National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T

Revised 6/18/14

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio for the Metropolitan Sewer District of Greater Cincinnati Combined Sewer Overflows

Public Notice No.: 14-02-039
Public Notice Date: February 25, 2014
Comment Period Ends: March 26, 2014

OEPA Permit No.: 1PX00022*CD
Application No.: OH0105457

Name and Address of Applicant:

Hamilton County Board of Commissioners
c/o Metropolitan Sewer District of Greater Cincinnati
1600 Gest Street
Cincinnati, Ohio 45204

Name and Address of Facility Where Discharge Occurs:

207 outfalls at various locations in the Little Miami, Mill Creek and Muddy Creek sewersheds (The locations are identified in Appendix A and in the draft permit.)

Receiving Waters: Bloody Run, Cilley Creek, Clough Creek, Clough Creek Tributary, Compton Creek, Duck Creek, Duck Creek Tributary, Kings Run, Little Duck Creek, Little Miami River, Ludlow Run, Mill Creek, Mill Creek Tributary, Muddy Creek, Ohio River, Rapid Run, South Branch Mill Creek, West Branch Mill Creek, West Fork, West Fork Tributary, Winton Lake Tributary

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).

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Procedures for Participation in the Formulation of Final Determinations

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

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

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

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

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

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

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

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

For additional information about this fact sheet or the draft permit, contact Joshua Jackson, (937) 285-6029, Joshua.Jackson@epa.ohio.gov (Southwest District Office) or Gary Stuhlfauth, (614) 644-2026, Gary.Stuhlfauth@epa.ohio.gov (Central Office).

Location of Discharge/Receiving Water Use Classification

The Metropolitan Sewer District of Greater Cincinnati's (MSD) combined sewer overflows (CSOs) discharge at various locations in the Mill Creek, Little Miami, and Muddy Creek sewersheds. Location information for each outfall is included in the NPDES permit. Figure 1 is a map showing the sewersheds, watersheds and combined sewer areas in the MSD service area. Appendix A is a current list of MSD CSO stations, location descriptions, latitudes and longitudes and receiving waters.

The receiving waters for the CSOs are designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-18, 30 and 32):

Bloody Run – MWH (Modified Warmwater Habitat, channel modification), AWS (Agricultural Water Supply), IWS (Industrial Water Supply), SCR (Secondary Contact Recreation)

Clough (Cluff Creek) – WWH (Warmwater Habitat), AWS, IWS, Class B PCR (Primary Contact Recreation)

Duck Creek - Downstream of Red Bank Road (RM 2.4) to mouth - WWH, AWS, IWS, Class B PCR
- Confluence of East and West Fork to RM 2.4 - LRW (Limited Resource Water, small drainageway maintenance), AWS, IWS, SCR

Little Miami River - Downstream of Beechmont Avenue (RM 3.0) to mouth - WWH, AWS, IWS, Class A PCR
- All other segments in MSD service area – EWH (Exceptional Warmwater Habitat), AWS, IWS, Class A PCR

Mill Creek - Headwaters to Center Hill Road (RM 7.9) - WWH, AWS, IWS, Class B PCR
- Downstream of RM 7.9 to mouth - MWH (channel modification), AWS, IWS, Class B PCR

Muddy Creek - WWH, AWS, IWS, Class B PCR

Ohio River - WWH, PWS (Public Water Supply), AWS, IWS, BW (Bathing Waters)

Rapid Run – LRW (irretrievable habitat modification), AWS, IWS, SCR

West Fork - WWH, AWS, IWS, Class B PCR

The following CSO receiving waters are not designated in Ohio's water quality standards: Cilley Creek, Clough Creek Tributary, Compton Creek, Duck Creek Tributary, Kings Run, Little Duck Creek, Ludlow Run, Mill Creek Tributary, South Branch Mill Creek, West Branch Mill Creek, West Fork Tributary and Winton Lake Tributary. Warmwater Habitat chemical specific criteria and Class B Primary Contact Recreation criteria apply to undesignated streams unless the stream meets the definition for Class C 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 cannot meet the Clean Water Act goals because of human-caused conditions that cannot be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. 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 Metropolitan Sewer District of Greater Cincinnati's collection system includes three sewersheds where there are CSOs (Figure 1). There are approximately 130 CSO outfalls in the Mill Creek sewershed. The regulating structures at these overflows include mechanical regulators, drop grates and diversion dams. The sewers in this area are tributary to the Mill Creek wastewater treatment plant, which is regulated under Ohio NPDES permit number 1PM00001.

Station 532 is the Daly Road high rate treatment facility. Treatment processes are coarse screening, grit removal, settling, vortex separation. Flows greater than 71 MGD overflow to the receiving water with no treatment. Smaller flows receive treatment and retention, and either overflow to the receiving water or are conveyed to the Mill Creek treatment plant.

There are approximately 50 CSO outfalls in the Little Miami sewershed. The regulating structures at these overflows include mechanical regulators, drop grates and diversion dams. The sewers in this area are tributary to the Little Miami wastewater treatment plant, which is regulated under Ohio NPDES permit number 1PL00000.

There are approximately 25 CSO outfalls in the Muddy Creek sewershed. The regulating structures at these overflows include drop grates and diversion dams. The sewers in this area are tributary to the Muddy Creek wastewater treatment plant, which is regulated under Ohio NPDES permit number 1PK00006.

Station 198 is the high rate treatment facility at Muddy Creek Road and Westbourne Drive. Treatment processes are coarse screening, fine screening, chlorination and dechlorination during recreation season for flows up to 51 MGD. Flows between 51 MGD and 135 MGD receive coarse and fine screening only. Flows greater than 135 MGD overflow to the receiving water with only coarse screening. Smaller flows receive treatment and retention, and either overflow to the receiving water or are conveyed to the Muddy Creek treatment plant.

Description of Existing Discharge

Appendix B includes total annual occurrences and total annual volumes for each of MSD's CSO outfalls. Data are reported for the period April 2009 through November 2013. The Sewer District has installed level sensors or other monitoring equipment at each of its CSOs and reports this data in its monthly discharge monitoring reports.

Appendix C presents a summary quality parameter data [$CBOD_5$ (5-day carbonaceous biochemical oxygen demand), total suspended solids and bacteria] for CSO outfall where this monitoring is required by the current permit. Data are reported for the period April 2009 through November 2013.

Receiving Water Quality/Environmental Hazard Assessment

The following links are to assessment unit summaries in the *Ohio 2012 Integrated Water Quality Monitoring and Assessment Report* (Ohio EPA; Final Report; March 20, 2012):

Mill Creek Basin - http://wwwapp.epa.ohio.gov/dsw/ir2012/subwatershed.php?id=0509020301

Little Miami River Basin - http://wwwapp.epa.ohio.gov/dsw/ir2012/lrau.php?id=050902029002

Muddy Creek Basin - http://wwwapp.epa.ohio.gov/dsw/ir2012/subwatershed.php?id=0509020302

For the Ohio River mainstem, the following link is to ORSANCO's 2012 *Biennial Assessment of Ohio River Water Quality Conditions, 2007 – 2011*(Ohio River Valley Water Sanitation Commission; 2012): http://www.orsanco.org/images/stories/files/publications/305b/docs/2012/2012ohioriver305breport.pdf

These documents include information on the attainment status of the aquatic life, recreational, public water supply and fish consumption uses as well as causes and sources of impairment.

In addition, MSD has conducted chemical and biological surveys of the three basins as a condition of its current NPDES permit. The most recent surveys have been for the Muddy Creek and Mill Creek basins (sampling during 2011) and the Little Miami River basin (sampling in 2012). Electronic copies of these reports are available on request.

Applicable Effluent Limitations

The "General Effluent Limitations" included in Part III.2 of the draft permit apply to the MSD combined sewer overflows that are regulated under this NPDES permit.

