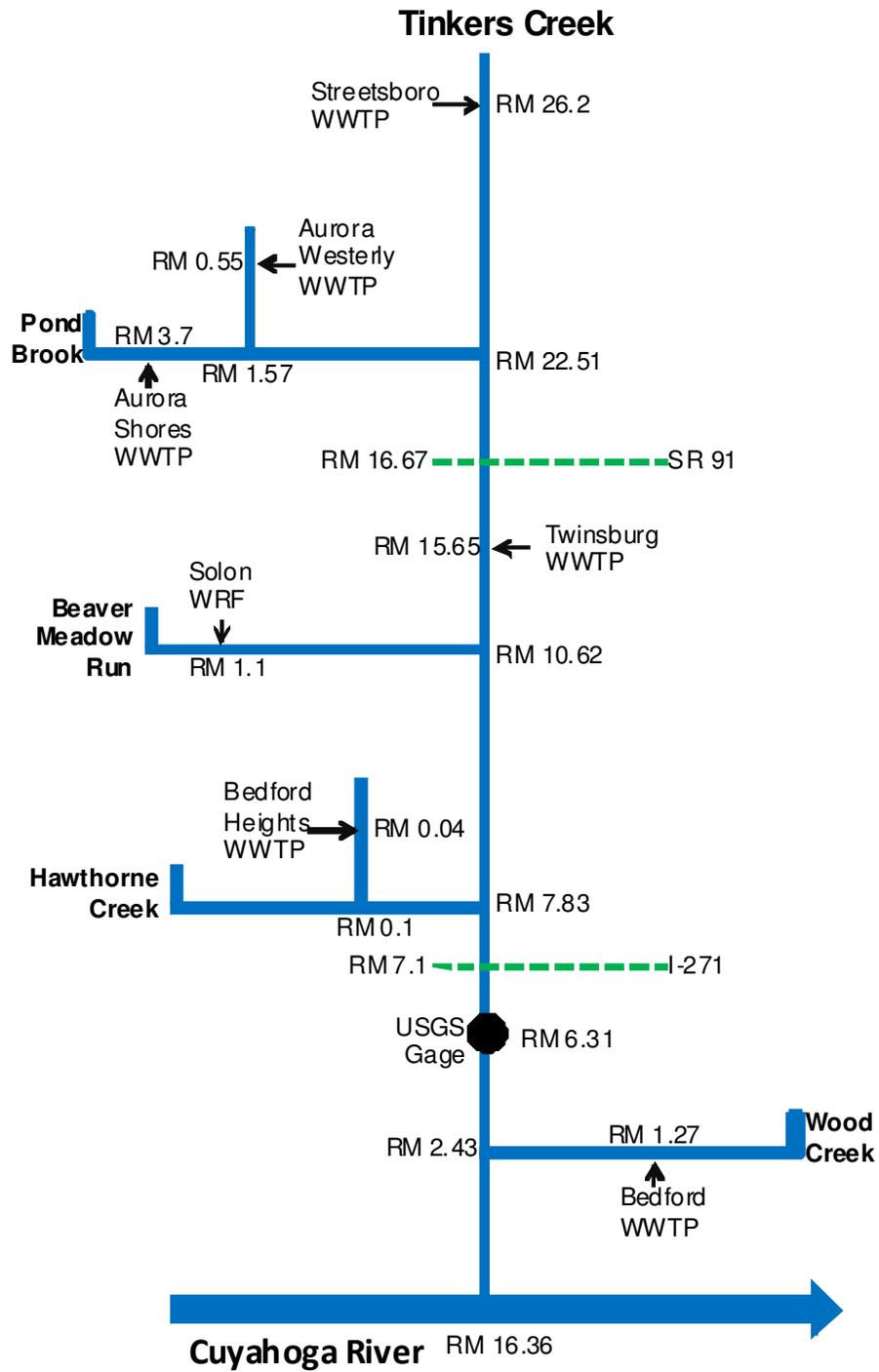


Figure 2 - Tinkers Creek watershed stream diagram

Facility Descriptions (from upstream to downstream)

The **Portage County Streetsboro-Hudson WWTP** (wastewater treatment plant) was originally constructed in 1985. The average daily design flow was upgraded from 2.5 MGD to 4.0 MGD (million gallons per day) in 2001 with a peak hydraulic capacity of 10.0 MGD. Wet stream processes include influent screening, comminution, grit removal, scum removal, contact stabilization, clarification, nitrification, sand filtration, and chlorination/dechlorination. Sludge is aerobically digested, dewatered using a belt filter press, and placed into drying beds. Sludge is ultimately disposed of by land application. The Streetsboro sewerage system is 100 percent separate. The County does not have an approved pretreatment program.

The plant does not have an approved pretreatment program. There are two Ohio EPA permitted industrial users tributary to the plant: Commercial Turf Products (OEPA#3DP00009) and Inland Paperboard and Packaging (OEPA #3DP00015).

The **City of Aurora Westerly WWTP** was replaced by a new plant in 1988-89 and the last major modification was in 1999. The facility has a design flow of 1.4 MGD. The current system includes bar screening, grit removal, oxidation ditch, final clarification, phosphorus reduction, rapid sand filtration, ultraviolet disinfection, and post aeration. Sludge handling facilities include aerobic sludge digestion, and sludge drying beds. The Aurora Westerly WWTP collection system is 100 percent separate sewers. To minimize inflow and infiltration annual sewer inspections are performed on the system. No significant industrial users of this WWTP have been identified; therefore no pretreatment program is required.

