



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

# Nine Minimum Controls Compliance Report

September 15, 2006

**01.08.0303.06**

**NMC September 2006 (w/November 2006  
Replacement CD) - Submittal (Approved)**



**SECTION 1: PROGRAM OVERVIEW ..... 1**

1.1 Introduction ..... 1

1.2 MSDs Organizational Structure ..... 1

    1.2.1 Executive Offices ..... 2

    1.2.2 Infrastructure and Flood Protection (I&FP) Division ..... 2

    1.2.3 Legal Division ..... 2

    1.2.4 Human Resources Division ..... 2

    1.2.5 Finance Division ..... 2

    1.2.6 Physical Assets Division ..... 2

    1.2.7 Regulatory Management Services Division ..... 2

    1.2.8 Engineering Division ..... 3

    1.2.9 Operations Division ..... 3

    1.2.10 Information Technology Division ..... 3

1.3 System Characterization ..... 4

    1.3.1 Combined Sewer System Overview ..... 4

**SECTION 2: NMC 1 – PROPER OPERATION AND MAINTENANCE PROGRAM..... 1**

2.1 Introduction ..... 1

2.2 Program Overview ..... 1

2.3 System Characterization ..... 1

2.4 Organizational Resources and Responsibilities ..... 2

    2.4.1 Infrastructure Management – I&FP Division ..... 2

    2.4.2 Infrastructure Management – OPS Division ..... 2

    2.4.3 Information Management Systems ..... 3

    2.4.4 Information Technology Support ..... 5

    2.4.5 Engineering and Regulatory Support ..... 5

    2.4.6 Equipment Support ..... 5

    2.4.7 Inter-Divisional Coordination ..... 6

2.5 Critical Asset Management: Collection System ..... 6

    2.5.1 Program Management ..... 6

    2.5.2 Information Management System Utilization ..... 7

    2.5.3 Inspection Activities ..... 7

    2.5.4 Maintenance Activities ..... 7

    2.5.5 Training Program ..... 8

2.6 Critical Asset Management: Catch Basins ..... 8

    2.6.1 Program Management ..... 8

    2.6.2 Information Management System Utilization ..... 8

    2.6.3 Inspection Activities ..... 9

    2.6.4 Maintenance Activities ..... 9

    2.6.5 Training Program ..... 9



2.7 Critical Asset Management: CSOs .....9

    2.7.1 Program Management and Quality Control .....9

    2.7.2 Information Management System Utilization .....10

    2.7.3 Inspection Activities .....10

    2.7.4 Maintenance Activities .....10

    2.7.5 Training Program .....11

2.8 Critical Assets: Pump Stations .....11

    2.8.1 Program Management .....11

    2.8.2 Information Management System Utilization .....12

    2.8.3 Inspection Activities .....12

    2.8.4 Maintenance Activities .....13

    2.8.5 Operational Activities, Dry and Wet Weather .....15

    2.8.6 Training Program .....15

2.9 Critical Assets: Morris Forman Wastewater Treatment Plant.....15

    2.9.1 Program Management .....15

    2.9.2 Information Management System Utilization .....16

    2.9.3 Inspection Activities .....16

    2.9.4 Maintenance Activities .....17

    2.9.5 Operational Activities, Dry and Wet Weather .....18

    2.9.6 Training Program .....19

2.10 Compliance Summary .....19

2.11 Listing of Supplemental Information .....20

**SECTION 3: NMC 2 – MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM.....1**

3.1 INTRODUCTION .....1

3.2 PROGRAM OVERVIEW .....1

3.3 SYSTEM CHARACTERIZATION .....1

3.4 Control Measures.....2

    3.4.1 Collection System Inspection .....2

    3.4.2 Flap Gate Installations .....2

    3.4.3 Dams, Weirs and Regulator Adjustments.....3

    3.4.4 Inflow Retardants .....6

    3.4.5 Localized Upstream Detention .....6

    3.4.6 Upgrade/Adjustment of Pump Operation at Interceptor Lift Stations .....7

    3.4.7 New Development and Building Code Opportunities.....8

    3.4.8 Real Time Control (RTC) .....8

    3.4.9 Removal of Flow Obstructions .....12

3.5 COMPLIANCE SUMMARY .....13

3.6 Listing of SUPPLEMENTAL information.....14

<b>SECTION 4: NMC 3 – REVIEW AND MODIFICATION OF PRETREATMENT REQUIREMENTS</b> .....	1
4.1 INTRODUCTION .....	1
4.2 PRETREATMENT PROGRAM OVERVIEW .....	1
4.3 INVENTORY OF NON-DOMESTIC DISCHARGERS TO THE CSS .....	3
4.3.1 Inventory of All Businesses .....	3
4.3.2 Inventory of Significant Industrial Users .....	3
4.3.3 Inventory of Industries with General Permits .....	4
4.3.4 Inventory of High Water Users .....	4
4.3.5 Inventory of Users Having a HMPC Plan .....	4
4.3.6 Inventory of Hospitals .....	5
4.3.7 Inventory Summary.....	5
4.4 ASSESSMENT OF NON-DOMESTIC DISCHARGERS TO CSS.....	6
4.4.1 Pollutants of Concern.....	6
4.4.2 Evaluation of NDD Pollutant Discharge Versus POCs .....	6
4.4.3 Non-Domestic and Industrial Flows to the Morris Forman Wastewater Treatment Plant (MFWTP) and CSOs.....	7
4.4.4 Assessment of NDDs Based on Impact on POC Discharge.....	7
4.6 PAST ACTIVITIES .....	8
4.6.1 Special Regulatory Actions .....	8
4.6.2 Diversions to Minimize Impacts of NDD Wastewater.....	8
4.6.3 Education and Awareness .....	9
4.6.4 Integrated Inspection Form .....	9
4.6.5 Inspection Frequency.....	9
4.6.6 Unusual Discharge Requests within the CSS .....	9
4.6.7 Restrictions on New SIUs Discharges.....	10
4.7 EVALUATE FEASIBLE MODIFICATIONS .....	11
4.7.1 Inspection and Evaluation of Control Opportunities .....	11
4.7.2 Modifications to Program.....	11
4.8 COMPLIANCE SUMMARY .....	12
4.9 LISTING OF SUPPLEMENTAL INFORMATION .....	12
4.10 LISTING OF APPENDICES .....	13
<b>SECTION 5: NMC 4 – MAXIMIZATION OF FLOW TO THE POTW FOR TREATMENT</b> .....	1
5.1 Introduction .....	1
5.2 Program Overview .....	1
5.3 System Characterization .....	1
5.4 Capacity of Conveyance System.....	1



5.5 Storage to Ensure Maximization of Flow .....2  
5.5.1 Wheeler Basin .....2  
5.6 Pump Station Operation .....3  
5.6.1 Review and Adjustment of USACE Pump Stations .....3  
5.6.2 Southwestern Pump Station .....6  
5.7 Flow Management Enhancement.....7  
5.7.1 Dry Weather Flow .....8  
5.7.2 Wet Weather Flow .....8  
5.8 Ensure Optimized WTP Operation .....9  
5.8.1 Stress Testing.....9  
5.8.2 Wet Weather Optimization .....10  
5.8.3 Planning for Capacity Needs during Maintenance Activities.....12  
5.8.4 SOPs and Training .....12  
5.9 Compliance Summary .....13  
5.10 Listing of Supplementary Information .....16

**SECTION 6: NMC 5 – ELIMINATION OF CSOS DURING DRY WEATHER.....1**  
6.1 Introduction .....1  
6.2 Program Overview .....1  
6.3 System Characterization .....1  
6.4 Initial Program Activities .....2  
6.5 Current Programmatic Initiatives .....2  
6.5.1 Routine CSO Inspections and Maintenance Activities.....2  
6.5.2 Combined Sewer System Modeling .....3  
6.5.3 Raising Dams .....3  
6.5.4 Unusual Discharge Request Permit Constraints .....3  
6.5.5 Placing Requirements on New Users to CSS .....4  
6.5.6 Fats, Oils and Grease (FOG) Program .....5  
6.5.7 Backup Power at Critical Pump Stations.....6  
6.6 Reporting of Dry Weather CSOs .....6  
6.7 Summary of Compliance .....6

**SECTION 7: NMC 6 – CONTROL OF SOLID AND FLOATABLE MATERIALS  
IN COMBINED SEWER OVERFLOWS (CSOS) .....1**  
7.1 Introduction .....1  
7.2 Program Overview .....1  
7.3 System Characterization .....2  
7.3.1 CSO Area Characteristics.....2  
7.3.2 Compilation and Evaluation of Sewershed Data .....3



- 7.3.3 Characteristics of Areas Upstream of CSO Area – Identification of Upstream Solids and Floatables.....4
- 7.3.4 CSO Solids and Floatables Screening and Ranking .....5
- 7.4 Sources of Solids and Floatables .....7
  - 7.4.1 Sources of Solids and Floatables .....7
- 7.5 Solids and Floatables Program Components .....7
  - 7.5.1 Source Controls Applied in System.....7
  - 7.5.2 In-line Controls Applied in System .....8
  - 7.5.3 End-of-Pipe Controls..... 12
  - 7.5.4 Watershed Efforts ..... 12
- 7.6 Site Screening for Viable S&F Control Technologies..... 13
- 7.7 Performance Assessments and Effectiveness Summary..... 13
  - 7.7.1 NSF International/Environmental Technology Verification of the CDS Unit at CSO 108..... 13
  - 7.7.2 Site Visit Evaluation Work of 2005 ..... 13
  - 7.7.3 Summary of Catch Basin Cleaning ..... 14
- 7.8 Compliance Summary..... 14
  - 7.8.1 Solids and Floatables Summary..... 14
  - 7.8.2 Summary of Estimate for Solids and Floatables Removal..... 15
- 7.9 Listing of Supplemental Information ..... 15

**SECTION 8: NMC 7 – POLLUTION PREVENTION PROGRAMS TO REDUCE CONTAMINATES IN CSOS ..... 1**

- 8.1 Introduction ..... 1
- 8.2 Program Overview ..... 1
- 8.3 System Characterization ..... 2
- 8.4 Erosion Prevention and Sediment Control..... 2
- 8.5 Hazardous Materials Ordinance Program Administration ..... 3
  - 8.5.1 Hazardous Materials Ordinance and HMPC Program ..... 3
  - 8.5.2 Response to Hazmat Incidents and to Citizen Reports of Illicit Discharges..... 3
  - 8.5.3 Motor Vehicle Accident Mitigation Program..... 4
- 8.6 Pretreatment Program Administration ..... 4
  - 8.6.1 Wastewater Discharge Permits..... 4
  - 8.6.2 Commercial Sector P2 Education Projects..... 4
- 8.7 Public Education Programs ..... 5
  - 8.7.1 Louisville Metro Environmental Education..... 6
  - 8.7.2 Mass Media Campaigns ..... 6
  - 8.7.3 Beargrass Creek Watershed Council..... 6



8.7.4 MSD and Louisville Metro Public Outreach and Education .....7

8.8 Control Measures .....9

8.8.1 Storm Drain Stenciling .....9

8.8.2 Catch Basin Cleaning .....9

8.8.3 Street Sweeping .....10

8.8.4 Solid Waste Reduction, Collection and Recycling .....10

8.8.5 Litter Control .....11

8.8.6 Animal Waste Ordinance .....13

8.8.7 Control of Fertilizers, Pesticides and De-Icing Chemicals .....13

8.8.8 Illegal Dumping .....14

8.8.9 Bulk Refuse Disposal .....15

8.8.10 Household Hazardous Waste .....15

8.9 Wet Weather Flow Minimization and Water Conservation .....15

8.9.1 Discharge Volume Reduction Incentives .....15

8.9.2 Landscaping for Wet Weather Runoff Control .....15

8.9.3 Long-Term Community Planning .....16

8.10 Compliance Summary .....16

8.11 Listing of Supplemental Information .....17

**SECTION 9: NMC 8 – PUBLIC NOTIFICATION .....1**

9.1 Introduction .....1

9.2 Program Overview .....1

9.3 System Characterization .....2

9.4 Public Notification Plan .....2

9.4.1 Signage .....3

9.4.2 Public Notifications .....5

9.4.3 MSD Website .....6

9.4.4 Customer Inquiries (Call Center, Online Inquiry System) .....6

9.5 Compliance Summary .....7

9.6 Listing of Supplemental Information .....8

**SECTION 10: NMC 9 – MONITORING TO CHARACTERIZE CSO IMPACTS AND THE EFFICACY OF CSO CONTROLS .....1**

10.1 Introduction .....1

10.2 Overview .....1

10.3 Combined Sewer System Characterization .....2

10.3.1 Initial System Characterization / Program Development .....2

10.3.2 Detailed System Characterization .....4

10.4 Monitoring to Characterize CSO Impacts .....4




---

10.4.1	Collection System Monitoring .....	6
10.4.2	CSO Quality Monitoring .....	7
10.4.3	MSD Ambient Stream Water Quality Monitoring .....	7
10.4.4	In-Stream Water Quality Monitoring .....	9
10.4.5	Rain Gauge Network.....	9
10.4.6	CSO Sampling.....	9
10.4.7	CSO Flow Monitoring.....	9
10.5	Combined Sewer System Modeling.....	10
10.6	Water Quality Monitoring.....	11
10.6.1	Beargrass Creek Modeling Activities.....	11
10.6.2	Ohio River Modeling Activities .....	13
10.7	Overall Impacts of CSO on Receiving Streams .....	14
10.8	Incidents Potentially Related to CSO Impacts .....	15
10.9	Assessment of CSO Control Measures in Place.....	16
10.10	Conclusions .....	16
10.11	Data References .....	17

**Figures, Tables, and Appendix Material**

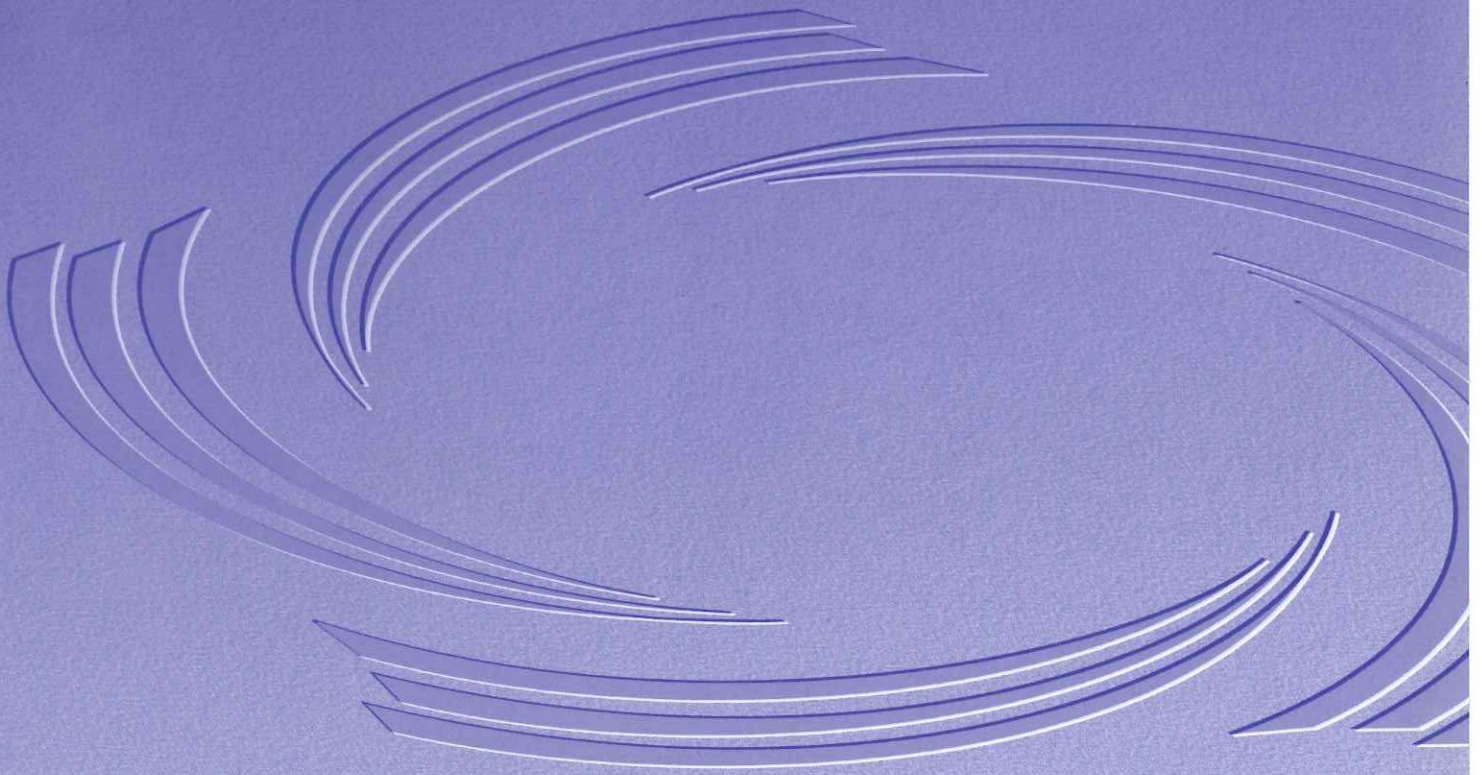
Oversized or color figures, large tables, and appendix material referenced in the text are located at the end of its associated section.





**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 1: PROGRAM OVERVIEW**

### **1.1 INTRODUCTION**

On April 19, 1994, the United States Environmental Protection Agency (EPA) published the CSO Control Policy that provides guidance to CSO communities, permit authorities and state water quality standards authorities on coordinating the planning, selection and implementation of CSO controls that meet the requirements of the Clean Water Act (CWA) and allow for public involvement during the decision-making process. The policy established two main objectives for permittees; implementation of Nine Minimum Controls (NMCs) and development and implementation of a CSO Long Term Control Plan (LTCP).

Consistent with the Commonwealth of Kentucky's CSO Control Strategy, the Louisville and Jefferson County Metropolitan Sewer District (MSD) has submitted Combined Sewer Operational Plans (CSOP) and Annual Reports, MSD's 1996 CSOP included a draft Long Term Control Plan for the Beargrass Creek Region, as well as a report on NMC activities, and its 1997 CSOP included a draft LTCP for the Ohio River Regions and NMC activities. Since that time, MSD has continued to work to implement the NMCs.

On August 12, 2005, MSD entered into a Consent Decree with the Kentucky Environmental and Public Protection Cabinet Department for Environmental Protection – Division of Water (DOW) and EPA. The Consent Decree requires demonstration of MSD's current status relative to compliance with the NMC requirements within the combined sewer system (CSS) as set forth in the EPA CSO Control Policy. The Consent Decree requires that the documentation of compliance status and the proposed activities shall be consistent with the Guidance for Nine Minimum Controls, EPA 832-B-95-003, May 1995.

Per the Guidance manual, NMCs are technology-based activities designed to reduce CSOs and their effects on receiving water quality, do not require significant engineering studies or major construction and can be implemented in a relatively short period. Furthermore, minimum controls are not temporary measures; they should be part of long-term efforts to control CSOs. Municipalities are encouraged to be creative and to explore innovative and cost-effective measures in implementing the NMCs to address their specific CSO problems. While the CSO Control Policy has established nine categories of controls, the NMCs are not necessarily separate and distinct. Specific projects, O&M and other activities in MSD's collection and treatment system may address and facilitate more than one of the NMCs. Therefore, there is much overlap found throughout this document. In any event, the ultimate goal is the reduction of overall CSO impacts as effectively and efficiently as possible.

This report provides current roles and responsibilities, ongoing activities, and accomplishments to date. The implementation and status of the CSO LTCP is detailed in a separate report entitled Interim CSO Long Term Control Plan dated June 3, 2006.

### **1.2 MSDs ORGANIZATIONAL STRUCTURE**

MSD has 608.5 approved staff positions (current as of January 2006) and is governed by an 8-member Board that approves budgets, rates, policies, and initiatives. Board members are appointed by the Mayor and serve 3-year overlapping terms. Daily operations of MSD are managed by the Executive Director.

MSD is organized into the Executive Offices plus 9 divisions: Infrastructure and Flood Protection (I&FP), Legal, Human Resources, Finance, Physical Assets, Regulatory Management Services (RMS), Engineering, Operations, and Information Technology (IT). Figures of MSD's most



current organization charts for each division are provided in Appendix A. The organization charts show the extent and complexity of the organization.

### **1.2.1 Executive Offices**

The Executive Offices includes the Executive Director and three support staff.

### **1.2.2 Infrastructure and Flood Protection (I&FP) Division**

With a total staff of approximately 211, I&FP is responsible for operation and maintenance of MSD's sewers, drainage systems, flood pump stations, and flood protection levees. I&FP's responsibilities include customer service response, condition assessment, preventive maintenance, corrective maintenance and emergency maintenance. I&FP staff also provides operation and maintenance of CSO overflows and regulators.

### **1.2.3 Legal Division**

The Legal Division includes five in-house lawyers and two support staff. The Legal staff provides assistance in areas of contracts, purchasing, regulatory compliance, and property acquisition. The in-house legal staff is supported by outside counsel who report directly to the MSD Board.

### **1.2.4 Human Resources Division**

Human Resources (HR) include 18 staff positions with responsibility for staffing functions, benefits and insurance, training, and DiverseWorks (MSD's EEO and minority and female business enterprise programs). HR also includes an employee relations coordinator who deals with union contracts and similar issues.

HR maintains the organization chart and develops position descriptions and job qualification requirements for each approved position in MSD's organization.

### **1.2.5 Finance Division**

The Finance Department has 17 staff positions with responsibilities for budgets, rates and revenue, purchasing, payroll, and accounts receivable and accounts payable. Finance also includes an in-house auditor.

### **1.2.6 Physical Assets Division**

Physical Assets has 39 staff positions organized into three groups: Administrative Services, Fleet Services, and Storeroom and Inventory.

### **1.2.7 Regulatory Management Services Division**

The Regulatory Management Services (RMS) Division includes 43 approved positions. This Division was formed to coordinate MSD regulatory programs dealing with hazardous materials, industrial discharge permitting, and wastewater/stormwater discharge regulations. MSD's laboratory is also part of the RMS Division.

The RMS over-site includes the combined and sanitary sewer programs which also includes the CMOM Program. The Consent Decree, in Paragraph 22, calls for the formation of a Wet Weather Team which will represent the community stakeholders that have an interest in the CD outcome. The Wet Weather Team will be the responsibility of the RMS Division.

### **1.2.8 Engineering Division**

The Engineering Division is divided into two main groups: Development and Area Teams.

#### **1.2.8.1 Development Team**

The development team includes 24 staff positions primarily responsible for review, approval and inspection of new developments that propose to connect to MSD's system.

#### **1.2.8.2 Area Teams**

The Area Teams were formed to provide MSD with the ability to be more responsive to customer service needs based on specific geographic (major drainage basins) and political service areas. Three Area Teams are responsible for the planning and execution of MSD related capital projects, drainage projects, and coordination of operations and customer service needs of other public agencies. Each Area Team has staff dedicated to its particular Area Team service area. There are 29 staff positions in the 3 Area Teams.

### **1.2.9 Operations Division**

Operations includes 154.5 staff positions, with responsibility for operations and maintenance of MSD's wastewater treatment plants, sewage pump stations, and associated force mains. The Operations Division is also responsible for production of Louisville Green® the heat-dried biosolids fertilizer that MSD markets to agricultural customers throughout the south.

Of the 151.5 approved positions, 91 are assigned to the 120 mgd Morris Forman Wastewater Treatment Plant (MFWTP). In addition to treating more than 70 percent of all wastewater generated in MSD's service area, MFWTP is also the biosolids handling facility for the entire District.

### **1.2.10 Information Technology Division**

The Information Technology Division is divided into four separate functional units: LOJIC, Information Systems, GIS Services and Records and Customer Relations.

#### **1.2.10.1 LOJIC**

The Louisville/Jefferson County Information Consortium (LOJIC) is a multi-agency partnership begun in 1988 with the mission of building and maintaining a comprehensive Geographic Information System (GIS) to serve all of Louisville and Jefferson County, Kentucky. A 12-person technical staff supports overall GIS activities across all LOJIC user agencies. LOJIC staff, housed at MSD offices, provides database management, applications development, products/services, training and system network support for all users.

#### **1.2.10.2 Information Systems**

This core group of 17 technical staff supports and maintains all of MSD's information technology systems, including the network, hardware and software for MSD and its partner agencies for business and engineering processes. Information Systems personnel also develop and maintain in-house applications to support MSD's functions.

### **1.2.10.3 GIS Services and Records**

This department has a 13 person staff that supports MSD's GIS and record drawing activities across all of MSD. GIS Services and Records personnel provide direct user support and training for the Hansen Asset Management System (Hansen) and eB software, as well as GIS applications development, database management, custom mapping and creation and maintenance of MSD's GIS layers.

### **1.2.10.4 Customer Relations**

Nineteen staff members provide support for the Customer Relations Call Center and direct customer contact that come to MSD to conduct business. They provide 24 hours per day, 7 days per week telephone support and after 5:00 PM and on weekends answer all 311 calls for Louisville Metro.

## **1.3 SYSTEM CHARACTERIZATION**

To plan, select and design appropriate CSO NMCs and to ascertain the effectiveness of these controls, MSD specifically characterized the land use areas served by the combined system, including the size (in square miles) and population served of the CSO drainage area, its land uses, and level of imperviousness. The character (size, population, land use) of the areas served by separate sewer systems, but which are adjacent to and potentially impact the same receiving waters, is also necessary for assessing potential inputs from sources other than CSOs.

Consistent with the NMCs objectives to minimize the impact of CSOs through a reduction of the frequency, duration or pollutant loading that is associated with overflows, MSD also characterized the sewersheds to determine the location of CSO points, the estimated frequency of overflows under specific rainfall and runoff conditions, and the estimated duration of such overflows. To accomplish this characterization, MSD has modeled the CSS area under a wide variety of precipitation conditions, performed many field investigations and surveys, reviewed current LOJIC information and aerial photography, performed water body inspections, and reviewed previously available information. The characterization of the system provided data about the site-specific nature of CSO in Louisville and Jefferson County which led to the development of alternatives and choices for the NMCs.

### **1.3.1 Combined Sewer System Overview**

The sewerage system owned, operated, and maintained by MSD has evolved for almost a century and a half into an extensive network of both sanitary and combined sewers, diversion structures, mechanical regulators and other flow control devices, and pump stations. The combined sewer area encompasses 25,000 acres, which is about one-third of the Morris Forman Treatment Plant (MFWTP) service area, and serves about 324,000 people with approximately 670 miles of sewer. There are 113 active CSOs within the MSD service area. MSD has subdivided the combined sewer area into three regions for study and evaluation. Detailed descriptions of the combined sewer system within each region are provided in the following sections.

In the combined sewer system, flows during dry weather conditions are conveyed to the MFWTP to remove pollutants before discharging to the Ohio River. During wet weather conditions, when capacity of the CSS is exceeded, there are overflows to the South Fork of Beargrass Creek, Middle Fork of Beargrass Creek, or the Ohio River. Approximately 25% of

the total sanitary flow tributary to the MFWTP from the separate sewer system is conveyed through portions of the CSS.

As part of the development of the CSO LTCP, information was compiled to characterize the CSO areas and the MSD CSS. Relevant characteristics such as CSO location, drainage basin land use, and frequency and duration of probably overflows have been compiled using information obtained from LOJIC, aerial photography, sewer-system characterization and hydraulic modeling. In addition, site visits and field walks were also performed to verify other information.

Refer to Figures 1a, 1b and 1c for descriptions outlining the catchment area, land use, pipe sizes, and control devices at each CSO location. Overflow volume and frequency have also been developed for each CSO under a wide variety of precipitation conditions. This information is available in the draft LTCPs, or various studies and reports developed and reported to DOW as part of the WATERS reports, MSD's annual updates on the wet weather program.

#### **1.3.1.1 Beargrass Creek Region**

The Beargrass Creek Region consists of the eastern portion of the CSO area, which includes the Beargrass Creek watershed, and is considered the most sensitive area due to the high concentration of residential areas and proximity to public gathering places. The Beargrass Creek Region contains 56 CSOs that discharge to Beargrass Creek.

The combined sewer collection and transmission system in the Beargrass Creek Region consists of those sewers contributing dry and wet weather flow to the Robert J. Starkey Pumping Plant, including the interceptors along the South and Middle Forks of Beargrass Creek, the Northeastern Sanitary Trunk, and related collector sewers. Much of the interceptor network in this region has limited wet weather conveyance capacities. Although nearly all wastewater flows generated in the Beargrass Creek Region are tributary to the Robert J. Starkey Pumping Plant. Two exceptions exist:

- Those flows spilling into the Beargrass Interceptor Relief Sewer that are subsequently pumped to the Southwestern Outfall service area via the Nightingale Pump Station, and;
- Flows diverted from the Beargrass Interceptor to the Southeastern Interceptor and Northern Ditch Interceptor systems, via the Southeastern Diversion, upstream of the combined sewer area.

#### **1.3.1.2 Ohio River North Region**

The Ohio River North Region covers the central business district and most of downtown Louisville. The Ohio River North Region contains overflows that discharge to areas in close proximity to riverfront parks and development.

The Ohio River Interceptor (ORI) and Central Relief Drain (CRD) service areas are designated as the Ohio River North Region since they are downstream of the Robert J. Starkey Pumping Plant and overflow into the Ohio River. The collection and conveyance networks in this Region are relatively small with limitations in wet weather capacity; therefore, the LTCP CSO control solutions are likely to consist of a mixture of off-line or in-line storage, continued sewer separation, additional relief sewers, system diversions and/or upgraded or expanded pumping facilities to accommodate greater wet weather flows. The ORI conveys flows to the Main Diversion Structure which contains CSO 211 near the MFWTP from the Robert J. Starkey Pumping Plant, 4th Street and 34th Street Pump Stations, as well as gravity systems generally



servicing the areas along the south shore of the Ohio River. Forty-nine (49) individual overflow relief structures are widely scattered throughout the two service areas, with no centrally-oriented clusters of overflows.

### **1.3.1.3 Ohio River West Region**

The Ohio River West Region encompasses the western side of the CSO area, including the Morris Forman Treatment Plant, which serves the entire CSO area. The Ohio River West Region contains the fewest number of CSOs, all of which discharge to the Ohio River, and has the lowest potential for human contact. The Ohio River West Region also contains the single largest CSO discharge location (1,780 MG/Yr or 60% of all CSO overflows) representing the majority of the system-wide overflow volume.

In the Ohio River West Region, the conveyance systems consist of much larger interceptors and trunk sewers than exist in either of the Beargrass Creek or Ohio River North Regions. Major sewers and service areas in the Ohio River West Region include the Northwestern Interceptor (NWI), Western Interceptor, Western Outfall (WO), Southern Outfall (SO), and the Southwestern Outfall (SWO). With the exception of the Western Interceptor, the conveyance capacities of these facilities are generally much larger than the capacity required for dry weather flow only, since they must also convey storm flows from small and large events. Eight (8) CSO locations exist in this western part of the MSD service area, all of which are located near the most downstream ends of the conveyance systems in each area.