Consent Decree and Long-Term CSO Control Plan

The Metropolitan Sewer District of Greater Cincinnati is addressing the control of its combined sewer overflows to the extent necessary to meet the requirements of the Clean Water Act through development and implementation of a long-term CSO control plan. In addition, MSD implements the nine minimum control measures for combined sewer overflows, which is also is a requirement of the Clean Water Act. The 2004 consent decree (below) required MSD to take remedial measures in addressing several of the minimum controls.

The *Consent Decree on Combined Sewer Overflows, Wastewater Treatment Plants and Implementation of Capacity Assurance Program Plan for Sanitary Sewer Overflows* (Civil Action Number C-1-02-107; U.S. District Court for the Southern District of Ohio Western Division; June 9, 2004) is the legal document controlling CSO abatement in MSD's service areas. The complete decree and accompanying exhibits are available at the following Ohio EPA Web page: http://epa.ohio.gov/dsw/enforcement/enf.aspx [see link for "Federal and State Consent Agreements, Judicial Orders and Judgments, 2001 - 2013" and scroll down to "Board of County Commissioners of Hamilton County and City of Cincinnati (CSO)"].

In June 2006, MSD submitted a "Wet Weather Improvement Program" for CSOs and SSOs (sanitary sewer overflows). This submittal included the "Long Term Control Plan Update Report" required by the decree.

The update report included a schedule for the design, construction, implementation and utilization of the proposed remedial measures. Details on the submittal of the "Long Term Control Plan Update Report" may be found in "Exhibit 4" of the consent decree.

In September 2008, MSD submitted a detailed conceptual outline of a revised Program that reflected recent discussion between the parties. This document included: program performance goals; a prioritization and scheduling approach; updates to the Allowances programs; Green Infrastructure program; updates to the Sewer District's financial capability analysis; revised project list; and updated costing and project status data.

U.S. EPA, Ohio EPA and ORSANCO conditionally approved the "Final Wet Weather Improvement Program" on January 6, 2010. This document is available at the following MDS web site: http://www.msdgc.org/downloads/wetweather/bundles/Documents_For_All_Bundles/WWIP_Final/final_wwip.pdf .

Monitoring/ Effluent Limits/Hazard Management Decisions

As previously discussed, MSD is addressing the control of its combined sewer overflows to the extent necessary to meet the requirements of the Clean Water Act through development and implementation of a long-term CSO control plan and by implementing the nine minimum control measures for combined sewer overflows. The 2004 consent decree is the legal document controlling CSO abatement in MSD's service areas.

Ohio EPA is proposing to include the following conditions in the NPDES permit renewal for MSD's combined sewer overflows:

- On a monthly basis, MSD will monitor and report the overflow occurrences (total for month) and the overflow volume on each day that a discharge occurs for 193 individual CSO stations.

- For 12 CSO stations, MSD will monitor and report on a monthly basis overflow occurrences (total for month) and overflow volume on each day that a discharge occurs; and total suspended solids, nitrite+nitrate, total phosphorus, *Escherichia coli* and $CBOD_5$ twice per year. These 12 stations are: 012, 024, 125, 136, 182, 416, 419, 460, 472, 522, 523 and 549. Based on input from the Sewer District, this list of stations may be revised so that it is better aligned with current program goals and objectives.

- For CSO stations 198 (Muddy Creek basin) and 532 (Mill Creek basin), which discharge through end of pipe treatment facilities, MSD will monitor and report on a monthly basis overflow occurrences (total for month) and overflow volume on each day that a discharge occurs; and total suspended solids, nitrite+nitrate, total phosphorus, *Escherichia coli*, total residual chlorine (station 198) and $CBOD_5$ twice per year.

- The collection system is designated as a Class II sewerage system, and the treatment facilities at CSO stations 198 and 532 are designated as Class I treatment facilities under rule 3745-7-04 of the Ohio Administrative Code. The Sewer District must designate operators of record for the collection system and treatment works consistent with rule 3745-7-02 of the Ohio Administrative Code.

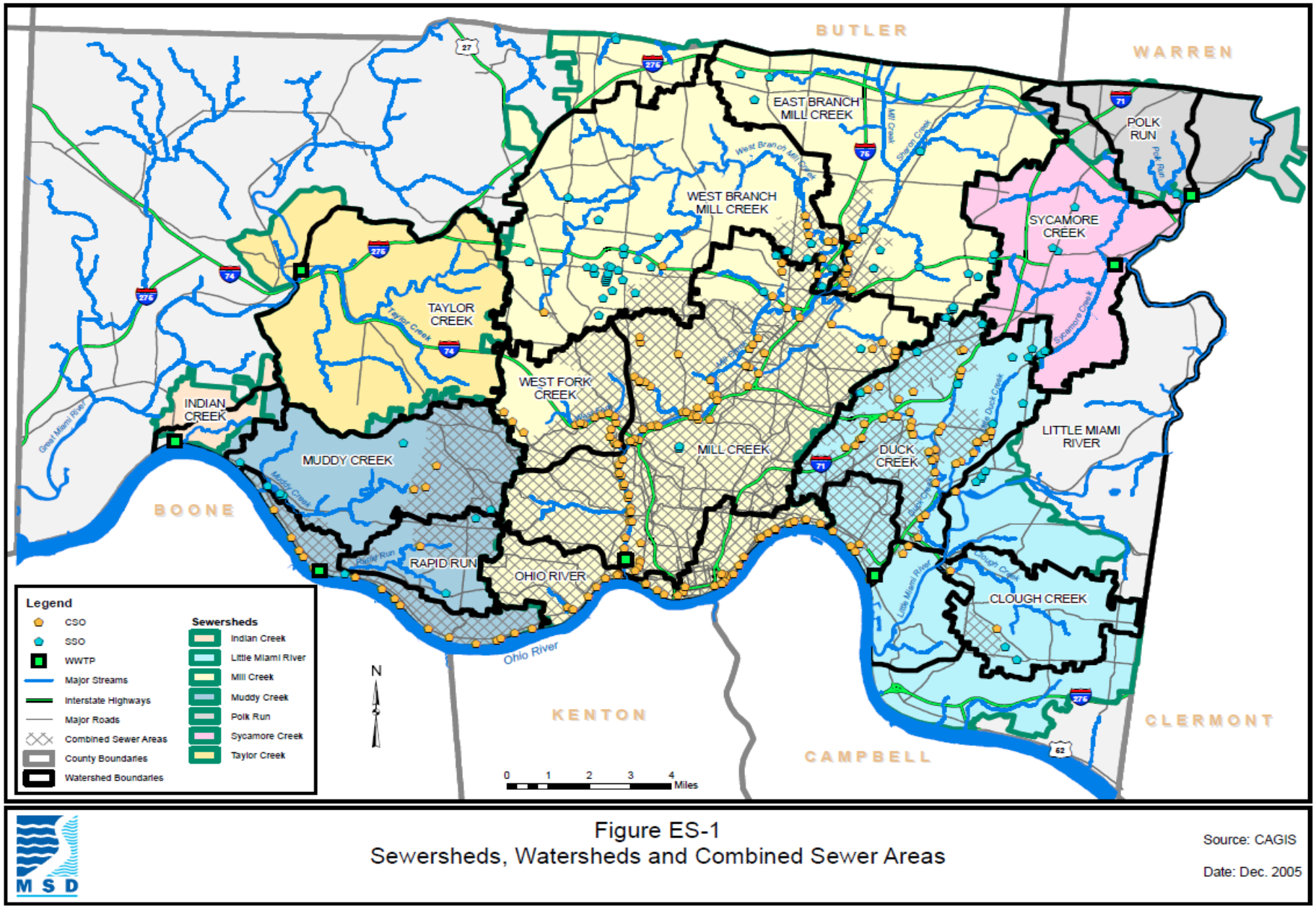
- The Sewer District must implement the nine minimum control measures for combined sewer overflows to minimize the total loading of pollutants discharged during wet weather.