The **Summit County Aurora Shores WWTP** was originally constructed in 1985. The average daily design flow was upgraded from 0.25 MGD to 0.5 MGD in a 1996 PTI. Wet stream processes include influent screening, comminution, extended aeration, secondary clarification, tertiary sand filtration, and ultraviolet disinfection. Sludge is aerobically digested and dewatered using a belt filter press. Sludge is ultimately disposed of by land application. The Aurora Shores sewerage system is 100 percent separate.

The **City of Twinsburg WWTP** is an advanced treatment facility. The plant is designed to treat an average daily hydraulic flow of 4.95 MGD, with a peak hydraulic capacity of 10.2 MGD. Current wet stream processes at the facility include aerated flow equalization, aeration, screening and grit removal, primary settling, phosphorus removal, activated sludge aeration, secondary clarification, tertiary treatment using micro-strainers, disinfection by chlorination, and dechlorination by sodium bisulfite. Solid stream processes are sludge stabilization using anaerobic digestion, dewatering using a filter press, sludge storage, and sludge disposal in accordance with an approved sludge management plan. The City has an approved pretreatment program, with four categorical industrial users and five noncategorical industrial users discharging to the WWTP. The Twinsburg WWTP collection system is 100 percent separate.

The **City of Solon Water Reclamation Facility** was built in 1962 with a major modification occurring in 1997. The wet stream processes include an equalization basin, bar screens, grit removal, primary settling, oxidation towers, aeration, secondary settling, rapid sand filters and ultraviolet disinfection. Solid stream processes are gravity thickeners, anaerobic sludge digestion, belt filter press and lime stabilization. The plant design capacity is 5.8 MGD with a hydraulic capacity of 9.6 MGD. The Solon sewer system is 100 percent separate.

The city implements an approved industrial pretreatment program. Eight categorical industrial users and fifteen non-categorical significant industrial users discharge to the Solon WWTP. Among these are food processors, hair care product manufacturers, commercial laundries, bakeries, and metal plating facilities.

The **City of Bedford Heights WWTP** was built in 1958 and it treats both domestic and industrial wastewater using tertiary treatment technology. The average design flow for this facility is 7.5 MGD while the peak hydraulic capacity is 15 MGD. The last major modification to the Bedford Heights WWTP was in 1984. The wet stream processes include the preliminary treatment of the influent through the use of bar screens, grit removal and preaeration. This is followed by primary settling, aeration, final settling, rapid sand filtration, and chlorination/dechlorination. Primary and secondary sludge is combined and treated through the use of the Zimpro process and is dewatered by a belt press. Bedford Heights has a Sludge Management Plan that was approved for Exceptional Quality Sludge (EQS) on November 13, 1997. The Bedford Heights collection system is 100 percent separate.

Bedford Heights' industrial pretreatment program was approved by the Ohio EPA on August 21, 1984. Three categorical industrial users discharge to the treatment plant. These include two iron and steel manufacturers and one metal molding manufacturer.

The **City of Bedford WWTP** was originally constructed in 1937, and its last major modification was in 2007. The average daily design flow is 3.2 MGD. Wet stream processes include influent screening, comminution, grit removal, flow equalization, primary clarification, trickling filters, rapid sand filtration, and chlorination/dechlorination. Sludge is aerobically digested and dewatered using a belt filter press. Class B sludge is ultimately disposed of at the PPG Lime Lakes Reclamation site. The Bedford sewerage system is 100 percent separate.

The City does not have an approved pretreatment program. There is one Ohio EPA permitted industrial users tributary to the plant: Ben Venue Labs (OEPA #3DP00003).

Description of Existing Discharge

Appendix A (a-g) presents monthly and maximum projected effluent quality values (PEQ_{avg} and PEQ_{max}) for the Tinkers Creek Watershed wastewater treatment plants.

Receiving Water Quality/Environmental Hazard Assessment

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical (water column, effluents, sediment, flows), biological (fish and macroinvertebrate assemblages), and habitat data which have been collected by Ohio EPA. 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 and effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

Ohio EPA relies on a tiered approach in attempting to link administrative activity indicators (*i.e.*, permitting, grants, enforcement) with true environmental indicators (*i.e.*, stressor, exposure, and response indicators). Stressor indicators generally include activities which have the potential to degrade the aquatic environment such as pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Exposure indicators include whole effluent toxicity tests, tissue residues, and biomarkers, each of which provides evidence of biological exposure to stressor or bioaccumulative agents. Response indicators include the more direct measures of community and population response and are represented here by the biological indices which comprise Ohio EPA's biological criteria. The key is in using the different types of indicators within the roles which are the most appropriate for each. Describing the causes and sources associated with observed impairments relies on an interpretation of multiple lines of evidence including the water chemistry data, sediment data, habitat data, effluent data, biomonitoring

results, land use data, and biological response signatures within the biological data itself. Thus the assignment of principal causes and sources of impairment represents the association of impairments (defined by response indicators) with stressor and exposure indicators.

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 Chapter 3745-1), applicable Water Quality Criteria are presented in Appendix B (a-g). Assessing use attainment status for aquatic life uses involves a primary reliance on the Ohio EPA biological criteria (OAC Rule 3745-1-07; Table 7-14). These are confined to ambient assessments and apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on multimetric biological indices which include 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 (IC), which indicates the response of the macroinvertebrate community. Numerical endpoints are stratified by ecoregion, use designation, and stream or river size. 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 at least one organism group does not meet the biocriteria, and is not below a narrative rating of "fair" and the other group meets the biocriteria. Non attainment is determined when neither organism group meets the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table (Table 2) 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.

Wood Creek was determined to be in attainment of its aquatic life use in 2000 and in non attainment in the 2006-2007 survey. The aquatic life use designation of the stream in place for the 2000 survey, Limited Resource Water, was changed to Warm Water Habitat in 2007. Our current evaluation indicates non attainment, although the biological communities remain relatively unchanged between sampling events.