FIGURE 1-1a  
BEARGRASS CREEK CSO REGION

CSO	CSO NAME	LOCATION	RECEIVING STREAM	DRAINAGE AREA (ACRES)	PERCENT IMPERVIOUS	PERCENT TREE COVER	ANNUAL OVERFLOW ESTIMATE (MG/YR)	SHAPE / STRUCTURE			
								OVERFLOW TYPE	OUTLET SIZE	INTERCEPTOR SEWER	
018	NIGHTINGALE PS	NIGHTINGALE & SFBGC	SF BGC	0.0	NA	Interceptor Relief	0.64	HIGH LEVEL PIPE W/ SIDE WEIR		27"	ACTIVE
020	BUCHANAN PS	BUCHANAN & FRANKLIN	OR	86.6	65.11%	0.06%	40.23	DIVERSION DAM	6' x 6'	6'6" X 6'1.5"	ACTIVE
062	LOGAN COMPANY	N OF BUCHANAN PS	OR	--	NA	Interceptor Relief	48.42	DIVERSION DAM	54" SE	5'7.5" x 4'0" basket handle	ACTIVE
065	LAMPTON STREET	LAMPTON & SWAN	SF BGC		No Data	9.45%		DIVERSION DAM	24"	12"	ELIMINATED
080	PAYNE STREET	LEXINGTON RD W OF PAYNE	MF BGC		No Data	5.48%		DIVERSION DAM	8"	2.2'x5.1' rectangular	ELIMINATED
081	LETTERLE	LETTERLE @ BGC PS	SF BGC	--	NA	Interceptor Relief	0	HIGH LEVEL PIPE		10"	ACTIVE
082	BGI AT BGC	BGC @ OMFT	SF BGC	16.0	NA	Interceptor Relief	0.59	HIGH LEVEL PIPE		39"	ACTIVE
083	BRENT ST & BROADWAY CONNECT	BRENT & BROADWAY	SF BGC	45.7	73.30%	0.43%	2.67	DIVERSION DAM	8"	30"	ACTIVE
084	BRENT ST @ BGC	BRENT ST @ BGC	SF BGC	125.1	63.93%	3.77%	2.21	DIVERSION DAM	15"	54"	ACTIVE
086	PAYNE AT SPRING	PAYNE ST @ SPRING ST	MF BGC	6.1	60.45%	3.56%	0	LEAPING WEIR	10"	24"	ACTIVE
087	BLUEHORSE	FRANKFORT @ BLUEHORSE	SF BGC	8.0	59.07%	0.00%	0	LEAPING WEIR	10"	24"	ACTIVE
088	MELLWOOD AVE INT	BROWNSBORO RD @ BGC	SF BGC		61.19%	0.65%	0	LEAPING WEIR	24"	24"	ACTIVE
091	SCHILLER AVE OVFL	SCHILLER & HIGHLAND	SF BGC	15.0	48.23%	10.29%	0.06	ORIFICE		24"	ACTIVE
092	ST CATHERINE @ BGC	SCHILLER BTW KY & ST CATHERINE	SF BGC	7.7	50.88%	8.78%	0.003	LEAPING WEIR	15"	24"	ACTIVE
093	SPRING STREET	SPRING ST N OF MELLWOOD	SF BGC	20.8	65.08%	0.60%	0	LEAPING WEIR	15"	36"	ACTIVE
097	CANTONMENT SIPHON NO 2	BGC S OF EASTERN PKWY	SF BGC	--	NA	Interceptor Relief	49.81	HIGH LEVEL PIPE		39"	ACTIVE
106	ROYAL - NEFF	BACKYARD OF 1212 ROYAL	SF BGC	11.8	30.69%	22.80%	0.1	DIVERSION DAM	6"	12" and 15" - in 18" - out	ACTIVE
108	REG NO 1 - NEWBURG	NEWBURG @ TREVILIAN	SF BGC	485.2	39.61%	15.54%	39.59	REGULATOR W/ RACK BARS	12" x 24"	dual 7'6" x 7'0"	ACTIVE
109	REG NO 2 - DEER PARK	BEHIND O. L. O. P.	SF BGC	95.4	44.46%	6.88%	2.97	REGULATOR W/ RACK BARS	12" x 15"	54"	ACTIVE
110	REG NO 3 - GOSS AVE	BGC S OF EASTERN PKWY	SF BGC	73.0	45.79%	6.24%	3.9	REGULATOR W/ RACK BARS	12" x 15"	60"	ACTIVE
111	EMERSON STREET SEWER	BGC N OF EASTERN PKWY	SF BGC	99.4	51.55%	6.97%	9.55	DIVERSION DAM		5'2.5" x 4'9" basket handle	ACTIVE
113	ELLISON AVENUE SEWER	ELLISON & SCHILLER	SF BGC	67.6	50.09%	4.97%	7.83	DIVERSION DAM		48"	ACTIVE
117	REG NO 11 - DRY RUN	LOGAN & CALDWELL	SF BGC	74.2	60.02%	0.14%	82.53	DIVERSION DAM W/ REGULATOR	24" x 24"	9'6"	ACTIVE
118	REG NO 15 - E BRDWAY	BROADWAY W OF BGC	SF BGC	354.1	73.96%	0.15%	169.76	DIVERSION DAM W/ REGULATOR	16" x 34"	8'0"	ACTIVE
119	BRENT STREET SEWER	BGC N OF BROADWAY	SF BGC	--	NA	Interceptor Relief	2.35	HIGH LEVEL PIPE		18"	ACTIVE
120	PHOENIX HILL SEWER	E OF BGC & S OF BAXTER	SF BGC	7.7	77.53%	0.32%	4.35	DIVERSION DAM	8"	24"	ACTIVE
121	REG NO 18 - GREEN ST	LEXINGTON RD W OF BGC	SF BGC	107.2	73.39%	0.88%	3.2	DIVERSION DAM W/ REGULATOR	12"	36"	ACTIVE
123	REG NO 20 - RUTH-SULGRV	ON BGC OP SPRING VALLEY	MF BGC		No Data	39.43%		REGULATOR W/ RACK BARS	8"	27"	ELIMINATED
125	REG NO 24 - GRINSTEAD DR	GRINSTEAD @ I-64	MF BGC	391.0	37.27%	11.37%	18.4	REGULATOR W/ RACK BARS	15"	7'3"	ACTIVE
126	REG NO 26 - RAYMOND AVE	I-64 & SAUNDERS LN	MF BGC	35.3	35.24%	17.04%	0.27	REGULATOR	15"	36"	ACTIVE
127	ETLEY AVENUE	LEXINGTON RD OP ETLEY	MF BGC	192.3	50.52%	24.47%	13.32	DIVERSION DAM	12"	6'0"	ACTIVE
130	WEBSTER STREET	S OF STORY OP WEBSTER	SF BGC	28.4	72.39%	2.45%	6.51	DIVERSION DAM	12"	24"	ACTIVE
131	REG NO 33 - MELWD & FRANKFORT	FRANKFORT AVE @ BGC	SF BGC	50.3	56.36%	2.19%	0.22	REGULATOR W/ RACK BARS	15"	30"	ACTIVE
132	REG NO 35 - BROWNSBORO	BROWNSBORO & DRESCHER B	MudF BGC	674.0	43.22%	13.32%	117.66	REGULATOR W/ RACK BARS	16" x 21"	10'11" x 10'0" basket handle	ACTIVE
137	CALVARY CEMETARY	CALVARY CEMETARY @ BGC	SF BGC	26.7	56.75%	4.48%	1.1	DIVERSION DAM	8"	12" and 24" - in 24" - out	ACTIVE
140	LOCUST STREET	LOCUST SW OF SPRING	MF BGC	75.5	52.07%	6.75%	5.07	RACK BARS	10"	42"	ACTIVE
141	BAXTER AVE @ BGC	BAXTER AVE & BGC	SF BGC	16.5	67.68%	2.91%	0	ORIFICE		18"	ACTIVE
142	SBR LOGAN ST @ ST CATHERINE	LOGAN & ST CATHERINE	SF BGC	0.0	NA	Interceptor Relief	SBR	SIDE WEIR		24"	ACTIVE
144	VANCE ST REGULATOR	S END OF VANCE & I-64	MF BGC	16.4	49.30%	4.79%	0.61	DIVERSION DAM W/ REGULATOR	7.5" x 15.38	42"	ACTIVE



FIGURE 1-1a  
BEARGRASS CREEK CSO REGION

CSO	CSO NAME	LOCATION	RECEIVING STREAM	DRAINAGE AREA (ACRES)	PERCENT IMPERVIOUS	PERCENT TREE COVER	ANNUAL OVERFLOW ESTIMATE (MG/YR)	SHAPE / STRUCTURE			
								OVERFLOW TYPE	OUTLET SIZE	INTERCEPTOR SEWER	
145	POINT PUMP STATION	POINT PUMP STATION	SF BGC		NA	Interceptor Relief		SANITARY AND STORM PUMPS BASED ON WETWELL LEVELS			
146	SNEADS BRANCH DIVERSION	SWAN ST S OF BGC	SF BGC	724.6	51.43%	2.60%	91.68	RACK BARS	18"	7'0"	ELIMINATED
147	SWAN STREET DIVERSION	SWAN ST N OF BGC	SF BGC		55.71%	4.26%	1.3	ORIFICE		36"	ACTIVE
148	EASTERN PKWY DIVERSION	EASTERN PKWY E OF BGC	SF BGC	24.9	37.04%	22.75%	0.27	DIVERSION DAM	8"	24"	ACTIVE
149	DRY RUN DIVERSION	KENTUCKY STREET & ST PAUL CT	SF BGC	225.8	NA	0.14%	6.9	DIVERSION DAM	48" x 33"	8'6"	ACTIVE
151	REG NO 5 - CASTLEWOOD	BGC & CASTLEWOOD DELL	SF BGC	232.5	43.31%	19.67%	143.91	REGULATOR W/ RACK BARS	24"	66"	ACTIVE
152	REG NO 7 - SOUTHEASTERN	BGC & RUFER AVENUE	SF BGC	260.6	51.94%	13.79%	34.4	REGULATOR W/ RACK BARS	18"	7'0"	ACTIVE
153	COOPER STREET	LEXINGTON & COOPER	SF BGC	41.7	54.12%	3.24%	7.15	DIVERSION DAM	8"	36"	ACTIVE
154	MELLWOOD @ SCHOEFFEL	MELLWOOD AVE & EDWD POND BR	MudF BGC	31.0	49.52%	3.14%	1.53	DIVERSION DAM	12" & 15"	48"	ACTIVE
162	BEALS BRANCH HW REG	ON MFT S OF LEXINGTON	MF BGC		NA	Interceptor Relief		REGULATOR	24"	24"	ELIMINATED
166	BEALS BRANCH SAN DIV	LEXINGTON RD & I-64	MF BGC	681.1	40.20%	11.42%	16.32	DIVERSION DAM W/ RACK BARS	24"	10'3" semi-elliptical	ACTIVE
167	BROWNSBORO LAT NO 2	BROWNSBORO & DRESCHER B	MudF BGC	11.0	NA	13.32%	0	DIVERSION DAM	15"	24"	ACTIVE
172	ADAMS STREET	ADAMS ST & I-64	OR	13.7	44.78%	0.29%	0.17	SIDE WEIR	10"	36"	ACTIVE
174	SBR GOSS & BOYLE	GOSS AVE & BOYLE ST	SF BGC	169.6	NA	Interceptor Relief	2.1	SIDE WEIR	54"	7'0"	ACTIVE
179	KENTUCKY ST SEWER OVFL	KENTUCKY ST & ST PAUL CT	SF BGC	461.8	NA	0.14%	0.08	SIDE WEIR	8'6"	8'0" - in 9'6" - out	ACTIVE
180	SBR ORMSBY AVE RELIEF	ORMSBY & CLAY	SF BGC	2.8	NA	Interceptor Relief	0.00	SIDE WEIR	30"	36"	ACTIVE
182	SBR SHELBY & BURNETT	BURNETT W OF SHELBY ST	SF BGC	147.3	NA	Interceptor Relief	11.35	SIDE WEIR	60"	7'0" semi-elliptical - in 60" - out	ACTIVE
183	SBR ALEXANDER & KESWICK	ALEXANDER & KESWICK	SF BGC	3.2	NA	Interceptor Relief	0.00	HIGH LEVEL PIPE		18"	ACTIVE
184	SBR FETTER & ALEXANDER	FETTER & ALEXANDER	SF BGC	109.3	NA	Interceptor Relief	0.29	SIDE WEIR	54"	6'0" semi-elliptical	ACTIVE
185	SBR SHELBY & KESWICK	SHELBY & KESWICK	SF BGC	145.8	NA	Interceptor Relief	1.34	SIDE WEIR	48"	6'6" semi-elliptical	ACTIVE
186	SBR LOGAN & OAK	LOGAN & OAK	SF BGC	0.0	NA	Interceptor Relief	0.00	SIDE WEIR	18"	18"	ACTIVE
187	SBR SHELBY & CAMP	SHELBY & CAMP	SF BGC	5.2	NA	Interceptor Relief	0.00	SIDE WEIR	15"	18"	ACTIVE
188	SBR SHELBY & CLAY	SHELBY & CLAY	SF BGC	14.7	NA	Interceptor Relief	0.00	SIDE WEIR	21"	20"	ACTIVE
205	SBR MORGAN STREET RELIEF	MORGAN & HOERTZ	SF BGC	9.5	NA	Interceptor Relief	0.00	HIGH LEVEL PIPE		30"	ACTIVE
206	CHEROKEE PARK @ SPRING DR	CHEROKEE RD & SPRING DR	MF BGC	464.7	47.06%	17.94%	88.89	DIVERSION DAM	8"	87"	ACTIVE
209	CHEROKEE PK @ PARK BD RD	CHEROKEE PK @ PARK BD RD	MF BGC	105.0	41.96%	22.16%	5.12	DIVERSION DAM	12"	36"	ELIMINATED
				7,098.4		8.27%					

**FIGURE 1-1b**  
**OHIO RIVER NORTH CSO REGION**

CSO	CSO NAME	LOCATION	RECEIVING STREAM	DRAINAGE AREA (ACRES)	PERCENT IMPERVIOUS	PERCENT TREE COVER	ANNUAL OVERFLOW ESTIMATE (MG/YR)	Shape / Structure			
								OVERFLOW TYPE	Outlet Size	INTERCEPTOR SEWER	
019	34th STREET PS	34th & RUDD	OR	1,192.4	46.01%	0.00%	95.45	DIVERSION DAM	24"	11'6"	ACTIVE
022	FOURTH ST PS	FOURTH & MAIN	OR	95.2	93.03%	0.00%	7.45	DIVERSION DAM	30"		ACTIVE
023	ORI @ 4th ST PS	FOURTH & MAIN	OR	--	NA	Interceptor Relief	0.85	SIDE WEIR		96" x 96"	ACTIVE
026	CRD 6th & BROADWAY	6th & BROADWAY	OR	8.4	93.18%	0.00%	0	SIDE WEIR		36"	ACTIVE
027	CRD 7th & BROADWAY	7th & BROADWAY	OR	10.1	91.24%	0.00%	0	SIDE WEIR		42"	ACTIVE
028	CRD 6th & YORK	6TH & YORK	OR	6.1	92.00%	0.00%	0.08	SIDE WEIR	36"	42"	ACTIVE
029	CRD 8th & YORK	8th & YORK	OR	0.0	NA	Interceptor Relief	2.94	SIDE WEIR		60"	ACTIVE
030	CRD 9th & YORK "A"	9th & YORK	OR	32.6	79.63%	0.00%	1.46	SIDE WEIR		54"	ACTIVE
031	CRD 6th & BRECKINRIDGE	6th & BRECKINRIDGE	OR	3.8	75.43%	0.00%	0	SIDE WEIR		30"	ACTIVE
032	CRD 4th & BRECKINRIDGE	4th & BRECKINRIDGE	OR	6.4	81.72%	0.00%	0	SIDE WEIR	36"	24" and 27" - in 18" - out	ACTIVE
033	CRD ON YORK E OF 4th	ON YORK E OF 4th	OR	4.3	86.84%	0.00%	0.01	SIDE WEIR	36"	30" x 39" egg	ACTIVE
034	CRD 4th & YORK	4th & YORK	OR	5.1	81.95%	0.00%	1.41	SIDE WEIR	36"	30" x 45" egg	ACTIVE
035	CRD 2nd & BROADWAY NO 1	2nd & BROADWAY	OR	0.0	NA	Interceptor Relief	0	SIDE WEIR	36"	36" x 54" egg	ACTIVE
036	CRD 3rd & BROADWAY	3rd & BROADWAY	OR	20.0	87.24%	0.00%	0.32	SIDE WEIR	36"	30" x 45" egg	ACTIVE
038	CRD 5th & BROADWAY	5th & BROADWAY	OR	9.5	84.95%	0.00%	0.004	SIDE WEIR	5'5" x 8'1.5" inverted egg	30"	ACTIVE
049	PRESTON ST	PRESTON N OF JACKSON	OR		NA	Interceptor Relief		HIGH PIPE		18"	ELIMINATED
050	12th STREET	12th ST N OF MAIN	OR	36.3	84.73%	0.00%	7.09	DIVERSION DAM	16"		ACTIVE
051	11th STREET	11th ST N OF MAIN	OR	6.3	93.99%	0.00%	0.36	DIVERSION DAM	8"		ACTIVE
052	10th STREET	10th ST N OF MAIN	OR	8.7	80.61%	0.00%	0.52	DIVERSION DAM	10"		ACTIVE
053	8th STREET	8th ST N OF MAIN	OR	34.1	90.77%	0.00%	5.61	DIVERSION DAM	12"		ACTIVE
054	7th STREET	7th ST N OF MAIN	OR	7.1	94.12%	0.00%	0.96	DIVERSION DAM	8"		ACTIVE
055	6th STREET	6th ST N OF MAIN	OR	18.0	87.68%	0.00%	2.8	DIVERSION DAM	12"		ACTIVE
056	5th STREET	5th ST N OF MAIN	OR	22.0	89.42%	0.00%	4.6	DIVERSION DAM	12"		ACTIVE
057	FIRST STREET OVFL WEIR	1st & MAIN	OR	--	NA	Interceptor Relief	0	HIGH PIPE			ACTIVE
058	PRESTON ST OVFL WEIR	PRESTON & MAIN	OR	105.4	79.67%	0.05%	5.26	SIDE WEIR			ACTIVE
150	8th ST @ COMMON PLACE	8th ST & COMMON PLACE	OR	1.8	NA	0.00%	4.26	DIVERSION DAM	8"		ACTIVE
155	ROWAN ST @ 12th ST	ROWAN & 12th	OR	11.9	70.00%	0.00%	0.07	DIVERSION DAM	8"		ACTIVE
156	6th & WASHINGTON SAN DIV	WASHINGTON W OF 6th	OR	--	NA	Interceptor Relief	0	DIVERSION DAM	6"		ACTIVE
159					NA	Interceptor Relief					?
160	SEWER IN ALLEY SAN DIV	1ST ST BTW MAIN & MARKET	OR	2.0	94.64%	0.00%	0.22	DIVERSION DAM	6"		ACTIVE
161	MARKET ST SAN DIV	FIRST & MARKET	OR	2.5	94.49%	0.00%	0.19	DIVERSION DAM	8"		ACTIVE
178	CRD 9th & YORK "B"	9th & YORK	OR	29.7	82.10%	0.00%	0.14	SIDE WEIR			ACTIVE
181	CRD 2nd & BROADWAY NO 2	2nd & BROADWAY	OR	22.6	87.97%	0.00%	0.38	SIDE WEIR			ACTIVE
190	SEVENTEENTH ST SAN DIV	17th ST & NW PKWY	OR	145.4	66.36%	0.00%	10.57	DIVERSION DAM	24"		ACTIVE
192	CRD S 6th & GARLAND	6th & GARLAND	OR	9.0	55.11%	0.00%	0.22	SIDE WEIR			ACTIVE
193	CRD S 6th & KENTUCKY	6th & KENTUCKY	OR	22.7	57.99%	0.00%	0.15	SIDE WEIR			ACTIVE
194	CRD S OAK W OF 4th	OAK ST W OF 4th ST	OR	--	NA	Interceptor Relief	0	SIDE WEIR			ACTIVE
195	CRD S 4th & OAK	4th & OAK	OR	7.3	72.31%	0.00%	0	SIDE WEIR			ACTIVE
196	CRD S 3rd & OAK	3rd & OAK	OR	--	NA	Interceptor Relief	1.61	SIDE WEIR			ACTIVE
197	CRD S 3rd S OF OAK	3rd ST S OF OAK ST	OR	--	NA	Interceptor Relief	0.58	SIDE WEIR			ACTIVE
198	CRD S 3rd & ORMSBY	3rd & ORMSBY	OR	13.0	60.69%	0.00%	1.82	SIDE WEIR			ACTIVE
199	CRD S 3rd N OF MAGNOLIA	3rd ST N OF MAGNOLIA	OR	--	NA	Interceptor Relief	0.01	SIDE WEIR			ACTIVE

FIGURE 1-1b  
OHIO RIVER NORTH CSO REGION

CSO	CSO NAME	LOCATION	RECEIVING STREAM	DRAINAGE AREA (ACRES)	PERCENT IMPERVIOUS	PERCENT TREE COVER	ANNUAL OVERFLOW ESTIMATE (MG/YR)	Shape / Structure		
								OVERFLOW TYPE	Outlet Size	INTERCEPTOR SEWER
200	CRD S 3rd & MAGNOLIA	3rd & MAGNOLIA	OR	10.3	37.69%	0.00%	0.25	SIDE WEIR		
201	CRD S 5th & KENTUCKY	5th & KENTUCKY	OR	--	NA	Interceptor Relief	0.43	SIDE WEIR		
202	CRD S ORMSBY W OF 3rd	ORMSBY W OF 3rd ST	OR	5.3	68.36%	0.00%	0.07	SIDE WEIR		
203	CRD S 4th & ORMSBY	4th & ORMSBY	OR	14.2	44.66%	0.00%	0	SIDE WEIR		
207	2nd & JEFFERSON	2ND & JEFFERSON	OR	2.5	NA	Interceptor Relief	0	DIVERSION DAM	8"	
208	12th & JEFFERSON	12th & JEFFERSON	OR	11.2	45.70%	Interceptor Relief	0	DIVERSION DAM	12"	
				1,943.5		0.00%				

ACTIVE  
ACTIVE  
ACTIVE  
ACTIVE  
ACTIVE  
ACTIVE

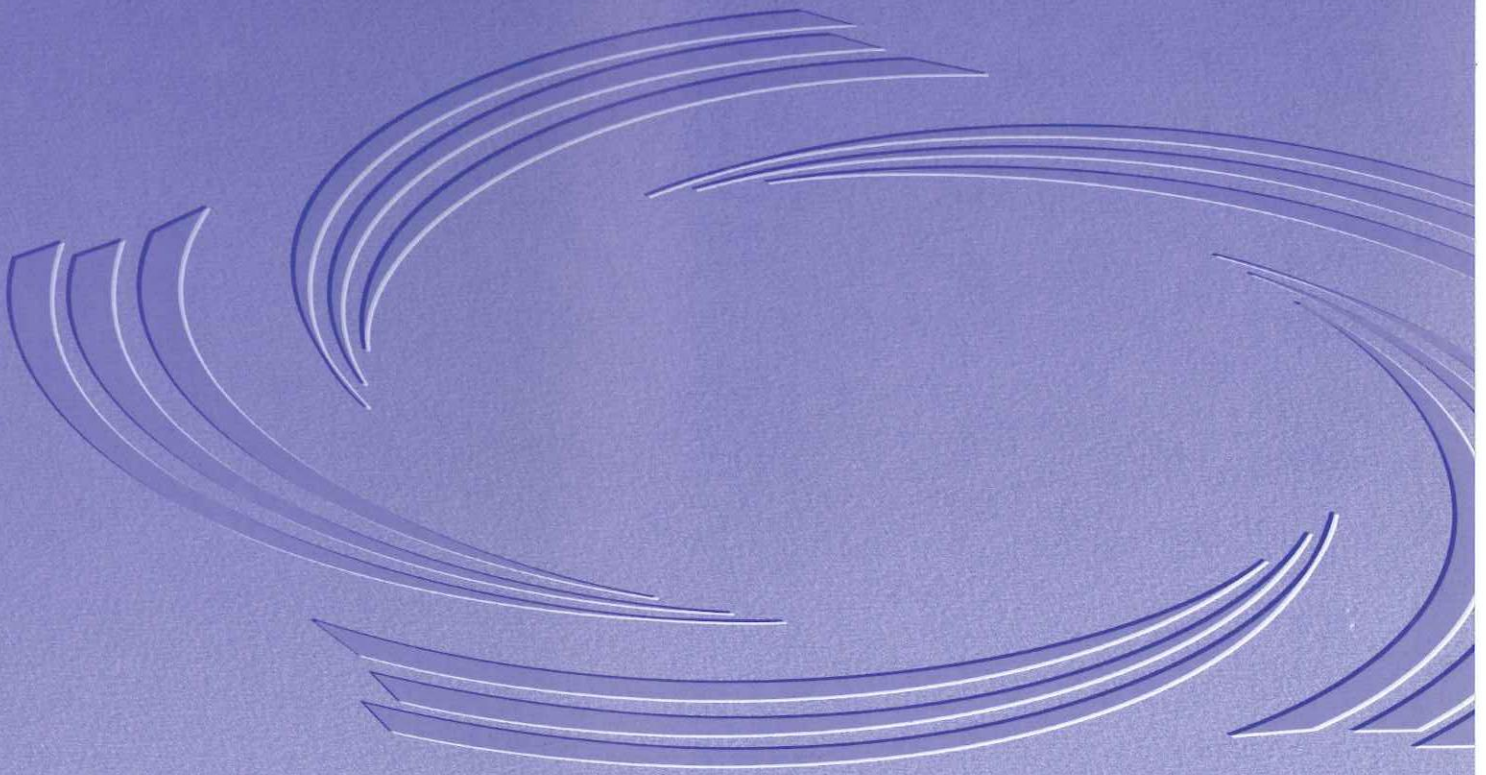
FIGURE 1-1c  
OHIO RIVER WEST CSO REGION

CSO	CSO NAME	LOCATION	RECEIVING STREAM	DRAINAGE AREA (ACRES)	PERCENT IMPERVIOUS	PERCENT TREE COVER	ANNUAL OVERFLOW ESTIMATE (MG/YR)	Shape / Structure			
								OVERFLOW TYPE	Outlet Size	INTERCEPTOR SEWER	
015	SOUTHWESTERN PS	BELLS LN & I-264	OR	7,441.3	47.32%	0.40%	844.83	DIVERSION DAM	2-60"	18'4" x 27'6" inverted egg	ACTIVE
016	MILES PARK BYPASS	S OF 45th & WINNROSE	OR	0.0	NA	Interceptor Relief	0	SIDE WEIR	10"	48"	ACTIVE
104	SW PKWY SEWER @ BROADWAY	SW PKWY & BROADWAY	OR	62.0	43.58%	0.00%	6.29	DIVERSION DAM	24"	48"	ACTIVE
105	WESTERN OUTFALL @ BROADWAY	BROADWAY @ SW PKWY	OR	1,893.0	55.46%	0.00%	351.42	DIVERSION DAM	24"	11'9"	ACTIVE
189	NORTHWESTERN SAN DIV	SHAWNEE PARK FLOOD PS	OR	1,148.7	45.32%	0.00%	553.06	SIDE WEIR	3'6"	13'6" x 9'0"	ACTIVE
191	ALGONQUIN PKWY SAN DIV	SOUTHWESTERN PS	OR	339.8	39.92%	0.00%	4.17	DIVERSION DAM	24"	8'0"	ACTIVE
210	45th STREET-GREENWOOD	S OF 45th & WINNROSE	OR	166.7	38.96%	0.00%	21.16	DIVERSION DAM	10"	66"semi-elliptical	ACTIVE
211					55.86%	0.08%					ACTIVE
				11,051.5		0.07%					



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



---

## **SECTION 2: NMC 1 – PROPER OPERATION AND MAINTENANCE PROGRAM**

### **2.1 INTRODUCTION**

Per the Guidance manual, proper operation and regular maintenance of the combined sewer system (CSS) and combined sewer overflow (CSO) outfalls should consist of a program that clearly establishes operation, maintenance and inspection procedures to ensure that a CSS and wastewater treatment facility will function in a way to maximize treatment of combined sewage and comply with KPDES permit limitations. Implementation of this minimum control will reduce the magnitude, frequency and duration of CSOs by enabling existing facilities to perform as effectively as possible.

### **2.2 PROGRAM OVERVIEW**

From a NMC perspective, proper operations and maintenance is intended to prevent dry weather overflows and to reduce the volume, frequency and impact of wet weather flow. This message has been communicated across the district to all staff with responsibilities for operation and maintenance of the wastewater collection, transmission and treatment system. With this common understanding, MSD has created an operations and maintenance program that consistently achieves a very high standard.

Utilizing an asset management approach, programs and activities for proper operation and maintenance include facility characterization and inventory, inspections, CCTV, structural assessments, cleaning, preventive and corrective maintenance, staff training, facility improvements, information management, emerging technologies and enhanced communication systems. MSD maintains a rolling stock of over 600 vehicles and equipment, including combination sewer cleaners, jet rodders (flushers), backhoes, dump trucks, tanker trucks, portable pumps, portable generators, Atlas machines, and other equipment suitable for performing necessary maintenance activities.

### **2.3 SYSTEM CHARACTERIZATION**

At the MFWTP, individual process areas have been characterized to determine impact of individual treatment units being out of service. Process outages are scheduled at optimal times to minimize impact on plant performance and to coincide with other planned maintenance. This information is used to increase the amount of flow processed at the plant during wet weather.

Critical pump stations within the CSS have robust telemetry and SCADA capability and are monitored 24 hours a day, 7 days a week with set points for alarm conditions established, see Figure 2-2. In addition, all critical stations are visited on a daily basis. Operational conditions are displayed in real time and some functions can be controlled remotely. Detailed SOPs have been developed and are routinely reviewed for accuracy and opportunities to enhance performance, particularly during wet weather conditions.

Five pump stations are designated as critical pump stations, as shown on Figure 2-1, including two combined sewer pump stations and three combination flood protection and combined sewer pump stations. The two combined sewer pump stations are: (1) Southwestern and (2) Nightingale. Refer to Items 2-1 and 2-2 of the NMC Supplemental Information for example SOPs. The three combination flood protection and combined sewer stations are (1) 4<sup>th</sup> Street, (2) 34<sup>th</sup> Street, and (3) Starkey (formerly Buchanan). Refer to Items 2-3 and 2-4 of the NMC Supplemental Information for example SOPs.

The intricate system of interceptors, main line sewers, catch basins, CSOs and related appurtenances have been inventoried and operational aspects have been documented. Routine inspections are performed to ensure proper operation and maintenance is conducted and that overflows are minimized.

## **2.4 ORGANIZATIONAL RESOURCES AND RESPONSIBILITIES**

MSD is organized into separate divisions that work and function collectively, although each has specific and distinct duties within their areas of responsibility. The I&FP and OPS Divisions have primary responsibility for proper operation and maintenance of critical wastewater collection, transmission and treatment assets. Additionally, the Divisions of Engineering, RMS, IT and Physical Assets provide support functions to ensure proper operation and maintenance of critical assets. Refer to the MSD Organizational Chart in Appendix A for details.

### **2.4.1 Infrastructure Management - I&FP Division**

At the executive level, the Senior Maintenance Manager is responsible for the day-to-day activities of the I&FP Division. The senior level management positions within this Division are Wastewater/Stormwater Manager, Preventive Maintenance and Support Manager, and Support Administrator, which report to the Senior Maintenance Manager. The departments are subdivided by area of responsibility and each has supervisors, crew leaders and utility workers that make up the workforce.

Overall responsibilities of the I&FP Division are to provide sanitary, drainage and flood protection services in the Metro area, serving a population of approximately 693,000. Sanitary program services include planned and unplanned maintenance activities related to sewer lines, manholes, catch basins, CSO outfalls and flood protection facilities. Stormwater program services include maintenance activities on drainage facilities throughout the collection system. Flood protection services include maintenance of three sanitary and combination flood pumping stations, nine flood pumping stations, and 29 miles of floodwall and earthen levee.

Responsibilities specific to NMC #1 include routine maintenance activities as follows:

- Pump station inspection and maintenance
- Sewer line inspection and maintenance, including television inspection, sediment and debris removal, root and grease reconnaissance and removal, and repairs
- Inspection and maintenance of siphons and flap gates (tide gates)
- Inspection and maintenance of CSO regulators, solids and floatable control devices, rack bars and diversion dams, and
- Catch basin cleaning.

The I&FP Division employs over 200 personnel and has an annual budget of approximately \$16 million to facilitate the dedication of staff and equipment across the District.

### **2.4.2 Infrastructure Management - OPS Division**

At the executive level, the Engineering/Operations Division Director is responsible for the overall management of the Operations Division. The two departments within this Division are the Morris Forman Wastewater Treatment Plant (MFWTP) and Metro Operations (Metro OPS). The senior level management positions within this division are the Metro Operations Senior Manager, the MFWTP Operations Manager, MFWTP Maintenance Manager and Metro Operations Maintenance Manager. They are responsible for the management and daily

execution of operations and maintenance efforts of the Division. The senior level positions are supported by supervisors, who in turn manage operators, mechanics, electricians, instrumentation technicians and control technicians.

Overall responsibilities of the Operations Division are the operation and maintenance of the six (6) regional wastewater treatment plants, 19 small wastewater treatment plants, 275 pumping and lift stations, 162 miles of force mains, storage basins, and the Real Time Control (RTC) inline storage features of the collection system. This includes the responsibility to identify and document facility limitations as well as initiating the study, design and construction of required improvements, additions, and plant expansions. Additionally, the division is responsible to maximize treatment and storage within the collection system.

Responsibilities specific to NMC #1 include pump station and treatment plant inspection, maintenance and operation activities to ensure the following:

- Optimization of the quality and quantity of treated wastewater in wet weather;
- Minimal quality and quantity impacts of discharges from permitted CSO locations; and
- Development and implementation of proper operations and maintenance programs for the treatment and pumping facilities.

The Operations Division has an annual budget of approximately \$30 million to facilitate the dedication of staff and equipment across the District. The Division employs approximately 155 personnel, divided between MFWTP and Metro OPS. Treatment plant coverage is provided around the clock.

### **2.4.3 Information Management Systems**

MSD utilizes a wide variety of hardware and software to operate the day-to-day business activities associated with wastewater and stormwater collection, conveyance and treatment. Technologies employed range from relatively low-tech hand-held radios to sophisticated telemetered systems. Hardware runs the spectrum from desk top computers to wireless laptops for field usage and software ranges from simple desktop applications to complex integrated systems.

#### **2.4.3.1 Louisville/Jefferson County Information Consortium (LOJIC) GIS**

The LOJIC GIS contains over 200 spatial data layers that include detailed land surface mapping, property mapping, street centerlines/address ranges, site addresses, floodplains, zoning, sewer networks, water networks, soils, aerial photos and a host of political/administrative service districts. Over 300 users across the partner agencies have been trained in the use of the LOJIC GIS and depend on it for a wide range of mission-critical applications such as land records management, property valuation, community planning, emergency response/911, maintenance of sewer and water networks, flood insurance determination, customer service requests, stormwater modeling, asset workflow management, address assignment, and numerous public access applications via the Internet. A twelve-person technical staff supports overall GIS activities across all LOJIC user agencies. LOJIC staff, housed at MSD offices, provides database management, applications development, products/services, training and system network support for all users.

#### **2.4.3.2 SAP**

SAP is an enterprise resource planning product used by MSD for day-to-day financial, human resources and inventory functions. In addition, MSD uses SAP to initiate work requests of an



emergency, corrective or preventive nature at pump stations and treatment plants. The system allows management of preventative and corrective activities (schedules and work orders) for workload balancing, asset management, inventory control, parts procurement and expendable commodity reorders.

#### **2.4.3.3 Hansen Asset Management System (Hansen)**

MSD utilizes Hansen to record, track and report information concerning the collection, transmission and wastewater treatment plant assets. Critical asset condition assessment data is also maintained in this system. Hansen is also used to enter customer inquiries, recording pertinent information regarding the location, customer's name, and nature of the problem; to initiate work orders (WO) against specific assets so that the history of the asset can be updated, tracked and reported; to track response to discharges in the collection system; and, it is integrated with the Geographic Information System (GIS) called LOJIC, to allow users to access a pictorial view of assets.

#### **2.4.3.4 Supervisory Control and Data Acquisition (SCADA)**

MSD's SCADA system is a process control application that collects data from sensors within the collection system, pump stations, and treatment facilities, and transfers it to a central computer for management and control. The system compares wastewater treatment plant and collection system conditions against established set points. Adjustments are made according to preset routines in order to achieve optimal operating conditions. The components of the SCADA system transmit and receive the data using FM radio networks, cellular dialup, and other data highway and transmission systems.

MSD's central monitoring system for the MFWTP, as well as the Metro Operations group, is located at the MFWTP, and provides total system monitoring, event management, and flow control 24 hours per day, 7 days a week. SCADA enhancements across the District continue to automate functions that allow labor resources to be applied more effectively to technical problem solving, preventive maintenance and asset management activities.

#### **2.4.3.5 Rain Gauge Network**

MSD personnel utilize the rain gauge network to track the progress of storms and to plan for required resources. The system was initiated in 1991 as a joint effort between MSD and the United States Geological Survey (USGS). The rain gauge system serves two primary functions. First, it is used to calibrate MSD's OneRain rainfall prediction application along with NEXRAD rainfall data to provide rainfall predictions at least two hours in advance. Second, it allows real time reporting on the amount of rainfall in a geographic area. This information is utilized for flash flood emergency preparation and response. The rain gauge network provides geographical coverage of Metro Louisville and Southern Indiana. This network allows for efficient staging, scheduling and utilization of personnel, equipment and other resources.