- Part II of the permit includes a special condition for MSD to continue conducting instream chemical specific and biological water quality studies in four basins on a four-year rotating schedule. The Sewer District began conducting these surveys in 1994 with the Mill Creek basin, followed by the Little Miami and Muddy Creek service areas. The most recent survey, the Little Miami River and tributaries, was conducted in 2012. The Sewer District is adding the Great Miami River to the schedule during this permit cycle. The *Watershed Monitoring and Bioassessment Plan for the MSD Greater Cincinnati Service Area, Hamilton County, Ohio; Technical Report MBI/5-11-3* (2011, Midwest Biodiversity Institute) provides the overall framework for the instream monitoring conducted during the term of this NPDES permit.

- Part II of the permit includes a requirement for MSD to place a sign at each CSO outfall providing information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

- A reopener clause is included stating that the permit may be modified or revoked and reissued to include new or revised conditions developed to comply with any State or Federal law or regulation that addresses combined sewer overflows that is adopted or promulgated after the effective date of this permit; to include new or revised conditions if new information, not available at the time of permit issuance, indicates that CSO controls imposed under the permit have failed to ensure the attainment of State water quality standards; to include new or revised conditions based on new information generated from development and implementation of the permittee's long-term control plan; or for any reason specified in 40 CFR 122.62 and rule 3745-33-04 of the Ohio Administrative Code.

Figure 1. MSD of Greater Cincinnati – Sewersheds, Watersheds and Combined Sewer Areas



Appendix A. CSO Stations, Locations and Receiving Waters (2014)

Sampling Station	Description of Location	Receiving Water
1PX00022002.	Liberty Street Regulator 39N 07' 00" 84W 32' 47"	Mill Creek
1PX00022003.	Harrison & State West Regulator . 39N 07' 21" 84W 32' 35".	Mill Creek
1PX00022004.	Harrison & State East Regulator . 39N 07' 21". 84W 32' 32".	Mill Creek
1PX00022 005.	Lick Run Regulator . 39N 07' 33". 84W 32' 36".	Mill Creek
1PX00022006.	Queen City East Regulator . 39N 07' 34". 84W 32' 34".	Mill Creek
1PX00022007.	Draper Street Regulator . 39N 07' 40". 84W 32' 34".	Mill Creek
1PX00022008.	Vinton Street Regulator . 39N 07' 53". 84W 32' 40".	Mill Creek
1PX00022009.	Marshall Avenue Regulator . 39N 07' 57". 84W 32' 38".	Mill Creek
1PX00022010.	Denham Street Regulator . 39N 08' 09". 84W 32' 47".	Mill Creek
1PX00022011.	Hopple Street Regulator . 39N 08' 13". 84W 32' 46".	Mill Creek
1PX00022012.	Bates Run Regulator . 39N 08' 24". 84W 32' 51".	Mill Creek
1PX00022013.	Yonkers Street Regulator . 39N 08' 26". 84W 32' 55".	Mill Creek
1PX00022014.	Station 15 Regulator . 39N 08' 38". 84W 32' 55".	Mill Creek
1PX00022015.	Arlington Street Regulator . 39N 08' 45". 84W 32' 49".	Mill Creek
1PX00022017.	Dreman Avenue Diversion Dam . 39N 09' 11". 84W 32" 38".	Mill Creek
1PX00022018.	Colerain Avenue Diversion Dam . 39N 09' 14". 84W 32' 31".	Mill Creek
1PX00022019.	Geringer Street Grating . 39N 09' 10". 84W 32' 33".	Mill Creek
1PX00022021.	Streng Street Diversion Dam . 39N 09' 14". 84W 32' 24".	Mill Creek
1PX00022022.	Ludlow Avenue Diversion Dam . 39N 09' 27". 84W 32' 18".	Mill Creek
1PX00022023.	Alibone Street Regulator . 39N 09' 33". 84W 32' 05".	Mill Creek
1PX00022024.	Ludlow Run Regulator . 39N 09' 33". 84W 31" 14".	Mill Creek
1PX00022025.	Winton Road A Regulator . 39N 09' 53". 84W 31' 14".	Mill Creek
1PX00022026.	Station Avenue A Diversion Dam . 39N 09' 53". 84W 31' 08".	Mill Creek
1PX00022028.	Clifton Avenue East Grating . 39N 09' 47". 84W 30' 59".	Mill Creek

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022030.	Lafayette Circle Grating . 39N 09" 43". 84W 30' 48".	Mill Creek
1PX00022033.	Bank Avenue Regulator . 39N 10' 09". 84W 30' 18".	Mill Creek
1PX00022037.	Maple Street Diversion Dam . 39N 11' 21". 84W 29' 27".	Mill Creek
1PX00022039.	64th Street Diversion Dam . 39N 11' 26". 84W 29' 22".	Mill Creek
1PX00022043.	5249 Charloe Street Grating . 39N 09' 59". 84W 25' 04".	Duck Creek
1PX00022053.	Harvest & Kincaid Grating . 39N 11' 09". 84W 25' 30".	Mill Creek tributary
1PX00022054.	Lawndale Grating . 39N 10' 28". 84W 26' 13".	Duck Creek tributary
1PX00022061.	4730 Madison Avenue Grating . 39N 09' 45". 84W 25' 00".	Duck Creek
1PX00022064.	End of Harrow Street Diversion Dam . 39N 09' 30". 84W 24' 59".	Duck Creek
1PX00022066.	Madison & Red Bank Grating . 39N 09' 41". 84W 24' 11".	Duck Creek
1PX00022068.	Nu-Tone Parking Lot Grating . 39N 09' 34". 84W 24' 16".	Duck Creek
1PX00022069.	Camargo & East Fork Grating . 39N 09' 36". 84W 23' 05".	Little Duck Creek
1PX00022071.	Plainville & Indian Hill Grating . 39N 09' 28". 84W 22' 53".	Little Duck Creek
1PX00022072.	4800 Jameson Grating . 39N 09' 26". 84W 23' 01".	Little Duck Creek
1PX00022074.	6402 Roe Street Grating . 39N 09' 19". 84W 23' 11".	Little Duck Creek
1PX00022075.	6333 Roe Street Grating . 39N 09' 19". 84W 23' 13".	Little Duck Creek
1PX00022076.	Bramble & Homer Grating . 39N 09' 05". 84W 23' 18".	Little Duck Creek
1PX00022078.	3980 South Whetsel Grating . 39N 08' 52". 84W 23' 38".	Little Duck Creek
1PX00022079.	Southern Avenue Grating . 39N 08' 50". 84W 23' 47".	Little Duck Creek
1PX00022080.	Brotherton Road Grating . 39N 09' 08". 84W 24' 21".	Duck Creek
1PX00022083.	3675 Forest Hills Grating . 39N 08' 53". 84W 24' 26".	Duck Creek
1PX00022084.	"Old Red Bank Road" Grating . 39N 08' 37". 84W 24' 21".	Duck Creek
1PX00022085.	5211 Wooster Pike Diversion Dam . 39N 07' 41". 84W 24' 28".	Duck Creek