Table 2 - Aquatic life use attainment status for the Tinkers Creek watershed based on data collected in 2000 and 2006-2007. Attainment status is based on the biocriteria for the Erie/Ontario Lake Plain ecoregion of Ohio (OAC 3745-1-07, Table 7-17).

2000						
Tinkers Creek (19-007) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status	Comment
29.1 ^w /28.3	32*	--	48	52.5	PARTIAL	Seasons Road
25.0 ^w /25.2	<u>24*</u>	--	46	34.5	NON	Hudson-Aurora Road
17.5 ^w /18.0	<u>25*</u>	<u>5.3*</u>	40	50.0	NON	At Whitlach Development
14.3 ^w /14.3	28*	6.4*	40	56.0	PARTIAL	Adj. East Idlewood
8.5 ^w /8.5	<u>21*</u>	<u>5.5*</u>	44	76.5	NON	Dst. Inland Reclamation
6.9 ^w /7.2	28*	7.5 ^{ns}	G	71.0	PARTIAL	Dst. Hawthorn Creek
0.1 ^w /0.1	32*	6.1*	36	78.0	PARTIAL	At mouth
Pond Brook (19-008) - MWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
3.8 ^H /3.8	36	--	F	44.0	FULL	Ust. Aurora Shores WWTP
-1.4	--	--	28	--	(FULL)	SR 82 (wetland area)
Beaver Meadow Run (19-046) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status	Comment
1.2 ^H /1.2	34*	--	F*	57.0	NON	Ust. Solon WWTP
0.2 ^H /0.2	38 ^{ns}	--	F*	70.5	PARTIAL	Old Cochran Road
Hawthorne Creek (19-064) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status	Comment
0.7 ^H /0.7	32*	--	MG	60.0	PARTIAL	Richmond Road
Wood Creek (19-043) - LRW Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status	Comment
0.2 ^H /0.1	<u>20*</u>	--	F	62.5	FULL	At mouth

Table 2. (Continued)

2006-2007						
Tinkers Creek (19-007) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
28.8 ^H /-	34 ^{ns}			53.0	(FULL)	Seasons Road
24.4 ^H /-	26*			63.0	(NON)	Ust. Ravenna Road
16.7 ^W /-	30*	6.6*		55.0	(NON)	Ust. SR 91
14.3 ^W /-	29*	6.8*		70.5	(NON)	Adj. East Idlewood
11.0 ^W /-	<u>26*</u>	<u>5.3*</u>		73.5	(NON)	Pettibone Road
10.1 ^W /-	28*	6.6*			(NON)	In Glenwood at power line crossing
6.4 ^W /-	<u>20*</u>	6.3*		88.5	(NON)	Ust. SR 8
2.2 ^W /-	38	7.6		76.0	(FULL)	Ust. Dunham Road and Wood Creek confluence
0.1 ^W /-	40	8.3		78.0	(FULL)	At mouth
Pond Brook (19-008) - MWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
4.3 ^H /-	38			44.5	(FULL)	Ust. Glenwood Blvd.
0.9 ^H /-	30			28.0	(FULL)	Dst. SR 82
Beaver Meadow Run (19-046) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
1.2 ^H /-	28*			77.0	(NON)	Ust. WWTP discharge
0.1 ^H /-	<u>24*</u>			77.0	(NON)	At mouth
Hawthorne Creek (19-064) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
0.8 ^H /-	30*			70.5	(NON)	Richmond Road
0.1 ^H /-	<u>24*</u>			67.0	(NON)	At mouth
Wood Creek (19-043) - WWH Use Designation						
Fish/Invert.	IBI	MIwb	ICI	QHEI	Status^b	Comment
1.3 ^H /-	<u>20*</u>			62.0	(NON)	Ust. WWTP discharge
0.1 ^H /-	<u>12*</u>				(NON)	At mouth above waterfall

Ecoregion Biocriteria: Erie/Ontario Lake Plain (EOLP)

INDEX - Site Type	WWH	MWH
IBI - Headwaters	40	24.0
IBI - Wading	38	24.0
IBI - Boat	40	24.0
Mod. Iwb - Wading	7.9	6.2
Mod. Iwb - Boat	8.7	5.8
ICI	34	22.0

* = Indicates significant departure from applicable biocriteria (>4 IBI or ICI units, or >0.5 MIwb units).

Underlined scores are in the Poor or Very Poor range.

ns = Nonsignificant departure from biocriteria (<4 IBI or ICI units, or <0.5 MIwb units).

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

H = Headwater site type

W = Wading method

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. In addition, antidegradation and whole effluent toxicity issues must be addressed.

Effluent data for the seven treatment facilities was used to determine what parameters should undergo a wasteload allocation. The major source of effluent data was the self-monitoring data reported by the facilities from January 2003 through December 2007. Additional samples collected by Ohio EPA and from pretreatment program reporting were also used. The effluent data was screened for outliers.

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

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_{avg} or PEQ_{max} 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 Appendix E (a-g) for a summary of the screening results for each facility.

For those parameters that required a wasteload allocation (WLA), the results were based on the applicable Outside Mixing Zone criteria for Warmwater Habitat, Human Health (nondrinking), Agricultural Water Supply, and the Inside Mixing Zone Maximum Criteria. The data used in the WLAs are listed in Appendices B and C. The WLA results to maintain all the applicable criteria are presented in Appendix D .