Rainfall conditions are continuously telemetered to MSD's central computer from each of the gauging stations. Information regarding rainfall in the service area can be obtained from MSD's website at <http://www.msdlouky.org/aboutmsd/rainfall.cfm>. Reports can be queried from the database for each of the gauging stations.

#### **2.4.4 Information Technology Support**

The Information Technology Division provides enterprise system support. Those departments that provide this support within the Division are LOJIC, Information Systems, GIS Services and Records, and Customer Relations.

The Louisville/Jefferson County Information Consortium (LOJIC) is a multi-agency partnership with the mission of building and maintaining a comprehensive Geographic Information System (GIS) to serve all of Louisville and Jefferson County, Kentucky. A 12-person technical staff supports overall GIS activities across the LOJIC user agencies. LOJIC staff, housed at MSD offices, provides database management, applications development, products/services, training and system network support for all users.

The Information Systems group of 17 technical staff supports and maintains MSD's information technology systems, including the network, hardware and software for MSD and its partner agencies, for business and engineering processes. Information Systems staff also develops and maintains in-house applications to support MSD's functions.

The GIS Services and Records department has a 13-person staff that supports MSD's GIS and record drawing activities across all of MSD. GIS Services and Records staff provides direct user support and training for the Hansen and eB software as well as GIS applications development, database management, custom mapping and creation and maintenance of MSD's GIS layers.

The Customer Relations Department employs 19 staff members who provide support for the Customer Call Center and direct customer contact that come to MSD to conduct business. They provide 24/7 telephone support and after 5:00 PM and on weekends answer all 311 calls for Louisville Metro.

#### **2.4.5 Engineering and Regulatory Support**

The Engineering Division provides for the development of plans, specifications, contracts, proposals, as well as the capital budgeting and planning efforts required to build, operate and maintain wastewater collection and treatment facilities. The Engineering Division provides guidance on design and construction of aging infrastructure that cannot be repaired or replaced with MSD personnel and equipment.

The RMS Division provides the oversight and execution of regulatory issues within MSD. Primary areas of responsibility include wet weather discharge abatement and associated capital planning, laboratory analysis services, stream sampling and sewer flow monitoring, along with industrial pretreatment monitoring and compliance. This division is also responsible for the management of initiatives where interaction with different regulatory agencies is required. RMS maintains a programmatic presence, thereby providing continuity and consistency with submittals, plans, agreements, reporting requirements, permitting, and other commitments. RMS leads the development of Consent Decree-related programs that will be implemented throughout MSD.

#### **2.4.6 Equipment Support**

The Physical Assets Division, Fleet Services Department, operates a full service center where maintenance of vehicles, equipment, generators, pumps and related appurtenances is conducted. The I&FP and Operations Divisions utilize this equipment to mitigate the effects of system disruptions and wet weather events.

#### **2.4.7 Inter-Divisional Coordination**

The I&FP, Engineering, RMS and Operations Divisions have established a partnering relationship that incorporates both a knowledge of the regulatory requirements and applications of available technologies with an in-depth working knowledge of critical assets within the CSS. The output of these collective efforts often identifies the need for capital projects, which are then incorporated into the overall MSD capital budgeting, design and construction program by the Engineering Division. This has resulted in improved utilization of available budget resources. Additionally, the divisions work closely together to manage system and equipment repairs and replacements that is beyond the scope of service that any division may be able to provide with its own resources.

#### **2.5 CRITICAL ASSET MANAGEMENT: COLLECTION SYSTEM**

The EPA Nine Minimum Controls Guidance Manual, identifies the most critical elements of the combined sewer system (CSS) as those facilities that affect the performance of the CSS and/or impact CSO volumes or pollutant levels. MSD has classified the critical pump stations into three groups: combined sewer facilities, flood protection facilities, and combination facilities. Combined sewer facilities pump sewage to the Morris Forman Wastewater Treatment Plant during normal operation in both dry and non-flooding wet weather situations. These particular stations are managed by the Metro Operation Division (Metro OPS). Flood protection facilities are only operated when internal flooding (inside the flood protection levee) occurs due to excessive wet weather or from rising elevation of the Ohio River. Combination pumping stations serve dual roles as both combined sewage pumping and flood protection stations. Both the flood protection and combination facilities are managed by the Infrastructure and Flood Protection Division (I&FP).

An effective strategy for managing collection system assets includes routine review and assessment of completed inspection and cleaning against planned activities. It further entails analyzing inspection and maintenance records to identify recurring problems. Problems identified during inspection generate corrective activities.

##### **2.5.1 Program Management**

The I&FP Division is responsible for inspection, root control, and cleaning activities within the collection system, which includes sewer mains, service laterals and manholes. Goals are set annually for various program areas to achieve NMC objectives. Additionally, target areas have been identified and prioritized for cleaning and root control across the district-wide sewersheds.

Root cutting and sewer flushing are the primary methods employed under the sewer cleaning program. Chemical root removal has been undertaken by a contractor to supplement MSD efforts. Grease blockages and debris obstructions are removed as needed. Weekly, monthly, quarterly and year-to-date reports, with associated graphs and charts, are reviewed to measure planned activities against actual performance. Gaps identified through these assessments are the basis of adjustments to the procedures, work flow, personnel assignments, documentation and general program activities.

Various methodologies are utilized to assess CSS performance. Sewer walks and television inspections are conducted to assess sewer structural condition and to determine capacity reduction caused by sediment buildup. Customer calls are grouped and analyzed to determine areas that require attention. Problems encountered during inspection are cataloged according to severity and prioritized for correction.

### **2.5.2 Information Management System Utilization**

Collection system asset information is originally created from the record drawings. The graphics are stored in the GIS and the associated attribute information is stored in Hansen. Hansen can then be used to generate work orders for inspection, maintenance and repair activities. Work order data collected during these activities is updated in Hansen by I&FP Administrative Support personnel. If discrepancies in the asset attribute information or new assets are found by field personnel, this information is given to the GIS staff and the asset information is updated in Hansen and in the GIS. This data can then be used to generate reports and maps, which are utilized by I&FP senior management to assess performance.

### **2.5.3 Inspection Activities**

For sewer mains, manholes and service laterals, MSD performs both location-based inspection activities and reactive problem-based inspections encountered during daily operational activities. Various methods of inspection are also utilized. Location-based inspections include grease inspections, activities performed in search of illicit connections and/or system defects, and USI sewer walks.

Certain areas within the collection system are predisposed to grease buildup due to pipe configuration or grease trap installations. Under the Fats, Oil, and Grease (FOG) program, reconnaissance is performed at predetermined intervals, ranging from quarterly to annually depending on the historical data, to determine the need for targeted cleaning.

MSD conducts sewershed-wide inspections when evaluating CSO basins for abatement and/or outfall closure alternatives. Closed-circuit television (CCTV) inspection, Totally Integrated CCTV and Sonar (TISCIT), sonar, Fell-41, line lamping, smoke testing and dye testing are used to identify illicit connections and system defects that require mitigation during the closure activities.

Louisville's CSS contains approximately 60 miles of sewer that range from 5 feet in diameter to 17 feet by 27 feet in diameter. These sewers are some of the City's oldest and are constructed predominately of brick and cast-in-place concrete materials. Under safe flow and atmospheric conditions, sewer inspections are performed using confined space entry techniques by trained personnel. Condition reports generated during these inspections contain observations and measurements with corrective work orders generated and repairs scheduled.

In addition to these proactive inspection routines, CCTV data is also captured in response to problems encountered during daily operational activities.

### **2.5.4 Maintenance Activities**

Main sewer line and property service connection repairs were analyzed over a five-year period from 1999 through 2004. The repair history revealed areas that were prone to root intrusions and subsequent debris deposition that led to system failures. I&FP management graphically analyzed the data and found concentrated areas where these repairs had been made. This led to selecting twenty-five areas with corresponding sub-areas and prioritizing them according to frequency of repair.

MSD has designated resources to clean 300 miles of sewer annually under the district-wide preventive maintenance program. Utilizing equipment capable of cleaning 6-inch to 15-inch sewer lines, MSD is able to clean 80 percent of the total length of sewer lines owned by the District. This corresponds to nearly 50 percent of the combined sewer lines within the CSS that can be cleaned utilizing internal forces. The cleaning cycle for the sewers 6-inch to 15-inches is

planned for an 8-year return interval and is to be further evaluated as part of the CMOM Program. Some lines are cleaned more frequently than the target return interval based on available historical data. Refer to Item 2-7 of the NMC Supplemental Information for an overview of operational procedures. Refer to Item 2-8 for documentation guidance.

Larger sewer line cleaning is performed under contracted services as needed. The determination of need can be generated by inspections as outlined in Section 2.5.3 of this document or by Interceptor Condition Assessment as outlined in the CMOM Program dated May 12, 2006.

MSD has cleaned 38.3, 60.4, and 49.9 miles of sewer in the CSS for 2004, 2005, and 2006, respectively. This represents an approximate proportional share of the total lines of these sizes to the total length of the lines of similar sizes. The sewer lines cleaned during this period are shown on Figure 2-3. An example map of a sewer flushing area and an example work order for this activity are Items 2-9 and 2-10, respectively.

### **2.5.5 Training Program**

The MSD Utility Program provides specific training in the proper operation and maintenance of all equipment utilized for maintenance of the collection system. Specific equipment classes are conducted for jet rodders (flushers) and combination sewer cleaners (vactors), as well as CCTV equipment. Comprehensive skill training is also provided for Confined Space Entry, CPR, First Aid, and other training/certifications needed for sewer entry. As new equipment and technologies are acquired, the training modules and manuals are updated.

## **2.6 CRITICAL ASSET MANAGEMENT: CATCH BASINS**

Catch basin cleaning is an efficient and cost-effective method of preventing the transport of sediment and pollutants to receiving waters through CSOs. Routinely removing sediment and decaying debris from catch basins reduces the potential of offensive odors, along with the potential for reducing the amount of suspended solids and oxygen-demanding substances that might exit the CSS into a receiving stream.

Recurring inspection, cleaning and maintenance activities should take into account the watershed characteristics of each CSO sewershed area. Areas of high organic loading may require more frequent cleaning for optimal system performance.

### **2.6.1 Program Management**

MSD personnel manage this program with the specific objective of promptly removing material from the catch basins to facilitate a free-flowing system during rain events and to prevent odors from causing a public nuisance. There are thousands of catch basins within the CSS. These catch basins are cleaned approximately every 15 months, with ten of thousands of tons of debris removed from the system annually. In addition, some catch basins will receive additional cleaning throughout the year upon request by customers. Refer to Item 2-11 of the NMC Supplemental Information for a summary of catch basins by area.

### **2.6.2 Information Management System Utilization**

The catch basins in the combined sewer area have been divided up into asset work groups. Group work orders are generated in Hansen when an area is scheduled for cleaning. Worksheets that contain the work order information from Hansen are generated and supplied to Utility Workers who clean catch basins daily. These worksheets are used to record which catch

basins are cleaned and to track the amount of material removed from the system. Work order data collected on these worksheets is updated in Hansen. To supplement the routine cleaning work orders, additional work orders are created in Hansen based on customer requests. Weekly reports are generated detailing the number of catch basin cleanings performed. The GIS is used as a tool to provide Customer Relations information on the cleaning schedules for the catch basin districts. This information can be relayed to customers as requests are received.

### **2.6.3 Inspection Activities**

Catch basins are inspected as part of MSD's comprehensive cleaning program. From a NMC perspective, it is important to ensure that capacity is preserved, and the system that collects debris from roadways and runoff is intact and fully functional. A schedule exists to provide for cleaning catch basins in the CSS, as defined above. Conditions are verified following assessment, with follow-up activities initiated promptly. Grates are replaced and other repairs performed as needed.

### **2.6.4 Maintenance Activities**

Standard procedures are utilized for catch basin inspections and cleaning. Refer to Item 2-12 of the NMC Supplemental Information for detailed procedures. Refer to Item 2-13 for an example catch basin cleaning work order.

Damaged or broken catch basin grates are replaced immediately, if there is an available grate in stock. If the catch basin cannot be repaired upon inspection, a work order is generated in Hansen to perform further inspection and determine the specific course of action needed to repair the basin. If structural repairs are needed, a catch basin repair work order is generated and it is dispatched to the area supervisor to be repaired as soon as possible. In addition, MSD fabricates grates and catch basin parts if they are not commercially available.

### **2.6.5 Training Program**

The MSD Utility Program provides specific training in the proper operation and maintenance of all equipment utilized for the maintenance of catch basins, specifically Atlas machines (catch basin cleaners) and combination sewer cleaners (vactors). As new equipment and technologies are acquired, the training modules and manuals are updated.

## **2.7 CRITICAL ASSET MANAGEMENT: CSOs**

Management of CSO assets within the CSS should include site-specific inspection, maintenance, cleaning and repair regimes, as well as provide for adequate documentation of these program activities. Standard protocols should provide sufficient detail of the necessary activities to properly maintain these facilities, prevent dry weather overflows and minimize annual overflow volume.

### **2.7.1 Program Management and Quality Control**

There are 113 active CSO outfalls. Standard protocols guide the inspection, cleaning and maintenance activities for these outfalls and appurtenant structures. In general, similar structures (dams with rack bars or regulators, for example) will require like inspection and maintenance routines. Complex solids and floatable devices require more intense maintenance than the static, less complex devices. Regulators, siphons, and flapgates each have specific activities depending on their location within the system.

MSD generally inspects the CSOs and related appurtenances on a weekly basis. CSOs, regulators, flapgates, siphons, and solids and floatable devices are grouped by the similar cleaning and maintenance requirements for each type of structure. When defects in structures are discovered during an inspection, interdivisional collaboration occurs to define and implement the needed repairs.

Managers meet with the CSO personnel on a regular basis. These meetings are used to keep staff current of NMC or other requirements/developments, make changes in assignments and solicit input from staff to determine the best management practice for a particular activity. Reports are generated and data analyzed to measure planned/programmed activities against actual completed work.

### **2.7.2 Information Management System Utilization**

Hansen is utilized to store, manage, collect and retrieve data for all assets in the CSS. CSOs are identified as assets in Hansen. Custom tables associated with the Hansen asset inventory for CSOs indicate where flapgates (rubber or iron), regulators and solids and floatable devices are installed. Hansen is utilized to schedule work orders and record data for inspection and maintenance activities and subsequent work performed. Work orders are created for debris removal and repairs made to those structures. Activities performed on solids and floatable devices, flap gates, and regulators, which are part of a specific CSO asset, are captured within Hansen.

### **2.7.3 Inspection Activities**

Inspection of the CSOs and related structures are performed on predetermined intervals, specific to the particulars of the structure, including location, size of pipe, etc. These intervals were determined using manufacturers recommendations and operational experience. The inspection frequency for the assets in this category is as follows:

- Regulators are inspected monthly;
- Siphons in the CSS are visually inspected monthly for accumulation of debris/blockages;
- CSOs and related appurtenances such as solids and floatable devices, flapgates, and rack bars are inspected weekly. There are some structures within the system that are readily accessible due to changes in the permanent pool of the Ohio River and/or safety concerns, these locations are treated on an individual basis and will deviate from the general schedule.

If debris /obstructions are encountered during inspection, work orders are executed in Hansen and crews/workers dispatch to perform necessary removal or cleaning.

### **2.7.4 Maintenance Activities**

Because of the nature of these activities, inspection and maintenance tasks generally occur during the same visit. In the event that the inspection crew needs additional equipment to perform the necessary maintenance or repairs, the required activity may not occur on the same day. Refer to Item 2-14 of the NMC Supplemental Information for specific procedures related to these activities. Examples of cleaning and maintenance activities performed on the CSOs and related appurtenances are as follows:

- Regulators are cleaned, lubricated and serviced during inspection or more frequently as needed;
- During CSO inspections, crews remove debris using small tools (rakes, shovels, etc.);

- Solids and floatable control devices are cleaned during inspection following rain events, utilizing a flusher to wash debris from the screen into the collection system for treatment/removal at the treatment works; and
- Siphons are cleaned as-needed following inspections. Typically, debris is vactored and sewer lines are flushed to insure they are clean and free-flowing.

If the CSO crew determines that the amount of debris could potentially cause a dry weather overflow, they take immediate action to rectify the situation.

### **2.7.5 Training Program**

The Utility Program is used to train employees on the use of appropriate procedures, safety guidelines, and operation of equipment used for inspection and maintenance activities. In addition, there are CSO training materials entitled "*CSOs and Regulators Utility Class and Test Study Guide*" that specifies some training and provides schematics of structures for training purposes. New personnel are given procedures, books that contain CSO details, location and schematics and are trained by existing personnel on the specific job requirements. MSD staff and consultants also hold training sessions to cover the specifics of any solids and floatable structures installed such as cleaning method, equipment and frequency.

## **2.8 CRITICAL ASSETS: PUMP STATIONS**

Operation and maintenance of pump stations involves increasingly more complex activities, particularly in order to achieve a proactive response to CSO abatement. In the past, most process enhancements and technology advances were primarily the result of mechanical improvements. The present level of technology and process optimization involves an increasing level of investment in Instrumentation and Control (I&C) systems, along with an associated level of sophisticated electrical systems management.

These systems require a local utility to aggressively recruit, promote and retain skill sets capable of cost effective maintenance of critical control functions, along with the conventional operations and maintenance skills typically associated with wastewater utility management.

These assets also require a rigorous planning and work scheduling effort to ensure the execution of proper preventive and corrective maintenance activities, allowing these facilities to operate at optimal levels. These efforts minimize the possibility of deteriorated performance which could negatively impact the magnitude, frequency and duration of CSOs.

At MSD, pump station responsibility is divided between two divisions, based on the type of facility. The pump stations associated with the flood protection system are managed within the I&FP Division. The remaining pump stations across the service area are the responsibility of the Operations Division. Within the CSS, there are 2 combined sewer pump stations and three combination sanitary/flood protection stations.

### **2.8.1 Program Management**

Systems, procedures and tracking must be in place to ensure work is identified, prioritized and assigned, with contingencies developed to respond to unusual conditions. Monthly evaluations are performed by the maintenance managers that critique the performance of each work group in the context of preventive and corrective maintenance functions. This critique is performed using graphical representation of data archived in SAP and indicates work scheduled, assigned, completed and incomplete. Maintenance planners also track the work orders that are issued and completed, generating reports and charts that show the specific work each crew has been



assigned. This allows each team to trend their respective progress and make adjustments as needed to meet department goals.

MSD has reviewed maintenance records/statistical data and can confirm that the frequency of repetitive problems has decreased. For example, a review of performance data identifies a downward trend associated with grease and debris accumulation. This is a result of an increase in the number of PM routines for pump station cleaning. Telemetry and continuous monitoring of each pump station provide an early warning and prompt notification of maintenance needs. The SCADA system allows for site specific interrogation of facilities to allow scheduling of maintenance needs on a routine basis. The failure codes used in the computerized maintenance management system (CMMS) allow for discrete analysis of work performed by category. For example, a preventive maintenance program for FOG control requires inspection before and after cleaning occurs, and the cleaning frequency is adjusted based on observed conditions that indicate the efficacy of the work.

Operations and Maintenance (O&M) personnel are cross trained on a scheduled routine basis to achieve redundancy in expertise, provide for employee absences, and the greatest utilization of resources, when manpower needs increase in a specific area, as a result of an event or change in conditions. This cross training schedule is developed and implemented based on need, within a specific work group. Employees are required to maintain a minimum level of certifications in process areas (pump stations) or they face demotion. Maintenance personnel are more easily interchanged between locations, and are frequently reassigned in order to expand their base of knowledge and expertise.

The training that personnel receive includes both "on the job training" and successful demonstration of a mastery of the essential job elements, which are specifically identified in the Cross Training Guidelines (see attachments). These guidelines are specifically reviewed for applicability during the review process with each respective employee's supervisor, which is required for certification. In addition, the construction and startup of any new or upgraded facilities, also requires submittal of new or revised SOPs.

### **2.8.2 Information Management System Utilization**

Two systems are primarily utilized to initiate, document and track inspection, cleaning, maintenance and repair activities through work orders. These systems are Hansen and SAP.

The Hansen system is utilized to generate work orders for the cleaning of these stations. Typically an activity code of "Vactor/Flush" is used in Hansen to capture the cleaning. The work order may contain specifics about the amount, type or origin of grease and other debris found at the station.

PM work orders are generated within SAP for both O&M staff. Supervisors identify any repetitive tasks for inclusion as a PM function, specifically those that will extend the useful life of the asset, or maintain the uninterrupted operation of the equipment.

### **2.8.3 Inspection Activities**

Routine inspections occur on a regularly scheduled basis, both by operations and maintenance personnel, and in some cases, by contractors. The inspections for operators are defined and scheduled by the assignment of daily truck routes which identify the specific pump stations scheduled for inspection on a given calendar day. These inspections indicate when work is required to correct or prevent a problem. If the work needed is within the scope and ability of the responding personnel, the corrections are made at that time. Immediate notification is made

for any work that requires other skills, resources, or scheduling. A follow up response is initiated accordingly, utilizing the SAP computerized maintenance management system. This system also schedules specific events or activities for both Operations and Maintenance personnel that have been identified as critical to occur on a specifically scheduled frequency.

An evaluation of the PM schedule, based on observed conditions, and the repeated frequency of the work determines if the PM schedule must be adjusted. This is a function of the results of the scheduled inspections and preventive maintenance activities. Corrective maintenance also requires the application of a lasting solution, including future scheduling of additional work, which may be larger in scope and require an outage to minimize the impact. Emergency work is initiated by the first responder and involves all appropriate work disciplines required to immediately correct the situation. Emergency conditions are followed by a post incident critique to document lessons learned and prevent a reoccurrence.

Pump stations are inspected Monday through Friday for routine operating parameters. All sensitive or potentially critical pump stations and facilities are inspected on a daily basis, with adjustments to the schedule as necessary. These inspections may include, but are not limited to, pH, LEL, color, foam, pump run/cycle times, temperature, sound, and other relevant parameters, specific to individual stations. For the combination sanitary/flood protection pump stations operating in flood mode, the USACE Flood Protection Operation and Maintenance Manual dictates the type and frequency of inspection activities to be performed.

Anti-intrusion devices include a card reader system at each pump station for additional security that will record the employee entering, time of entry and other relevant data. Other safeguards in place include fencing, double gates, operational alarms and pad locks, which are inspected as part of each visit.

#### **2.8.4 Maintenance Activities**

Maintenance activities are divided into several categories – predictive, preventive, corrective and emergency.

Predictive maintenance includes the daily inspection and operation of the pump station. Operators follow pre-planned routes daily. Defects or equipment problems are noted and a work notification is written in SAP.

For preventive maintenance, planners establish a maintenance task list in SAP using equipment manuals and observed operational conditions as guidelines. SAP will automatically generate preventive maintenance work orders. The maintenance technician is provided the work order from his supervisor and is responsible for completing the job. The supervisor will inspect the job to ensure completion and return the work order to the planner, who will close the work order, verifying all required fields are completed.

Corrective maintenance usually occurs as a result of equipment failure or declining equipment performance. Predictive maintenance routines may also identify corrective maintenance activities. Once the work notification is created in SAP and a work order is generated, needed supplies and parts are obtained. The work order is distributed to the maintenance supervisor, for assignment to the appropriate personnel. Repairs are made and the work order is returned to the planner, who is responsible for closing out the work order.

For emergency maintenance a corrective work order is issued for a process or equipment that impacts the safety of personnel, the public or the environment. SAP generates emergency work orders with a different numbering system. This numbering system makes it easy to determine which work orders are a priority and thus the needed personnel can be dedicated to the effort.

The work order process used for assigning work and resolution of deficiencies is defined as follows:

- The employee spots a defect in a piece of equipment or process.
- The employee or their supervisor writes a Work Notification on that problem process or piece of equipment.
- The maintenance planner or the senior maintenance technician converts the Notification to a work order and orders any needed parts or supplies.
- The work order is assigned to the supervisor who is ultimately responsible for fixing the problem.
- The supervisor assigns the work to a maintenance technician.
- The technician reports back to the supervisor any needed parts or any problem encountered. The technician also reports to the supervisor when the problem is corrected.
- The supervisor inspects the work and ensures that the repairs are satisfactory.
- The supervisor returns the work order to the maintenance planner as a completed work order.
- The maintenance planner closes the work order as completed.
- The technician records on his timesheet, using the work order number, for accounting purposes.
- The inventory will also charge to the work order number any supplies / parts that were needed.

The steps shown above are a summary of the process used to correct deficiencies that are identified, after inspection and assessment of various facilities. SAP reports are generated showing work order backlogs, repeated breakdowns and completion rates per work crew. These reports are used to evaluate effectiveness of the maintenance program.

At present, this program provides for regular scheduled cleaning of selected and critical stations in Metro OPS. A schedule has been developed to provide cleaning of grease from all 275 stations, and an industrial vactor has been assigned to this responsibility full time. MSD has developed a package to solicit competitive bid prices for completion of this work. A comparison of costs for outside assistance, in consideration of MSD's available resources will determine what portions of work is contracted for outside assistance, and what portion will be completed in house, in order to satisfy NMC objectives. The program for Metro OPS is recently established and 2006 will be the first full year of implementation. Metro OPS facilities, such as treatment plants, are scheduled for vactoring of grease and other materials, following routine PM activities, as well as any time a problem is observed, with subsequent adjustment to the cleaning schedule.

Parts and material supplies are a critical component of MSD's maintenance programs. The MSD Physical Assets Division manages the inventory at a central location for both the MFWTP and Metro OPS for critical, routine, or long lead time parts. The replenishment process is initiated by the Finance Division. Metro OPS also maintains a site specific inventory under the direction of the Process Supervisor - Maintenance in each region.

Response time and procurement issues are periodically evaluated to identify any extended backlog, with oversight by the MSD Finance Division.

Inventory supplies are established in SAP with automatic re-order points. When supplies reach a this point, a requisition is internally generated and routed to the assigned buyer queue for re-

order. Re-order points, inventory maximums and minimums are periodically reviewed, and adjusted to meet demand.

### **2.8.5 Operational Activities, Dry and Wet Weather**

The five critical pump stations that are a part of the CSS each have site specific SOPs that describe the operating routines, procedures and other critical steps necessary for safe and efficient operations. Each of these stations has dedicated monitoring screens as part of the SCADA system, and is monitored continuously, by field personnel and computer room staff. They are also inspected more frequently during wet weather. Permanent generators provide for continuous control of the stations, and to allow SCADA monitoring.

Current MSD design standards require that a pump station be designed with pumping redundancy. Spare pumping capacity must be available to always satisfy design flow requirements with the largest pump out of service.

Permanent flow meters are installed at the largest facilities. Run times are recorded at all but the most recently acquired stations. Annual flow tests are conducted to determine the actual flow capacity at each location.

### **2.8.6 Training Program**

MSD employs a full time trainer dedicated to the Operations Division. In addition to required safety and hazardous materials training, MSD also funds operator wastewater continuing education and licensing, along with many other skilled trade certifications. Employees are eligible for pay incentives for job-specific qualifications. Cross training occurs on a continuous basis. New equipment installations and capital projects provide equipment specific training, and SOPs and record drawings are revised accordingly.

## **2.9 CRITICAL ASSETS: MORRIS FORMAN WASTEWATER TREATMENT PLANT**

Effective and efficient management of a facility of the complexity of the MFWTP requires a participative and interactive management approach. The execution of short term (daily and weekly) work efforts require well established routines, protocols and procedures. It is essential that staff is trained for consistent execution of these procedures to ensure that variability within the daily operation is limited only to the impact of influent wastewater characteristics, and not the operation of the process itself. Upper and lower statistical control limits become defined, the processes are sampled, and the results analyzed to ensure that performance meets established criteria.

Effective long term management requires regular and routine analysis of performance to confirm the desired results have been achieved, or to identify opportunities for improvement within the specific functional areas of the plant. Statistical analysis of data obtained from regular review of performance trends must be evaluated and analyzed to define the priorities that must be addressed within the operating and capital budget cycles.

### **2.9.1 Program Management**

The MFWTP provides preliminary, primary, and secondary treatment, followed by disinfection for permitted capacity of 120 mgd of wastewater from the CSS. Peak wet weather flows up to 350 mgd receive preliminary and primary treatment, followed by disinfection.

This plant is managed by two distinct, but very similar and cooperative work groups - the Operations and Maintenance Departments. These two groups interact dynamically throughout a typical day to ensure that process management is essentially seamless.

The MFWTP is an Oxygen Activated Sludge (OAS) system with a very small physical footprint, but provides wastewater treatment to extremely high flows generated in the CSS. As such, by design the MFWTP experiences minimal head loss hydraulically, and therefore, control systems for overall management of the processes must function in a mode that is virtually "real time". With respect to the physical and biological treatment systems, a distributed control network constantly adjusts the various processes to achieve consistent operations within established parameters.

### **2.9.2 Information Management System Utilization**

The MFWTP operation is monitored continuously by a distributed control system (DCS) for the most sensitive and significant plant processes and a SCADA system for the biosolids process. These processes and programs are operated under the collective overview of the Process Computer Center (PCC). There are also SCADA-based anti-intrusion systems, required card reader access, and remote camera monitoring for safety sensitive areas within the plant.

The maintenance department uses SAP to schedule/track/document the predictive, preventive, corrective and emergency maintenance activities. The system is also used for generating reports that ultimately provide trends for all types of maintenance work, in order to ensure that resources are applied in a manner to achieve a consistent, measurable reduction in the need for corrective maintenance, and to confirm that the maintenance effort is effective in a global sense. SAP is also used to monitor parts and supplies, inventory and purchasing, as well as payroll. Customer service requests, (such as those related to odor) are archived in Hansen.

### **2.9.3 Inspection Activities**

Daily operator routines provide for inspections of all functional areas on each operating shift. The inspections for operators are defined and scheduled by the execution of SOPs for their process areas. These inspections indicate when work is required to correct or prevent a problem. If the work needed is within the scope and ability of the operating personnel, the corrections are made at that time. A work notification is generated for any task that requires other skills, resources, or scheduling. A corrective work order is created utilizing the SAP computerized maintenance management system.

Inspections routinely occur in both the operations and maintenance work groups. There are six identified process areas at MFWTP and operators and maintenance personnel complete inspection rounds on each of the three shifts. The maintenance department, including mechanics, electricians, instrumentation and controls staff perform inspections as part of their regularly scheduled work.

Computer room operators provide continuous electronic inspection and supervisory overview of the plant. The computer room operators are trained to monitor critical areas of the plant; and, a sophisticated alarm system provides notification of potential or observed problems. The MFWTP management team routinely observes and physically tours the plant, providing yet another level of inspection.

#### **2.9.4 Maintenance Activities**

Maintenance activities are divided into several categories; predictive maintenance, preventive maintenance (PM), corrective maintenance, and emergency maintenance. The predictive maintenance is primarily comprised of the inspection activities that were previously discussed.

Preventive maintenance is defined as planned work that is not failure related. PM work orders are generated within SAP and can be performed by both operations and maintenance personnel. The maintenance planners distribute the work orders, document what has been completed, and generate reports. When any new equipment is installed at MFWTP, the maintenance planners enter the equipment into the PM schedule, with the manufacturer's recommendation for PM activities.

Corrective maintenance is work that is required to repair equipment where a failure has occurred or performance has deteriorated. The work is necessary to return the equipment to service and is prioritized during shift briefings. Equipment that is needed to comply with effluent quality criteria or that is needed to maximize the wet weather flow, will receive a higher priority.

Emergency maintenance activities may be needed to protect plant equipment or prevent a potential risk to employees or maintain permit compliance.

Graphs are used to show the completion rates of each crew. This data illustrates the effectiveness of an individual work crew and is used to determine if changes are required to meet departmental goals. These charts also show a comparison between corrective and preventive maintenance and the effect one has on the other. Records indicate as PM increased, corrective maintenance work orders decreased, demonstrating increased reliability in the treatment plant equipment and processes. Corrective work orders are periodically reviewed to determine if equipment failure was preventable; and, if so, the PM schedule is revised accordingly.

The MFWTP maintenance program also incorporates a detailed process for scheduled outages. For example, when a major component outage is required for cleaning or repairs, a Plant Impact Request form is submitted to the management team at the daily morning briefing. Operations and maintenance personnel have input as to when the component can be repaired or cleaned. Heavy equipment, outside contractors or vendors can be scheduled to help with the project. Supervisors can schedule staff, obtain parts and materials, and configure the process to minimize impacts on plant effluent quality.

The PM work order process is as follows:

- The planner enters equipment into SAP, and establishes a functional location and equipment number for each piece of equipments.
- The planner creates a task list specific for each piece of equipment following the manufacturer's guidelines.
- The planner creates and schedules a maintenance plan for each piece of equipment using equipment number and task list according to manufacturer recommendations.
- SAP automatically creates PM work orders consistent with the maintenance plan.
- The planner provides reports showing new and outstanding PM work orders.
- The planner assigns PM work orders to the appropriate supervisor.
- The planner procures needed supplies or parts for the work order.
- The supervisor assigns the work order to the appropriate technician.

- The technician completes the work and reports any additional repairs needed to the supervisor.
- The supervisor inspects the work, ensuring satisfactory completion.
- The supervisor returns the PM work order to the planner, along with any needed new work orders required or additional parts needed.
- The planner documents PM work completed, closes the PM work order, and generates as needed any new corrective work orders.
- Supplies for inventory are ordered to replenish the used parts inventory.
- The planner tracks the numbers of PM work orders issued, completed and outstanding.
- The planner generates established reports as directed by the maintenance manager.
- The planner updates the PM plan based on feedback from the technician and supervisor.

### **2.9.5 Operational Activities, Dry and Wet Weather**

The MFWTP is the only plant within the CSS. All dry weather flow is received and treated at the plant. During wet weather events, the amount of flow accepted at MFWTP is determined based on a flow capacity calculator. The flow calculator is a tool that assesses the capacity of the plant based on the number of treatment units available and other operational factors, such as the depth of blankets in the primary sedimentation tanks and the secondary clarifiers.

The secondary system OAS process receives peak flows during wet weather up to 140 mgd. This process includes three separate cryogenic oxygen enrichment plants capable of producing 150 tons per day (tpd) of high purity oxygen. Additional redundancy is also provided through the use of a liquid oxygen (LOX) storage and vaporization system.