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022086.	Archer Street Diversion Dam . 39N 07' 34". 84W 24' 43".	Duck Creek
1PX00022109.	Hillcrest North Grating . 39N 11' 27". 84W 32' 25".	Ludlow Run
1PX00022110.	4710 Howard Grating . 39N 10' 39". 84W 32' 34".	Ludlow Run
1PX00022111.	1553 Springlawn Grating . 39N 10' 33". 84W 32' 26".	Ludlow Run
1PX00022112.	1547 Springlawn Grating . 39N 10' 32". 84W 32' 25".	Ludlow Run
1PX00022117.	Dreman Grating . 39N 09' 16". 84W 33' 11".	West Fork
1PX00022123.	Hoffner Grating. . 39N 09' 36". 84W 33' 01".	West Fork
1PX00022125.	Badgely Run Grating . 39N 09' 45". 84W 33' 04".	West Fork
1PX00022126.	Todd #1 Grating . 39N 09' 49". 84W 33' 15".	West Fork
1PX00022127.	Hays Grating . 39N 09' 48". 84W 33' 25".	West Fork
1PX00022128.	Todd #2 Grating . 39N 09' 42". 84W 33' 37".	West Fork
1PX00022130.	Butte Grating . 39N 09' 32". 84W 34' 07".	West Fork
1PX00022135.	1351 Kennedy Avenue Grating . 39N 10' 27". 84W 24' 59".	Duck Creek Tributary
1PX00022136.	3979 Rosslyn Drive Grating . 39N 09' 04". 84W 24' 31".	Duck Creek
1PX00022151.	Groesbeck Grating . 39N 11' 33". 84W 32' 27".	Ludlow Run
1PX00022152.	Fitzpatrick Street Regulator . 39N 06' 44". 84W 32' 43".	Mill Creek
1PX00022162.	Thompson Heights Grating . 39N 10' 26". 84W 32' 07".	Ludlow Run
1PX00022170.	Norwood Incinerator Grating . 39N 09' 41". 84W 26' 18".	Duck Creek
1PX00022171.	Vine & DeCamp Diversion Dam . 39N 12' 18". 84W 28' 28".	Mill Creek
1PX00022179.	Scarlet Oaks Regulator . 39N 09' 33". 84W 31' 53".	Mill Creek
1PX00022180.	Blue Rock Regulator . 39N 12' 05". 84W 35' 03".	Winton Lake Trib
1PX00022181.	Bloody Run Regulator . 39N 10' 48". 84W 29' 12".	Bloody Run
1PX00022182.	Berkshire Regulator . 39N 05' 04". 84W 22' 34".	Clough Creek Tributary
1PX00022187.	5637 Lester Road Grating . 39N 10' 33". 84W 25' 55".	Duck Creek Tributary

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022188.	3646 Madison Road Diversion Dam . 39N 09' 39". 84W 25' 02".	Duck Creek
1PX00022191.	7601 Production Drive Grating . 39N 11' 55". 84W 27' 15".	Mill Creek Tributary
1PX00022194.	Highpoint Grating . 39N 09' 34". 84W 35' 50".	West Fork Tributary
1PX00022195.	Westwood Northern Grating . 39N 09' 19". 84W 35' 31".	West Fork Tributary
1PX00022198.	Muddy Creek & Westbourne Grating . 39N 08' 02". 84W 38' 09".	Muddy Creek
1PX00022199.	Ford Gate Grating . 39N 08' 57". 84W 24' 21".	Duck Creek
1PX00022203.	Twin Grating . 39N 09' 34". 84W 33' 55".	West Fork
1PX00022205.	Camberwell Avenue Diversion Dam . 39N 09' 27". 84W 24' 58".	Duck Creek
1PX00022214.	Yononte Creek Grating . 39N 10' 16". 84W 25' 22".	Duck Creek Tributary
1PX00022217.	Wooden Shoe Regulator . 39N 11' 12". 84W 31' 23".	Kings Run
1PX00022223.	Foley Road Diversion Dam . 39N 05' 20". 84W 38' 45".	Ohio River
1PX00022226.	Oxley Grating . 39N 13' 04". 84W 27' 39".	West Branch Mill Creek
1PX00022402.	Topinabee Road Diversion Dam . 39N 07' 26". 84W 42' 14".	Ohio River
1PX00022403.	Elco street Diversion Dam . 39N 06' 48". 84W 41' 46".	Ohio River
1PX00022404.	Ivanhoe Street Diversion Dam . 39N 06' 32". 84W 41' 32".	Ohio River
1PX00022405.	Revere Street Diversion Dam . 39N 06' 22". 84W 41' 24".	Ohio River
1PX00022406.	Kennebec Street Diversion Dam . 39N 06' 08". 84W 41' 08".	Ohio River
1PX00022408.	Wocher Street Diversion Dam . 39N 05' 42". 84W 39' 16".	Ohio River
1PX00022410.	Fenimore Street Diversion Dam . 39N 04' 47". 84W 37' 59".	Ohio River
1PX00022411.	Anderson Ferry Diversion Dam . 39N 04' 36". 84W 37' 24".	Ohio River
1PX00022412.	Colfax Street Diversion Dam . 39N 04' 28". 84W 36' 40".	Ohio River
1PX00022413.	Tyler Street Diversion Dam . 39N 04' 33". 84W 36' 06".	Ohio River
1PX00022414.	McGinnis Street Diversion Dam . 39N 04' 37". 84W 36' 01".	Ohio River
1PX00022415.	Fithian Street Diversion Dam . 39N 04' 44". 84W 35' 38".	Ohio River

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022416.	Idaho Street Diversion Dam . 39N 04' 51". 84W 35' 10".	Ohio River
1PX00022419.	Bold Face Street Diversion Dam . 39N 05' 22". 84W 34' 13".	Ohio River
1PX00022420.	Delhi Avenue Diversion Dam . 39N 05' 18". 84W 34' 05".	Ohio River
1PX00022421.	River Road @ Delhi Diversion Dam . 39N 05' 17". 84W 34' 04".	Ohio River
1PX00022422.	Mt. Echo Road Regulator . 39N 05' 36". 84W 33' 40".	Ohio River
1PX00022423.	Mt. Hope Avenue Diversion Dam . 39N 05' 49". 84W 33' 28".	Ohio River
1PX00022424.	River Road @ State Diversion Dam . 39N 06' 02". 84W 33' 13".	Ohio River
1PX00022425.	State Avenue Diversion Dam . 39N 06' 02". 84W 33' 13".	Ohio River
1PX00022427.	Evans & River Road #2 Diversion Dam . 39N 06' 08". 84W 32' 53".	Ohio River
1PX00022428.	South Street Regulator . 39N 06' 22". 84W 32' 42".	Mill Creek
1PX00022429.	Gest Street East Diversion Dam . 39N 06' 28". 84W 32' 39".	Mill Creek
1PX00022430.	Gest Street West 2-A Diversion Dam . 39N 06' 25". 84W 32' 17".	Mill Creek
1PX00022431.	Blackford Street Diversion Dam . 39N 06' 32". 84W 32' 18".	Ohio River
1PX00022432	9th & McLean Diversion Dam . 39N 06' 17". 84W 32' 20".	Ohio River
1PX00022433.	Carr Street Regulator . 39N 05' 56". 84W 32' 07".	Ohio River
1PX00022434.	Carr & Front Diversion Dam . 39N 05' 55". 84W 32' 07".	Ohio River
1PX00022435.	Baymiller Street Diversion Dam . 39N 05' 47". 84W 31' 48".	Ohio River
1PX00022436.	Gest & Front Regulator . 39N 05' 41". 84W 31' 36".	Ohio River
1PX00022438.	Third St. Collector . 39N 05' 51". 84W 31' 07".	Ohio River
1PX00022439.	Third St & Central Ave Storage Tank Diversion Dam . 39N 05' 52". 84W 31' 03".	Ohio River
1PX00022443.	Riverfront Coliseum Regulator . 39N 05' 55". 84W 30' 15".	Ohio River
1PX00022444.	Pike Street Diversion Dam . 39N 05' 59". 84W 30' 04"	Ohio River
1PX00022446.	Parsons Street Diversion Dam . 39N 06' 23". 84W 29' 36".	Ohio River