Lower Cuyahoga River TMDL

The Total Maximum Daily Load (TMDL) process, as established by the Clean Water Act (CWA), is a method for identifying and restoring impaired waterbodies. The CWA Section 303(d) and Chapter 40 of the Code of Federal Regulations Section 130.7 direct each State to identify and prioritize water quality limited segments for which pollution controls required by local, State or Federal authority are not stringent enough to achieve applicable water quality standards (WQS). Further, TMDLs for pollutants that prevent the identified segments from attaining WQS must be established. TMDLs are quantitative assessments of water quality problems contributing to the impairment of these segments.

The lower Cuyahoga River watershed has been identified as a priority impaired water on Ohio's 303(d) list. Biological and chemical stream surveys indicate that organic enrichment, low dissolved oxygen, nutrients, and flow alteration are the primary causes of impairment in the watershed. The *Total Maximum Daily Loads for the Lower Cuyahoga River* was approved by U.S. EPA on September 26, 2003. It includes Tinkers Creek. The goal of the TMDL is full attainment of Ohio's WQS. The complete report is available at this Ohio EPA Web page: http://www.epa.state.oh.us/dsw/tmdl/Cuyahoga_lower_final_report.pdf .

As part of the TMDL, a stressor identification study was recommended for the Tinkers Creek watershed. The reasons for this recommendation are to identify current unknown sources of impairment and to present a methodology for addressing them. The study is ongoing with an anticipated completion in 2009. To date, a number of sources and causes have been explored including: elevated nutrients, elevated water column turbidity, and PPCPs (pharmaceuticals and personal care products).

The approved TMDL assigned a phosphorus load to the major dischargers in Tinkers Creek of 59 lbs/day (26.76 kg/day) to meet the Lower Cuyahoga River nutrient target. The major dischargers in Tinkers Creek (Aurora Shores is excluded), have a combined permitted discharge volume of 26.85 MGD and a current weekly maximum permitted phosphorus load of 336.5 lbs/day (152.64 kg/day). Based on the TMDL assigned load, a weekly maximum permit limit of 0.26 mg/l would need to be assigned to the dischargers. A corresponding monthly permit average of 0.17 mg/l would also need to be assigned. The stressor study has indicated that nutrient elimination alone will not be adequate to address impairments in Tinkers Creek.

This fact sheet recommends a staged approach to addressing the phosphorus target set in the TMDL. First, it recommends that permit renewals include a maximum weekly effluent limit of 0.7 mg/l. This limit represents a permitted load reduction of 53.3 percent to 157.04 lbs/day (71.23 kg/day).

Second, it recommends that the permits also include language requiring the establishment of a nutrient trading program pursuant to Ohio's Water Quality Trading rules, OAC 3745-5. The intent of the trading program will be to further reduce phosphorus loading from non-point sources to the watershed, with the goal of providing an additional load reduction of 98.04 lbs/day (44.48 kg/day) to meet the phosphorus target of 59 lbs/day (26.76 kg/day) established in the TMDL. Implementation actions such as riparian restoration/protection and wetland restoration/protection as well as improved storm water management will also reduce water column turbidity in addition to nutrient reduction.

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 Appendix D. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Appendix A, 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 Appendix E.

Final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations, the TMDL and existing permit limits. Table 8 (a – g) presents the final effluent limits and monitoring requirements proposed for each of the seven wastewater plants included in this combined fact sheet and the basis for their recommendation.

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

Proposed limits for total suspended solids (TSS), ammonia-nitrogen (NH_3-N), 5-day carbonaceous biochemical oxygen demand ($CBOD_5$), phosphorus, and dissolved oxygen (D.O.)

are all based on plant design, the lower Cuyahoga River TMDL and the wasteload allocations (Appendix D).

The proposed limits for total residual chlorine is based on wasteload allocation to meet in-stream water quality standards as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. The effluent limits for chlorine are less than the quantification level of 0.050 mg/l. However, pollutant minimization programs are not required because the dosing rate of dechlorination chemicals ensures that the water quality based effluent limits are being met.

The Ohio EPA risk assessment Appendix E places the parameters listed in Table 4 in Group 5. This placement indicates that an environmental hazard exists and limits are necessary to protect water quality. Limits proposed for these parameters are based on wasteload allocation (Appendix D). When existing permit limits are lower than the wasteload allocation, the existing limits are retained.

Parameter (concentration)	Streetsboro-Hudson WWTP	Aurora Shores WWTP	Aurora Westerly WWTP	Twinsburg WWTP	Solon WWTP	Bedford Heights WWTP	Bedford WWTP
1,2- Dichloro-benzene (µg/l)				26 / 137			
Ammonia, summer (mg/l)					1.2 / -	1.8 / -	1.3 / -
Ammonia, winter (mg/l)					4.1 / -	7.8 / -	4.0 / -
Antimony (ug/l)					197 / 925		
Bis(2-ethylhexyl) phthalate (ug/l)				9.6 / 1572			
Chlorine (ug/l)	11 / 19						
Copper (ug/l)	25 / 41		20 / 33		20 / 31	22 / 35	16 / 25
Cyanide,free (ug/l)			5.2/22	5.9 / 31	5.4 / 23	5.2 / 22	
Mercury, after 11/15/2010 (ug/l)	0.0013 / 1.7		0.0013 / 1.7	0.0013 / 1.7	0.0013 / 1.7	0.0013 / 1.7	0.0013 / 1.7
Mercury, before 11/15/2010 (ug/l)	0.0014 / 1.7		0.0014 / 1.7	0.002 / 2.4	0.0015 / 1.7	0.0013 / 1.7	0.0014 / 1.7
Methyl Bromide (ug/l)					17 / 39		
Pentachlorophenol (ug/l)				3.1 / 27			
Pyrene (ug/l)					4.8 / 43		
Selenium (ug/l)					5.2 / -		
Silver (ug/l)						1.3/7.8	
TDS (mg/l)					1509 / -	1500 / -	
Thallium (ug/l)					4.6 / 81		
Zinc (ug/l)						260 / 260	

The Ohio EPA risk assessment Appendix E places the parameters listed in Table 5 in Group 4. This placement indicates 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 is required by OAC Rule 3745-33-07(A)(2).