The MFWTP also provides biosolids treatment for the 25 treatment plants in the MSD system. These solids are combined with primary treatment solids and anaerobically digested. Dewatered solids are processed through rotary drum dryers at temperatures that will achieve pathogen reduction and produce Class "A" Exceptional Quality biosolids. This pelletized fertilizer product is marketed under the trade name Louisville Green. This process has eliminated over 75,000 tons per year of wet sludge from local landfills and now generates a commercial fertilizer product that is licensed in 6 states, and has successfully established a competitive presence in the commercial agriculture, landscaping, recreation and homeowner markets.

The MFWTP is the largest facility in the region, and is necessarily highly complex, and employs an array of technologies to achieve successful operation. In order to manage this complex operation, each shift change includes a supervisory review, where key operating parameters are communicated to the incoming shift. The MFWTP management team also participates in a daily morning briefing where plant performance strategies are developed. This exchange of information is facilitated by the operations supervisor and provides a review of the status of equipment at the plant.

The information presented on the daily status report is used to determine the available capacity of each area of the plant and assist in development of process control strategies, as well as decision making, work planning and resource allocation. The most critical items are those that affect either the effluent quality, maximization of flow during rain events or otherwise impact the safety of the facility, employees or the environmental health of the community.

### **2.9.6 Training Program**

The MFWTP includes a total of 6 process areas where certified operators are required. Those areas are Preliminary/Primary, Secondary, Waste Activated Sludge, Oxygen Generation, Dewatering, and Drying. An operator's classification depends on a demonstration that one or more of these areas has been mastered and the operator is able to perform the duties of the area unassisted. Training records for wastewater certification, safety training, skills assessment, and all other employee training are maintained in a centralized records management system under the supervision of MSD's Human Resources Division.

The diversity of the process areas requires that the training must come from several sources. MSD provides a full-time trainer assigned to the operations division who typically provides training in a classroom or group setting. An operator will also receive "on the job" training from another operator who is already qualified in that area, and will also receive follow-up training and eventual certification from their respective operations supervisor.

In order to assist with all of the training efforts, a series of SOPs have been developed for the MFWTP that include all of the process areas and some sub-areas to the processes. The list of SOPs includes:

- Preliminary Treatment
- Primary Treatment
- Secondary Treatment
- Bio-roughing Towers
- Chlorination/Dechlorination
- Final Effluent Pump Station
- Sludge Thickening
- Digestion
- Dewatering
- Drying
- Oxygen Generation

### **2.10 COMPLIANCE SUMMARY**

The previous sections overview the activities associated with the operation and maintenance of collection system, catch basins, CSOs, pump stations and the treatment plant, and other system components under MSD's control. Specific details or example have been included or referenced. Each of the CSS components is inspected on a regular, prescribed basis to ensure optimal operations. Personnel are trained and qualified to ensure that staff are capable of safe and efficient operation of the installed equipment.

Detention basins and Real Time Control components are inspected on a weekly basis in addition to the routine monitoring of the SCADA system. Preventive maintenance is performed as prescribed by the system component. Refer to Item 2-15 of the NMC Supplemental Information for an example of a detention basin inspection and maintenance program.



## **2.11 LISTING OF SUPPLEMENTAL INFORMATION**

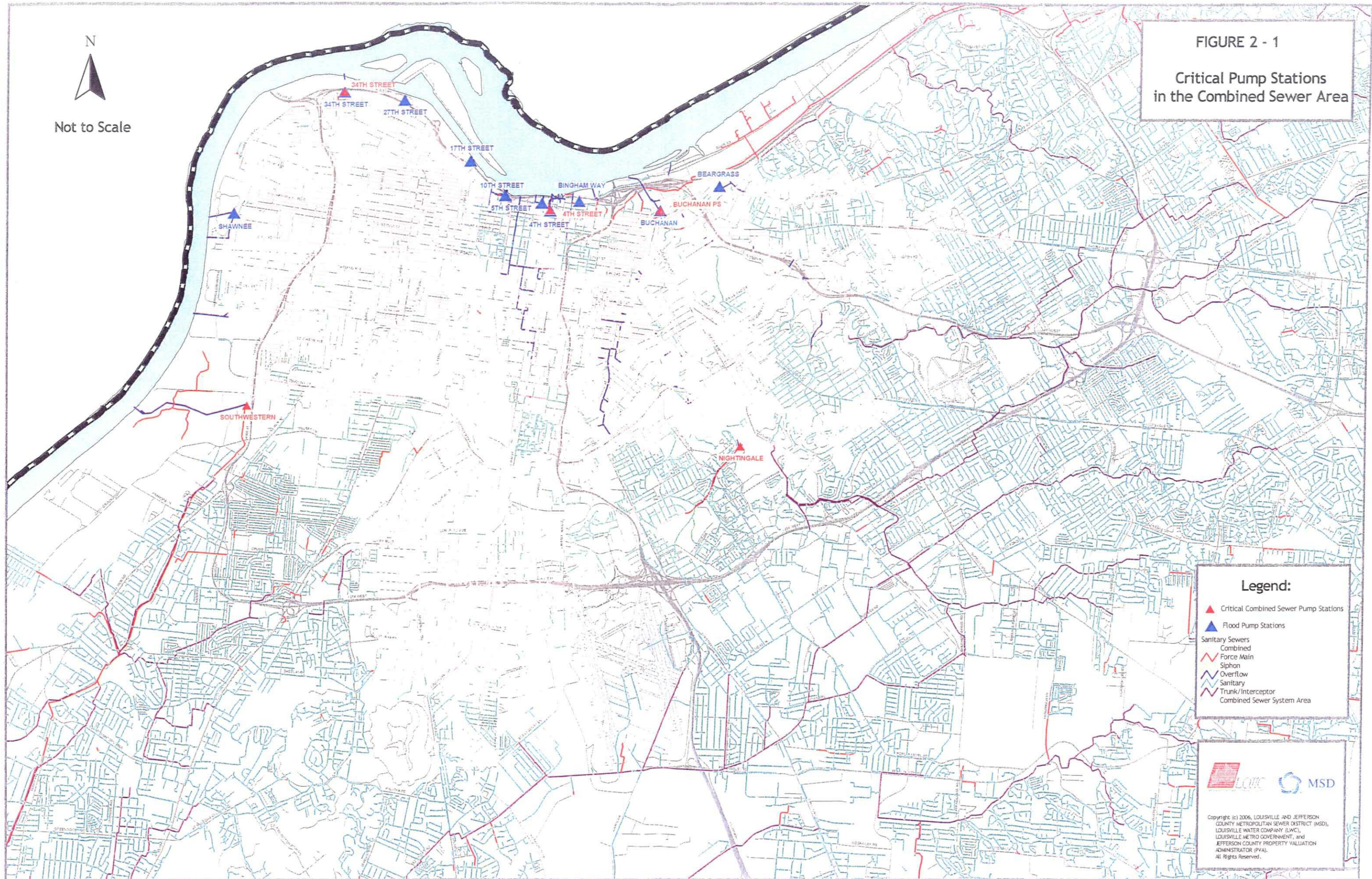
- Item 2-1 Interim Southwestern Pumping Station Standard Operating Procedures
- Item 2-2 Southwestern Pump Station Standard Operating Procedure for Station Re-Start after Extended Outage
- Item 2-3 Standard Operating Procedure Guide, 34<sup>th</sup> Street Pump Station
- Item 2-4 Flood Pumping Operating Instructions, 34<sup>th</sup> Street Pump Station
- Item 2-5 Protocol for Review of Standard Operating Procedures for Critical Pumping Stations within the Combined Sewer System
- Item 2-6 Combined Sewer System Critical Pump Station Inspection Program
- Item 2-7 Preventive Maintenance Cleaning Program – Sewer Root Cutting and Flushing Operations
- Item 2.8 Preventive Maintenance Sewer Cleaning Program – Hansen Documentation
- Item 2-9 Preventive Maintenance Sewer Cleaning Program – Example Map
- Item 2-10 Preventive Maintenance Sewer Cleaning Program – Example Work Order
- Item 2-11 Preventive Maintenance Cleaning Program – Catch Basin District Summary
- Item 2-12 Preventive Maintenance Cleaning Program – Catch Basin Operations
- Item 2-13 Preventive Maintenance Catch Basin Cleaning Program – Example Work Order
- Item 2-14 Preventive Maintenance Cleaning Program – CSOs and Related Structures
- Item 2-15 Wheeler Basin Inspection and Maintenance Program Documentation

FIGURE 2 - 1

Critical Pump Stations  
in the Combined Sewer Area



Not to Scale



Legend:

- ▲ Critical Combined Sewer Pump Stations
- ▲ Flood Pump Stations
- Sanitary Sewers
- Combined Force Main
- Siphon
- Overflow
- Sanitary
- Trunk/Interceptor
- Combined Sewer System Area



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA). All Rights Reserved.

**CRITICAL PUMP STATIONS WITHIN THE COMBINED SEWER SYSTEM**

FIGURE 2-2

**Flood Pump Stations**

<u>Facility Number</u>	<u>Pump Station Name</u>	<u>Telemetry</u>	<u>Address</u>
MSD0319-FP	BINGHAM WAY	MOSCAD	315 BINGHAM WAY
MSD0301-FP	BEARGRASS		1731 BROWNSBORO RD
MSD0304-FP	5TH STREET		501 W MAIN ST
MSD0305-FP	10TH STREET		128 N 10TH ST
MSD0306-FP	17TH STREET		1701 NORTHWESTERN PKWY
MSD0307-FP	27TH STREET		2600 MARINE ST
MSD0309-FP	SHAWNEE		4501 W BROADWAY

**Combined Sewer Pump Stations**

<u>Facility Number</u>	<u>Pump Station Name</u>	<u>Telemetry</u>	<u>Pumps</u>	<u>Address</u>	<u>Type</u>	<u>Install Date</u>	<u>Record Numbe</u>	<u>Status</u>	<u>Owner</u>	<u>Receiving Treatment Plant</u>	<u>District</u>
MSD0080-PS	SOUTHWESTERN	DATALINE	Combined	4010 BELLS LN	BLDG	4/1/1960	ORI89-3	I	MSD	MORRIS FORMAN	WEST
MSD0022-PS	NIGHTINGALE	CDMA	Combined	1800 NIGHTINGALE RD	BLDG	11/8/1966	06101-2	I	MSD	MORRIS FORMAN	WEST

**Combination Flood and Sanitary Pump Stations**

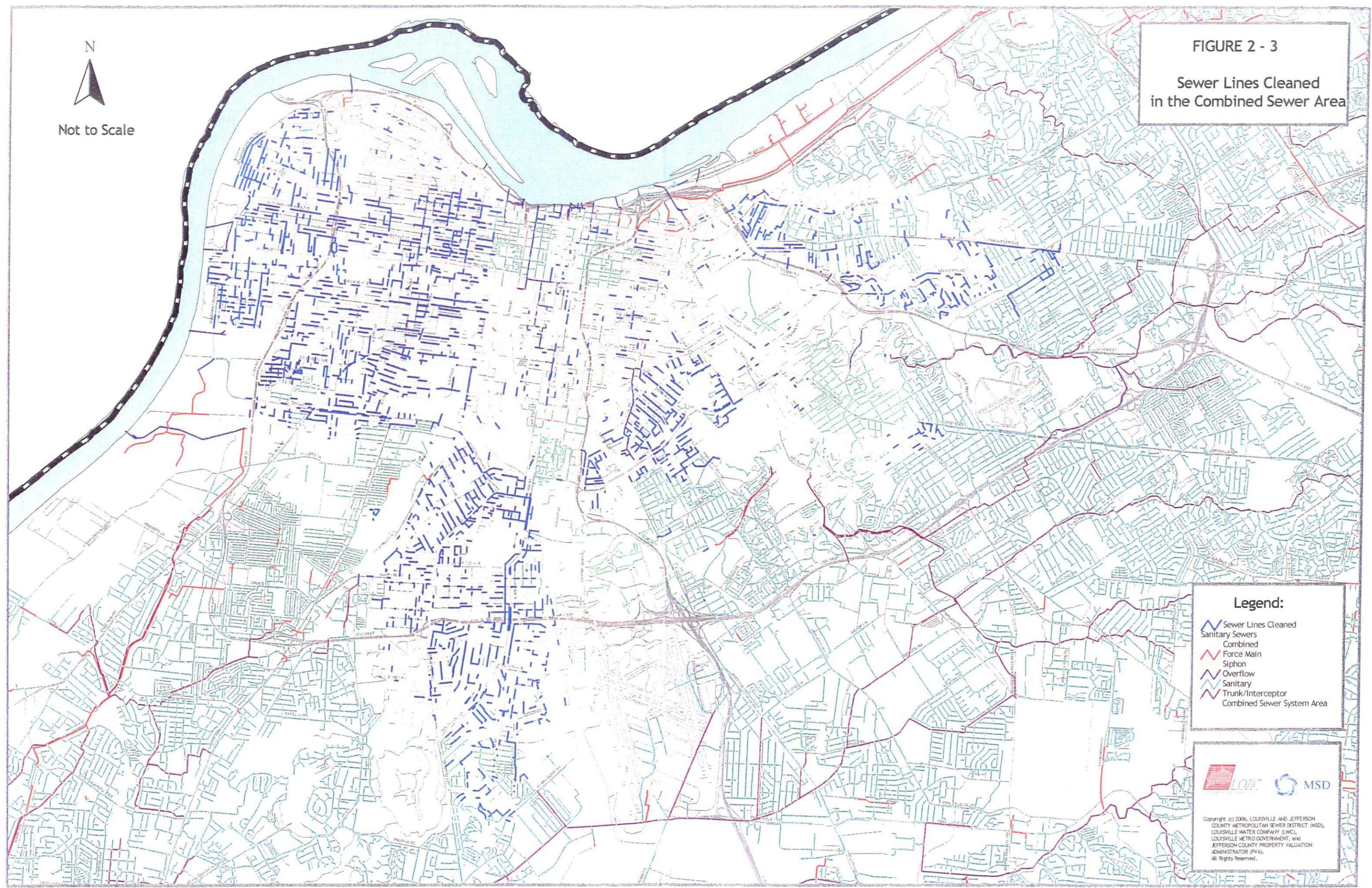
<u>Flood PS Facility Number</u>	<u>Sanitary PS Facility Number</u>	<u>Pump Station Name</u>	<u>Telemetry</u>	<u>Pumps</u>	<u>Address</u>	<u>Type</u>	<u>Install Date</u>	<u>Record Numbe</u>	<u>Status</u>	<u>Owner</u>	<u>Receiving Treatment Plant</u>	<u>District</u>
MSD0302-FP	MSD0088-PS	BUCHANAN PS	DSL	Combined	147 BUCHANAN ST	BLDG	9/14/1977	ORI76-4	I	MSD	MORRIS FORMAN	WEST
MSD0303-FP	MSD0087-PS	4TH STREET	MOSCAD	Combined	342 W MAIN ST	BLDG	12/31/1951	607-12.6/2	I	MSD	MORRIS FORMAN	WEST
MSD0308-FP	MSD0082-PS	34TH STREET	MOSCAD	Combined	816 N 34TH ST	BLDG	7/1/1981	04261-7	I	MSD	MORRIS FORMAN	WEST

FIGURE 2 - 3

Sewer Lines Cleaned  
in the Combined Sewer Area



Not to Scale



**Legend:**

- Sewer Lines Cleaned
- Sanitary Sewers
- Combined
- Force Main
- Siphon
- Overflow
- Sanitary
- Trunk/Interceptor
- Combined Sewer System Area

Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA). All Rights Reserved.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

## **SECTION 3: NMC 2 – MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM**

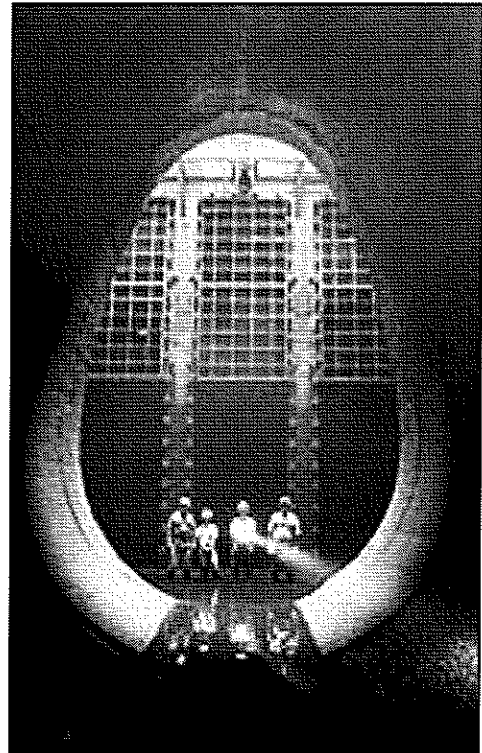
### **3.1 INTRODUCTION**

The purpose of this control is to maximize the use of the collection system by making relatively simple modifications to the combined sewer system (CSS) to enable the system to store wet weather flows until downstream sewers and treatment facilities can handle the flow.

### **3.2 PROGRAM OVERVIEW**

MSD has conducted numerous studies, evaluations, and field inspections to identify possible locations where modifications can be made to the CSS to increase in-system storage. Some of the components reviewed are modifications to CSO dams and weirs through both field observation and modeling analysis, protection of the conveyance system and treatment plant capacity from high river stages through the use of flap gates, and reduction of inflows through development retention and removal of illegal connections to the sewer.

Where possible modifications were identified, MSD has implemented the appropriate actions to maximize storage in the CSS. The EPA guidance document for Nine Minimum Controls states that a number of these measures can also be applied to implementation of other minimum controls. For example, actions taken to increase the use of the collection system will also reduce overflows and increase the flows to the POTW for treatment. Detailed descriptions of the control measures implemented to maximize the storage capacity of the CSS are provided in Section 3.4.



*Southwestern Pump Station Sluice Gate Chamber*

### **3.3 SYSTEM CHARACTERIZATION**

The combined sewer collection and conveyance system in the CSS consists of major interceptors, diversion structures, mechanical regulators, and other flow control devices, wastewater treatment plants, and pump stations. Because of its size and complexity, MSD has subdivided the combined sewer area into three regions for study and evaluation.

The Beargrass Creek Region is considered the most sensitive area with a high concentration of residential properties and proximity to public parks. Fifty-six (56) CSOs are located in the Beargrass Creek Region. The slopes of the interceptors serving these areas are marginal and require a relatively high water surface elevation to maintain flow in the sewers even under dry weather conditions.

The Ohio River North Region covers the central business district and most of downtown Louisville. The collection and conveyance networks in this region are relatively small with limitations in wet weather capacity. Forty-nine (49) CSOs are widely scattered throughout the Ohio River Interceptor (ORI) and Central Relief Drain (CRD) service areas.

The Ohio River West Region encompasses the western portion of the CSO area, including the Morris Forman Wastewater Treatment Plant (MFWTP), which serves the entire CSO area. Each of the eight (8) CSOs located in the Ohio River West Region are located near the most downstream ends of the conveyance systems. The conveyance systems in this Region consist of much larger interceptors and trunk sewers than systems in either of the Beargrass Creek or Ohio River North Regions.

Characterization of the collection system shows that the CSS includes nearly 60 miles of interceptor pipe that is 5-foot or larger in diameter (refer to Figure 3-1 for a tabular presentation of this data and Figure 3-2 for a graphic showing these large conveyance pipes.) During rain events, this pipe network provides additional system storage. Analysis has been performed to increase the amount of flow that remains in these large pipes by raising dams, weirs, and modify the amount of flow used for storage upstream of pump stations.

### **3.4 CONTROL MEASURES**

The following are measures that have been implemented by MSD in an effort to increase the storage capacity of the CSS. These measures reduce the magnitude, frequency, and duration of CSOs.

#### **3.4.1 Collection System Inspection**

MSD crews perform numerous types of inspection and maintenance measures in an effort to maximize the storage within the collection system. The purpose of the inspections is to ensure that the CSOs and associated appurtenances remain unobstructed, and if an obstruction is found, that it is cleaned that same day. Needed maintenance (bar racks, siphons, and regulators) is also performed.

MSD also inspects sewers lines within the CSS. These inspections allow MSD to identify major defects or other sources of inflow, abnormalities, as well as areas of the sewers with sediment build-up which may require cleaning and may result in increased storage volume in the pipe with a resultant reduction in overflows.

MSD's Infrastructure and Flood Protection (I&FP) Division, in an effort to maximize storage in the system, performs routine grease inspections, root cutting, vapor rooting, and flushing activities within the system. Areas with persistent obstruction problems are inspected frequently to ensure the obstructions are minimized. Refer to Section 2 (NMC 1) for a detailed description of these programs.

#### **3.4.2 Flap Gate Installations**

The CSOs outlet into Beargrass Creek or the Ohio River. These waterways are subject to frequent flooding of moderate depth. Flooding associated with the Ohio River is generally less frequent, but with more significant flood water depth. CSOs that outlet to the Ohio River have a series of in-system flood gates that prevent backwater inundation at USACE defined river stage levels. Flooding on Beargrass Creek is more frequent. Flap gates have been installed on select Beargrass Creek CSO outfalls to protect the CSS from inundation (or backwater). By having these flap gates in place, the CSS is protected from inflow which would rob treatment capacity and conveyance for dry weather and wet weather sewer flow. Flap gates also protect the MFWTP from stream and river water heavy in colloidal sediment from entering the CSS and disrupting the normal processes for wastewater treatment.

The CSS when originally constructed provided for several flap gates. MSD has performed evaluations to determine additional locations where new installations would prove beneficial; approximately doubling the number of flap gates in the system. Table 3-1 identifies the Beargrass Creek Region CSO outfalls with flap gates. Refer to Figure 3-3 for a map of these locations.

**TABLE 3-1**

**BEARGRASS CREEK FLAP GATE LOCATIONS**

CSO 82	CSO 84	CSO 091
CSO 097	CSO 108	CSO 109
CSO 111	CSO 113	CSO 117
CSO 118	CSO 121	CSO 125
CSO 126	CSO 127	CSO 130
CSO 140	CSO 144	CSO 153
CSO 154	CSO 166	

The collection system inspection and maintenance programs, including those for flap gates, are detailed in Section 2 (NMC 1) of this document.

**3.4.3 Dams, Weirs and Regulator Adjustments**

The following section represents programmatic reviews and field adjustments completed within the CSS that provided additional storage within the system.

**3.4.3.1 Dams and Weirs**

MSD has raised 32 CSO dams and weirs to increase available system storage and therefore decrease overflow volume. The work was completed in two phases. In the initial phase (Phase 1), MSD personnel determined locations and respective modifications for 16 CSOs based upon visual field assessments and O&M experience. Refer to Item 3-1 of the NMC Supplemental Information for details of the analysis.

In the next phase (Phase 2), MSD performed a screening process to identify additional CSOs that could be modified based on hydraulic analyses using the CSS SWMM model. The screening process eliminated 92 of the 114 CSOs from further evaluation for the following reasons:

- CSOs were located upstream of an inflatable gate or controlled by an RTC system, which are more sophisticated control devices already designed to maximize in-system storage.
- The CSOs had been previously raised in Phase 1.
- CSOs where the sewers upstream were separated (These projects will be completed by the end of 2007). CSO 209 has already been eliminated as a result of this effort. MSD still plans to eliminate the two remaining sites (CSOs 88 and 147) once it has been demonstrated that the sewer separation project was successful.
- CSOs had S&F Control Devices. In the initial evaluation, these CSOs were eliminated from further consideration because many of the CSOs had their dams raised during the





installation of the S&F devices and/or the devices themselves include a feature that effectively performs the same function. For example, CSO 108 was raised 2 feet as part of the installation of the CDS unit. In the case of CSOs 83 and 121, the dams were also raised and large vaults were constructed to accommodate the baffles. The vaults also reduced the overflow volume due to their inherent storage capacity.

- CSOs that had an AAOV of less than 1 MG/YR.

The analyses calculated the effectiveness of further reductions in frequency and duration of CSOs by raising dams or weirs without creating adverse backwater conditions during a 2-year storm event. The SWMM model analyzed the remaining 22 CSOs and recommended that 16 of the dams or weirs be raised. The six CSOs that did not need to be raised included CSO Nos. 16, 19, 55, 137, 206, and 210. Refer to Appendix 3-1 (NMC Dam Elevation Evaluation) for details of the analysis.

This effort has reduced the annual average overflow volume by 219.3 million gallons, as shown in Table 3-2. The table also provides a list of CSO dams that have been modified, the respective reduction of overflow volume and the year of the modification.

**TABLE 3-2**

**DAM AND WEIR ADJUSTMENTS**

CSO Name	Elevation (ft)			AAOV Reduction (mgal)	Year Completed
	Before	After	Raised By		
22	422.90	424.90	2.00	1.4	1994
29	440.93	441.43	0.50	2.8	2006
31	443.70	444.20	0.50	0.0	1997
34	441.99	442.49	0.50	1.0	2006
51	438.74	439.24	0.50	0.1	1994
53	443.81	444.31	0.30	0.1	2006
58	447.10	447.60	0.50	3.0	2006
84	434.65	436.15	1.50	1.3	1997
92	leaping weir gap increased 5.5"			Note #3	1995
93	minor modification		-	Note #3	1995
104	431.63	432.47	0.84	Note #1	2006
105	429.30	430.80	1.50	48.0	2006
108	448.85	450.85	2.00	12.0	1999
111	444.66	445.66	1.00	3.8	2006
118	431.32	432.32	1.00	Note #2	2006
120	431.23	431.73	0.50	Note #4	1997
121	430.02	430.52	0.50	0.0	1997
125	439.60	441.10	1.50	2.4	1995
127	443.27	444.47	1.20	1.5	1996
132	428.06	430.06	2.00	23.2	2006
140	433.79	434.12	0.33	Note #5	1995
146	439.31	440.81	1.50	Note #2	2006
150	438.35	438.93	0.58	Note #3	1994



CSO Name	Elevation (ft)			AAOV Reduction (mgal)	Year Completed
	Before	After	Raised By		
153	426.85	427.35	0.25	56.8	2006
155	440.65	441.07	0.42	Note #3	1994
186	453.27	453.60	0.33	Note #3	1999
187	450.01	450.34	0.33	Note #3	1999
189	423.66	425.16	1.50	54.5	2006
190	438.20	438.70	0.50	2.3	2006
191	413.87	414.87	1.00	2.3	2006
196	445.52	445.94	0.42	1.6	2006
198	446.20	446.37	0.17	1.3	2006

**Total 219.3 MG/YR**

Note #1 - CSOs 104 and 105 are hydraulically connected. AAOV reduction is summed and listed for CSO 105.

Note #2 - CSOs 118, 146 and 153 are hydraulically connected. AAOV reduction is summed and listed for CSO 153

Note #3 - The dams at these CSOs were raised but there was no apparent benefit of AAOV reduction. The raising of the dams does reduce the frequency of overflows for higher intensity rain events.

Note #4 - CSOs 120 and 121 are hydraulically connected. AAOV reduction is summed and listed for CSO 121.

Note #5 - CSOs 140 and 125 are hydraulically connected. AAOV reduction is summed and listed for CSO 125.

In summary, MSD began this effort utilizing O&M field staff to identify sites where minor modifications could be made to increase CSS in-system storage without causing other problems, such as street or basement flooding. MSD continued this effort using a complex hydraulic model to find additional locations where modifications could be made.

**3.4.3.2 Other System Adjustments**

The following system modifications were made to increase the available system storage capacity.

- Audubon Park Sewer – The Audubon Park sewer initially flowed into the Beargrass Interceptor, a small capacity sewer with numerous CSOs. During periods of high flows in the Beargrass Interceptor, excess flows within the Audubon Park sewer overflowed into the Nightingale Pump Station. The flow was then pumped into the Southwestern Outfall service area, which contains larger diameter sewers. Adjustments were made to the system to allow dry and wet weather flow to be conveyed to the Nightingale Pump Station, thereby reducing flow in the Beargrass Interceptor and making additional wet weather capacity available.
- Southeast Diversion – MSD began re-routing a portion of the flow from the Beargrass Interceptor to the Southwestern Outfall system in mid-1993 by adjusting the gate setting at the Southeast Diversion structure, which is upstream of the CSS. As a result, wet weather capacity is increased in the smaller-sized Beargrass Interceptor sewer.

### **3.4.4 Inflow Retardants**

Slowing inflow enables the CSS to transport more flow by delaying the flow over a longer period of time. The elimination of roof drains and sump pumps to the collection system maximizes storage capability. The following are examples of projects in which inflows were removed or slowed in an effort to maximize storage within the collection system as well as to minimize CSOs.

- **Blackburn-Fenley** – The Blackburn-Fenley project removed approximately 100 MG/YR of groundwater from the CSS. The Louisville Water Company repaired a leaking water supply reservoir, and by doing so, reduced overflows and increased storage within the CSS. The project was completed in 1998.
- **Central Maintenance Facility BMPs** – MSD purchased and converted a strip mall into a maintenance facility. The site is approximately 25 acres, with 19.3 acres being impervious. The Central Maintenance Facility restoration included numerous stormwater BMPs, including the construction of vegetated swales, buffer strips and vegetated islands. The final impervious area was reduced to 15.7 acres. Approximately one-half of the roof drains were directed to a vegetated area. The stormwater BMPs have decreased the amount of stormwater entering the CSS, thus reducing the downstream CSOs.
- **Plumbing Modifications Program** – The Plumbing Modifications Program has been in existence for 11 years with expenditures over \$13M. The program was initially intended to provide protection to designated critical areas in the CSS that had experienced chronic problems with basement backups due to wet weather surcharged sewers. On March 1, 1997, the Louisville Metropolitan area experienced its worst flooding since 1964. As a result of this flood event, the Plumbing Modifications Program was temporarily expanded to the entire MSD service area which included both the combined and separate sanitary sewer areas. The program reduces and retards inflow by removing direct connections to the combined sewer, such as groundwater sump pump and downspouts. Redirecting these direct connections and discharging them onto the grass allows the water to be absorbed into the ground instead of using capacity within the combined sewer. Over 1,400 structures have had downspouts disconnected through this voluntary program. Historically, it is estimated that 80 to 90% of these locations also had sump pumps disconnected from the combined sewer. Refer to Figures 3-4 and 3-5 for location information pertaining to the voluntary downspout disconnections within the CSS.

### **3.4.5 Localized Upstream Detention**

New development proposed in the combined sewer area is reviewed for opportunities to reduce the amount and rate of runoff from parking lots and downspouts. Reduction methods used include installation of underground detention systems, decreasing impervious areas of previously developed sites, and providing parking lot storage. Other methods include restricting the size and number of stormwater outlets into the CSS and installation of catch basins in grassy areas.

As part of the standard practices for stormwater imposed upon new or revised development in the CSS, new storm tie-ins are limited to a single 6-inch connection. A requirement to reduce the post-development flows to the pre-development levels is also obligatory.

A recent example is the construction of a large supermarket located at 520 N. 35<sup>th</sup> Street (MSD Water Management #8690) within the CSS. This area was approximately 6.76 acres of historically residential development. More recent land use in the area encompasses a mixture

of residential development, parking for adjacent industry, and open space. The supermarket location prior to development included 0.64 acres of impervious surface. This impervious area increased to 3.31 acres through development. As part of the supermarket project, a stormwater detention basin with a single 6-inch connection to the CSS was constructed.

The pre- and post-stormwater discharges are summarized in Table 3-3 below:

**TABLE 3-3**

**EXAMPLE OF STORMWATER FLOW REDUCTION DUE TO NEW DEVELOPMENT**

<b>Design Storm</b>	<b>Pre – Development Stormwater Discharge (cfs)</b>	<b>Post – Development Stormwater Discharge (cfs)</b>	<b>On-Site Stormwater Detention Volume (ac-ft)</b>
2 - year	2.0	1.8	0.38
10 - year	4.0	2.8	0.71
100 - year	7.0	3.9	1.16

**3.4.6 Upgrade/Adjustment of Pump Operation at Interceptor Lift Stations**

MSD routinely reviews the performance of the larger sanitary pump stations within the CSS to maximize operations and to efficiently transport flow to the MFWTP that would otherwise overflow without treatment. In 2005, MSD completed a major upgrade of the Robert Starkey Pump Station. The upgrade expanded the pumping capacity from 125 mgd to 140 mgd. The project included installation of a new wet well adjacent to the old wet well, four new variable speed submersible pumps capable of handling 35 mgd each, two channel monsters with hydraulic motors for screening, a new electrical substation, new instrumentation and control, and provisions for telemetry. The new wet well is lower than the original wet well, reducing the backwater in the interceptors and thereby increasing their storage capacity. Based on the results of the SWMM model when combined with operational changes described in Section 5, these improvements have reduced overflows by 545 MG/YR.

The 4th Street Flood Pump Station was modified to reduce overflows. The overflow dam on CSO 22 was raised 2 feet, which allowed the “idle mode” set point for the 4th Flood Street Pump Station to be raised two feet. Based on river elevation data from 2003 to 2005, the annual reduction of CSOs resulting from this modification is estimated at 13.7 MG/YR.

In addition to physical changes, MSD made operational changes to the pump stations. MSD has the responsibility for the operation and maintenance of an extensive flood protection system that was developed by the U.S. Army Corps of Engineers (USACE) in the 1950s. In 2002, MSD met with the USACE to discuss modifications to the control logic of the pump stations that would reduce combined sewer overflows. The control logic developed by the USACE focused on flood protection rather than minimization of CSOs. The program changes proposed by MSD reduced the amount of time that the pump stations were in “idle” model. During “idle” mode, the pump station ceases to function as a sanitary pump station as it transitions into a flood prevention mode of operation, thus causing combined sewer overflows. Similarly, the “idle mode” set point for the 34th Street Flood Station was raised. The annual reduction resulting from this modification is 30.2 MG/YR.

### **3.4.7 New Development and Building Code Opportunities**

MSD's new development program addresses concerns produced by population growth and seeks to lessen the impacts to sewers and streams. Concerns include evaluating new sanitary and storm connections, geothermal system discharges, and hydrological impacts from pervious and impervious areas. General methods used to maximize storage in the collection system include reviewing the existing ordinance and plumbing codes, limiting storm connections to the system, utilizing hydraulic modeling, and requiring sewer separations where feasible.

In the mid-1990s, MSD led efforts to revise the building code to no longer make it unlawful to discharge downspouts directly to the ground. The corresponding benefit of this change is that roof runoff is dissipated over the ground as opposed to being a direct discharge into the combined sewer.

Sewer surcharging is a common cause of backups into basements in the CSS. Also in the mid-1990s, the plumbing code was modified such that gravity service connections could no longer be installed below the elevation of the cover of the nearest manhole. The corresponding benefit of this change is that it eliminates the possibility of basement backups due to surcharged combined sewers.