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022447.	Collard Street Diversion Dam . 39N 06' 35". 84W 29' 29".	Ohio River
1PX00022448.	Litherbury Street North Diversion Dam . 39N 07' 02". 84W 29' 01".	Ohio River
1PX00022449.	Litherbury Street South Diversion Dam . 39N 07' 02". 84W 29' 01".	Ohio River
1PX00022450.	Walden Street Diversion Dam . 39N 07' 08". 84W 28' 50".	Ohio River
1PX00022451.	Hazen Street Diversion Dam . 39N 07' 14". 84W 28' 38".	Ohio River
1PX00022452.	Collins Street West Diversion Dam . 39N 07' 24". 84W 28' 13".	Ohio River
1PX00022453.	Collins Street West Regulator . 39N 07' 24". 84W 28' 13".	Ohio River
1PX00022458	Collins Street East Diversion Dam . 39N 07' 25". 84W 28' 09".	Ohio River
1PX00022459.	Bayou Street 120 West Diversion Dam . 39N 07' 27". 84W 27' 49".	Ohio River
1PX00022460.	Bayou Street 100 West Diversion Dam . 39N 07' 28". 84W 27' 49".	Ohio River
1PX00022461.	Eggleston & 4th Diversion Dam-Sluice . 39N 06' 1". 84W 30' 04".	Ohio River
1PX00022462.	Eggleston & 3rd F Diversion Dam . 39N 06' 11". 84W 30' 00".	Ohio River
1PX00022463.	Eggleston & 3rd E Diversion Dam . 39N 06' 10". 84W 30' 01".	Ohio River
1PX00022464.	Third Street Ramp @ I-471 . 39N 06' 10". 84W 29' 59".	Ohio River
1PX00022465.	Eggleston & Pete Rose Way East Diversion Dam . 39N 06' 09". 84W 29' 55".	Ohio River
1PX00022466.	Delta Avenue West Regulator . 39N 06' 53". 84W 26' 35".	Ohio River
1PX00022467.	Delta & Humbert Diversion Dam . 39N 06' 52". 84W 26' 33".	Ohio River
1PX00022468.	Delta Avenue East Regulator . 39N 06' 46". 84W 26' 27".	Ohio River
1PX00022469.	Delta @ Eastern Diversion Dam . 39N 06' 57". 84W 26' 21".	Ohio River
1PX00022470.	Eastern Avenue Grating . 39N 06' 44". 84W 25' 09".	Little Miami River
1PX00022472.	Turpin Street Diversion Dam . 39N 07' 07". 84W 24' 46"	Duck Creek
1PX00022471.	Grandin Road Grating . 39N 06' 55". 84W 25' 01".	Little Miami River
1PX00022476.	Clough Creek Diversion Dam . 39N 06' 22". 84W 23' 52".	Clough Creek
1PX00022480.	Clifton Avenue West Grating . 39N 09' 54". 84W 30' 60".	Mill Creek

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022481.	Mitchell & Spring Grove Diversion Dam . 39N 09' 58". 84W 30' 50".	Mill Creek
1PX00022482.	Mitchell Avenue Regulator . 39N 09' 43". 84W 30' 29".	Mill Creek
1PX00022483.	Kings Run Regulator . 39N 10' 37". 84W 30' 30".	Mill Creek
1PX00022485.	Ross Run Regulator . 39N 10' 17". 84W 30' 19".	Mill Creek
1PX00022486.	Kings Run & Spring Grove Diversion Dam . 39N 10' 17". 84W 30' 24".	Mill Creek
1PX00022487.	Ross Run Grating . 39N 10' 28". 84W 29' 37".	Mill Creek
1PX00022488.	68th Street Diversion Dam . 39N 11' 36". 84W 29' 14".	Mill Creek
1PX00022489.	7th & McLean Diversion Dam . 39N 06' 13". 84W 32' 25".	Ohio River
1PX00022490.	Lockland Highway Grating . 39N 12' 05". 84W 28' 07".	Mill Creek
1PX00022500.	Robertson South of I-71 Grating . 39N 09' 23". 84W 26' 21".	Duck Creek
1PX00022501.	4326 28th Street Grating . 39N 09' 20". 84W 26' 24".	Duck Creek
1PX00022503.	Zaeh Road Grating . 39N 08' 22". 84W 24' 20".	Duck Creek
1PX00022505.	Beredith & Kincaid Grating . 39N 11' 15". 84W 25' 30".	Mill Creek Tributary
1PX00022506.	6536 Cliffridge Grating . 39N 11' 25". 84W 26' 07".	Mill Creek Tributary
1PX00022507.	214 Clark Street Grating . 39N 12' 54". 84W 26' 55".	Mill Creek
1PX00022508.	245 Clark Street Overflow . 39N 12' 58". 84W 27' 00".	Mill Creek
1PX00022509.	Gebert Street Grating . 39N 13' 07". 84W 26' 53".	Mill Creek
1PX00022510.	Southern Avenue Grating . 39N 13' 10". 84W 26' 50".	Mill Creek
1PX00022511.	531 Davis Grating . 39N 13' 14". 84W 26' 51".	Mill Creek
1PX00022512.	Mill & Vine Grating . 39N 13' 34". 84W 26' 50".	Mill Creek
1PX00022513.	Bernard & Reisenberg Grating . 39N 13' 55". 84W 26' 35".	Mill Creek
1PX00022514.	150' North of Smalley Grating . 39N 13' 57". 84W 26' 43".	Mill Creek
1PX00022515.	200' West of Bacon Street Grating . 39N 13' 50". 84W 27' 14".	West Branch Mill Creek
1PX00022516.	600' West of Bacon Street Grating . 39N 13' 51". 84W 27' 23".	West Branch Mill Creek

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022518.	Muddy Creek West of Sidney Grating . 39N 07' 58". 84W 38' 27".	Muddy Creek
1PX00022522.	Werk & Westbourne Grating . 39N 08' 32". 84W 37' 53".	Muddy Creek
1PX00022523.	Rapid Run & Devil's Backbone Grating . 39N 06' 41". 84W 38' 15".	Rapid Run
1PX00022525.	Mt. Airy Grating . 39N 09' 46". 84W 35' 59".	West Fork Tributary
1PX00022527.	Powers #1 Grating . 39N 09' 27". 84W 33' 10".	West Fork
1PX00022528.	Beekman North Grating . 39N 09' 09". 84W 33' 03".	West Fork
1PX00022529.	Llewellen Grating . 39N 09' 08". 84W 33' 03".	West Fork
1PX00022530.	Beekman South Grating . 39 09' 06". 84 33' 03".	West Fork
1PX00022532.	Daly Road Vortex Separator . 39N 13' 11". 84W 31' 52".	Compton Creek
1PX00022535.	146 Ridgeway Grating . 39N 12' 34". 84W 28' 52".	Cilley Creek
1PX00022537.	#41 Sherry Grating . 39N 13' 18". 84W 28' 32".	Cilley Creek
1PX00022538.	#96 North Park Grating . 39N 14' 11". 84W 27' 58".	West Branch Mill Creek
1PX00022539.	117 East Charlotte Grating . 39N 14' 24". 84W 28' 01".	West Branch Mill Creek
1PX00022541.	5678 River Road Diversion Dam . 39N 05' 56". 84W 40' 00".	Ohio River
1PX00022544.	Vine Street Diversion Dam . 39N 10' 57". 84W 29' 33".	Bloody Run
1PX00022549.	Williams & Duck Creek Regulator . 39N 09' 07". 84W 26' 47".	Duck Creek
1PX00022550.	North Terminus Edwards Regulator . 39N 09' 12". 84W 26' 32".	Duck Creek
1PX00022551.	I-71 Opposite Lester Road Regulator . 39N 09' 50". 84W 25' 48".	Duck Creek
1PX00022552.	I-71 West Marburg Regulator . 39N 09' 55". 84W 25' 35".	Duck Creek
1PX00022553.	North Terminus Marburg Regulator . 39N 09' 52". 84W 25' 29".	Duck Creek
1PX00022554.	Stewart & Ken Arbre Grating . 39N 11' 24". 84W 23' 43".	Duck Creek Tributary
1PX00022555.	Opposite 6735 Ken Arbre Grating . 39N 11' 26". 84W 23' 38".	Duck Creek Tributary
1PX00022556.	Stewart Road West Regulator . 39N 10' 50". 84W 23' 46".	Duck Creek Tributary
1PX00022559.	914 Oak Street Grating . 39N 13' 59". 84W 27' 55".	West Branch Mill Creek