Parameter	Streetsboro-Hudson WWTP	Aurora Shores WWTP	Aurora Westerly WWTP	Twinsburg WWTP	Solon WWTP	Bedford Heights WWTP	Bedford WWTP
Nickel	Monitor						
TDS				Monitor			
Zinc					Monitor		
Chlorine						Monitor	

Ohio EPA risk assessment Appendix E places the parameters listed in Tables 6 and 7 in Groups 2 and 3. This placement supports that these parameters should not pose an environmental hazard and limits are not necessary to protect water quality. Monitoring at a reduced frequency may be proposed to document that these pollutants continue to remain at low levels.

Parameter	Streetsboro-Hudson WWTP	Aurora Shores WWTP	Aurora Westerly WWTP	Twinsburg WWTP	Solon WWTP	Bedford Heights WWTP	Bedford WWTP
NO3+NO2	Monitor	Monitor		Monitor		Monitor	
Zinc	Monitor		Monitor	Monitor			Monitor
Lead			Monitor				
Aluminum				Monitor			
Strontium				Monitor			Monitor
Copper				Monitor			
Bis (2-ethylhexyl) phthalate					Monitor		
Iron					Monitor		

Additional monitoring requirements proposed at the final effluent, influent, upstream/downstream and sludge stations are included for all facilities in Ohio and vary according to the type and size of the discharge. 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.

Parameter	Streetsboro-Hudson WWTP	Aurora Shores WWTP	Aurora Westerly WWTP	Twinsburg WWTP	Solon WWTP	Bedford Heights WWTP	Bedford WWTP
1,3-Dichloro-benzene					Monitor		
1,4-Dichloro-benzene						Monitor	
Antimony				Monitor			
Arsenic				Monitor	Monitor	Monitor	
Barium						Monitor	
Beryllium						Monitor	
Bis(2-ethylhexyl) phthalate						Monitor	
Bromodichloro-methane				Monitor			
Cadmium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbon Tetrachloride						Monitor	
Chlorine				Monitor			Monitor
Chloroform				Monitor	Monitor		Monitor
Chromium	Monitor	Monitor	Monitor		Monitor	Monitor	
Copper		Monitor					
Cyanide, free	Monitor						Monitor
Dichlorobromo-methane						Monitor	
Ethylbenzene					Monitor		
Hexavalent Chromium	Monitor	Monitor	Monitor		Monitor	Monitor	
Lead	Monitor	Monitor		Monitor	Monitor	Monitor	Monitor
Manganese				Monitor	Monitor	Monitor	
Mercury		Monitor					
Methyl Bromide					Monitor		
Molybdenum				Monitor		Monitor	
Nickel		Monitor	Monitor		Monitor	Monitor	Monitor
NO3+NO2			Monitor		Monitor		Monitor
Selenium						Monitor	
Silver					Monitor		
Strontium			Monitor		Monitor	Monitor	
Zinc		Monitor					

Whole Effluent Toxicity

Aurora Westerly, Bedford Heights, Solon, Streetsboro-Hudson

Based on best engineering judgment and the provisions of 40 CFR Part 132, Appendix F, Procedure 6, annual chronic toxicity testing with the determination of acute endpoints is proposed for the life of these permits. While the available toxicity tests for these facilities do not show evidence of toxicity, the limited data do not adequately characterize the discharges with respect to toxicity. The proposed monitoring will provide four tests conducted over the term of the permit and will provide data that is consistent with the NPDES application requirements at 40 CFR 122.21.

Bedford

Evaluating the acute and chronic toxicity results in the following tables under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, gives an acute PEQ value of 1.26 TU_a and a chronic PEQ of 9.9 TU_c. Reasonable potential for toxicity is demonstrated since these values exceed the wasteload allocation values of 0.3 TU_a and 1.0 TU_c. However, U.S. EPA guidance recommends at least 10 tests conducted over several years to determine if limits and other provisions are needed to address toxicity.

Quarterly monitoring of chronic toxicity with the determination of acute endpoints is proposed for 30 months (10 tests). Consistent with Procedure 6 and OAC 3745-33-07(B)(10), trigger language is proposed that imposes final effluent limits of 1.0 TU_c (monthly average) and 1.0 TU_a (daily maximum) if an evaluation of the monitoring data shows reasonable potential for toxicity. The final effluent limits would become effective 51 months after the effective date of the permit. If final effluent limits are triggered, it is proposed that the City conduct a toxicity reduction evaluation (TRE).

Summary of Chronic Toxicity Test Results on Bedford Wastewater Treatment Plant Effluent.

Summary of Acute Toxicity Test Results on Bedford Wastewater Treatment Plant

Test Date (a)	<i>Ceriodaphnia dubia</i> 7-Day		<i>Fathead Minnows</i> 7-Day	
	UP ^b	TU _c ^c	UP ^b	TU _c ^c
	09/17/08(E)	0	BD	5
09/23/07(E)	0	4.3	8	BD
09/12/06(E)	0	BD	2	BD
09/13/05(E)	0	1.1	5	BD
09/27/04(E)	0	2.6	2	2.2

Test Date(a)	<i>Ceriodaphnia dubia</i> 48 hours		<i>Fathead Minnows</i> 96 hours	
	UP ^b	TU _a ^d	UP ^b	TU _a ^d
09/17/08(E)	BD	BD	5	BD
09/23/07(E)	BD	BD	5	BD
09/12/06(E)	BD	BD	2	BD
09/13/05(E)	BD	0.6	2	BD
09/27/04(E)	BD	BD	2	0.3
12/12/06(O)*	60	BD	0	BD

^a O = EPA test; E = entity test ^d TU_a = acute toxicity units
^b UP = upstream control water BD = below detection
^c TU_c = chronic toxicity units * = 48 hour screening test

Twinsburg

Based best engineering judgment, quarterly monitoring for chronic toxicity with the determination of acute endpoints is proposed for the life of the permit. The available acute and chronic toxicity data for this facility (Appendix F) show that interpreting the results is confounded

by pathogenic interference in the fathead minnow tests. Considering the fathead minnow results in the UV-disinfected effluent, toxicity to either test species is rarely detected, and when it is, it's at low levels.