### **3.4.8 Real Time Control (RTC)**

During fiscal years 2000 and 2001, MSD performed a study to evaluate the feasibility of using Real Time Control (RTC) to fully utilize existing in-line storage capacity, decrease CSO volumes in the Beargrass Creek and Ohio River Watersheds, and increase wastewater volumes conveyed to the Morris Forman Wastewater Treatment Plant (MFWTP). The potential for in-line storage was identified for the eleven major interceptors and outfalls (Southwestern Outfall, Southern Outfall, Northwestern Interceptor, Western Outfall, Western Interceptor, and 34th Street Collector, Sneads Branch Relief Sewer, Dry Run Collector, Brownsboro Road Trunk Sewer, Beals Branch Trunk Sewer and Broadway Collector). Off-line storage basins, including Brady Lake, Executive Inn and Wheeler, were also included in the evaluation. Although the MDS Interceptor is large, and provides inherent storage capacity, the interceptor is needed to convey the maximum possible flow to the plant and therefore cannot be regulated to provide in-system storage.

The current estimate of the total effective capacity for these projects is approximately 82.3 MG, as depicted in Table 3-4. The RTC program will be implemented in several phases. The projects identified for the first two phases are shown in Figure 3-6.

**TABLE 3-4  
EFFECTIVE STORAGE VOLUME**

<i>Trunk</i>	<i>Control sites</i>	<i>Effective Storage Volume (MG)</i>
Sneads Branch Relief Sewer	SBS1	2.5
Dry Run Collector	BGI2	3.2
Broadway Collector	BGI1	0.8
Brownsboro Road Trunk Collector	NEI1	0.5
Beals Branch Trunk Sewer	MFT1	0.5
Southwestern Outfall	SWOR1	18.5
	SWOR2	18.0
UDRT Basins (Executive Inn and Brady Lake)		15
Wheeler Basin		1.1
Southern Outfall	SOR1	6.2
	SOR2	5
Northwestern Interceptor	NWIR1	5
Western Outfall	WOR1	4
Western Interceptor	WIR1	0
34 <sup>th</sup> Street Collector	34THR1	2
<b>Total</b>		<b>82.3</b>

In April 2006, MSD implemented the first phase of the RTC at five sites within the tributary area of the Southwestern Outfall. These sites have a total storage capacity of 36 million gallons. Phase 1 also included the development of a centralized decision making system (Csoft) and a radar rainfall data system to predict weather over a 2 hour window. The five facilities in this project are as follows:

- Southeastern Diversion Structure (SED1) – for control of two gates. These gates will allow the diversion of flow from the Beargrass Interceptor (BGI) to the Southeastern Interceptor (SEI) in Region 3
- Nightingale Pump Station (BGI3) – for control of one gate located in the BGI. This gate will allow the diversion of flow from the BGI and the BGI Relief Sewer in Region 1 to the Upper Dry Run Trunk system in Region 3
- Southwestern Pump Station (SWOR1) – for optimal and local control of the gates in the Sluice Gate Chamber (SGC). Utilization of this gate will generate in-line storage capacity within the Southwestern Outlet (SWO).
- Sneads Branch In-line Storage Site - for control of the dewatering pumps. This facility makes use of an inflatable dam that store overflows in a relief sewer and pumps that re-captured overflows back in the BGI and for treatment at MFWTP;
- Brady Lake and Executive Inn Basins - for control of the gates at the outlet of the basins. These gates will allow the storm water flows to be strategically stored for CSO control



and released into the Upper Dry Run Trunk system in Region 3 once capacity is available.

During the period between April 6 and June 23, 2006, the RTC system reduced the total overflow volume by 200 million gallons during 17 wet weather events, as shown in Table 3-5. Additionally, the RTC system prevented overflows from occurring during six of the seventeen events. MSD anticipates that overflow reductions (frequency and volume) will improve in the future because the control system was still being tuned during this period.

**Table 3-5  
Overflow Reductions Attributable to Phase 1 Real Time Control Project**

(to test and tune the systems and models)

Event	Date	Rain	Rain Duration	Southwestern				Brady Lake		Executive Inn		Volume retained
				Ctrl elev.	Max elev.	Max vol	Overflow	Max lvl	Max vol	Max lvl	Max vol	
1	6-Apr-06	0.22"	4:35 hrs	410.0'	407.2'	7.7 MG	No	4.9'	1.0 MG	2.4'	0.3 MG	9.0 MG
2	7-Apr-06	0.46"	4:30 hrs	410.0'	410.4'	11.3 MG	Yes	7.4'	2.2 MG	4.5'	0.8 MG	14.3 MG
3	19-Apr-06	0.86"	4:05 hrs	410.0'	411.0'	11.3 MG	Yes	10.2'	2.9 MG	4.5'	1.6 MG	15.8 MG
4	21-Apr-06	0.76"	5:30 hrs	410.0'	415.1'	11.3 MG	Yes	11.1'	4.2 MG	5.3'	2.3 MG	17.8 MG
5	10-May-06	0.30"	8:20 hrs	410.0'	401.1'	2.0 MG	No	2.7'	0.3 MG	2.6'	0.4 MG	2.7 MG
6	18-May-06	0.29"	5:25 hrs	410.0'	407.8'	8.4 MG	No	4.6'	0.7 MG	3.0'	0.5 MG	9.6 MG
7	24-May-06	1.20"	6:15 hrs	410.0'	410.7'	11.3 MG	Yes	10.5'	3.1 MG	4.9'	1.9 MG	16.3 MG
8	25-May-06	0.80"	2:50 hrs	410.0'	410.8'	11.3 MG	Yes	9.4'	2.5 MG	5.4'	2.4 MG	16.2 MG
9	1-Jun-06	0.32"	5:35 hrs	Man ctrl	410.2'	1.6 MG	Yes	6.8'	1.9 MG	4.8'	1.9 MG	5.4 MG
10	2-Jun-06	0.96"	9:10 hrs	Man ctrl	411.6'	11.3 MG	Yes	11.3'	4.6 MG	6.9'	4.2 MG	20.1 MG
												<b>127.2 MG</b>

Event	Date	Rain	Rain Duration	Southwestern				Brady Lake		Executive Inn		Volume retained
				Ctrl lvl	Max lvl	Max vol	Overflow	Max lvl	Max vol	Max lvl	Max vol	
11	7-Jun-06	0.21"	2:05 hrs	412.5'	412.1'	14.2 MG	Yes	8.4'	2.1 MG	5.1'	2.2 MG	18.5 MG
12	11-Jun-06	0.30"	4:50 hrs	412.5'	405.1'	5.4 MG	Yes	3.6'	0.5 MG	2.2'	0.3 MG	6.2 MG
13	17-Jun-06	0.27"	2:40 hrs	412.5'	404.8'	5.1 MG	No	5.8'	1.1 MG	3.8'	0.8 MG	7.0 MG
14	18-Jun-06	0.13"	2:15 hrs	412.5'	399.7'	1.4 MG	No	1.6'	0.1 MG	1.7'	0.1 MG	1.6 MG
15	19-Jun-06	0.09"	3:10 hrs	412.5'	398.6'	1.0 MG	No	1.5'	0.1 MG	1.0'	0.0 MG	1.1 MG
16	19-Jun-06	1.05"	13:30 hrs	413.2'	412.5'	14.8 MG	Yes	10.0'	2.8 MG	6.3'	2.0 MG	19.6 MG
17	23-Jun-06	0.45"	3:10 hrs	413.3'	412.5'	14.8 MG	Yes	8.5'	2.1 MG	4.7'	1.7 MG	18.6 MG
												<b>72.6 MG</b>

**Other notes:**

- Brady Lake control level is 16' (8.1 MG)
- Executive Inn control level is 9' (6.9 MG)
- Sneads Branch excluded

**Total: 199.8 MG**

A second implementation phase of the RTC system is currently under its design phase and is scheduled to be operational in December 2008. Phase 2 involves five additional control sites; two of the sites were part of the original 16 control sites identified during the studies (SWOR2 & BGI3) while the three other sites are existing facilities with automation capabilities. These sites will provide an additional 25.3 million gallons of storage. The five facilities in this project are as follows:

- **Southwestern Outfall In-line Storage Site (SWOR2)** – for control of an inflatable rubber dam to be installed in the Southwestern Outfall approximately 12,000 feet upstream of the Southwestern Pumping Station (SWPS). This gate is meant to create a second storage zone in the upstream section of the Southwestern Outfall, as a complement to

the gates at the SGC of the Southwestern PS. At this point, the Southwestern Outfall consists of a 18'10" x 24'-pipe;

- CSO 108 (BGI3) - The project includes the new regulating structure with modifications to the existing interception conduit to the BGI and the addition of a link to the existing BGI relief manhole. An increase of intercepted flow from CSO 108 is possible because of the first phase SED and NPS control sites are respectively located upstream and downstream of CSO 108 along the BGI. Modifications at CSO 108 will maximize the benefits related to the automation of the two control sites;
- Wheeler Basin - New programming of the local PLC and better instrumentation will allow the RTC system to automatically control the Wheeler Basin from the central station. The integration of the Wheeler Basin operations to the RTC should allow for a more efficient use of the basin to control overflows. It will fill-up more frequently and dewatering will take place only when overflows will have ceased downstream. The automated control will make use of the existing sluice gate to control flow from the area entering Mill Creek Trunk;
- Southwestern Pump Station and Main Diversion Structure - New programming of the local PLCs at the Southwestern PS and the MDS will allow the central station to automatically control these facilities. The SWPS and the MDS are two major inflows to the MFWTP. The integration of their operation and the control of the flows with the RTC system will allow the optimization of the flow control strategies during wet weather conditions depending on the current status of the MFWTP and overflow priorities. The SWPS and two of the automated gates at the MDS will be controlled by the RTC system for prioritization and adjustments of the available hydraulic capacity.

The CSO reductions associated with the Phase 1 and Phase 2 projects are presented in Table 3-6. The estimated overflow reductions are based on simulation results. As such, they give an order of magnitude of the significant benefits for each RTC sites. Also, they will be updated in the future with operational data from the first implementation and current on-going design of the second phase.

**TABLE 3-6  
CSO REDUCTIONS USING REAL TIME CONTROL**

Control site	Region	Related CSOs	Description	CSO Reduction (MG)	
				1-month event	annual basis
<b>RTC Phase I Implementation</b>					
SWPS SGC	2&3	15, 191	New Automated gates at SGC for in-line Storage Target level = 415'	17	700
Brady Lake & Executive Inn	2&3	15, 191	RTC programming to integrate to the global RTC scheme the current local operation of regulating gates	1-2	50
Snead Branch In-line Storage site	1	146, 117	RTC programming to integrate to the global RTC scheme the current local operation for dewatering	0.2	5
SED1 - Southeastern Diversion	1	18, 108	2 New Automated gates at SED for relief of BGI through diversion to Region 3	2.0	80



Control site	Region	Related CSOs	Description	CSO Reduction (MG)	
				1-month event	annual basis
BGI3 - Nightingale PS Control site	1	97, 110, 150, 151	New Automated gate on BGI (beside NPS) for relief of BGI through diversion to Region 3		

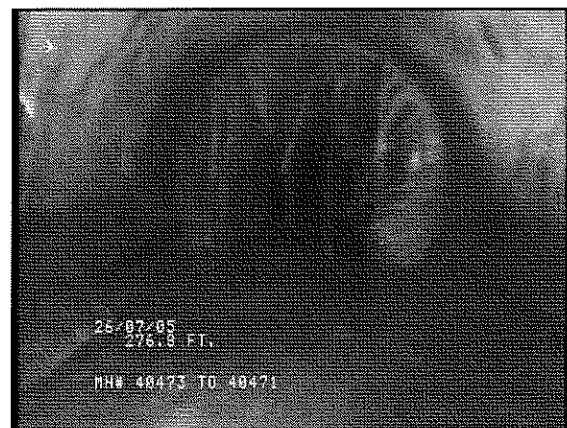
**RTC Phase II Implementation**

CSO 108	1	108	Implantation of new static regulating structure for CSO 108 with a link to BGRS Takes advantage of freed capacity by RTC at SED1 & BGI3	1.5	50
SWOR2 - Southwestern Outlet	2&3	15,191	New control device for favor in-line storage in the upper part of the Outlet	11	200-300
Integration of Wheeler Basin Operations into RTC	2&3	15, 191	RTC programming to integrate to the global RTC scheme the current local operation of Gate Structure	0.5	10-20
Integration of SWPS/MDS/MFWTP	2&3	15 & MDS	RTC programming to integrate to the global RTC scheme the current local operation of MDS and SWPS	NA	NA

Projects beyond 2008 will be addressed in the Long Term Control Plan. Refer to Exhibits 10, 11, 53 and 54 of the 308 submittal for additional information.

**3.4.9 Removal of Flow Obstructions**

The combined sewer system serves commercial, industrial, and residential areas. While most of the catch basins to the system are trapped, there are numerous ways for grit and debris to enter the system. Many of the combined sewers have adequate flow and velocity to maintain the pipe capacity. There are portions of the system where flat pipe slopes result in debris buildup. These locations require monitoring and cleaning to maintain the system storage capacity. Refer to Section 2 (NMC 1) for additional information pertaining to ongoing collection system inspection and maintenance activities.



*Root Obstruction in Sewer*

- Beargrass Interceptor – In early 1995, the depth of grit and deposited materials was gauged at 23 manholes on the Beargrass Interceptor between the Buchanan and Nightingale Pump Stations. No significant accumulations of grit in the lower sections of the Beargrass Interceptor were observed.
- Central Relief Drain – By the end of 1994, most of the combined sewers within the Central Relief Drain had been inspected and deposited materials removed.
- CSO 125 – MSD field observations occurring between August of 1996 and November of 1998 revealed that the sewer upstream of CSO 125 was often filled with sediment and

continually needed cleaning. The sediment was caused by draining of the Louisville Water Company reservoir. MSD worked with the Louisville Water Company to reach an agreement on proper draining of the reservoir. The change in operating procedures eliminated sediment build up and dry weather overflows.

- CSO 132 – The Northeastern Sanitary Trunk Sewer upstream of CSO 132 often filled with sediment, necessitating repeated cleaning of the upstream segments of the sewer. Subsequently, the regulator was modified to ensure it does not close prematurely or remain closed after a rain event. This modification has resulted in higher heads and flows into the Northeastern Sanitary Trunk Sewer during rains, which has had a flushing effect that is keeping the sewer cleaner and freer flowing. The project was completed in 1993.
- CSO 153 – Field inspections conducted in 1993 revealed that CSO 153 was filled with debris. Cleaning of the CSO removed 15 two-gallon buckets of bricks and grit. In 1995, rebar was installed to function as a screen to minimize the amount of debris getting into the CSO.
- CSO 209 – In 2005, several pipe blockages were discovered during a comprehensive Television Inspection (TVI) program that was performed on over 15,000 linear feet of combined sewer in the Cherokee Park area. Two manholes in the sewer surcharged during heavy rain events. The TVI process revealed a significant root blockage. Since MSD cleaned this section of the sewer, there have been no surcharges at the two manholes.
- Southern Outfall Overflow Conduit – Approximately 300 feet of sewer was cleaned from the bend upstream of the diversion dam to a point at which the sewer changes from concrete to brick. Two illicit connections were also identified and eliminated. The project was completed in 1995.
- Southwestern Pump Station – During 1996 and 1997, the Southwestern Pump Station experienced a considerable build-up of grit. The grit was removed as it accumulated. The source of the grit was investigated but never identified.

### **3.5 COMPLIANCE SUMMARY**

As presented within the paragraphs of this section, MSD has documented the municipality's efforts to maximize storage in the collection system. The documentation includes studies, reports and analyses, as follows:

- MSD has evaluated alternative methods and developed procedures to maximize collection system storage including collection system inspections, flap gate installations, dam and weir adjustments, inflow retardants, upstream detention, pump station modifications, building code changes, and real time control implementation.
- MSD has identified 82.3 million gallons of in-system and off-line storage within the CSS. MSD has developed a phased implementation program to fully utilize this storage using RTC technology. The first phase of this project, which incorporated 36 MG of in-system and off-line storage, was operational in April 2006.
- MSD has raised the elevations of 32 dams and weirs, providing an AAOV reduction of 219.3 MG/YR.
- MSD has performed modifications at three pump stations to provide 589 MG/YR of CSO volume reduction.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

**NMC Compliance Report  
September 15, 2006**

---

- MSD is currently implementing additional measures to maximize collection system storage. Additionally, MSD will expand its use of RTC to incorporate an additional 25.3 million gallons of existing system storage by December 2008.
- MSD will implement future phases of the RTC system as part of the LTCP.

### **3.6 LISTING OF SUPPLEMENTAL INFORMATION**

Item 3-1 Evaluation of CSO Dam Elevations

**FIGURE 3-1**

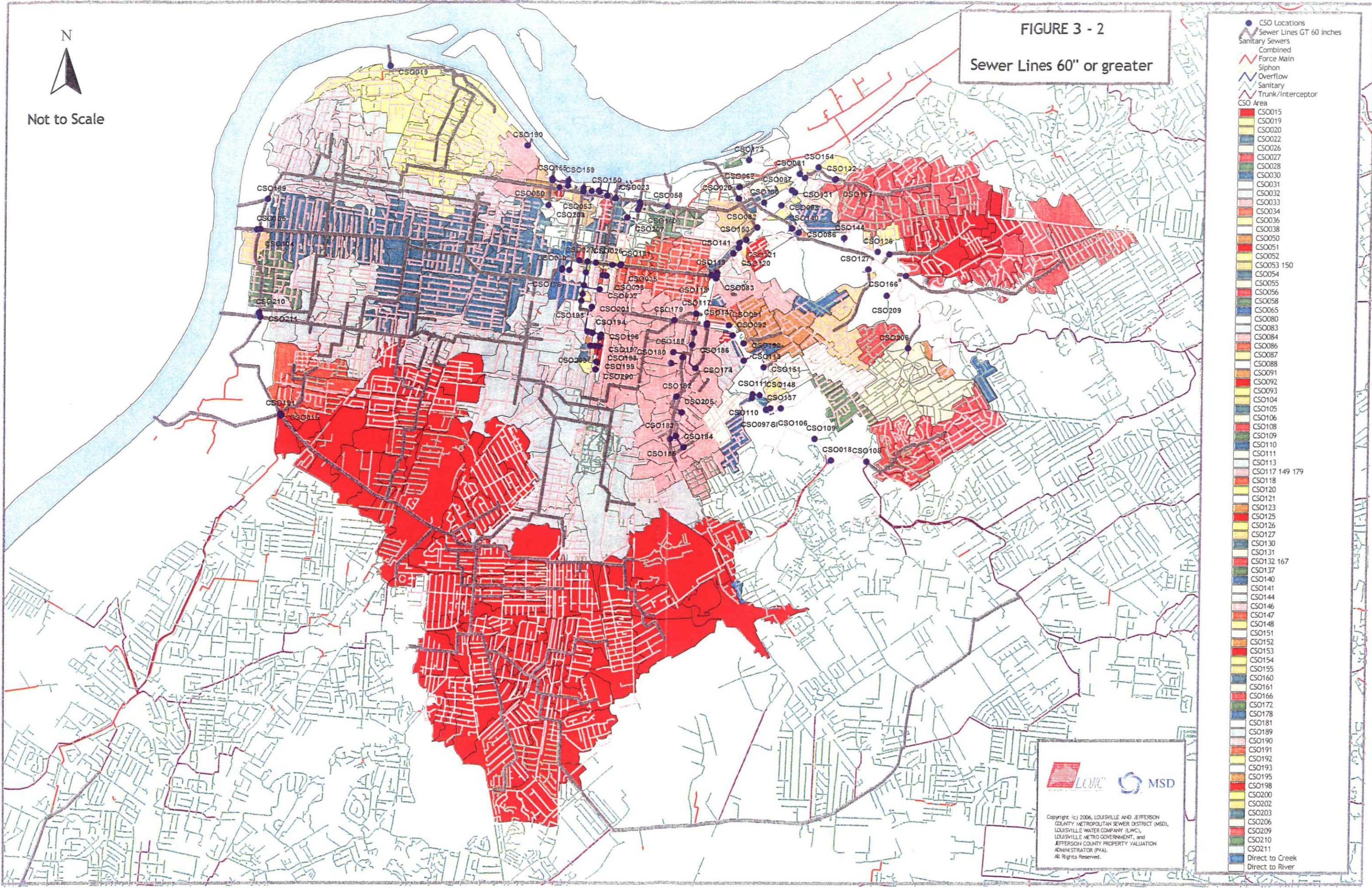
<b>LENGTH OF SEWERS GREATER THAN 5-FEET IN DIAMETER WITHIN THE CSS</b>	
<b>CSO Area</b>	<b>Length (MI)</b>
CSO015	17.57
CSO019	2.73
CSO020	0.29
CSO022	0.66
CSO026	0.00
CSO030	0.14
CSO036	0.18
CSO050	0.46
CSO052	0.09
CSO053 150	0.15
CSO055	0.12
CSO056	0.06
CSO058	0.58
CSO084	0.04
CSO104	0.32
CSO105	5.20
CSO108	1.02
CSO110	0.02
CSO117 149 179	2.27
CSO118	0.87
CSO125	0.16
CSO127	0.61
CSO132 167	0.76
CSO146	2.60
CSO151	0.01
CSO152	0.36
CSO166	0.41
CSO178	0.01
CSO189	3.08
CSO191	0.70
CSO193	0.19
CSO210	0.63
CSO211	13.78
<b>Total</b>	<b>57.22</b>

**FIGURE 3 - 2**  
**Sewer Lines 60" or greater**



Not to Scale

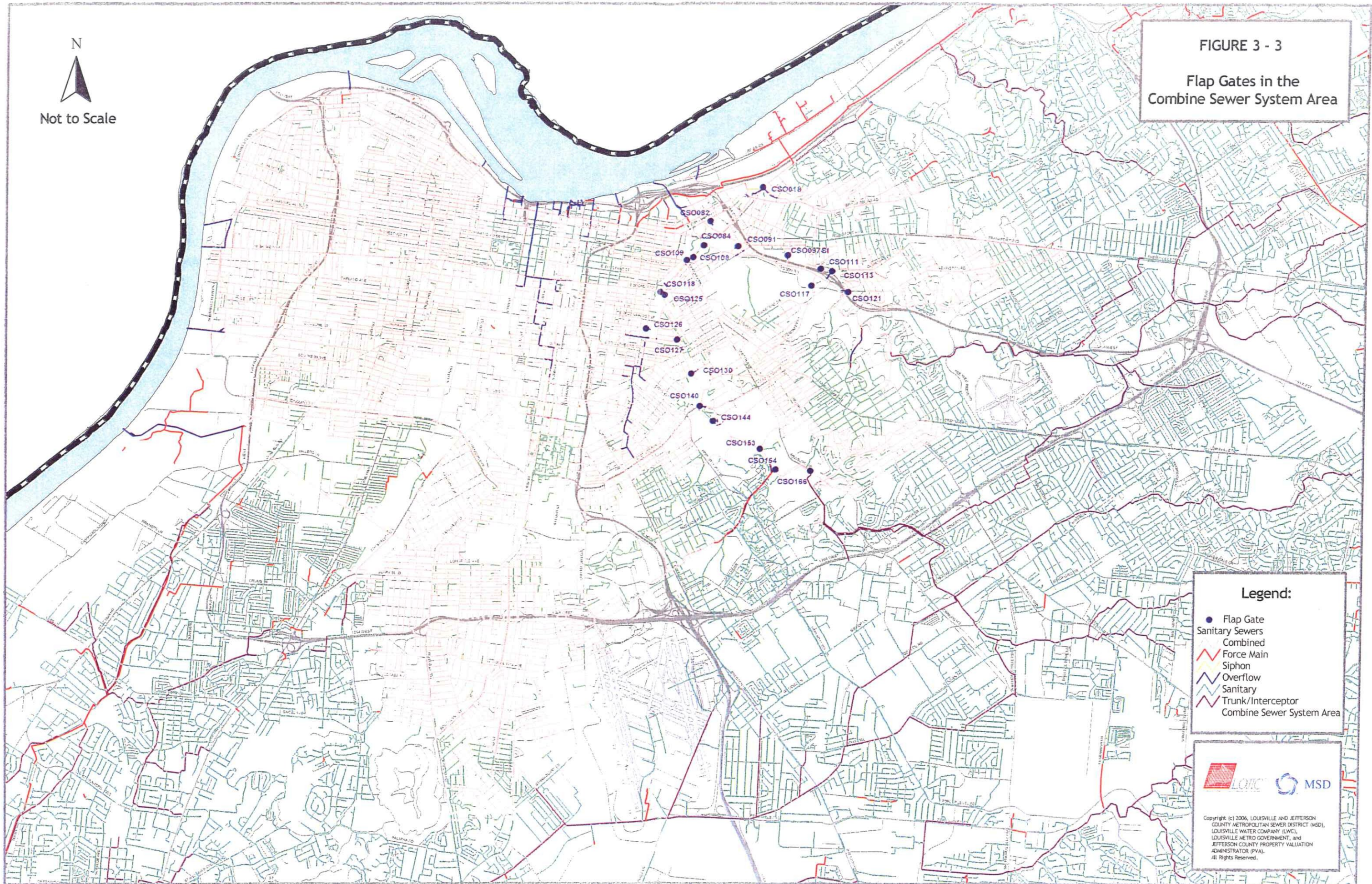
- CSO Locations
- Sewer Lines GT 60 inches
- Sanitary Sewers
- Combined
- Force Main
- Siphon
- Overflow
- Sanitary
- Trunk/Interceptor
- CSO Area
- CSO015
- CSO019
- CSO020
- CSO022
- CSO026
- CSO027
- CSO028
- CSO030
- CSO031
- CSO032
- CSO033
- CSO034
- CSO036
- CSO038
- CSO050
- CSO051
- CSO052
- CSO053 150
- CSO054
- CSO055
- CSO056
- CSO058
- CSO065
- CSO080
- CSO083
- CSO084
- CSO086
- CSO087
- CSO088
- CSO091
- CSO092
- CSO093
- CSO104
- CSO105
- CSO106
- CSO108
- CSO109
- CSO110
- CSO111
- CSO113
- CSO117 149 179
- CSO118
- CSO120
- CSO121
- CSO123
- CSO125
- CSO126
- CSO127
- CSO130
- CSO131
- CSO132 167
- CSO137
- CSO140
- CSO141
- CSO144
- CSO146
- CSO147
- CSO148
- CSO151
- CSO152
- CSO153
- CSO154
- CSO155
- CSO160
- CSO161
- CSO166
- CSO172
- CSO178
- CSO181
- CSO189
- CSO190
- CSO191
- CSO192
- CSO193
- CSO195
- CSO198
- CSO200
- CSO202
- CSO203
- CSO206
- CSO209
- CSO210
- CSO211
- Direct to Creek
- Direct to River



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA). All Rights Reserved.



**FIGURE 3 - 3**  
**Flap Gates in the**  
**Combine Sewer System Area**



**Legend:**

- Flap Gate
- Sanitary Sewers
- Combined
- Force Main
- Siphon
- Overflow
- Sanitary
- Trunk/Interceptor
- Combine Sewer System Area

Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA). All Rights Reserved.

**FIGURE 3-4**

<b>DOWNSPOUT DISCONNECTIONS AS PART OF THE PLUMBING MODIFICATION PROGRAM 1994 - 2006</b>	
<b>Year</b>	<b>Number of Downspouts Disconnected</b>
9/29/1994	7
1/5/1995	298
1/5/1996	134
1/2/1997	203
1/2/1998	188
1/19/1999	131
1/5/2000	140
1/4/2001	124
1/3/2002	172
1/3/2003	86
2/26/2004	20
1/6/2005	6
3/7/2006	3
<b>Total</b>	<b>1,512</b>

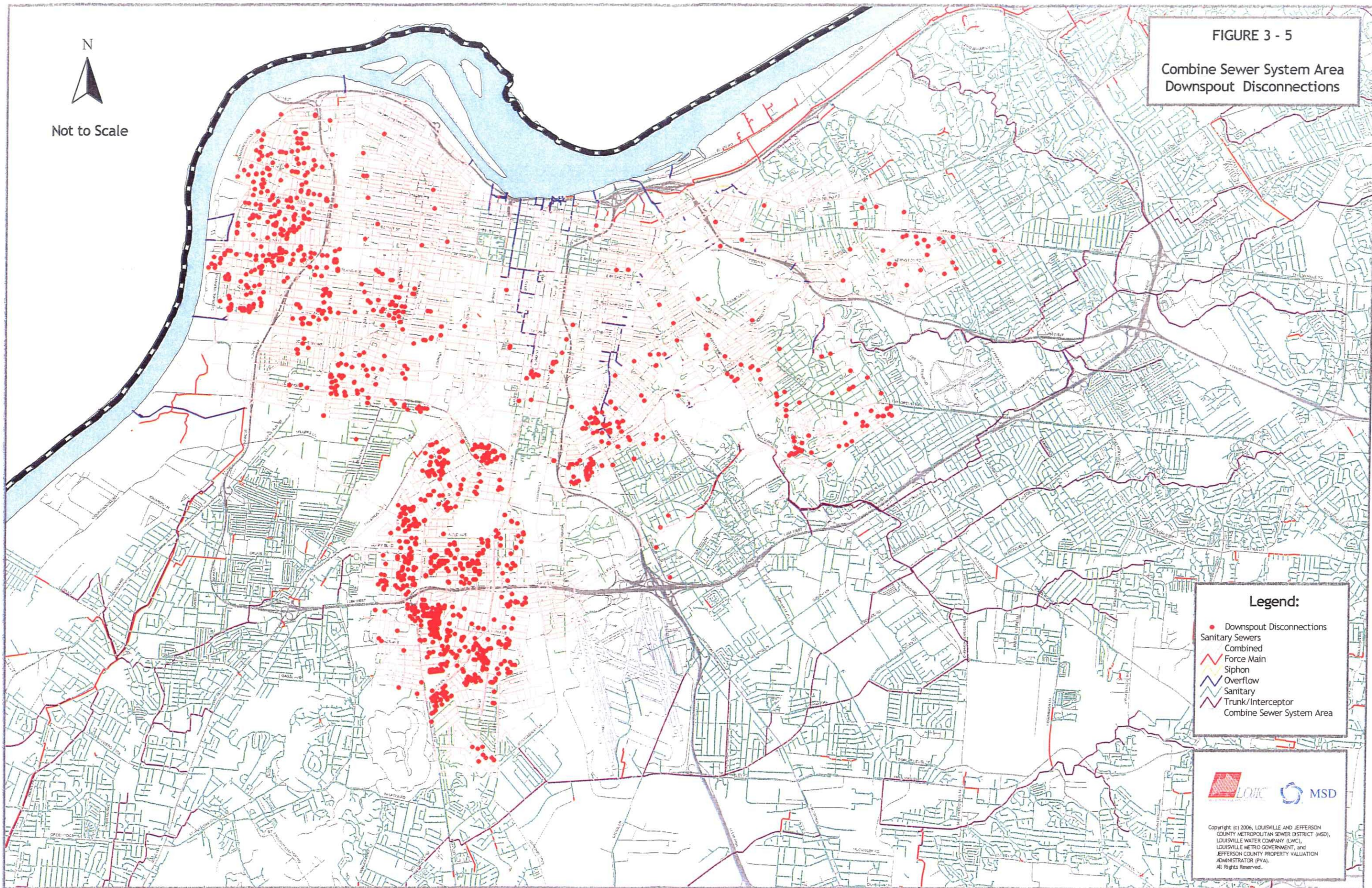
Note: 102 Downspout Disconnections have been performed outside of the combined sewer system

FIGURE 3 - 5

Combine Sewer System Area  
Downspout Disconnections

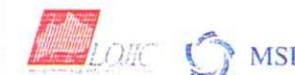


Not to Scale



**Legend:**

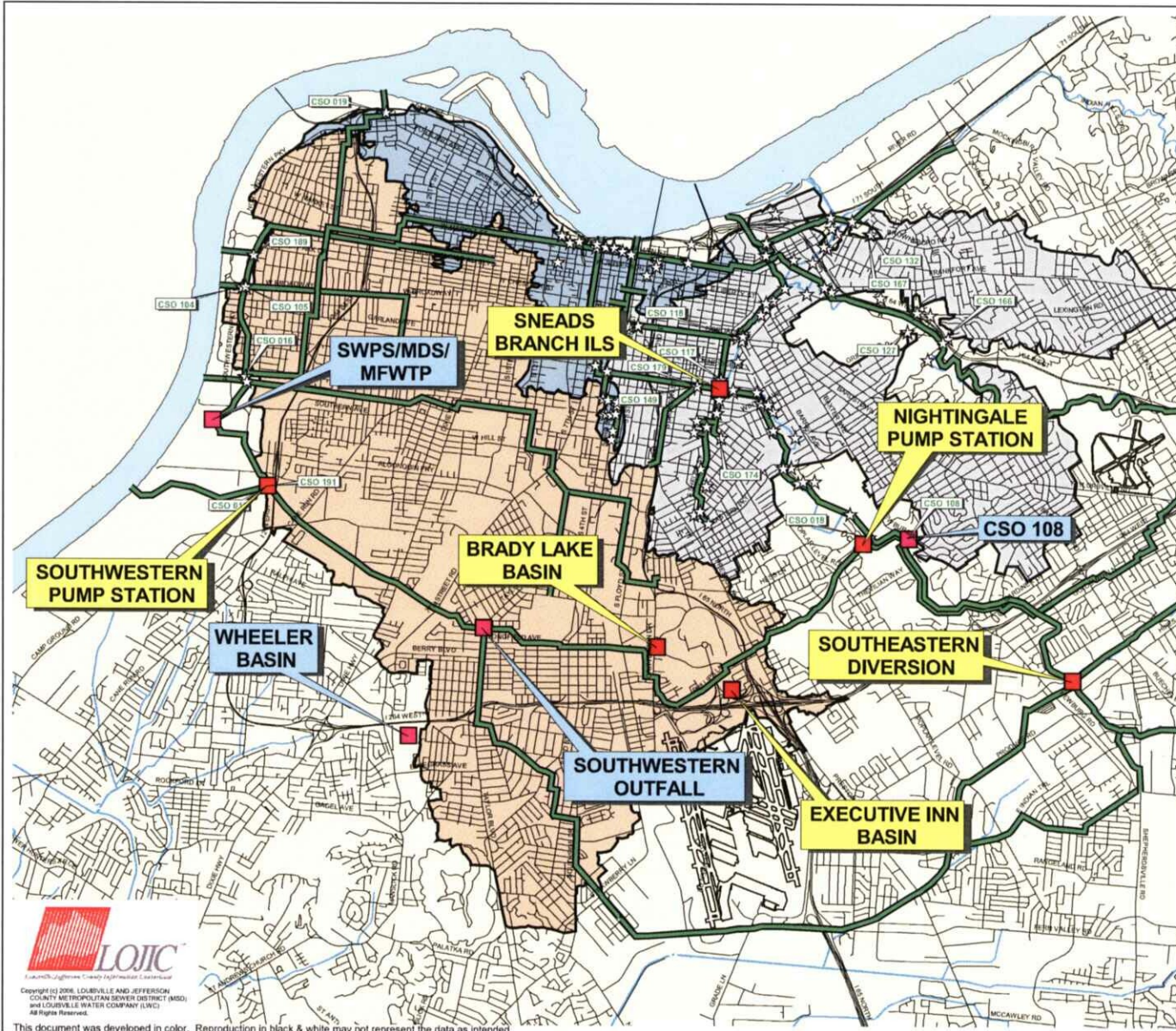
- Downspout Disconnections
- Sanitary Sewers
- Combined
- Force Main
- Siphon
- Overflow
- Sanitary
- Trunk/Interceptor
- Combine Sewer System Area



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA). All Rights Reserved.