Appendix A (continued)

Sampling Station	Description of Location	Receiving Water
1PX00022560.	60 St. Clair Grating . 39N 13' 07". 84W 28' 37".	Cilley Creek
1PX00022651.	Ridge & Lakeview Diversion Dam . 39N 11' 34". 84W 25' 51".	Mill Creek Tributary
1PX00022653.	Murray Road Diversion Dam . 39N 10' 56". 84W 29' 27".	Bloody Run
1PX00022654.	Stille Drive Diversion Dam . 39N 05' 28". 84W 38' 55".	Ohio River
1PX00022655.	25 Spruce Diversion Dam . 39N 11' 16". 84W 29' 03".	Mill Creek
1PX00022656.	Wooster & Red Bank Diversion Dam . 39N 08' 11". 84W 23' 47".	Little Miami River
1PX00022657.	Corbin Street Diversion Dam . 39N 07' 13". 84W 27' 04".	Ohio River
1PX00022658.	Hazen & Glen Alley Diversion Dam . 39N 07' 13". 84W 28' 37".	Ohio River
1PX00022666.	McLean & Liberty Diversion Dam . 39N 06' 51". 84W 32' 16".	Mill Creek
1PX00022667.	Eastern & Gotham Diversion Dam . 39N 07' 24". 84W 27' 26".	Ohio River
1PX00022669.	4247 Kellogg Avenue . 39N 06' 09". 84W 25' 59".	Ohio River
1PX00022670.	Reading & Galbraith Diversion Dam . 39N 12' 46". 84W 26' 43".	Mill Creek
1PX00022671.	Ridge Avenue South of SR 562 . 39N 09' 52". 84W 25' 24".	Duck Creek
1PX00022673.	Home Avenue and Park Avenue . 39N 14' 03". 84W 27' 26".	West Branch Mill Creek
1PX00022674.	3720 Alaska Court . 39N 09' 03". 84W 29' 49".	South Branch Mill Creek
1PX00022675.	3312 Main Street, Addyston . 39N 08' 29". 84W 43' 112".	Muddy Creek
1PX00022676.	38 Mistletoe Ave., Addyston . 39N 08' 27". 84W 43' 09".	Ohio River

Appendix B. Annual CSO Volume (MG)

Station No.	2009		2010		2011		2012		2013	
	N	Vol	N	Vol	N	Vol	N	Vol	N	Vol
002	18	1.563	19	0.308	27	2.283	14	0.496	19	1.007
003	1	0.426	31	12.094	33	13.379	42	6.289	42	6.512
004	21	8.998	36	76.3	48	199.503	56	86.102	74	74.84
005	4	2.535	6	33.405	27	294.275	29	325.737	29	846.019
006	63	1.235	54	1.663	66	6.209	71	2.606	69	2.421
007	78	18.686	52	32.318	77	13.331	65	7.927	62	13.434
008	19	0.155	32	0.21	65	4.734	46	1.45	54	1.913
009	73	30.814	62	35.946	57	57.332	68	36.61	69	64.946
010	3	0.889	42	39.799	55	48.164	78	47.573	71	54.767
011	19	0.066	43	1.279	31	2.079	45	1.949	60	1.286
012	78	53.391	61	49.613	56	58.487	83	60.649	88	83.668
013	9	0.009	14	0.05	71	0.254	47	0.137	50	0.121
014	55	3.517	47	4.577	59	9.12	79	9.427	64	6.898
015	43	44.575	43	107.068	43	138.466	49	82.511	47	108.378
017	30	0.526	32	3.423	42	4.96	44	2.776	41	1.044
018	40	1.545	37	5.291	55	21.891	50	9.551	47	3.786
019	17	7.92	20	4.461	31	6.789	20	2.422	9	4.776
021	72	122.386	46	130.011	56	319.532	90	261.661	69	214.095
022	43	79.761	55	10.971	58	28.777	52	1.793	53	3.034
023	46	92.65	48	28.887	72	66.773	63	33.428	66	18.138
024	54	23.563	45	46.987	61	213.329	69	222.359	72	253.435
025	41	41.325	30	1.902	75	30.911	53	5.346	56	4.138
026	28	6.527	20	5.973	24	23.382	16	0.105	20	0.258
028	44	4.271	38	6.075	58	17.105	43	0.217	43	0.332
030	42	16.225	37	17.482	69	74.649	25	16.997	37	44.295
033	58	6.206	52	5.577	90	16.486	72	8.313	120	15.59
037	35	5.157	39	7.631	64	17.393	55	6.401	28	4.686
039	38	8.265	38	6.301	59	20.751	44	7.219	35	9.616
043	43	8.14	24	1.056	36	0.76	29	0.271	27	1.56
053	19	0.618	13	0.029	30	0.213	23	0.136	22	0.037
054	64	0.327	60	1.382	98	1.14	75	0.491	46	0.162
061	34	12.741	35	0.691	67	1.279	49	0.721	45	1.092
064	25	1.844	22	0.408	45	0.843	35	0.414	39	0.463
066	26	12.573	15	5.334	26	0.853	6	0.035	8	0.088
068	49	7.902	41	8.365	85	35.129	70	16.44	61	20.226
069	18	11.24	27	6.429	63	2.403	61	1.205	35	0.578
071	6	0.139	1	0.037	6	0.369	5	0.099	5	0.194
072	35	7.872	23	0.025	24	0.024	14	0.014	3	0.003
074	35	16.334	28	1.242	52	2.564	45	0.564	37	0.831
075	41	5.579	15	0.15	69	1.13	52	0.5	36	0.252
076	37	16.587	38	1.216	79	0.656	56	0.197	37	0.308
078	34	4.222	36	0.093	59	0.536	13	0.015	16	0.1
079	43	13.543	51	6.032	58	0.352	42	0.174	47	0.521
080	45	1.552	44	0.241	79	0.284	60	0.214	45	0.193

Appendix B. Annual CSO Volume (MG)