A special condition is proposed requiring the City to conduct a study to identify the cause of the pathogenic interference and to take steps to reduce or eliminate it. This study must be completed in 36 months.

Mercury

Based on reasonable potential for requiring final effluent limits in NPDES permits [OAC 3745-33-07(A)], water quality based effluent limits are proposed for mercury for all of the Tinkers Creek wastewater plants except Aurora Shores. This pollutant is included in Group 5 under the risk assessment procedures (Appendix E).

Ohio's water quality 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, 1.3 ng/l (monthly average) in the Lake Erie basin, at the end-of-pipe.

Aurora Westerly, Bedford Heights, Streetsboro-Hudson

The proposed monthly average limits are based on wasteload allocation (Appendix D). The proposed daily maximum limits are a continuation of existing permit limits.

Bedford

Bedford currently has coverage under Ohio's mercury variance rule. The variance-based monthly average limit in the City's existing permit is 11 ng/l.

At this time, Bedford has not submitted the information necessary to renew its mercury variance coverage. Therefore, monthly average quality based effluent limits are proposed. The interim limit applies until November 2010. Beginning on November 1, 2010, the final monthly average water quality based effluent limit becomes effective. It is proposed that the daily maximum limit in the existing permit be continued.

If the City submits the information necessary to renew its mercury variance coverage during the public comment period, and if the information is reviewed and is acceptable to Ohio EPA, the Agency proposes to issue the final permit granting Bedford continued mercury variance coverage. The monthly average variance-based limit would be the same as in the current permit, 11 ng/l. Special conditions for implementing the variance would be included in Part 2 of the final permit. They would be substantially the same as those in the City's current NPDES permit.

Twinsburg

Interim and final water quality based effluent limits are proposed for mercury. The interim limits apply until October 31, 2010. Beginning in November 2010, when the mixing zone phase out goes into affect, the final monthly average water quality based effluent limits become effective.

The City has indicated that it will be submitting an application for coverage under Ohio's mercury variance rule. If the City submits an acceptable mercury variance application that can be reviewed prior to issuance of the final permit, the Agency would issue the variance as a special condition in Part II of the final NPDES permit. The following variance-related requirements would be included in the final permit:

- A variance-based monthly average effluent limit of 1.8 ng/l, which was developed from sampling data submitted by the permittee;
- A requirement that the permittee make reasonable progress to meet the water-quality-based effluent limit for mercury by implementing the plan of study, which has been developed as part of the Pollutant Minimization Program (PMP);
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration is less than or equal to 12 ng/l as specified in the plan of study;
- A summary of the elements of the plan of study;
- A requirement to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied and whether compliance with the monthly average water quality based effluent limit for mercury has been achieved.

Solon

Solon currently has coverage under Ohio's mercury variance rule, and this is not changing under the proposed permit modification.

Aurora Shores

Low level monitoring is proposed for this minor facility.

Other Requirements

Sanitary Sewer Overflow Reporting

Provisions for reporting sanitary sewer overflows (SSOs) are also proposed in these permits. 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 of these permits in accordance with rules adopted in December 2006. These rules require that the treatment works maintain their existing classification. The permittees may request a re-classification of their treatment works at any time by submitting a request for a permit modification.

These facilities are required to meet the minimum staffing requirements specified in OAC 3745-7-04(C)(1). The permittees may submit an operating plan for their facility as part of an application for a staffing reduction.

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 of these NPDES permits include language necessary to implement rule 3745-7-02 of the Ohio Administrative Code (OAC) and require the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

Storm Water Compliance

Aurora Westerly

The City submitted a No Exposure Certification on January 30, 2008 and is in compliance with the industrial storm water regulations.

Streetsboro-Hudson

The County submitted a No Exposure Certification on July 16, 2008 and is in compliance with the industrial storm water regulations.

Twinsburg

To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification" on October 31, 2003. Compliance with the industrial storm water regulations must be re-affirmed every five years. Prior to the end of the public comment period, the permittee must submit a new form for "No Exposure Certification", otherwise Parts IV, V and VI will be added to the final permit to ensure compliance with the industrial storm water regulations.

Bedford and Bedford Heights

Parts IV, V, and VI have been included in the draft permits to ensure that any storm water flows from the facility sites are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, the Cities may seek permit coverage under the general permit for industrial storm water (permit # OHR000004) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the permittee submits a Notice of Intent (NOI) for coverage under the general permit for industrial storm water 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.

Solon

The City submitted a No Exposure Certification on October 31, 2003. Compliance with the industrial storm water regulations must be re-affirmed every five years. The City should submit a new form for "No Exposure Certification" along with the application for its upcoming NPDES permit renewal if it wishes to continue using this option to comply with the industrial storm water regulations.