Figure 3-6  
RTC Implementation Projects



Copyright (c) 2008, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) and LOUISVILLE WATER COMPANY (LWC) All Rights Reserved.  
This document was developed in color. Reproduction in black & white may not represent the data as intended.



To: Angi Johnston, MSD  
From: Susan Bahng & Wesley Sydnor  
Re: NMC Dam Elevation Evaluation  
File: 35816.110.110#2  
Date: August 8, 2005 ~~August 10, 2005~~

cc: Gary Boblitt, OMNI  
Tim Kraus, OBG  
Dwight MacArthur, OBG

### **I. Background**

As part of the EPA's CSOs guidance for Nine Minimum Controls, an evaluation of raising overflow dam elevations to reduce the amount of overflow volumes was conducted. As outlined in the September 24, 2003 memo, OMNI Engineers developed a list of CSO's to be evaluated and subsequently recommended the initial elevations to which each CSO dam might be raised. O'Brien and Gere utilized the XP-SWMM CSO model to evaluate the impacts of raising dams at the identified CSOs.

### **II. Removal of CSOs for Evaluation**

The OMNI memo dated September 24, 2003 outlined the process for identifying the CSO locations that would be part of the study. Below is a list of criteria used to eliminate CSOs from evaluation list.

1. CSOs located upstream of the SBR-ILS Inflatable Gate
2. CSOs that had structure modifications done previously
3. CSOs that had S&F Control Facilities installed or are scheduled to have them in the near future
4. CSOs with sewer separation project completed.
5. CSOs controlled by the RTC Project
6. CSOs with an AAOV of less than 1.0 MG/YR.

A total number of 92 CSOs was eliminated out of 114 active CSOs for the study. The final list of 22 CSOs evaluated is attached.

### **III. Evaluation Methodology**

The work completed as part of the evaluation of CSO dam elevations was as follows:

- XP-SWMM CSS Model schematic, the MSD sewer atlas and area maps from LOJIC were produced for each CSO.
- Discrepancies between elevations in the CSS model, and in the CSO inventory were compiled and given to Jacobi Toombs & Lanz (JTL) to survey.
- JTL delivered a completed survey with surveyed dam elevations
- The confirmed dam elevations from JTL were incorporated into the XP-SWMM model.
- Model simulations for the nine historical reference storms (0.05", 0.10", 0.15", 0.20", 0.25", 1-mo, 3-mo, 6-mo, and 2-yr) for the initial existing updated conditions were completed.
- Overflow volumes and water surface elevations upstream of CSOs were extracted from the CSS model and checked
- Model simulations for the nine historical reference storms for the initial modification of the dam elevations were completed based on OMNI Engineering recommendations.
- The model results for overflow volumes and backwater conditions upstream of the CSOs with dam modifications (those with discrepancies) were checked.
- Any CSO with flooding upstream prior to modification to the structure was eliminated at this stage.
- Modifications to dam elevations at the selected CSOs based on recommendations from OMNI Engineering were incorporated in the model.

- The CSS model was simulated for each storm with the proposed dam elevation changes included.
- Further modifications were made to the CSO Dam Elevations in order to eliminate overflows more if possible without flooding upstream manholes.
- New overflow volumes and water surface elevations post dam elevation modifications were extracted.
- Simulated CSS model utilizing typical annual rainfall data with the existing-updated and proposed dam elevation change to develop new AAOV

**IV. Discrepancies within the MSD CSO Inventory**

During the course of the work, it was discovered that discrepancies existed between the text defining elevations and drawings in the CSO Inventory book. To accurately portray the effects of modifying structures in the CSS, it was necessary to determine the correct existing dam elevations. JTL surveyed elevations in the field at structures where discrepancies existed. Attached is the list of CSOs which were field verified, with the updated existing dam elevations. Additional investigation of the CSO Inventory for other discrepancies may be warranted.

**V. CSO Evaluation Criteria**

In an effort to increase the height of the overflow dams to reduce overflow volumes and maximize in-line storage, further iterations were conducted, based on the effectiveness indicated by the initial dam elevation increases. CSOs were evaluated based on the reduction in overflow volumes. Once a dam elevation had been raised enough to reduce the overflow volume by 20%, no further iterations were to be pursued. Model output was reviewed to consider whether or not, and to what extent, adverse backwater conditions would develop upstream of the location where the dam elevations were increased. If adverse conditions were created at a CSO during a 2-year return frequency storm event, consideration for dam increases at this CSO was withdrawn.

**VI. Results**

Model runs for the 0.05", 0.10", 0.15", 0.20", 0.25", 1-month, 3-month, and 6-month storms were conducted with the overflow dam heights at their existing elevations. The initial set of recommended changes to dam elevations were incorporated into the model and the storms were re-simulated. The results of the model runs for the existing conditions were compared to the results from the initial set of dam elevation changes to determine the percentage decrease in the overflow volumes for eight storms at each CSO locations. A 2-year return frequency storm was also simulated to examine the backwater effects upstream of the dams at which the elevations were changed, and the results were also analyzed. Based on the extent of backwater effects or upstream surcharging, a second set of dam elevations increases were considered for selected CSO locations.

Initially, twenty-two (22) CSOs were considered for modifications to the overflow dam structures. A spreadsheet for each CSO was developed showing the total overflow volumes under existing conditions, initial modifications and the final modifications for the eight storm events noted above. Tabulation of the overflow volumes resulting from implementing the changes recommended by OMNI was then added to the existing system model run tabulations, including any iterations for multiple increases at one or more sites.

After making the initial changes, seven (7) CSO locations were considered viable for additional increases, and another series of XP-SWMM model runs was undertaken. One additional set of simulations was performed for the selected CSOs, based on the evaluation procedure previously outlined in this memo.

**VII. Recommendations**

The analysis of the results of the model runs indicated that additional capture of CSO above the current level can be achieved by increasing the overflow weir heights at the sites evaluated. The magnitudes of

---

these reductions are dependent on a number of factors, including the severity of specific storm events, the capacities of the interceptors to which the base flows are normally directed, and to some degree the timing of flows through the conveyance systems. As expected, the more intense storms are less affected by increasing the overflow dam elevations, while less intense events are more affected resulting in the frequency of events being reduced.

Based on the XP-SWMM simulation results for the selected CSOs we recommend that the overflow dams be raised to the elevations indicated in the following table.

CSO Name	Elevation		
	Existing	Final	Raise by
132	428.06	430.06	2.00
118	431.32	432.32	1.00
146	439.31	440.81	1.50
111	444.66	445.66	1.00
153	426.85	427.35	0.50
210	416.98	416.98	Do not raise
016	419.00	419.00	Do not raise
189	423.66	425.16	1.50
105	429.30	430.80	1.50
019	421.48	421.48	Do not raise
191	413.87	414.87	1.00
190	438.20	438.70	0.50
053	443.81	444.31	0.50
104	431.63	432.47	0.84
206	468.47	468.47	Do not raise
137	453.54	453.54	Do not raise
029	440.93	441.43	0.50
058	447.10	447.60	0.50
055	439.85	439.85	Do not raise
034	441.99	442.49	0.50
198	446.20	446.37	0.17
196	445.52	445.94	0.42

**A. No Changes**

At this time we recommend that no changes be made to the overflow elevation at CSOs 16, 210, 019, 206, 137 and 055. CSOs 16, 210 and 206 are already maximizing in-line storage and the increase in the water surface elevation may result in the surface flooding during larger storm events (e.g. 2-yr storm event). Backwater conditions in the downstream interceptor, possibly resulting from overflow dam improvements in downstream areas, prevent reduction in overflow volume at CSO 137 and CSO 055.

The benefits of raising the overflow weir at CSO 019 were not clearly defined in the simulations conducted as part of this effort. The model predicted that the overflow volume from this site would increase (by as much as 5000 cf under a 1-month storm condition) somewhat from current predictions. Approximately 5000 cubic feet more flow is delivered towards this CSO, and subsequently the 34<sup>th</sup> Street Pump Station, as a result of dam elevation changes upstream. Although more in-line storage could be achieved by raising this weir, the benefits impacts are not as apparent due to additional flow from upstream modifications. Potentially, two other factors could be affecting the ineffectiveness of capture at this site: the operating strategy at the 34<sup>th</sup> Street Pump Station may need to be revised, and/or increasing the size of the 24-inch regulator pipe from the overflow structure to the 34<sup>th</sup> Street Pump Station wet well

may need to be considered. O'Brien & Gere recommend that this site should be further investigated in the next fiscal year to clarify what is taking place at this location to identify & verify the modeling issue as well as for the future analysis purpose.

**B. Recommended Changes**

Based on an assessment of the model results, it appears that adequate reduction in overflow is being achieved at the following CSO locations as a result of implementing OMNI Engineering's initial recommended changes. We recommend that further increases beyond the current recommendations not be implemented.

- CSO 132                      CSO 118                      CSO 111                      CSO 153
- CSO 191                      CSO 190                      CSO 053                      CSO 029
- CSO 058                      CSO 034                      CSO 198

**C. Additional/Increased Changes**

At five locations, a potential for further reduction in overflow seemed possible by increasing the overflow weir heights somewhat higher than the initial height recommended. The following CSOs were run in the model in a second iteration, the results of which are shown in the above tabulation:

- CSO 146                      CSO 105                      CSO 104                      CSO 189
- CSO 196

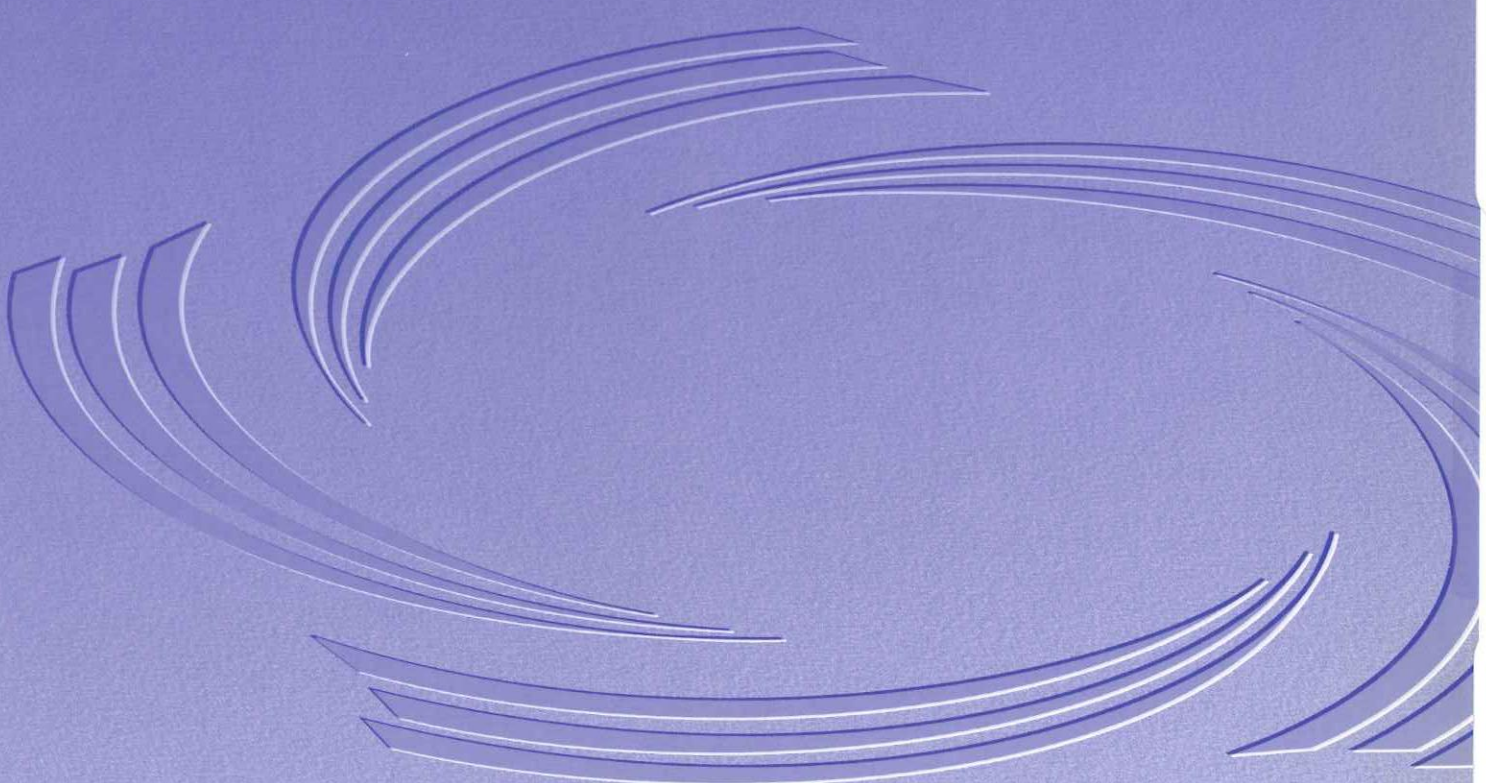
CSO Name	Elevation		
	Existing	Omni Recommended	Final
146	439.31	440.31	440.81
105	429.30	430.30	430.80
104	431.63	432.05	432.47
189	423.66	424.66	425.16
196	445.52	445.69	445.94

MSD project management should coordinate with MSD maintenance personnel to facilitate any changes to CSO structures.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 4: NMC 3 – REVIEW AND MODIFICATION OF PRETREATMENT REQUIREMENTS**

### **4.1 INTRODUCTION**

The objective of the third minimum control is to minimize the impacts of discharges into the combined sewer system (CSS) from non-domestic (i.e., industrial and commercial sources, such as restaurants and gas stations) sources during wet weather events, and to minimize CSO occurrences by modifying inspection, reporting and oversight procedures within the approved pretreatment program. Per EPA's Guidance for Nine Minimum Controls, under the third minimum control, the municipality should determine whether non-domestic sources are contributing to CSO impacts and, if so, investigate ways to control them. Once implemented, this minimum control should not require additional effort unless CSS characterization and modeling indicate that a pollutant from non-domestic source(s) is causing a specific health, water quality, or environmental problem. Steps included in the process are to inventory non-domestic dischargers to the CSS, assess the impact of non-domestic discharges to the CSS, evaluate feasible modifications to the approved pretreatment program if the assessment indicates that non-domestic sources may contribute significantly to CSOs discharge contaminant levels, and document these efforts.

### **4.2 PRETREATMENT PROGRAM OVERVIEW**

The Federal Water Pollution Control Act of 1972 initially defined the National Pretreatment Program. Section 307 of the Act required Publicly Owned Treatment Works (POTW) to develop pretreatment standards designed to prevent the discharge of pollutants from industrial users (IUs) to POTWs "which interfere with, pass through, or are otherwise incompatible with such works." The Act was amended in 1977 to require POTWs to establish local pretreatment programs to ensure compliance with the pretreatment standards. At that time, MSD had one POTW which met the requirements to implement an approved pretreatment program, the Morris Forman Wastewater Treatment Plant (MFWTP), KPDES permit #KY0022411. MSD submitted its pretreatment program application to EPA Region 4 in 1980 and the Pretreatment Program was approved by EPA in 1981. (Refer to Item 4-1 of the NMC Supplemental Information binder for documentation of MSD's pretreatment program application.) Kentucky is a delegated state, having received primacy from EPA in 1983. As such, the Commonwealth of Kentucky's Environmental and Public Protection Cabinet Department for Environmental Protection - Division of Water (DOW) is MSD's pretreatment Program Control Authority. The MFWTP is the only MSD wastewater treatment plant that serves a CSS. Since that time, three more wastewater treatment plants were added to MSD's pretreatment program: West County (WCWTP), Jeffersontown (JTWTP), and Hite Creek (HCWTP), which do not service the CSS.

The primary goals of the pretreatment program are to protect MSD's

- POTWs from interference and/or pass through,
- The collection system and receiving waters from pollutants in harmful levels, and
- The health and safety of MSD employees and the public.

MSD has implemented several programs that support the pretreatment program, some of which are required under the program and some of which are viewed by MSD as enhancements. These programs include the following:

<b>Program</b>	<b>Non-Domestic Discharger (NDD)</b>	<b>Process</b>	<b>Monitoring Parameters</b>
Pretreatment	Significant Industrial User (SIU)	Application process, inspection, minimum of biannual monitoring, Slug Control Plan	Flow and specific conventional and priority pollutants
Pretreatment	General Wastewater Discharge Permittee (GDP)	Application process, inspection, minimum of biannual monitoring	Flow and specific conventional and priority pollutants
Hazardous Materials Ordinance/Spill Prevention and Control Plan (HMPC)	Any NDD in Jefferson County that stores, uses, or manufactures a hazardous material in a reportable quantity	Application process, inspection, Best Management Practices (BMPs)	None
Industrial/Commercial Plumbing Plan Review Program (I/CPPR)	Any NDD requesting wastewater system discharge (i.e., restaurants)	Application process, inspection, BMPs	None

All of these programs are part of the process MSD utilizes to identify and categorize facilities potentially requiring a wastewater discharge permit. As such, they provide an additional level of scrutiny to identify dischargers to the CSS that may impact the environment through a CSO discharge. A description of each program is included as Appendix 4A at the back of this section.

In addition to the above programs, MSD utilizes the same methods and resources to identify potential dischargers to the CSS as it does to identify potential facilities to receive a wastewater discharge permit, including:

- Referrals from the Louisville Metro Health Department (MHD)
- Referrals from DOW
- Referrals from the public
- New customer data referrals from the Louisville Water Company
- City/County tax base referrals and Economic Development
- Regular phone book and newspaper (Business First listings) review

The characteristics of the combined sewer system are described in Section 10 of this report. In order to assess where a particular NDD waste stream may impact the environment, a simplified system schematic has been prepared. Figure 4-1 presents the schematic connectivity of the collection system with the in-system diversions shown. The diversions were installed by MSD to allow more concentrated wastewater to be directed away from the Beargrass Creek watershed thus reducing the impact to the smaller stream when compared to the much larger Ohio River.



MSD has accounted for the diversions which make it possible for some or all of certain NDD waste streams to discharge to the environment at multiple locations and into multiple water bodies.

### **4.3 INVENTORY OF NON-DOMESTIC DISCHARGERS TO THE CSS**

MSD's CSS serves a population of approximately 324,000 in a 39-square mile service area. MSD has established an inventory of Non Domestic Dischargers (NDDs) using information from a variety of sources. Each effort to inventory NDDs will be discussed separately.

#### **4.3.1 Inventory of All Businesses**

Using the business coverage in the Metro ArcView database called Dialogic Business, MSD determined that there are over 27,000 facilities in the Morris Forman service area that can be possibly classified as non-domestic dischargers. This list has been evaluated and any obviously domestic strength-type entity (office building, retail outlet, etc.) was removed. The list of remaining NDD users from the Dialogic business database is sorted by CSO area and is included as Appendix 4B at the end of this section.

As noted on Page 4-2 in the "Guidance for the Nine Minimum Controls," (EPA, May 1995), due to the large number of NDD facilities, POTWs should focus efforts on those dischargers which pose the greatest risk of impacting the CSS due to the size of their discharge, the concentration of pollutants that may be contributing to water quality exceedances, or the proximity of the discharge to the outfall. In accordance with this guidance, MSD further screened the long list of NDDs to focus on the dischargers of greatest concern.

#### **4.3.2 Inventory of Significant Industrial Users**

MSDs pretreatment program defines a significant industrial user as follows:

- All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N;
- Any other industrial user that discharges an average of 25,000 gallons per day or more of process wastewater to the Morris Forman Treatment Plant (excluding sanitary, non-contact cooling and boiler blowdown wastewater);
- Any other industrial user that contributes a process waste stream which makes up 5% or more of the average dry weather hydraulic or organic capacity of the treatment plant; and
- Any other industrial user that is designated as such by MSD as defined in 40 CFR 403.12 (a) on the basis that the industrial user has a reasonable potential for adversely affecting MSD's treatment works operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8 (f)(6)).

Table 4-1 lists the inventory of SIUs and includes the CSO outfall where their wastewater is most likely to be released. MSD's pretreatment program currently has 67 users categorized as SIUs in the Morris Forman combined sewer service area. The 67 SIUs contribute approximately 9.9 MGD, making up approximately 11% of the MFWTP annual average flow. Ninety percent of that flow comes from the 23 SIUs (34% of the SIUs) which discharge greater than 0.1 MGD. An amount of 51% of the total flow comes from five SIUs which discharge more than 0.5 MGD. The listing includes SIUs whose wastewater is collected in the separate sanitary sewer system if their discharge flows into and through the CSS. This listing excludes six SIUs that discharge 7.7 mgd directly to the MFWTP, thus avoiding the CSS. Figure 4-2 shows the location of SIUs

relative to the MFWTP service area. Through the pretreatment program, MSD has collected information on SIUs wastewater discharge and strength.

#### **4.3.3 Inventory of Industries with General Permits**

MSDs pretreatment program allows MSD to enter into a permit relationship with industrial users who do not meet the definition of a SIU. MSD identifies these users through a variety of techniques and issues each user an individual general wastewater discharge permit (GDP). These permits are not as burdensome on the user, but do require the user to comply with local limits, as well as site specific requirements such as maintaining a log of pH readings or a list of wastes hauled off site for disposal. By permitting these users, MSD already considers NDDs who are not necessarily required to be permitted under 40 CFR 403.

Table 4-2 lists the inventory of GDPs and includes the CSO outfall where their wastewater is most likely to be released. The 58 GDPs contribute approximately 3.0 MGD. Another 1.6 MGD (55%) of the total flow comes from eight GDPs which each discharge more than 0.1 MGD. GDPs whose wastewater are collected in the separate sanitary sewer system but flows into and through the CSS are included. Figure 4-2 shows the location of these GDPs relative to the MFWTP service area.

#### **4.3.4 Inventory of High Water Users**

In addition to permitted industrial users, MSD elected to review high water consuming users. In most cases, the high water use translates to high wastewater discharge. Depending on their business activity, these high water users may offer an opportunity to reduce their discharge during wet weather. MSD has obtained recent water use records from the Louisville Water Company (LWC). High volume water use was established at above 10,000 gallons per day (gpd) based on consideration of what other CSO communities (Portland, OR, and Columbus GA) have used, and the likelihood that there will be no measurable impacts from NDDs discharging less than 10,000 gpd.

Based on the flow usage information, MSD reviewed a list of 526 commercial and industrial high flow users and deleted those considered to be residential in nature, for instance parks, schools (without meal preparation), and apartment complexes. The resulting list of 126 high flow users is included along with their likely CSO discharge location in Table 4-3. Many of these users overlap the industrial (SIUs and GDPs) users in Tables 4-1 and 4-2. Therefore MSD has specific information about the quality of the majority of NDDs in Tables 4-1 and 4-2; in fact, more than 90% of the flow is already accounted for in the SIU and GDP inventory. The remaining 10% of the flow includes facilities such as nursing homes, car washes, doctor's offices, several of which have oil/water separators and/or grease traps as needed.

#### **4.3.5 Inventory of Users Having a HMPC Plan**

MSD is responsible for implementing and enforcing the Louisville and Jefferson County Hazardous Materials Ordinance (HMO). Any business that stores, uses and/or manufactures a reportable quantity of hazardous material is regulated by the HMO which requires these facilities to maintain a current HMPC plan. Table 4-4 lists the 1,536 entities within the Morris Forman service area that are regulated by the HMO. The intent of an HMPC plan is the prevention of accidental discharges of the regulated hazardous materials to the sewer. Any potential NDDs of concern would be on the SIU, GDP, or High Water Use List.

#### 4.3.6 Inventory of Hospitals

Hospitals in Louisville Metro make up approximately 1% of the MFWTP flow. Hospitals have been issued a wastewater discharge permit and/or a HMPC plan by MSD. Hospitals with SIU permits have received a slug control plan evaluation and have a HMPC plan. Hospitals with a GDP permit have not been evaluated for a slug control plan; however, they have HMPC plans. In addition, MSD is modifying hospital permits/HMPC plans to include a requirement to submit inspection results of the Joint Commission on Accreditation of Healthcare Organizations (JACHO) which include a comprehensive review of standard operating procedures (SOPs) for handling bloodborne pathogens and other biohazard materials, as well as, used needles and other sharp instruments.

There is genuine interest in discharges from hospitals and other medical facilities and the potential impact on the environment. MSD has summarized the data from hospitals collected between 2000 and 2005. This data is shown in Table 4-5 by hospital, and the average of all data points is presented below.

**TABLE 4-5**

**AVERAGE HOSPITAL WASTEWATER MONITORING DATA (13 FACILITIES)**

Parameters	2000	2001	2002	2003	2004	2005	Discharge Limit
Flow, MGD	0.067	0.071	0.071	0.075	0.074	0.083	None
BOD, mg/L	236	203	171	194	218	266	None
COD, mg/L	510	391	400	426	469	552	None
TSS, mg/L	187	175	167	183	227	329	None
Silver, mg/L	0.0569	0.1307	0.0627	0.0571	0.0413	0.0347	1.2
Mercury, µg/L	0.3577	0.3384	0.4013	0.3735	0.2614	0.2227	1.5
Oil and Grease, mg/L	13	7	13	10	9	14	100
pH, standard units	7.6	7.3	7.7	7.7	7.5	7.6	5 to 11.5

Based on the average hospital monitoring data, the typical average daily flow has increased slightly over the past 6 years. BOD and TSS data has remained very close to domestic strength waste. Silver and Mercury data has shown a steady decrease during the 6 year period and Oil & Grease Hydrocarbon concentrations and pH are not cause for concern. Hospitals are not suspected to discharge Cadmium. Given the data review, hospitals are not a significant contributor of POCs as defined in Section 4.4.1. Note that hospitals are included in Tables 4-1 and 4.2 which include the CSO outfall their wastewater is most likely to be released.

#### 4.3.7 Inventory Summary

Several NDD inventories have been compiled and presented: 1) all businesses 2) SIUs, 3) GDPs, 4) High Water Use, 5) HMPC, and 6) Hospitals, as a specific subset. Assessment of these inventories will be detailed in the next section.

Currently, 9 SIUs and 8 GDP facilities discharge directly to the CSS in the Beargrass Creek sewershed and 34 SIUs and 33 GDPs discharge directly to the CSS in the Ohio River sewershed. In addition, 1 SIU and 5 GDPs discharge into the separate sanitary sewer system SSS upstream of the Beargrass Creek sewershed and 15 SIUs and 11 GDPs discharge to the SSS upstream of the Ohio River sewershed. The potential impact of these discharges has been assessed, as described below.

**4.4 ASSESSMENT OF NON-DOMESTIC DISCHARGERS TO CSS**

MSD has screened all non-domestic dischargers and reduced the list to those who may be of further interest. The next step in the evaluation was to assess the impacts of their discharge on the environment.

**4.4.1 Pollutants of Concern**

The Kentucky Division of Water and the Ohio River Valley Water Sanitation Commission (ORSANCO) are responsible for developing a list of those waterbodies which sampling results indicate are not meeting the published water quality standards for designated use. The current listings for Beargrass Creek and the Ohio River are included in Table 4-6. The listing documents the specific stream reach, the pollutant not meeting standards, and the suspected source of the pollutant.

The pollutants of concern (POC) for Beargrass Creek are as follows:

- BOD and nutrients (for low DO/Organic Enrichment),
- Cadmium - Potential detection limit issues with historical data given the recent reduction in water quality standard.
- Pathogens

The POCs for the Ohio River are as follows:

- Pathogens
- Dioxin – Legacy pollutant (contaminated sediment), not of current concern in discharges
- PCBs – Legacy pollutant (contaminated sediment), not of current concern in discharges

Pathogens reach the waters primarily through non-point sources and combined sewer system overflows. Control of the discharge of bacterial pollution is the subject of the LTCP and other NMCs.

Based on the evaluation of the 303(d) list, the following POCs will be considered in the balance for this evaluation:

<b>Beargrass Creek Pollutants of Concern</b>	<b>Ohio River Pollutants of Concern</b>
Bacteria (303(d) List) Cadmium (303(d) List) BOD (303(d) for low DO) Nutrients (303(d) for low DO)	Bacteria (303(d) List)

**4.4.2 Evaluation of NDD Pollutant Discharge Versus POCs**

MSD narrowed the focus of future efforts by considering all users currently included in the MSD Quality Charge program (a surcharge program supported by the pretreatment program) for high concentrations of BOD and TSS, those users who have allocations of high ammonia mass discharges, and those metal finishers regulated by 40 CFR 433. Additional MSD data was used to complete the data set. A table showing the data set is provided in Table 4-7.

#### 4.4.3 Non-Domestic and Industrial Flows to the Morris Forman Wastewater Treatment Plant (MFWTP) and CSOs

This task included assessing the hydraulic impact of the NDDs in the CSS. Hydraulic data was taken from the Combined Sewer System model to establish the average daily flow during dry weather and the flow at MFWTP during an overflow event. The table below assesses the percentage of flow from each class of NDD that may end up at MFWTP. The overflow volume is not considered since it would result in even further dilution in the overflows. The net impact of NDD discharges during wet weather is reflected in the decrease from 27% of the dry weather flow to only 8% of the wet weather flow.

The percentages of domestic and non-domestic flow to the MFWTP is shown below for both Dry and Wet Weather Conditions

MORRIS FORMAN WASTEWATER TREATMENT PLANT	TOTAL (1)	STORMWATER	DOMESTIC FLOW	NON-DOMESTIC FLOW			
				SIU	GDP	Other(2)	Total NDD
<u>Dry Weather Average</u>							
Flow (mgd)	90	0	66.1	17.5	3.3	3.1	23.9
Percent of Flow	100%	0%	73%	19%	4%	4%	27%
<u>Wet Weather Average</u>							
Flow (mgd)	304	214	66.1	17.5	3.3	3.1	23.9
Percent of Flow	100%	70%	22%	6%	1%	1%	8%

(1) TOTAL Flow from CSS model Simulation of typical year.

(2) Other NDD are those with LWC use >1,000 gpd, excludes SIU and GDP

#### 4.4.4 Assessment of NDDs Based on Impact on POC Discharge

MSD has evaluated the NDDs of interest presented in Table 4-7 and the high water users in Table 4-3 to assess if they should be of concern. MSD employed the criteria listed at the bottom of Table 4-7 to identify if there would be a reasonable potential for the discharge to contribute to a standard violation with some consideration for the dilution afforded by stormwater. The final list of NDDs of concern is presented in Table 4-8. MSD will assess each of these 14 companies by September 30, 2006, for feasible modifications as discussed in Section 4.7.

#### 4.5 EXISTING CONTROL MEASURES

MSD has many programmatic activities available under the pretreatment program to control the discharge of wastewater to the CSS. A brief summary of the following mechanisms is included as part of each programmatic discussion in Appendix 4A at the end of this section.

- MSDs Pretreatment Program
  - MSD Wastewater/Stormwater Discharge Regulations (WDRs)

- Industrial User Permits
- Non-Compliance with Permit Limitations
- Slug Control Plans
- Reporting for Pretreatment Program
- Best Management Practices for Dischargers to the CSS
- Flow Metering in the CSS.
- Hazardous Materials Ordinance/Spill Prevention and Control Plans
  - Hazardous Material Ordinance (HMO)
  - Motor Vehicle Accident (MVA) Mitigation Program
- Industrial/Commercial Plumbing Plan Review Program
  - Industrial/Commercial Plumbing Plan Review

#### **4.6 PAST ACTIVITIES**

MSD has actively addressed pretreatment related initiatives within the Morris Forman service area. This section will briefly discuss past efforts and their benefit.

##### **4.6.1 Special Regulatory Actions**

Special permit conditions, slug control plans, HMPC plans, and enforcement actions with requirements for remedial measures are some of the tools already utilized by MSD to protect the CSS from slug discharges and to ensure that pollution prevention measures are implemented. Following are a few examples of specific actions taken against commercial/industrial users:

- Alcoa Laminating – A water conservation study requirement was written into this SIU permit to reduce the volume discharged to the CSS thereby freeing up capacity to the CSS;
- Allied Drum Services – This SIU exhibited poor housekeeping and erosion control practices and was required to develop a slug control plan to address discharges to the CSS;
- Allied Ready-Mix Concrete – This company received a NOV for discharge of solids to the CSS;
- Parallel Products – This company was referred to the department in MSD that administers the Erosion Prevention and Sediment Control (EPSC) Ordinance in May 2003, for follow-up on an ordinance violation. The company also received a Correction Notice in 1999 to cease discharge of contaminated runoff to a drainage basin that enters the CSS.

Refer to Item 4-2 of the NMC Supplemental Information binder for documentation of each of the above pretreatment program compliance activity case histories.

##### **4.6.2 Diversions to Minimize Impacts of NDD Wastewater**

In order to divert as much flow as possible away from Beargrass Creek from the General Electric Appliance Park (GEAP) facility during wet weather events, MSD placed a steel diversion plate in a manhole located downstream from the facility's outfall. This plate directs GEAP flow away from the 21-inch sewer which flows north to the SE Diversion Structure sewer (eventually

ends up at Beargrass Creek CSOs) which can overflow to Beargrass Creek during wet weather. The GEAP flow is instead directed into the 27-inch sewer that flows to the Northern Ditch interceptor (eventually ends up at Southwestern PS – Ohio River CSO). In wet weather, flow is directed toward the Northern Ditch interceptor until the capacity in the line is such that excess wastewater flows toward the 21-inch sewer and on to the SE Diversion Structure sewer.