Station No.	2009		2010		2011		2012		2013	
	N	Vol	N	Vol	N	Vol	N	Vol	N	Vol
083	41	10.233	27	1.699	49	10.897	46	2.162	36	6.116
084	68	2.7793	57	2.114	98	83.981	78	4.581	81	5.667
085	45	0.4692	47	0.658	64	0.646	65	0.455	51	0.56
086	10	0.02	8	0.116	19	0.15	7	0.013	15	0.78
109	32	2.381	33	0.325	51	0.321	30	0.077	23	0.175
110	34	0.265	35	0.072	48	0.06	37	0.044	44	0.072
111	32	1.063	6	0.204			54	0.054	25	0.025
112	12	0.402	11	0.658	26	0.524	35	0.052	5	0.006
117	1	0.047	20	2.209	27	12.783	23	0.461	23	0.734
123	5	0.007	3	0.003	17	0.036	13	0.027		
125	3	1.123	4	57.438	40	828.558	31	576.884	29	531.878
126	4	0.55	32	6.473	65	28.714	51	7.701	55	10.141
127	25	1.149	26	2.819	45	13.102	38	4.066	34	4.546
128	19	0.331	24	2.213	42	12.807	26	4.843	24	1.678
130	2	1.44	31	18.111	36	79.608	45	34.755	60	84.31
135	47	0.19	51	0.079	99	0.604	73	0.72	46	0.14
136	48	42.65	63	75.942	50	31.585	71	25.736	70	40.291
151	21	0.529	31	1.023	53	2.94	39	1.025	35	1.094
152	2	0.004	29	16.666	38	36.854	26	36.742	13	15.816
162	28	2.306	21	0.136	52	1.288	12	0.287	18	0.445
170	56	31.015	38	38.044	87	127.492	64	68.807	57	66.478
171	42	32.326	44	64.03	84	414.289	63	88.65	55	91.846
179	47	9.107	44	9.649	61	80.997	57	9.177	54	15.505
180	57	0.572	54	0.51	92	2.348	74	1.19	70	1.77
181	36	146.952	40	235.933	76	783.04	54	239.758	45	254.777
182	62	23.4	51	23.359	79	65.623	57	18.113	50	14.648
187	31	2.328	29	0.034	55	0.063	47	0.047	41	0.05
188	35	1.496	28	2.622	35	1.853	26	0.36	20	0.682
191	19	2.521	22	0.107	45	0.683	28	0.11	24	0.066
194			16	0.327	14	1.193	12	0.407	9	0.019
195	2	0.068	25	0.175	55	0.411	42	0.174	43	0.406
198	59	215.049	44	118.818	63	459.499	57	185.173	24	111.432
199	41	12.044	48	1.726	62	0.734	27	0.089	23	9.596
203	7	0.223	15	0.163	35	2.827	45	1.679	43	2.751
205	24	2.3	26	1.353	50	1.053	36	0.574	33	1.213
214	51	63.003	47	85.91	88	297.082	61	106.2	52	130.634
217	41	6.006	45	8.262	88	9.552	65	4.466	60	4.055
223	65	8.503	58	8.864	36	1.08	51	2.871	64	12.295
226	45	7.744	51	13.191	66	22.272	33	0.991	41	2.957
402	56	3.043	57	4.702	66	12.57	64	13.137	65	13.081
403	16	0.498	41	0.497	51	1.879	56	1.843	53	1.752
404	24	9.079	22	8.874	31	20.983	50	11.157	62	20.26
405	16	1.097	28	3.834	39	7.949	31	3.105	40	2.898
406	18	1.146	36	6.261	31	5.894	49	7.987	44	7.548

Station No.	2009		2010		2011		2012		2013	
	N	Vol	N	Vol	N	Vol	N	Vol	N	Vol
408	16	2.96	55	13.085	51	1.969	61	3.276	69	0.788
410	47	3.244	46	3.216	44	6.277	49	2.488	55	9.623
411	40	3.145	43	6.655	64	18.276	79	14.499	71	12.017
412	1	0.164	13	0.772	33	34.807	46	6.584	53	22.599
413			29	5.852	36	4.968	47	3.905	47	6.691
414			33	2.746	47	2.674	50	1.938	57	3.053
415	18	0.869	24	2.292	16	20.69	35	3.576	30	2.239
416	52	9.492	43	56.44	44	32.238	56	20.311	31	6.896
419	71	163.996	66	172.438	57	554.112	91	283.782	87	461.626
420	4	0.014	33	0.07	52	0.117	39	0.048	36	0.074
421	1	0.013	1	0.098						
422	70	12.95	59	11.296	80	49.532	74	5.395	73	7.195
423	54	3.735	66	8.042	89	10.985	108	3.698	63	3.942
424	1	0.205	25	2.812	72	7.993	32	1.353	77	2.086
425			35	0.961	72	30.465	44	15.433	71	2.084
426			21	0.118	9	0.023				
427			29	1.232	71	2.672	59	0.965		
428	63	23.839	52	37.704	71	299.353	65	36.644	62	33.772
429	22	0.137	43	0.295	53	0.46	46	0.226	44	0.313
430			17	16.314	43	181.836	51	20.049	49	24.049
431					18	15.366	25	40.268	31	28.974
432	8	0.09	53	1.196	92	11.494	69	1.5	65	1.832
433	62	10.137	45	13.099	50	30.268	48	6.47	50	4.946
434	31	5.473	53	2.27	71	1.548	72	1.544	79	1.113
435	48	72.985	35	25.911	49	11.054	21	0.527	17	0.584
436	67	2.763	55	1.516	71	6.234	73	2.63	71	3.618
438	23	21.095	54	29.359	92	96.567	78	41.349	69	48.956
439			2	0.019	6	0.193	5	0.209	8	0.481
443	36	34.835	54	3.457	60	3.581	52	1.631	44	2.24
444	9	0.405	13	0.304	11	0.067	7	0.099	8	0.187
446	45	1.555	35	0.697	79	3.862	74	2.165	67	2.828
447	55	4.727	43	5.366	80	25.138	58	14.658	36	9.4
448	14	0.039	19	0.053	39	0.136	18	0.035	18	0.03
449	28	6.565	17	0.142	11	0.02	6	0.006	18	0.023
450	63	3.636	37	2.336	46	7.0838	64	30.349	75	9.646
451	22	1.562	34	2.119	64	9.743	44	3.302	44	5.781
452	48	15.145	40	6.944	54	1.302	50	0.292	52	0.42
453	42	33.801	31	2.737	44	14.243	38	3.282	41	15.007
458	54	3.008	44	1.152	62	1.943	61	0.868	67	1.313
459	21	0.028	32	0.093	43	0.083	38	0.058	41	0.07
460	35	1.08	29	1.263	56	6.596	67	0.956	78	1.864
461	69	85.661	61	124.313	66	282.462	60	99.762	40	65.043
462	49	2.906	43	0.734	86	2.743	66	0.834	73	1.827
463	40	2.354	23	0.798	41	8.115	36	0.336	23	0.057

Station No.	2009		2010		2011		2012		2013	
	N	Vol	N	Vol	N	Vol	N	Vol	N	Vol
464	32	4.106	31	0.487	49	5.47	42	0.627	42	1.005
465	16	1.811								
466	46	4.808	36	3.403	38	5.155	56	4.132	54	7.499
467	6	0.045	10	0.017	9	0.038	5	0.005	10	0.286
468	35	1.039	8	0.124	30	1.671	26	1.579	23	1.849
469	39	15.997	32	8.392	34	23.342	46	12.32	21	7.015
470	58	2.871	45	5.544	44	19.716	58	11.119	55	7.611
471	15	0.777	21	0.149	22	10.027	29	3.627	30	3.239
472	38	51.072	67	32.594	82	167.881	85	48.398	90	43.786
476	2	0.058	4	1.25	6	1.923	7	5.795	15	0.89
480	42	34.198	53	2.139	92	8.13	58	1.471	63	2.307
481	42	52.127	51	16.141	81	5.277	63	2.589	36	0.653
482	27	174.212	29	263.345	23	504.765	30	482.528	29	975.332
483	45	110.638	67	76.741	91	292.032	81	94.602	73	94.586
485	27	19.514	18	9.39	20	4.064	6	0.508	10	2.458
486	35	4.219	45	2.323	88	5.216	60	1.66	53	3.744
487	22	25.0366			42	931.406	32	872.733	34	554.642
488	44	18.592	45	23.147	79	149.661	60	67.141	46	48.298
489			42	0.493	65	0.365	66	0.143	64	0.166
490	32	1.507	35	1.4	74	15.257	69	10.185	77	14.847
500	47	26.98	41	19.195	92	1.812	72	0.905	61	0.64
501	40	0.168	64	0.148	83	0.1	71	0.084	80	0.108
503	34	75.389	49	10.655	86	5.486	54	3.038	63	9.112
505	32	4.151	35	0.094	62	0.125	47	0.069	39	0.087
506	36	3.19	38	0.35	48	0.659	37	0.238	39	0.317
507	51	15.938	54	33.296	95	105.137	88	35.83	79	66.262
508	29	0.079	35	0.06	64	0.416	21	0.051	24	0.024
509	12	0.159	14	0.15	6	0.072	1	0.001	6	0.007
510	19	0.799	26	0.798	49	7.414	15	0.549	30	0.748
511	31	4.295	36	0.171	76	0.728	51	0.318	46	0.36
512	47	2.795	47	0.435	85	0.744	59	0.237	66	0.404
513	33	0.559	43	1.096	67	8.653	48	5.484	39	3.185
514	33	6.533	34	10.817	63	36.19	47	5.955	40	8.81
515	39	10.437	41	0.169	80	0.563	56	0.285	48	0.401
516	30	1.649	39	0.953	61	11.468	46	2.531	52	2.336
518	1	0.605	27	25.032	59	58.441	45	8.681	42	10.142
520	1	0.167								
522	58	336.62	64	514.998	89	1357.956	74	598.33	77	734.382
523	85	265.022	64	292.285	76	1133.67	65	299.469	63	461.418
525	36	0.634	70	1.063	87	3.847	71	1.522	24	0.146
527	8	0.043	16	0.079	8	0.017	5	0.005	37	0.073
528			5	0.005	10	0.18	8	0.009	5	0.008
529	7	0.007	23	0.024	28	0.028	16	0.016	25	0.025
530			19	0.042	30	0.116	22	0.048	26	0.051