Outfall Signage

Part II of the permits includes a requirement to place signs at each outfall to the respective receiving waters that provide information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

Table 8a. Final effluent limits and monitoring requirements for the Aurora Westerly WWTP outfall 3PD00046001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Dissolved oxygen	mg/l		5.0 (minimum)			WQS
Total Suspended Solids	mg/l	12	18 ^d	63.6	98.4 ^d	PD
Oil and Grease	mg/l		10 ^d			WQS
Ammonia, Summer	mg/l	1.5	2.3 ^d	7.95	12.2 ^d	EP,WLA
Ammonia, Winter	mg/l	7.5	11.3 ^d	39.8	59.9 ^d	EP,WLA
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	3.71	3.71 ^d	TMDL
Cyanide, Free	mg/l	Monitor				RP
Nickel, TR	µg/l	Monitor				M
Zinc, TR	µg/l	Monitor				M
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	20	32	0.106	0.17	EP,WLA
Chromium, Hexavalent	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Flow Rate	MGD	Monitor				M
Mercury	ng/l	1.3	1200	0.000007	0.00636	EP,WLA
Acute Toxicity, <i>Ceriodaphnia</i>	TUa	Monitor				BEJ
Acute Toxicity, <i>Pimephales</i>	TUa	Monitor				BEJ
Chronic Toxicity, <i>Ceriodaphnia</i>	TUc	Monitor				BEJ
Chronic Toxicity, <i>Pimephales</i>	TUc	Monitor				BEJ
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	53	79.5 ^d	PD

a. Effluent loadings based on average design discharge flow of 1.4 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8b. Final effluent limits and monitoring requirements for the Bedford WWTP outfall 3PD00005001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Dissolved oxygen	mg/l		5.0 (minimum)			WQS
Total Suspended Solids	mg/l	12	18 ^d	145	218 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	1.2	1.8 ^d	14.5	21.8 ^d	EP,WLA
Ammonia, Winter	mg/l	4	15 ^d	48.4	182 ^d	EP,WLA
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	8.48	8.48 ^d	TMDL
Nickel, TR	µg/l	Monitor				M
Strontium, TR	µg/l	Monitor				M
Zinc, TR	µg/l	Monitor				M
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	16	25	0.194	0.303	WLA
Chromium, Hexavalent	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Flow	MGD	Monitor				M
Chlorine	mg/l		0.02			EP
Mercury	ng/l	1.3	1200	0.000016	0.015	WLA, EP
Acute Toxicity, <i>Ceriodaphnia</i>	TUa	Monitor with Trigger for TRE and 1.0 TUa Limit				WET
Acute Toxicity, <i>Pimephales</i>	TUa	Monitor with Trigger for TRE and 1.0 TUa Limit				WET
Chronic Toxicity, <i>Ceriodaphnia</i>	TUc	Monitor with Trigger for TRE and 1.0 TUc Limit				WET
Chronic Toxicity, <i>Pimephales</i>	TUc	Monitor with Trigger for TRE and 1.0 TUc Limit				WET
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	121	182 ^d	PD

a. Effluent loadings based on average design discharge flow of 3.2 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); 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); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8c. Final effluent limits and monitoring requirements for the Bedford Heights WWTP outfall 3PD00006001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Specific Conductance	Umho/cm	Monitor				M
Dissolved oxygen	mg/l		5.0 (minimum)			WQS
Total Suspended Solids	mg/l	12	18 ^d	341	511 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	1.8	2.9 ^d	51.1	82.4 ^d	EP,WLA
Ammonia, Winter	mg/l	4.9	7.35 ^d	139.1	208.6 ^d	EP,WLA
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	19.9	19.9 ^d	TMDL
Cyanide, Free	mg/l	Monitor				M
Nickel, TR	µg/l	Monitor				M
Zinc, TR	µg/l	204	222	5.79	6.31	EP
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	18	29	0.511	0.823	EP
Chromium, Hexavalent	µg/l	Monitor				M
Silver	µg/l	Monitor				M
Total Dissolved Solids	mg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Flow	MGD	Monitor				M
Chlorine	mg/l		0.019			EP
Mercury	ng/l	1.3	1200	0.000037	0.0034	EP,WLA
Acute Toxicity, <i>Ceriodaphnia</i>	TUa	Monitor				BEJ
Acute Toxicity, <i>Pimephales</i>	TUa	Monitor				BEJ
Chronic Toxicity, <i>Ceriodaphnia</i>	TUc	Monitor				BEJ
Chronic Toxicity, <i>Pimephales</i>	TUc	Monitor				BEJ
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	284	426 ^d	PD

a. Effluent loadings based on average design discharge flow of 7.5 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8d. Final effluent limits and monitoring requirements for the Portage County Streetsboro-Hudson WWTP outfall 3PK00014001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Dissolved oxygen	mg/l		6.0 (minimum)			EP
Total Suspended Solids	mg/l	12	18 ^d	182	273 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	1.48	2.22 ^d	22.5	33.7 ^d	EP
Ammonia, Winter	mg/l	2	3 ^d	30.3	45.5 ^d	EP
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	10.6	10.6 ^d	TMDL
Cyanide, Free	mg/l	Monitor				M
Nickel, TR	µg/l	Monitor				M
Zinc, TR	µg/l	Monitor				M
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	25	41	0.379	0.621	WLA
Chromium, Hexavalent	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Flow	MGD	Monitor				M
Chlorine	mg/l		0.010			EP
Mercury	ng/l	1.3	858	0.00002	0.013	EP
Acute Toxicity, <i>Ceriodaphnia</i>	TUa	Monitor				BEJ
Acute Toxicity, <i>Pimephales</i>	TUa	Monitor				BEJ
Chronic Toxicity, <i>Ceriodaphnia</i>	TUc	Monitor				BEJ
Chronic Toxicity, <i>Pimephales</i>	TUc	Monitor				BEJ
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	152	228 ^d	PD

a. Effluent loadings based on average design discharge flow of 4.0 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8e. Final effluent limits and monitoring requirements for the Solon WRF outfall 3PD00019001 and the basis for their recommendation. (Note: Only the entries in bold are changing as part of this permit modification)