MSD worked with a cluster of very significant industries (Rubbertown industries) to eliminate their individual direct discharges to the Ohio River in lieu of constructing infrastructure to deliver their wastewater to the MFWTP. It would have been easier for these industries to discharge to the Southwestern pump station; however, the potential impact to the environment from accepting that concentrated industrial wastewater at one of MSD's major CSOs would have been significant. MSD worked with the individual industries to construct a forcemain directly to the MFWTP. While this effort was completed in the 1970s, it shows the proactive vision to reduce risk from industrial discharges.

#### **4.6.3 Education and Awareness**

During pretreatment and/or hazardous materials inspections, MSD Emergency Response Pretreatment Inspectors (ERPis) take the opportunity to further educate permitted users located in the CSS of concerns related to CSOs. MSD takes every opportunity to inform users of the potential impacts of industrial effluent during rainfall events to the CSS. Examples include pretreatment workshops and conferences sponsored or co-sponsored by MSD and reiterating this information during pretreatment and hazardous materials inspections. MSD also participates in food service annual conference trade shows, has developed a grease video/DVD and brochures, places advertisements in food service trade journals and sends information to customers in billing inserts.

#### **4.6.4 Integrated Inspection Form**

MSD developed an inspection form that facilitated a multi-programmatic inspection approach. The Integrated Inspection Form was developed for ERPis use to conduct multi-media inspections at SIUs and other permitted facilities inside, as well as outside the CSS. The form facilitates documentation of pretreatment and HMO program related information, as well as recording of pertinent Pollution Prevention (P2), MS4 and CSS related information such as water conservation activities and wet weather runoff controls. Refer to Figure 4-12 for a copy of the Integrated Inspection Form.

#### **4.6.5 Inspection Frequency**

Under the General Pretreatment Regulations, MSD is required to inspect SIUs annually. However, MSD typically inspects SIUs more than once per year. In addition, most are inspected under the HMO program at least annually. MSD is of the opinion that this level of frequency of inspections coupled with use of the Integrated Inspection Form improves our success in addressing wet weather concerns.

#### **4.6.6 Unusual Discharge Requests within the CSS**

One category of wastewater discharge permits is the Unusual Discharge Request (UDR) permit. It is an excellent tool put in place as a control strategy at a user's facility. UDR permits are a mechanism to protect the MSD collection system. UDR permits have also been utilized by MSD management many times since the late 1990s in the context of CSO mitigation. A specific



example is the use of a UDR permit to that allows MSD to manage and control wastewater created during the decommissioning of facilities located within the CSS. Wastewater discharged due to major Brownfield redevelopment projects such as the University of Louisville Papa John's Cardinal Stadium and the Louisville Slugger Field Stadium, has occurred under UDR permits. In addition, collection system capacity issues are routinely addressed within the UDR permitting process. UDR permits specifically deny discharge during and for specified timeframes after rainfall events. Failure to comply with the conditions of a UDR permit is met with the same enforcement actions as noncompliance with permit conditions.

UDRs from facilities located within the CSS are given extra scrutiny by MSD. In addition to the standard UDR permit requirement to submit analytical results for POCs, other constraints listed below are placed on UDR permits from facilities located within the CSS:

- Limiting the timeframe or time of day of the discharge;
- Limiting the rate of discharge (gallons per minute or gallons per day);
- Requiring the discharge to cease for some amount of time during and after a rain event to allow the system to return to normal; and
- Requiring treatment, capture and re-testing prior to discharge.

If MSD deems that the discharge should be monitored as it occurs, MSD staff will be assigned to perform the monitoring or the discharger will be required to monitor and provide the results to MSD. In addition, MSD may elect to periodically inspect the discharge site to verify that discharge constraints and requirements are being followed. Refer to Item 4-5 of the NMC Supplemental Information binder for examples of UDR approval letters with wet weather discharge constraints.

#### **4.6.7 Restrictions on New SIUs Discharges**

New SIU dischargers to the CSS are required to install pretreatment or BMPs to preclude the discharge of POCs during wet weather. For example, a facility may be required to hold all or part of its process wastewater during and for a specified timeframe after a rain event of a predetermined magnitude. Since the facility has not yet been constructed when MSD reviews plans, additional holding capacity is easier to construct. BMP requirements are formalized in the SIUs wastewater discharge permit and may include requirements for a maximum discharge rate and to record the dates when such strategies are employed, as well as the volume held and released later. Refer to Item 4-6 in the Supplemental Information binder for an example permit in the CSS with wet weather discharge constraints.

#### **4.6.8 SIU Survey for Wet Weather Detention**

In 2004, MSD sent a wet weather survey to SIUs located in the CSS. The survey was accompanied by a cover letter that explained the impacts of overflows on the environment, as well as encouraged the SIUs to implement pollution prevention initiatives to reduce/eliminate the potential impact of discharges from their facilities during wet weather. One of the questions on the survey inquired whether the SIUs were able to store process wastewater during wet weather. Refer to Appendix 4D at the end of this section for an example of the letter, as well as a completed and submitted survey from a SIU.



#### **4.7 EVALUATE FEASIBLE MODIFICATIONS**

The Guidance states that "All POTW's with approved pretreatment programs are required to notify and obtain approval from the approval authority for all substantial pretreatment program modifications. Substantial modifications include changes to legal authorities, local limits (if made less stringent), and control mechanisms. In addition, POTW's with approved pretreatment programs must notify the approval authority of any non-substantial pretreatment program modification."

If the assessment of non-domestic dischargers to the CSS indicates that a particular non-domestic discharger significantly impacts the CSS, MSD's Pretreatment Program and WDRs are currently structured to allow the enforcement of appropriate requirements on users of the CSS. Mechanisms include significant modifications such as revision of MSD's existing WDRs and non-substantial modifications such as permit modifications with appropriate requirements, including but not limited to BMPs (hold and release) and slug control plans. Requirements placed on SIUs discharging to the CSS will be reported in the Semi-annual Pretreatment Report and Annual Pretreatment Report. In addition, MSD will seek approval from the Kentucky Division of Water (DOW), if the WDRs are revised. MSD will inform DOW of those non-substantial modifications that are implemented to address discharges from users within the CSS.

MSD is reviewing discharges to the CSS from those SIUs already holding a valid wastewater discharge permit. MSD will contact individual permit holders who are NDDs of concern to discuss MSD's concerns with their respective discharges to the CSS during wet weather, as well as implementation of physical controls and/or feasible BMPs to address those concerns.

##### **4.7.1 Inspection and Evaluation of Control Opportunities**

By September 30, 2006, MSD will perform site inspections at each of the 14 NDDs of concern listed in Table 4-8, to explore feasible modifications to their wastewater discharges to mitigate impacts. MSD will complete a standard evaluation form for each facility as documentation of the effort. It is anticipated that not every NDD of concern will need to or be able to change their discharge practices. One benefit of the inspection process is MSD will be able to educate the NDD of the concern over their discharge.

##### **4.7.2 Modifications to Program**

Prior to September 30, 2006, MSD will implement modifications deemed feasible in the evaluation performed in Section 4.7.1. MSD's WDRs provide the opportunity to use permits to require actions by the permittee. Issuance of revised permits or new permits is considered a minor modification to the pretreatment program and only requires DOW to be informed of the change. Based on the flexibility already in the WDRs, MSD does not anticipate any major modifications, such as revisions to the WDRs that would require regulatory approval.

##### **4.7.3 CSO-SIU Project**

In 2001, MSD assessed the potential risk of water quality impairments associated with wet weather discharges from SIUs, as well as GDPs such as hospitals and food processing plants, located on and upstream of the CSS.

Beginning in 2005, MSD began a similar review of the Ohio River CSO sewershed. This project has been named the SIU-CSO project. MSD is committed to completing this evaluation as part of the LTCP. Details of this project are included in Appendix 4C at the end of this section.

#### **4.8 COMPLIANCE SUMMARY**

The previous sections describe the status of MSD's program for minimizing the impacts of discharges into the CSS from non-domestic sources during wet weather events, and for minimizing CSO occurrences by modifying inspection, reporting and oversight procedures within the approved pretreatment program. MSD's inventory and assessment of the potential impacts of non-domestic dischargers to the CSS is a continuous effort and therefore part of day-to-day programmatic functions. As technology changes and water quality standards are updated, MSD will continue to enhance existing programs, as well as develop and implement new ones in order to better assess these potential impacts.

MSD has completed the inventory phase of NDDs and the assessment phase for potential impacts on CSO pollutant loads. MSD is currently performing site assessments of 14 individual NDDs of concern and will complete this effort by September 30, 2006. If the site assessments indicate the need, MSD will modify existing controls on permitted non-domestic dischargers to the CSS, as well as require controls on those non-domestic dischargers without a permit. If the NDDs are found to have a potentially significant impact on CSO discharges of POCs, a permit will be issued. MSD will complete the long-term CSO-SIU project outlined in the appendix during preparation of the LTCP. Additionally, MSD will reassess the impacts of non-domestic dischargers to the CSS subsequent to triennial reviews of water quality standards by DOW.

#### **4.9 LISTING OF SUPPLEMENTAL INFORMATION**

The following information is included in separate binders.

Item 4-1 Pretreatment Program Application Documentation

Item 4-2 Pretreatment Program Control Mechanism Documents

- Alcoa Laminating Permit – water conservation study requirement
- Allied Drum Service – slug control plan
- Allied Ready Mix – WDR Notice of Violation
- Parallel Products - EPSC Notice of Violation

Item 4-3 Hazardous Materials Control Program Documents

- Hazardous Materials Ordinance
- Example HMPC Plans
- Preliminary Response Report form
- Emergency incident listing for the month of April 2006.

Item 4-4 Slug Control Program Documents

- Slug Control Questionnaire form (blank and completed)

Item 4-5 Examples of UDR Approval Letters with Wet Weather Discharge Constraints (CSS)

Item 4-6 Example Wastewater Discharge Permit in the CSS with Wet Weather Discharge Constraints

#### **4.10 LISTING OF APPENDICES**

The following appendixes are included at the back of this section:

**4A Summary of Existing Programmatic Measures**

- Pretreatment Program
- Hazardous Materials Ordinance/Spill Prevention and Control Plans
- Industrial/Commercial Plumbing Plan Review Program

**4B Inventory of All Non Domestic Dischargers Within MFWTP Service Area**

**4C Summary of MSD LTCP IU-CSO Project**

**4D SIU Survey for Wet Weather Detention**

**TABLE 4-1  
SIGNIFICANT INDUSTRIAL USERS WITHIN MFWTP SERVICE AREA**

Industrial User Name	Permit No.	Address	Avg Daily Flow (GPD)	Tributary to CSO#
<b>THE FOLLOWING INDUSTRIES DISCHARGE DIRECTLY TO MFWTP</b>				
DUPONT PERFORMANCE ELASTOMERS	4593	4242 CAMP GROUND RD	2.6978	Rubbertown FM (None)
OXY VINYLs, LP	2980	4014 BELLS LN	2.3668	Rubbertown FM (None)
E.I. DU PONT DE NEMOURS & CO., INC. DUPONT FLUOROPRODUCTS DUPONT LOUISVILLE WORKS	2230	4200 CAMP GROUND RD	1.3100	Rubbertown FM (None)
ROHM AND HAAS CHEMICALS LLC - LOUISVILLE PLANT	6810	4300 CAMP GROUND RD	0.8942	Rubbertown FM (None)
MARATHON ASHLAND PETROLEUM LLC BULK TERMINAL	270	4510 ALGONQUIN PKY	0.4012	Gravity to MFWTP
SUPERIOR TRUCK SERVICES ROGERS CARTAGE	6800	1401 SOUTHWESTERN PKY	0.0165	MDS (CSO 211)
		<b>TOTAL FLOW DIRECT TO MFWTP</b>	<b>7.6865</b>	
<b>THE FOLLOWING INDUSTRIES DISCHARGE INTO THE CSS</b>				
GENERAL ELECTRIC CONSUMER PRODUCTS APPLIANCE PARK	2850	4000 BUECHEL BANK RD	1.9826	Northern Ditch & SW Sanitary Service Area (CSO 015)
SWIFT & COMPANY	240	1200 STORY AVE	0.8949	CSO130
SUD-CHEMIE INC. WEST PLANT WEST CATALYST PLANT UNITED CATALYSTS, INC.	8212	1227 S 12TH ST	0.8296	MDS (CSO 211)
FORD MOTOR COMPANY LOUISVILLE ASSEMBLY PLANT	2630	2000 FERN VALLEY RD	0.7091	Northern Ditch & SW Sanitary Service Area (CSO 015)
SOLAE L.L.C. DUPONT SOY POLYMERS PTI, PREVIOUSLY RALSTON PURINA, PROTEIN TECHNOLOGIES	6491	2441 S FLOYD ST	0.6547	MDS (CSO 211)
ENGELHARD CORPORATION HARSHAW CHEMICAL HARSHAW CHEMICAL COMPANY	3370	3400 BANK ST	0.4693	CSO019
UNIVERSITY MEDICAL CENTER, INC. UNIVERSITY OF LOUISVILLE HOSPITAL FORMERLY GALEN OF VIRGINIA	3850	530 S JACKSON ST	0.3136	CSO118
SOUTHERN CLAY PRODUCTS INC	3656	1325 S 13TH ST	0.2923	MDS (CSO 211)
REGIONAL AIRPORT AUTHORITY LOUISVILLE INTERNATIONAL AIRPORT STANDIFORD FIELD	7642	700 ADMINISTRATION DR	0.2631	CSO015
DEAN MILK	1960	4420 BISHOP LN	0.2449	Nightingale PS (CSO 015 or South Fork CSOs)
GOLDEN FOODS, L.L.C. LOUISVILLE EDIBLE OIL PRODUCTS, (LEOP)	4897	2520 7TH STREET RD	0.2392	CSO015
SUD-CHEMIE INC. SOUTH PLANT UNITED CATALYSTS INC.	8210	4900 CRITTENDEN DR	0.2376	Northern Ditch & SW Sanitary Service Area (CSO 015)
OPTA FOOD INGREDIENTS, INC. LOUISVILLE FIBER FACILITY WILLIAMSON FIBER	9758	1401 LOCUST ST	0.2371	CSO130
BROWN-FORMAN CORPORATION EARLY TIMES DISTILLERY COMPANY	990	2921 DIXIE HWY	0.2164	CSO015
CASA DE ORO FOODS MESA FOODS	5390	3701 W MAGNOLIA AVE	0.2017	MDS (CSO 211)
HEAVEN HILL DISTILLERIES, INC. BERNHEIM DISTILLERY SCHENLEY DISTILLERS, UNITED DISTILLERS MANUFACTURING, INC.	7050	1701 W BRECKINRIDGE ST	0.1700	CSO105
AFFORDABLE WASTE MANAGEMENT, INC.	3922	3848 TUCKER AVE	0.1600	CSO015
UNIVERSAL LINEN SERVICE	8113	1803 COMMERCE RD	0.1533	MDS (CSO 211)

**TABLE 4-1  
SIGNIFICANT INDUSTRIAL USERS WITHIN MFWTP SERVICE AREA**

Industrial User Name	Permit No.	Address	Avg Daily Flow (GPD)	Tributary to CSO#
UNITED PARCEL SERVICE GRADE LANE FACILITY	5080	911 GRADE LN	0.1531	Northern Ditch & SW Sanitary Service Area (CSO 015)
PARALLEL PRODUCTS OF KENTUCKY INC.	4389	1620 BERNHEIM LN	0.1470	CSO015
DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER VETERANS ADMINISTRATION HOSPITAL	8310	800 ZORN AVE	0.1239	Muddy Fork (CSO 154)
BROWN-FORMAN DISTILLERY CO. LOUISVILLE PRODUCTION OPERATIONS OLD FORRESTER DISTILLERY	1712	850 DIXIE HWY	0.1111	CSO105
FORTH TECHNOLOGIES, INC. BERGMAN FACILITY	5513	600 BERGMAN ST	0.1009	CSO117 149 179
MEDICAL CENTER LAUNDRY	5360	1400 STORY AVE	0.0845	CSO130
RC-CANADA DRY BOTTLING CO.	6470	6207 STRAWBERRY LN	0.0788	Northern Ditch & SW Sanitary Service Area (CSO 015)
ALLIED DRUM SERVICE, INC.	140	401 COLORADO AVE	0.0611	MDS (CSO 211)
WYNN STARR FOODS OF KENTUCKY DRYMILK, INC., COMMERCIAL CREAMERY	7015	4820 ALLMOND AVE	0.0579	Northern Ditch & SW Sanitary Service Area (CSO 015)
D. D. WILLIAMSON & COMPANY	8770	1901 PAYNE ST	0.0544	CSO140
TRI-STATE PLATING, INC.	8140	1125 QUALITY CHOICE PL	0.0512	MDS (CSO 211)
DERBY CITY TANK WASH, INC.	2035	3806 BELLS LN	0.0468	CSO015
G&K SERVICES, INC.	6696	1200 MAPLE ST	0.0430	CSO105
TEMPLE-INLAND INLAND PAPERBOARD AND PACKAGING, INC. LOUISVILLE #015 INLAND PAPERBOARD AND PACKAGING, INC.	3920	4201 OLD SHEPHERDSVILLE RD	0.0377	Southeast Diversion (CSO 015 or South Fork CSOs)
ADVANCED FILTRATION TECHNOLOGY INC.	7105	3111 DIXIE HWY	0.0346	CSO015
DAWN FOOD PRODUCTS	1951	6303 KENJOY DR	0.0304	Northern Ditch & SW Sanitary Service Area (CSO 015)
S & S PORCELAIN METALS LLC	6330	1400 S 13TH ST	0.0295	MDS (CSO 211)
BAE SYSTEMS LAND & ARMAMENTS L.P.	4881	163 ROCHESTER DR	0.0290	CSO015
LIQUID TRANSPORTERS, INC. TRIMAC TRANSPORTATION, INC.	4790	3710 CANE RUN RD	0.0286	CSO015
PURITAN CLEANERS, INC.	9415	206 W BRECKINRIDGE ST	0.0268	CSO117 149 179
R.A.R. TANK CLEANING & REPAIR SPECIALIST BRITE CLEAN INC. / MATLACK, INC.	2375	4107 BELLS LN	0.0267	CSO191
PPG ARCHITECTURAL FINISHES, INC. PORTER PAINTS, PLANT #1 PORTER PAINT #1, COURTAULDS COATINGS	6340	400 S 13TH ST	0.0248	CSO105
KENTUCKIANA TANK WASH, INC.	9752	1611 WATHEN LN	0.0213	CSO015
MULTI METALS DIVISION VERMONT AMERICA CORP.	5730	715 E GRAY ST	0.0196	CSO118
AST ELECTROFIN APPLIED SURFACE TECHNOLOGIES	9836	1423 W ORMSBY AVE	0.0188	CSO105
DANT CLAYTON	5924	1550 BERNHEIM LN	0.0168	CSO015
SUPERIOR TRUCK SERVICES ROGERS CARTAGE	6800	1401 SOUTHWESTERN PKY	0.0165	MDS (CSO 211)
STIGLITZ CORPORATION INC. PLANT 1	3380	1747 MELLWOOD AVE	0.0152	Muddy Fork (CSO 154)
BIO ADDITIVES, LLC	5920	4820 JENNINGS LN	0.0144	Northern Ditch & SW Sanitary Service Area (CSO 015)
KENTUCKY ASSOCIATION OF ELECTRIC COOPERATIVES, INC. 4515 BISHOP LN.	8530	4515 BISHOP LN	0.0143	Nightingale PS (CSO 015 or South Fork CSOs)
NSS ENVIRONMENTAL, INC.	6706	8003 VINE CREST AVE	0.0138	Middle Fork Upstream of Breckenridge (various)
ALLWASTE CONTAINER SERVICES PSC PHILIPS SERVICES	6042	2600 MILLERS LN	0.0134	CSO015
BENEKE WIRE COMPANY BENEKE SPECIALTY ALUMINUM WIRE	7183	5540 NATIONAL TPKE	0.0111	Northern Ditch & SW Sanitary Service Area (CSO 015)
ALLIANCE LAUNDRY SYSTEMS, LLC 831 SOUTH FIRST STREET	1450	831 S 1ST ST	0.0091	CSO117 149 179
NTH WORKS - ALLMOND PLANT	7250	4701 ALLMOND AVE	0.0086	CSO015
CHALLENGER LIFTS	4443	200 CABEL ST	0.0061	DTOR
KELLY FABRICATORS CORPORATION	6674	3314 GILMORE INDUSTRIAL BLV	0.0046	Northern Ditch & SW Sanitary Service Area (CSO 015)

**TABLE 4-1  
SIGNIFICANT INDUSTRIAL USERS WITHIN MFWTP SERVICE AREA**

Industrial User Name	Permit No.	Address	Avg Daily Flow (GPD)	Tributary to CSO#
GREENLEE TEXTRON, INC. TEXTRON, INC. BUNTON COMPANY, INC.	636	4601 E INDIAN TRL	0.0032	Northern Ditch & SW Sanitary Service Area (CSO 015)
GRINDMASTER CORPORATION	4672	4003 COLLINS LN	0.0027	
ZOELLER PUMP COMPANY, LLC ZOELLER COMPANY	4619	3649 CANE RUN RD	0.0021	CSO015
FABRICATED METALS CORPORATION	4450	6300 KENJOY DR	0.0015	Northern Ditch & SW Sanitary Service Area (CSO 015)
HESCO PARTS LLC	1722	990 S 9TH ST	0.0008	CSO178
C. LEE COOK DIVISION OF DOVER CORPORATION	2140	916 S 8TH ST	0.0006	CSO178
UTILITY METALS DIV OF FABRICATED METALS	3912	6210 STRAWBERRY LN	0.0006	Northern Ditch & SW Sanitary Service Area (CSO 015)
REYNOLDS METALS COMPANY LOUISVILLE FOIL PLANT ALCOA INC.	6630	2827 HALE AVE	0.0004	CSO105
KENTUCKY TRAILER, R.C. TWAY COMPANY, INC	4321	2601 S 3RD ST	0.0002	MDS (CSO 211)
PROGRESS RAIL SERVICES LINCOLN INDUSTRIES DIVISION LINCOLN INDUSTRIES	4611	8020 NATIONAL TPKE	No data in LIMS	Northern Ditch & SW Sanitary Service Area (CSO 015)
AST/ACME COATINGS & LININGS TECHNOLOGY PARK/	7883	100 ROCHESTER DR	No data in LIMS	Northern Ditch & SW Sanitary Service Area (CSO 015)
SANDVIK SORTING SYSTEM	9855	500 E BURNETT AVE	No data in LIMS	CSO117 149 179
<b>Total MGD from all 67 SIUs that discharge to CSS</b>			<b>9.8672</b>	
<b>Total MGD from 5 SIUs discharging &gt; 0.5 MGD</b>			<b>5.0708</b>	<b>51%</b>
<b>Total MGD from 18 SIUs discharging 0.5 MGD &gt; x &gt; 0.1 MGD</b>			<b>3.8346</b>	<b>39%</b>
<b>Total MGD from 23 SIUs (34%) discharging &gt; 0.1 MGD</b>			<b>8.9054</b>	<b>90%</b>

HOSIPTALS ARE HIGHLIGHTED

**TABLE 4-2  
GDP WITHIN MFWTP SERVICE AREA**

General Industrial User Name	Permit No.	Address	Avg Daily Flow (MGD)	Tributary to CSO#
<b>THE FOLLOWING INDUSTRIES DISCHARGE DIRECTLY TO MFWTP</b>				
CARBIDE INDUSTRIES LLC THE CARBIDE/GRAPHITE GROUP, INC., AIRCO CARBIDE, C/G GROUP	90	4400 BELLS LN	0.1990	Rubbertown FM (None)
CHEVRON PRODUCTS COMPANY LIGHT OIL (LOUISVILLE) TERMINAL	814	4401 BELLS LN	0.0538	Gravity to MFWTP
ECKART AMERICA CORPORATION	5684	4101 CAMP GROUND RD	0.0402	Rubbertown FM (None)
ZEON CHEMICALS INC. RESEARCH & DEVELOPMENT CENTER	9728	4111 BELLS LN	0.0721	Gravity to MFWTP
		<b>TOTAL FLOW DIRECT TO MFWTP</b>	<b>0.3650</b>	
<b>THE FOLLOWING INDUSTRIES DISCHARGE INTO THE CSS</b>				
NATIONAL TOBACCO COMPANY LORILLARD	4850	3029 W MUHAMMAD ALI BLVD	0.2943	CSO189
JEWISH HOSPITAL HEALTHCARE SERVICES	4050	217 E CHESTNUT ST	0.2806	DTOR
BLUEGRASS COOPERAGE COMPANY	710	402 MACLEAN AVE	0.2241	Northern Ditch & SW Sanitary Service Area (CSO 015)
BAPTIST HEALTHCARE SYSTEM, INC. BAPTIST HOSPITAL EAST	390	4000 KRESGE WAY	0.2179	Middle Fork Upstream of Breckenridge (various)
CORHART REFRACTORIES CORPORATION	1690	1600 W LEE ST	0.2100	MDS (CSO 211)
B.P. PRODUCTS NORTH AMERICA, INC.	8845	3130 POPLAR LEVEL RD	0.1589	Nightingale PS (CSO 015 or South Fork CSOs)
NORTON AUDUBON HOSPITAL COLUMBIA, GALEN, HUMANA	290	1 AUDUBON PLAZA DR	0.1311	Nightingale PS (CSO 015 or South Fork CSOs)
THE COURIER JOURNAL CO.	1721	525 W BROADWAY	0.1138	CSO026
EXECUTIVE INN HOTEL (EAST) HOME SUPPLY COMPANY	2441	978 PHILLIPS LN	0.0983	CSO015
NORTON HOSPITAL NORTON HOSPITAL	5910	200 E CHESTNUT ST	0.0966	DTOR
NORTON HOSPITAL INC. DBA, NORTON SUBURBAN HOSPITAL	7820	4001 DUTCHMANS LN	0.0918	Middle Fork Upstream of Breckenridge (various)
EXECUTIVE WEST HOTEL	2442	830 PHILLIPS LN	0.0897	CSO015
FLORIDA DISTILLERS COMPANY	8542	3290 7TH STREET RD	0.0803	CSO015
PARADISE TOMATO KITCHENS - GARDEN PARK	9913	1600 CRUMS LN	0.0801	Northern Ditch & SW Sanitary Service Area (CSO 015)
ALCOA FLEXIBLE PACKAGING LOUISVILLE LAMINATING PLANT				
REYNOLDS METALS, ALCOA ALUMINUM, ARCO	4362	1225 W BURNETT AVE	0.0731	MDS (CSO 211)
EMCOR FACILITIES SERVICES PNC PLAZA PNC PLAZA, EMCOR FACILITIES SERVICES	1460	500 W JEFFERSON ST	0.0723	CSO055
PARADISE TOMATO KITCHENS	380	1500 S BROOK ST	0.0696	CSO117 149 179
KENT FEEDS, INC.	9879	932 E CHESTNUT ST	0.0639	DTC
AKZO NOBEL RESINS/ LOUISVILLE RESINS/ RELIANCE UNIVERSAL	6610	4730 CRITTENDEN DR	0.0537	CSO015
PETTIT ENVIRONMENTAL, INC.	4946	340 BYRNE AVE	0.0451	MDS (CSO 211)
NORTON HEALTH CARE PAVILION ALLIANT MEDICAL PAVILION				
METHODIST HOSPITAL	5410	315 E BROADWAY	0.0431	CSO118
CULINARY STANDARDS CORP. STANDARD FOODS	7641	1101 E WASHINGTON ST	0.0356	DTOR
WHAYNE SUPPLY COMPANY	8620	1400 CECIL AVE	0.0354	MDS (CSO 211)
DAIRY FARMER'S OF AMERICA DAIRYMAN, INC., MID AMERICA DAIRYMEN, INC.	1871	3941 BUECHEL BANK RD	0.0348	Southeast Diversion (CSO 015 or South Fork CSOs)
WEYERHAEUSER COMPANY FORMERLY WILLAMETTE INDUSTRIES, INC.	790	4400 PROGRESS BLVD	0.0325	Southeast Diversion (CSO 015 or South Fork CSOs)
KINDRED HOSPITAL-LOUISVILLE VENCOR HOSPITAL / ST. ANTHONY MEDICAL CENTER	6940	1313 ST ANTHONY PL	0.0312	CSO083
KEEBLER MOTHERS COOKIE COMPANY	5700	2287 RALPH AVE	0.0309	CSO015
KOSAIR CHILDREN'S HOSPITAL KOSAIR CHILDREN'S HOSPITAL	2097	231 E CHESTNUT ST	0.0260	CSO118

**TABLE 4-2  
GDP WITHIN MFWTP SERVICE AREA**

General Industrial User Name	Permit No.	Address	Avg Daily Flow (MGD)	Tributary to CSO#
CHEVRONTXACO GLOBAL LUBRICANTS LOUISVILLE DISTRIBUTION CENTER	1420	430 W CARDINAL BLVD	0.0255	MDS (CSO 211)
NORFOLK SOUTHERN RAILWAY COMPANY ROUNDHOUSE - MAINTENANCE DEPT. NORFOLK SOUTHERN RAILWAY	7561	575 N 34TH ST	0.0217	CSO019
KENTUCKY AIR NATIONAL GUARD	3382	1101 GRADE LN	0.0198	Northern Ditch & SW Sanitary Service Area (CSO 015)
HADDAD'S AUTO SERVICE HADDAD MARATHON	4685	1132 E ST CATHERINE ST	0.0175	CSO092
REPUBLIC INDUSTRIES, INC. REPUBLIC DIESEL	3545	3000 W BROADWAY	0.0115	CSO105
CENTRAL STATION, LLC	7125	215 CENTRAL AVE	0.0103	MDS (CSO 211)
REYNOLDS METALS COMPANY PLANT NO. 15 ALCOA EXTRUDED HEAT EXCHANGER PRODUCTS ALCOA EXTRUDED	6631	4301 PRODUCE RD	0.0073	Northern Ditch & SW Sanitary Service Area (CSO 015)
IVY HILL CORPORATION COURIER GRAPHICS	1720	4325 SHEPHERDSVILLE RD	0.0050	Southeast Diversion (CSO 015 or South Fork CSOs)
PICCADILLY CAFETERIA FORMERLY MORRISONS CAFETERIA	5681	133 S HURSTBOURNE PKY	0.0049	Middle Fork Upstream of Breckenridge (various)
SMURFIT-STONE CONTAINER ENTERPRISES, INC.	4659	6820 ENTERPRISE DR	0.0042	Northern Ditch & SW Sanitary Service Area (CSO 015)
ATLANTIC AVIATION SERVICES	5679	1131 STANDIFORD AVE	0.0040	Northern Ditch & SW Sanitary Service Area (CSO 015)
MIDWEST ENVIRONMENTAL SERVICES, INC. SEE 5090, KYANA WASTE OIL SERV.	2117	3601 PARKER AVE	0.0036	CSO189
NATIONAL PRODUCTS COMPANY L.L.C.	2572	900 BAXTER AVE	0.0033	CSO084
GREYHOUND LINES INC. GREYHOUND CORPORATION	3100	830 S 13TH ST	0.0012	CSO105
BLUEGRASS KESCO, INC.	7795	1101 INDUSTRIAL BLVD	0.0008	Northern Ditch & SW Sanitary Service Area (CSO 015)
DAIRY MART CONVENIENCE STORE 710; LIQUIDATING TRUSTEE MR. WAYNE WALKER	8891	4955 BROWNSBORO RD	0.0004	ORFM (CSO 211)
SYPRIS TECHNOLOGIES TUBE TURNS TECHNOLOGIES, INC.	8150	2900 W BROADWAY	0.0003	CSO105
SPORTPAINT PLANT #2	5846	4015 PRODUCE RD	0.0003	Northern Ditch & SW Sanitary Service Area (CSO 015)
ULRICH CHEMICAL, INC. TECHNICAL PRODUCTS, INC. ALSO EX-ENTITY 3495	5303	3900 TUCKER AVE	0.0002	CSO015
NOVELIS ALUMINUM CORPORATION - LOUISVILLE PLANT	110	1430 S 13TH ST	No Requirement	MDS (CSO 211)
BROWN HOTEL THE	598	337 W BROADWAY	No Requirement	CSO022
COCA-COLA ENTERPRISES INC. LOUISVILLE REMANUFACTURING CENTER	1540	1661 W HILL ST	No Data	CSO015
RUMPKE OF KENTUCKY	7597	1101 W OAK ST	No Requirement	MDS (CSO 211)
PROGRESS RAIL SERVICES CORPORATION NAVAL ORDINANCE BUILDING L	7956	100 ROCHESTER DR	Zero Discharge	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE WATER COMPANY CRESCENT HILL RESERVOIR & GROUNDS MAINTENANCE	8061	3018 FRANKFORT AVE	UDR	Water Co
LOUISVILLE GAS & ELECTRIC COMPANY MAIN OFFICE	8402	220 W MAIN ST	No Requirement	CSO022
IVAN WARE & SON, INC.	9458	4005 PRODUCE RD	No Requirement	Northern Ditch & SW Sanitary Service Area (CSO 015)
UNIVERSITY OF LOUISVILLE HEALTH SCIENCES CENTER DEPARTMENT OF ENVIRONMENTAL HEALTH & SAFETY	9741	511 S FLOYD ST	No Requirement	CSO118
AMERICAN DISPERSIONS	9761	2815 MAGAZINE ST	No Requirement	CSO105
PINNACLE PACKAGING INC	14026	7635 NATIONAL TPKE	No Requirement	Northern Ditch & SW Sanitary Service Area (CSO 015)
<b>Total MGD from all 58 GDPs dischrng to CSS</b>			<b>2.956394</b>	
<b>Total MGD from 8 GDPs discharging &gt; 0.1 MGD</b>			<b>1.630636</b>	<b>55%</b>
HOSIPTALS ARE HIGHLIGHTED				