Appendix B. Annual CSO Volume (MG)

Station No.	2009		2010		2011		2012		2013	
	N	Vol	N	Vol	N	Vol	N	Vol	N	Vol
532	37	20.145	44	170.212	72	657.341	54	156.658	46	225.772
535	21	3.133	3	0.455	5	2.522	5	0.351	1	0.035
537	37	8.727	45	0.968	85	1.992	57	1.316	57	0.897
538	39	2.213								
539	39	1.741	41	3.771	54	6.668	50	1.869	44	2.621
541			17	0.102	54	2.034	35	1.509	36	0.402
544	22	5.202	11	0.018						
549	69	57.77	56	61.913	88	139.642	73	177.818	73	86.6
550	77	3.066	69	4.308	84	12.03	72	5.012	76	7.526
551	68	23.774	63	23.056	96	71.604	76	22.077	69	28.356
552	65	14.162	56	12.476	93	36.25	69	15.681	60	16.199
553	43	5.516	40	3.871	73	2.641	41	0.667	34	1.524
554					14	0.072	45	0.363	8	0.014
555	8	1.11	54	12.374	91	13.364	70	1.284	58	1.47
556	67	5.173	64	6.815	85	20.073	79	7.748	65	8.953
559	34	2.143	39	3.137	70	27.449	55	7.119	50	7.974
560	7	0.109	15	0.199	19	0.443	5	0.099	7	0.082
562	44	3.092	48	0.108	57	1.192				
637	13	0.018								
651	25	0.381	3	0.006	16	0.127	16	0.071	17	0.073
653	25	1.613	38	3.572	63	12.668	46	1.385	42	1.235
654	69	3.333	51	1.569	56	2.827	55	0.926	63	1.264
655	21	0.866	17	0.559	22	0.052	16	0.041	27	0.084
656	31	14.691	21	7.001	4	12.282	4	1.231	7	2.11
657	10	2.768	2	0.019	35	7.741	23	1.288	29	1.096
658	5	0.39	2	0.066	10	0.966			1	0.014
666	18	3.675	20	5.979	31	29.763	26	11.582	39	107.597
667	39	113.452	22	5.178	46	0.836	41	2.803	48	3.727
668	21	0.065	41	0.169	36	0.22	27	0.042		
669	14	0.545					1	0.001		
670	3	1.161	6	0.564	12	0.728	6	0.9	16	0.716
671	44	9.864	36	2.028	66	0.972	37	0.326	32	0.58
673	16	0.513	17	0.017	33	0.038	20	0.02	25	0.025
674	14	0.341	4	0.017						
675	3	0.017			8	0.136	1	0.003	1	0.001
676	13	0.059	5	0.005	32	0.07			14	0.109
Total		3476.145		3792.377		12974.95		6418.598		7722.836

Appendix C. CSO Quality Data

Station No.	Parameter Name	Concentration			
		Minimum	Maximum	50th %tile	Average
024	Total Suspended Solids(mg/l)	130	2480	530	834.1
024	Fecal Coliform (#/100 ml)	6000	6000000	289000	1269000
024	Overflow Volume(Million Gallons)	0.001	38.935	0.453	1.715
024	CBOD 5 day(mg/l)	9	747	50	115.1
182	Total Suspended Solids(mg/l)	52	1442	104	313.8
182	Fecal Coliform (#/100 ml)	6000	220000	72000	92500
182	Overflow Volume(Million Gallons)	0.001	5.115	0.15	0.4522
182	CBOD 5 day(mg/l)	2	83	20	25.92
198	Total Suspended Solids(mg/l)	21	6000	241	444.2
198	Fecal Coliform (#/100 ml)	6000	2000000	72000	310500
198	Overflow Volume(Million Gallons)	0.001	50.45	1.1	3.396
198	CBOD 5 day(mg/l)	5	368	33.85	59.24
226	Total Suspended Solids(mg/l)	28	1088	179.5	293.4
226	Fecal Coliform (#/100 ml)	6000	72072	30000	33250
226	Overflow Volume(Million Gallons)	0.001	2.798	0.0095	0.166
226	CBOD 5 day(mg/l)	3	346	10	53.6
416	Total Suspended Solids(mg/l)	81	658	292	361.2
416	Fecal Coliform (#/100 ml)	6000	600000	58000	194300
416	Overflow Volume(Million Gallons)	0.001	16.78	0.104	0.4543
416	CBOD 5 day(mg/l)	6	107	13	30.62
460	Total Suspended Solids(mg/l)	20	460	145	183.6
460	Fecal Coliform (#/100 ml)	6000	240000	58680	102400
460	Overflow Volume(Million Gallons)	0.001	3.082	0.007	0.04276
460	CBOD 5 day(mg/l)	3	59	16	21.5
469	Total Suspended Solids(mg/l)	48	715	139	209.7
469	Fecal Coliform (#/100 ml)	280	220000	43000	76570
469	Overflow Volume(Million Gallons)	0.001	5.246	0.0515	0.3685
469	CBOD 5 day(mg/l)	5	222	16.5	51.17
470	Total Suspended Solids(mg/l)	43	882	264	364.2
470	Fecal Coliform (#/100 ml)	6000	250000	27000	77400
470	Overflow Volume(Million Gallons)	0.001	2.767	0.036	0.1302
470	CBOD 5 day(mg/l)	4	135	10	26.27
514	Total Suspended Solids(mg/l)	50	2220	177	478.5
514	Fecal Coliform (#/100 ml)	6000	1300000	56820	338300
514	Overflow Volume(Million Gallons)	0.001	2.81	0.0465	0.2372
514	CBOD 5 day(mg/l)	5	240	27	54.92

Appendix C (continued)

Station No.	Parameter Name	Concentration			
		Minimum	Maximum	50th %tile	Average
522	Total Suspended Solids(mg/l)	39	1170	175	296.4
522	Fecal Coliform (#/100 ml)	6000	320000	155000	170800
522	Overflow Volume(Million Gallons)	0.003	67.819	4.182	8.014
522	CBOD 5 day(mg/l)	8	184	30.5	62.06
523	Total Suspended Solids(mg/l)	44	2305	306.5	584.8
523	Fecal Coliform (#/100 ml)	720	600000	184500	249500
523	Overflow Volume(Million Gallons)	0.001	71.056	1.991	5.894
523	CBOD 5 day(mg/l)	2	223	36	68.67
532	Total Suspended Solids(mg/l)	24	3920	160	280.1
532	Fecal Coliform (#/100 ml)	6000	2400000	100000	335200
532	Overflow Volume(Million Gallons)	0.001	36.17	0.92	3.455
532	CBOD 5 day(mg/l)	1	643	37	70.36
549	Total Suspended Solids(mg/l)	40	2575	246.5	588.7
549	Fecal Coliform (#/100 ml)	6000	91818	30000	38560
549	Overflow Volume(Million Gallons)	0.001	36.61	0.31	1.316
549	CBOD 5 day(mg/l)	2.8	613	37.5	92.8