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Specific Conductivity	Uhmo/cm	Monitor				M
Dissolved oxygen	mg/l		5.0 (minimum)			WQS
Total Suspended Solids	mg/l	12	18 ^d	263.5	395.2 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	1.2	2.3 ^d	26.3	50.5 ^d	EP, WLA
Ammonia, Winter	mg/l	4.1	8.7 ^d	90.01	191 ^d	EP, WLA
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7^d	15.4	15.4^d	TMDL
Cyanide, Free	mg/l	0.0054	0.023	0.119	0.505	WLA
Arsenic, TR	µg/l	Monitor				M
Selenium, TR	µg/l	Monitor				M
Nickel, TR	µg/l	Monitor				M
Silver, TR	µg/l	Monitor				M
Zinc, TR	µg/l		254		5.6	EP
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	20	31	0.44	0.681	WLA
Chromium, Hexavalent	µg/l	Monitor				M
Manganese, TR	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Chloroform	µg/l	Monitor				M
Methyl Bromide	µg/l	Delete				M
Bis(2-ethylhexyl) Phtalate	µg/l	Monitor				M
Flow	MGD	Monitor				M
Mercury	ng/l	16.1	1200	0.00035	0.026	EP, WLA
Acute Toxicity, Ceriodaphnia	TUa	Monitor				BEJ
Acute Toxicity, Pimephales	TUa	Monitor				BEJ
Chronic Toxicity, Ceriodaphnia	TUc	Monitor				BEJ
Chronic Toxicity, Pimephales	TUc	Monitor				BEJ
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	219.5	329.3 ^d	PD

a. Effluent loadings based on average design discharge flow of 5.8 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; 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); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8f. Final effluent limits and monitoring requirements for the Summit County Aurora Shores WWTP outfall 3PG00030001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Dissolved oxygen	mg/l		6.0 (minimum)			EP
Total Suspended Solids	mg/l	6	9 ^d	11	17 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	0.75	1.15 ^d	1.4	2.1 ^d	EP
Ammonia, Winter	mg/l	2	3 ^d	3.79	5.7 ^d	EP
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	1.32	1.32 ^d	TMDL
Nickel, TR	µg/l	Monitor				M
Zinc, TR	µg/l	Monitor				M
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	Monitor				M
Chromium, Hexavalent	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Flow	MGD	Monitor				M
Mercury	ng/l	Monitor				M
pH	S.U.	9.0 (max)	6.5(min)			WQS
CBOD 5 day	mg/l	5	7.5 ^d	10	14 ^d	PD

a. Effluent loadings based on average design discharge flow of 0.5 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit

Table 8g. Final effluent limits and monitoring requirements for the Twinsburg WWTP outfall 3PD00039001 and the basis for their recommendation.

Parameter	Units	Concentration		Loading (kg/d) ^a		Basis ^b
		30 Day Average	Daily Max	30 Day Average	Daily Max	
Temperature	°C	Monitor				M
Dissolved oxygen	mg/l		5.3 (minimum)			EP
Total Dissolved Solids	mg/l	Monitor				M
Total Suspended Solids	mg/l	12	18 ^d	225	337 ^d	PD
Oil and Grease	mg/l		10			WQS
Ammonia, Summer	mg/l	1.34	2.01 ^d	25	38 ^d	EP
Ammonia, Winter	mg/l	7.8	11.7 ^d	146	219 ^d	EI
Nitrite plus Nitrate	mg/l	Monitor				M
Phosphorus	mg/l	0.7	0.7 ^d	13	13 ^d	TMDL
Cyanide, Free	mg/l	0.0059	0.031	0.11	0.58	WLA
Nickel, TR	µg/l	Monitor				M
Strontium, TR	µg/l	Monitor				M
Zinc, TR	µg/l	Monitor				M
Aluminum, TR	µg/l	Monitor				M
Cadmium, TR	µg/l	Monitor				M
Lead, TR	µg/l	Monitor				M
Chromium, TR	µg/l	Monitor				M
Copper, TR	µg/l	Monitor				M
Chromium, Hexavalent	µg/l	Monitor				M
Fecal Coliform	#/100 ml	1000	2000 ^d			WQS
Pentachlorophenol	µg/l	Monitor				M
Bis(2-ethylhexyl) Phthalate	µg/l	Monitor				M
Flow	MGD	Monitor				M
Chlorine	mg/l		0.027			EP
Mercury	ng/l	1.3	1700	0.00002	0.032	EP, WLA
Acute Toxicity, <i>Ceriodaphnia</i>	TUa	Monitor				BEJ
Acute Toxicity, <i>Pimephales</i>	TUa	Monitor				BEJ
Chronic Toxicity, <i>Ceriodaphnia</i>	TUc	Monitor				BEJ
Chronic Toxicity, <i>Pimephales</i>	TUc	Monitor				BEJ
pH, Maximum	S.U.		9.0			WQS
pH, Minimum	S.U.		6.5			WQS
CBOD 5 day	mg/l	10	15 ^d	187	281 ^d	PD

a. Effluent loadings based on average design discharge flow of 4.95 MGD.

b. Definitions: BEJ = Best Engineering Judgment; EP = Existing Permit; M = BEJ of Permit Guidance 1: Monitoring Frequency Requirements for Sanitary Discharges; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); TMDL = *Total Maximum Daily Loads for the Lower Cuyahoga River, Final Report* (Approved by U.S. EPA September 26, 2003); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

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

d. 7 day average limit