**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
E I DUPONT	4200 CAMP GROUND RD	OCPSF	SIU; 414 & HMPC PLAN	2,461,438	Rubbertown FM (None)
OXY VINYLs	4200 BELLS LN	OCPSF	SIU; 414 & HMPC PLAN	2,296,605	Rubbertown FM (None)
CATALYSTS CHEM CORP SUD- CHEMIE	1214 W ORMSBY AVE	OCPSF	SIU; 414 & HMPC PLAN	1,022,422	MDS (CSO 211)
GENERAL ELECTRIC	4000 BUECHEL BANK RD	METAL FINISHER	SIU; 433 & HMPC PLAN	952,507	Northern Ditch & SW Sanitary Service Area (CSO 015)
ROHM & HAAS	4300 CAMP GROUND RD	OCPSF	SIU; 414 & HMPC PLAN	876,096	Rubbertown FM (None)
BROWN-FORMAN CORP EARLY TIMES	2921 DIXIE HWY	DISTILLERY	SIU & HMPC PLAN	696,482	CSO105
SWIFT & COMPANY	1300 STORY AVE	SLAUGHTER	SIU & HMPC PLAN	516,392	MDS (CSO 211)
SOLAE LLC	2441 S FLOYD ST	WATER SOLUBLE COATINGS MANUFACTURER	SIU & HMPC PLAN	503,052	MDS (CSO 211)
JEWISH HOSPITAL	200 ABRAHAM FLEXNER WAY	HOSPITAL	GDP & HMPC PLAN	496,403	DTOR
FORD MOTOR CO	2000 FERN VALLEY RD	METAL FINISHER	SIU; 433 & HMPC PLAN	406,663	Northern Ditch & SW Sanitary Service Area (CSO 015)
ENGELHARD CORP	600 N 34TH ST	OCPSF	SIU; 414 & HMPC PLAN	363,885	CSO022
UPS AIR DISTRICT	911 GRADE LN	PARCEL DELIVERY	SIU & HMPC PLAN	349,863	Northern Ditch & SW Sanitary Service Area (CSO 015)
SUD CHEMIE SOUTH	4900 CRITTENDEN DR	METAL CATYLYST MANUFACTURER	SIU & HMPC PLAN	326,093	CSO015
BAPTIST HOSPITAL EAST	4000 KRESGE WAY	HOSPITAL	GDP & HMPC PLAN	316,625	Middle Fork Upstream of Breckenridge (various)
U OF L MEDICAL CTR	334 E MUHAMMAD ALI BLVD	HOSPITAL	SIU & HMPC PLAN	299,934	CSO118
CHURCHILL DOWNS INC	927 LONGFIELD AVE	FSE; RACE TRACK	HMPC PLAN	297,984	CSO015
ROYAL CROWN BOTTLING CO	6207 STRAWBERRY LN	SODA BOTTLER	SIU & HMPC PLAN	288,748	Northern Ditch & SW Sanitary Service Area (CSO 015)
GOLDEN FOODS INC	2650 7TH STREET RD	EDIBLE OIL PRODUCTION	SIU & HMPC PLAN	282,216	CSO015
HEAVEN HILL DISTILLERIES INC	1701 W BRECKINRIDGE ST	DISTILLERY	SIU & HMPC PLAN	233,184	CSO105

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
DEAN MILK CO	4420 BISHOP LN	FOOD PROCESSOR	SIU & HMPC PLAN	221,710	Nightingale PS (CSO 015 or South Fork CSOs)
OPTA FOOD	1401 LOCUST ST	OAT FIBER PRODUCTION	SIU & HMPC PLAN	193,570	CSO130
REGIONAL AIRPORT AUTH	4901 CRITTENDEN DR	AIR TRANSPORTATION	SIU & HMPC PLAN	189,077	Northern Ditch & SW Sanitary Service Area (CSO 015)
SUBURBAN HOSPITAL INC	4001 DUTCHMANS LN	HOSPITAL	GDP & HMPC PLAN	186,701	Middle Fork Upstream of Breckenridge (various)
SOUTHERN CLAY (SUD-CHEMIE)	1325 S 13TH ST	CLAY PRODUCTION	SIU & HMPC PLAN	173,945	MDS (CSO 211)
U OF L CAMPUS	BELKNAP CAMPUS	UNIVERSITY; FSE, LABS	SIU & HMPC PLAN	152,090	MDS (CSO 211)
CARITAS MEDICAL CTR STS MARY & ELIZ HOSP	4400 CHURCHMAN AVE	HOSPITAL	GDP & HMPC PLAN	151,293	CSO015
ALLIANT AUDUBON HOSPITAL	1515 MCKINLEY AVE	HOSPITAL	GDP & HMPC PLAN	149,129	Nightingale PS (CSO 015 or South Fork CSOs)
SYPRIS; TUBE TURNS DIV	2820 W BROADWAY	NONCAT METAL	GDP & HMPC PLAN	147,214	CSO105
PARALLEL PRODUCTS	1620 BERNHEIM LN	MAY BE OCPSF - ETHANOL DISTILLATION	SIU & HMPC PLAN	140,964	CSO015
VETERANS ADMINISTRATION HOSP	800 ZORN AVE	HOSPITAL	SIU & HMPC PLAN	130,666	Muddy Fork (CSO 154)
ALCOA ACP	2926 GRAND AVE	METAL FINISHER	SIU; 433	125,962	CSO105
NORTON CHILDRENS HOSP	200 E CHESTNUT ST	HOSPITAL	GDP & HMPC PLAN	115,299	DTOR
PARADISE TOMATO KITCHEN #1	1518 S BROOK ST	FOOD PROCESSOR	GDP & HMPC PLAN	111,134	CSO117 149 179
BROWN-FORMAN CORP LOU PRODUCTION	850 DIXIE HWY	DISTILLERY	SIU & HMPC PLAN	108,035	CSO105
UNIVERSAL LINEN	1721 S 7TH ST	INDUSTRIAL LAUNDRY	SIU & HMPC PLAN	102,871	MDS (CSO 211)
FLORIDA DISTILLERS CO	3290 7TH STREET RD	WINE AND VINEGAR PRODUCTION	GDP & HMPC PLAN	94,438	CSO015
COURIER JOURNAL	525 W BROADWAY	NEWSPAPER	HMPC PLAN	84,460	CSO026
AFFORDABLE WASTE CONTROL	3848 TUCKER AVE	CENTRALIZED WASTE TREATMENT	SIU; 437	81,937	CSO015
ALLIED DRUM SERV	401 COLORADO AVE	METAL FINISHER	SIU; 433	77,573	MDS (CSO 211)

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
TRAMMELL CROW CO	7601 NATIONAL TPKE	LIGHT INDUSTRIAL	MSD DETERMINED THAT THIS FACILITY DOES NOT NEED A PERMIT	74,247	
FORTH TECHNOLOGY	600 BERGMAN ST	OCPSF	SIU; 414 & HMPC PLAN	74,003	CSO117 149 179
D D WILLIAMSON & CO INC	1901 PAYNE ST	FOOD PROCESSOR	SIU & HMPC PLAN	70,962	CSO140
U OF L STADIUM	2800 S FLOYD ST	FSE	GREASE TRAPS	64,452	MDS (CSO 211)
ZOO COMMISSION	1100 TREVILIAN WAY	FSE; ZOOLOGICAL GARDENS	HMPC PLAN & GREASE INTERCEPTORS	62,296	Nightingale PS (CSO 015 or South Fork CSOs)
VENCOR HOSPITAL	1313 ST ANTHONY PL	HOSPITAL	GDP & HMPC PLAN	54,110	CSO083
UNITED PARCEL SERVICE	750 GRADE LN	PARCEL DELIVERY	SIU	52,493	Northern Ditch & SW Sanitary Service Area (CSO 015)
PARADISE TOMATO KITCHEN #2	1600 CRUMS LN	FOOD PROCESSOR	GDP & HMPC PLAN	49,342	CSO015
KINDRED HEALTHCARE	600 S 5TH ST	HOSPITAL	GDP & HMPC PLAN	47,271	CSO022
MULTI METALS	715 E GRAY ST	METAL FINISHER	SIU; 433 & HMPC PLAN	46,608	CSO118
W M OF KENTUCKY INC	1930 BISHOP LN	TRANSFER STATION	SIU & HMPC PLAN	46,556	Nightingale PS (CSO 015 or South Fork CSOs)
NORTON HEALTH CARE PAVILLION	315 E BROADWAY	HOSPITAL	GDP & HMPC PLAN	45,233	CSO118
MEDICAL CENTER LAUNDRY	1400 STORY AVE	INDUSTRIAL LAUNDRY	SIU & HMPC PLAN	45,068	CSO130
TRI-STATE PLATING INC	1125 S 12TH ST	METAL FINISHER	SIU; 433 & HMPC PLAN	38,351	MDS (CSO 211)
CORHART REFRACTORIES CORP	1600 W LEE ST	REFRACTORY	GDP & HMPC PLAN	36,855	MDS (CSO 211)
INLAND CONTAINER CP	4201 OLD SHEPHERDSVILLE RD	BOX MAKER	SIU & HMPC PLAN	36,630	Southeast Diversion (CSO 015 or South Fork CSOs)
STANDARD FOODS CO	1101 E WASHINGTON ST	FOOD PROCESSOR	GDP & HMPC PLAN	35,915	Middle Fork Downstream of Breckenridge (CSO 020)
G & K SERVICES INC	1200 MAPLE ST	INDUSTRIAL LAUNDRY	SIU & HMPC PLAN	34,748	CSO105
J O BLANTON HOUSE	850 W MUHAMMAD ALI BLVD	NURSING HOME		33,151	DTOR
JEWISH OUTPATIENT CENTR	225 ABRAHAM FLEXNER WAY	OUTPATIENT; DOCTOR'S OFFICE	SILVER RECOVERY UNIT WITH CLEANOUT	32,995	DTOR

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
WYNN STARR FOODS	4820 ALLMOND AVE	FOOD PROCESSOR	SIU & HMPC PLAN	32,548	Northern Ditch & SW Sanitary Service Area (CSO 015)
IRVING MATERIALS INC	1440 SELINDA AVE	CONCRETE	HMPC PLAN	32,285	Northern Ditch & SW Sanitary Service Area (CSO 015)
CASA DE ORO FOODS	3701 W MAGNOLIA AVE	FOOD PROCESSOR	SIU & HMPC PLAN	31,962	MDS (CSO 211)
COMMUNITY TREATMENT CENTER	316 E CHESTNUT ST	OUTPATIENT; DOCTOR'S OFFICE	HMPC PLAN	31,901	CSO118
MOTHERS COOKIES CO	2299 RALPH AVE	FOOD PROCESSOR	GDP & HMPC PLAN	31,677	CSO015
MT LEBANON PERS CARE HM	1015 MAGAZINE ST	NURSING HOME		30,633	DTOR
ALLIANT HEALTH SYSTEM	634 S PRESTON ST	HOSPITAL	GDP & HMPC PLAN	30,241	CSO118
CARITAS PEACE CENTER	2020 NEWBURG RD	HOSPITAL	GDP & HMPC PLAN	28,789	Nightingale PS (CSO 015 or South Fork CSOs)
NATIONAL TOBACCO CO LP	428 S 30TH ST	TOBACCO PRODUCTION	GDP & HMPC PLAN	27,293	CSO189
MOUNT HOLLY NURSING HOME	446 MT HOLLY AVE	NURSING HOME		27,238	CSO132 167
SYSCO LOU FOOD SERVICES	7705 NATIONAL TPKE	FSE	HMPC PLAN	27,044	Northern Ditch & SW Sanitary Service Area (CSO 015)
U OF L KIDNEY CENTER	408 E CHESTNUT ST	OUTPATIENT; DOCTOR'S OFFICE		26,644	CSO118
ALCOA ACP	3019 HALE AVE	METAL FINISHER	SIU; 433 & HMPC PLAN	26,425	MDS (CSO 211)
CHALLENGER LIFTS INC	268 CABEL ST	METAL FINISHER	SIU; 433 & HMPC PLAN	26,315	DTOR
BOWTIE CARWASH	9710 WESTPORT RD	CAR WASH	OIL WATER SEPARATOR	24,923	Middle Fork Upstream of Breckenridge (various)
REYNOLDS METALS CO	2927 GRAND AVE	ALUMINUM FORMING	SIU; 467 & HMPC PLAN	24,027	CSO105
REYNOLDS METALS CO	1401 S 12TH ST	LAMINATING	GDP & HMPC PLAN	23,611	MDS (CSO 211)
KOSAIR CHILDRENS HOSP	231 E CHESTNUT ST	HOSPITAL	GDP & HMPC PLAN	22,512	CSO118
AKZO COATINGS	4730 CRITTENDEN DR	OCPSF	SIU; 414 & HMPC PLAN	22,501	CSO015
KINGS DAUGHTERS&SONS HOME INC	1705 STEVENS AVE	NURSING HOME		22,488	CSO151
CHEVRON U S A #1293153	500 W BLOOM ST	PETROLEUM	GDP	22156	MDS (CSO 211)

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
WHAYNE SUPPLY CO	1400 S 43RD ST	SALES & RENTAL OF CATEPILLAR EQUIPMENT	GDP & HMPC PLAN	21,899	CSO200
AMERICAN PRINTING HOUSE FOR THE BLIND	165 STATE ST	SCHOOL (WITH FORMER PRINT SHOP)	NO PERMIT NEEDED	21,534	CSO131
CENTRAL STATE HOSPITAL	10525 LA GRANGE RD	NURSING HOME; REHABILITATION		21,181	Middle Fork Upstream of Breckenridge (various)
CHAPEL HOUSE INC	959 S 5TH ST	NURSING HOME		21,082	CSO193
LAUNDRY CONN OF IND	730 S 26TH ST	SELF-SERVE LAUNDRY		20,734	CSO015
SUD CHEMIE WEST	1315 DUMESNIL ST	METAL CATYLYST MANUFACTURER	SIU & HMPC PLAN	20,266	Northern Ditch & SW Sanitary Service Area (CSO 015)
DAWN FOOD PRODUCTS INC	210 EILER AVE	FOOD PROCESSOR	SIU & HMPC PLAN	20,000	Northern Ditch & SW Sanitary Service Area (CSO 015)
ALLIANT HEALTH SYSTEM	231 E CHESTNUT ST	HOSPITAL	GDP & HMPC PLAN	19,575	CSO118
WESTMINSTER TERRACE	2116 BUECHEL BANK RD	NURSING HOME		19,063	Southeast Diversion (CSO 015 or South Fork CSOs)
LITTLE SISTERS OF POOR	15 AUDUBON PLAZA DR	NURSING HOME		18,923	Nightingale PS (CSO 015 or South Fork CSOs)
LIQUID TRANSPORTERS INC	3710 CANE RUN RD	TRANSPO CLEANING	SIU;442 & HMPC PLAN	18,205	CSO015
LAUNDRY CONN OF IND	1300 SOUTHGATE AVE	SELF-SERVE LAUNDRY		17,515	CSO105
ZEON USA INC	4111 BELLS LN	CHEMICAL MANUFACTURER	SIU & HMPC PLAN	16,940	Rubbertown FM (None)
HAZELWOOD HOSPITAL	4100 LOCUST AVE	NURSING HOME		16,282	CSO015
SAM MEYERS INC	3400 BASHFORD AVENUE CT	DRY CLEANER	HMPC PLAN	15,795	Southeast Diversion (CSO 015 or South Fork CSOs)
ST MATTHEWS MANOR	227 BROWNS LN	NURSING HOME		15,616	MDS (CSO 211)
MASONIC HOMES OF KY	3701 FRANKFORT AVE	NURSING HOME	GREASE INTERCEPTOR	15,438	CSO166
KENT FEEDS INC	937 E GRAY ST	FEED PRODUCTION	GDP & HMPC PLAN	15,145	DTC
CHRISTIAN HEALTH CENTER	927 S 5TH ST	NURSING HOME		15,123	CSO192

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
TARC	1000 W BROADWAY	TRANSPORTATION	MSD DETERMINED THAT THIS FACILITY DOES NOT NEED A PERMIT; ALL WASH WATER IS RECYCLED, ONLY RINSE WATER DISCHARGED & HMPC PLAN	15,019	MDS (CSO 211)
LAUNDRY CONN OF IND	4930 POPLAR LEVEL RD	SELF-SERVE LAUNDRY		14,932	MDS (CSO 211)
MEADOWVIEW NURSING HOME	9701 WHIPPS MILL RD	NURSING HOME		14,912	Middle Fork Upstream of Breckenridge (various)
WATER WORKS CAR WASH	8820 SALSMAN DR	CAR WASH	OIL WATER SEPARATOR	14,644	Middle Fork Upstream of Breckenridge (various)
MASTERSONS FOOD & DRINK	1822 S 3RD ST	FSE	GREASE INTERCEPTOR	14,049	MDS (CSO 211)
LAUNDRY CONN OF IND	1907 S 4TH ST	SELF-SERVE LAUNDRY		13,992	Northern Ditch & SW Sanitary Service Area (CSO 015)
KENTUCKIANA TANK WASH	2500 7TH STREET RD	TRANSPO CLEANING	SIU;442 & HMPC PLAN	13,729	CSO015
OLIVE GARDEN REST	1320 S HURSTBOURNE PKY	FSE	GREASE INTERCEPTOR	13,074	Middle Fork Upstream of Breckenridge (various)
ADVANCED READY MIX CONC	161 N SHELBY ST	CONCRETE	HMPC PLAN	12,364	DTOR
FRANCISCAN HLTH CRE CTR	1252 FOREST DR	NURSING HOME	GREASE INTERCEPTOR	12,345	Northern Ditch & SW Sanitary Service Area (CSO 015)
WEYERHAEUSER CO	4400 PROGRESS BLVD	BOX MAKER	GDP & HMPC PLAN	12,238	Southeast Diversion (CSO 015 or South Fork CSOs)
MED GROUP SERVICES	311 S 1ST ST	MEDICAL LABORATORY		11,770	CSO189
THOMAS AUTO CAR WASH	108 CHENOWETH LN	CAR WASH	OIL WATER SEPARATOR	11,274	Middle Fork Downstream of Breckenridge (CSO 020)
HENRY VOGT MACHINE CO	805 W MAGNOLIA AVE	MACHINE PARTS	HMPC PLAN	11,153	MDS (CSO 211)
COLONIAL HILL MANOR	3301 COLONIAL MANOR CIR	NURSING HOME		11,115	Nightingale PS (CSO 015 or South Fork CSOs)

**TABLE 4-3  
NONDOMESTIC DISCHARGERS IN MFWTP SERVICE AREA WITH AVERAGE LWC USAGE OF 10000 GPD OR MORE**

<b>FACILITY NAME</b>	<b>SERVICE ADDRESS</b>	<b>TYPE OF BUSINESS</b>	<b>PERMIT STATUS</b>	<b>AVG. USAGE (GPD)</b>	<b>CATCHMENT/CSO NUMBER</b>
E P I HEALTHCARE	1705 HERR LN	OUTPATIENT; DOCTOR'S OFFICE		11,090	Middle Fork Upstream of Breckenridge (various)
TEN BROECK HOSP	8521 LA GRANGE RD	OUTPATIENT; DOCTOR'S OFFICE	HMPC PLAN	10,822	Middle Fork Upstream of Breckenridge (various)
R A R TANK CLEANING REPAIR SPE	4204 ALGONQUIN PKY	TRANSPO CLEANING	SIU;442 & HMPC PLAN	10,715	CSO 015
NAZARETH HOME	2016 NEWBURG RD	NURSING HOME	GREASE INTERCEPTOR	10,690	Nightingale PS (CSO 015 or South Fork CSOs)
CRACKER BARREL 417	2701 CRITTENDEN DR	FSE	GREASE INTERCEPTOR	10,608	MDS (CSO 211)
HALLS LAUNDRIES INC	3044 HUNSINGER LN	SELF-SERVE LAUNDRY		10,562	Southeast Diversion (CSO 015 or South Fork CSOs)
MAGIC SPARKLE CAR WASH	5321 PRESTON HWY	CAR WASH	OIL WATER SEPARATOR	10,479	Northern Ditch & SW Sanitary Service Area (CSO 015)
BROWNSBORO HILLS HEALTH CARE	2143 SYCAMORE AVE	NURSING HOME	GREASE INTERCEPTOR	10,468	CSO132 167
NORFOLK SOUTHERN CORP	605 N 33RD ST	RAILROAD	GDP	10,329	CSO019
INTERNATIONAL PAPER (BOX U S A INC)	3900 PRODUCE RD	BOX MAKER	GDP	10,321	Northern Ditch & SW Sanitary Service Area (CSO 015)
PRECISION TOOL DIE CO	4701 ALLMOND AVE	NONCAT METAL	HMPC PLAN	10,285	CSO015
LANDRYS SEAFOOD KY INC	131 RIVER RD	FSE	GREASE TRAPS	10,186	Nightingale PS (CSO 015 or South Fork CSOs)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
ADAMS GARAGE	1620 WATHEN LN	CSO015
ADVANCE DISTRIBUTION SERVICES INC DIXIE	3301 DIXIE HWY	CSO015
ADVANCE DISTRIBUTION SERVICES SO. 16TH	1944 S 16TH ST	CSO015
AKZO NOBEL RESINS/ LOUISVILLE RESINS/ F	4730 CRITTENDEN DR	CSO015
ALGONQUIN SHELL FOOD MART	3300 ALGONQUIN PKY	CSO015
ALLPEST CHEMICAL CO.	2114 7TH STREET RD	CSO015
ALLWASTE CONTAINER SERVICES PSC PHIL	2600 MILLERS LN	CSO015
ARROW ELECTRIC	317 WABASSO AVE	CSO015
ART ETC.	2600 7TH STREET RD	CSO015
AUTO ZONE 3102 PRESTON HWY.	3102 PRESTON HWY	CSO015
AUTO ZONE 5115 NEW CUT RD.	5115 NEW CUT RD	CSO015
AVIS RENT-A-CAR INC	4401 PARK BLVD	CSO015
BAE SYSTEMS LAND & ARMAMENTS L.P. □	163 ROCHESTER DR	CSO015
BALL AND BALL TRUCKING, INC.	2305 RALPH AVE	CSO015
BEECHMONT BP 323 WE WOODLAWN AVE C	323 W WOODLAWN AVE	CSO015
BELLSOUTH COMMUNICATIONS, INC	4600 S 2ND ST	CSO015
BELLSOUTH COMMUNICATIONS, INC. 4606 S	4606 S 2ND ST	CSO015
BLANKENSHIP'S AUTO SERVICE	4238 LOUISVILLE AVE	CSO015
B-LINE FOOD MART 3636 CANE RUN RD.	3636 CANE RUN RD	CSO015
B-LINE JOINT VENTURE LLC	2133 DIXIE HWY	CSO015
BOWEBB CLEANERS 5213 NEW CUT RD.	5213 NEW CUT RD	CSO015
BROWN-FORMAN CORPORATION EARLY TIM	2921 DIXIE HWY	CSO015
BUDGET CAR & TRUCK RENTAL HUBER'S	4330 CRITTENDEN DR	CSO015
CARDINAL LAMINATES	230 HIAWATHA AVE	CSO015
CARITAS MEDICAL CENTER STS. MARY ANC	1850 BLUEGRASS AVE	CSO015
CHARLIE PAXTON'S 1-HOUR MARTINIZING 69	6920 SOUTHSIDE DR	CSO015
CHARLIE PAXTONS ONE HOUR CLEANERS	1600 DIXIE HWY	CSO015
CHARLIE PAXTON'S ONE HOUR MARTINIZIN	1600 DIXIE HWY	CSO015
CHURCHILL DOWNS	700 CENTRAL AVE	CSO015
CITATION EQUIPMENT & CHEMICALS	4319 CRITTENDEN DR	CSO015
CLARK ELECTRIC CO.	4157 PARK BLVD	CSO015
COCA-COLA ENTERPRISES INC. LOUISVILLE	1661 W HILL ST	CSO015
COLOR CORPORATION OF AMERICA LOUISV	1630 W HILL ST	CSO015
CUMMINGS INC. 328 E. SOUTHLAND BLVD. L	4778 ALLMOND AVE	CSO015
D & D SERVICES D & D MARATHON SERVICE	3305 PRESTON HWY	CSO015
D & L TIRE & GULF SERVICE	3805 CANE RUN RD	CSO015
DANT CLAYTON	1550 BERNHEIM LN	CSO015
DAY'S AUTO SERVICE CENTER	2701 DIXIE HWY	CSO015
DEPT. OF HIGHWAYS DISTRICT 5 OFFICE	977 PHILLIPS LN	CSO015
DERBY CITY TANK WASH, INC.	3806 BELLS LN	CSO015
DERBY CITY WAREHOUSING, INC. MOVED F	3840 FITZGERALD RD	CSO015
DERBYTOWN IMPORTS INC	501 CHEYENNE AVE	CSO015
DEXTER JONES AUTO & TRUCK SERVICE	518 DAKOTA ST	CSO015
DIESEL INJECTION SERVICE	4710 ALLMOND AVE	CSO015
DOHN'S AUTOMOTIVE SERVICE	2580 MILLERS LN	CSO015
EVERGREEN CLEANERS	311 W WOODLAWN AVE	CSO015
EXECUTIVE INN HOTEL (EAST) HOME SUPPI	978 PHILLIPS LN	CSO015
EXECUTIVE WEST HOTEL	830 PHILLIPS LN	CSO015
FEDEX FREIGHT EAST	2330 MILLERS LN	CSO015
FIRST RECOVERY	3030 MILLERS LN	CSO015
FIVE STAR FOOD MART 3901 TAYLOR BLVD.	3901 TAYLOR BLVD	CSO015
FLORIDA DISTILLERS COMPANY	3290 7TH STREET RD	CSO015
GENERAL RUBBER & SUPPLY CO	3118 PRESTON HWY	CSO015
GENE'S AUTO CENTER	3433 TAYLOR BLVD	CSO015
GIRARD'S HARDWARE 5101 SO 3RD	5101 S 3RD ST	CSO015
GLASER'S COLLISION CENTER	3200 PRESTON HWY	CSO015
GOLDEN BRANDS, INC.	2520 7TH STREET RD	CSO015
GOLDEN FOODS, L.L.C. LOUISVILLE EDIBLE	2520 7TH STREET RD	CSO015
HALL CONTRACTING CORPORATION	3800 CRITTENDEN DR	CSO015
HARTHILL THE CO	3731 S 4TH ST	CSO015
HORRELL TRUCKING	3821 FITZGERALD RD	CSO015
HOUSING AUTHORITY OF LOUISVILLE CENT	3225 7TH STREET RD	CSO015
INNER PLANT SYSTEMS, INC.	3500 BELLS LN	CSO015
INTERSTEEL FABRICATION INTERSTEEL FAB	3837 FITZGERALD RD	CSO015
J & M BODY SHOP	508 DAKOTA ST	CSO015
JAMES HEADDEN SEPTIC TANK SERVICE	3111 DIXIE HWY	CSO015
JEFF HARVEY AUTO SALES	3501 7TH STREET RD	CSO015
JEFFERSON COUNTY PUBLIC SCHOOL DAW	3442 PRESTON HWY	CSO015
JEFFERSON COUNTY PUBLIC SCHOOLS C.B	3001 CRITTENDEN DR	CSO015
JUNKIN SAFETY APPLIANCE CO INC	3121 MILLERS LN	CSO015
KEEBLER MOTHERS COOKIE COMPANY	2287 RALPH AVE	CSO015
KEEP IT SIMPLE TOWING RECOVERY, INC.	1400 BERNHEIM LN	CSO015
KENNETH FARMER TRUCKING, INC.	2425 RALPH AVE	CSO015
KENTUCKIANA TANK WASH, INC.	1611 WATHEN LN	CSO015



**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
KENTUCKY FAIR & EXPOSITION CENTER	3350 FREEDOM WAY	CSO015
KENTUCKY KINGDOM PARK 227 + 1 LIMITED	46 CIRCLE OF CHAMPIONS	CSO015
LABORATORY SUPPLY COMPANY	250 OTTAWA AVE	CSO015
LICHEMCO DISTRIBUTION LOU. CHEMICAL C	3230 COMMERCE CENTER PL	CSO015
LIQUID TRANSPORTERS, INC. TRIMAC TRAN	3710 CANE RUN RD	CSO015
LOUISVILLE CARTAGE COMPANY INC 3101 C	3101 DIXIE HWY	CSO015
LOUISVILLE WATER CO DISTRIBUTION DIV	4801 ALLMOND AVE	CSO015
LOUISVILLE/JEFFERSON COUNTY REDEVEL	163 ROCHESTER DR	CSO015
MAC'S CONVENIENCE STORE DBA DAIRY MA	1255 W WASHLAND AVE	CSO015
MAC'S CONVENIENCE STORE DBA DAIRY MA	4701 S 3RD ST	CSO015
MAC'S CONVENIENCE STORE DBA DAIRY MA	3400 TAYLOR BLVD	CSO015
MAC'S CONVENIENCE STORE DBA DAIRY MA	4347 S 3RD ST	CSO015
MERCY AMBULANCE SERVICE	468 HURON AVE	CSO015
METROPOLITAN PARKS DEPT. IROQUOIS GC	1501 RUNDILL RD	CSO015
METROPOLITAN PKS ALGONQUIN POOL	1614 CYPRESS ST	CSO015
METROPOLITAN PKS HAZELWOOD POOL	4251 HAZELWOOD AVE	CSO015
METROPOLITAN PKS WYANDOTTE POOL	1104 BEECHER ST	CSO015
METROPOLITAN SEWER DISTRICT CENTRAL	3050 COMMERCE CENTER PL	CSO015
METROPOLITAN SEWER DISTRICT SOUTHW	4010 BELLS LN	CSO015
MILAN EXPRESS CO., INC.	2202 WALRICH DR	CSO015
MILTON GREENBAUM ASS. INC.	994 LONGFIELD AVE	CSO015
MODERN CONCRETE	2323 RALPH AVE	CSO015
NATIONAL CAR RENTAL SYSTEMS, INC.	4221 PARK BLVD	CSO015
NATIONWIDE TRUCK SERVICE	4617 ALLMOND AVE	CSO015
NEWLAND BODY CO	511 HURON AVE	CSO015
NORTH AMERICAN GALVANIZING BOYLES G	8310 KENJOY DR	CSO015
OXY VINYL, LP	4014 BELLS LN	CSO015
PARALLEL PRODUCTS OF KENTUCKY INC.	1620 BERNHEIM LN	CSO015
PARKER'S TRUCK CARE INC	3433 7TH STREET RD	CSO015
PENDLETON TRUCK & TRAILER 3820 FITZGE	3820 FITZGERALD RD	CSO015
PEPSI AMERICAS	4008 CRITTENDEN DR	CSO015
PHELPS HARDWARE	6912 SOUTHSIDE DR	CSO015
PHILIP MORRIS U.S.A. STEMMERY	2349 MILLERS LN	CSO015
Q.S. BROOKS DISTRIBUTING OF KENTUCKY	1505 BERNHEIM LN	CSO015
QUIKRETE KENTUCKY	3130 MILLERS LN	CSO015
RANDY'S IMPORT AUTO SALES INC	3330 COMMERCE CENTER PL	CSO015
REGIONAL AIRPORT AUTHORITY LOUISVILLE	700 ADMINISTRATION DR	CSO015
RICHARDS LEO E ROOFING	2518 DIXIE HWY	CSO015
RICHARDS-KLEIN SHEET METAL FABRICATO	3116 MILLERS LN	CSO015
SAM'S CAR WASH 1309 BERRY BLVD.	1309 BERRY BLVD	CSO015
SATCO COMPANY, INC. SATCO OF KENTUCH	4815 ALLMOND AVE	CSO015
SENN'S BODY & PAINT SHOP INC	3700 CANE RUN RD	CSO015
SEVENTH STREET AUTO	2814 7TH STREET RD	CSO015
SHIVELY TRUCK SERVICE	2758 7TH STREET RD	CSO015
SHOREWOOD PACKAGING CORPORATION	4501 ALLMOND AVE	CSO015
SPEEDWAY SUPERAMERICA LLC SUPERAMI	4300 CRITTENDEN DR	CSO015
SPEEDWAY SUPERAMERICA LLC SUPERAMI	306 W AMHERST AVE	CSO015
SULLIVAN SCREEN PRINT CO INC	3808 FITZGERALD RD	CSO015
THORNTON OIL CO. #20, 4500 S. 3RD. ST.	4500 S 3RD ST	CSO015
THORNTON OIL CORP #93, 1521 DIXIE HWY	1521 DIXIE HWY	CSO015
THORNTON OIL CORP NO 42	4309 CRITTENDEN DR	CSO015
THORNTON OIL CORPORATION #60	3320 PRESTON HWY	CSO015
THRIFTY RENT-A-CAR	3902 CRITTENDEN DR	CSO015
THRIFTY TRUCK RENTAL & MAINTENANCE	3700 CRITTENDEN DR	CSO015
TOP CITY DRY CLEANERS	3101 PRESTON HWY	CSO015
ULRICH CHEMICAL, INC. TECHNICAL PRODU	3900 TUCKER AVE	CSO015
UNITED DISTILLERS MANUFACTURING, INC.	3860 FITZGERALD RD	CSO015
UNITED STATES POSTAL SERVICE	4772 ALLMOND AVE	CSO015
VINCENT'S AUTO REPAIR	1700 BERRY BLVD	CSO015
WATKINS MOTOR LINES	2402 RALPH AVE	CSO015
ZOELLER PUMP COMPANY, LLC ZOELLER C	3649 CANE RUN RD	CSO015
BGM EQUIPMENT COMPANY	2012 NORTHWESTERN PKY	CSO019
BOONE CHEVRON FOOD MART PORTLAND	521 N 22ND ST	CSO019
CITY OF LOUISVILLE POLICE 416 N 29TH ST	416 N 29TH ST	CSO019
ENGELHARD CORPORATION HARSHAW CHE	3400 BANK ST	CSO019
FALLON & DELMAR MOVING STORAGE 2310	2310 W MAIN ST	CSO019
JANES BROTHERS S & T HARDWARE	2527 PORTLAND AVE	CSO019
KROGER FUEL L-763	524 N 35TH ST	CSO019
LOU & JEFFERSON CO HEALTH DEPT 2215 F	2215 PORTLAND AVE	CSO019
LOUISVILLE/JEFFERSON COUNTY PARKS PC	3534 PFLANZ AVE	CSO019
MAC'S CONVENIENT STORE DBA DAIRY MAR	2100 PORTLAND AVE	CSO019
METROPOLITAN PKS LAPORTE POOL	2529 BANK ST	CSO019
NORFOLK SOUTHERN RAILWAY COMPANY R	575 N 34TH ST	CSO019
O'KENTUCKY RENTALS	2901 PORTLAND AVE	CSO019
QUALITY CAST BRONZE & ALUMINUM	2936 ST XAVIER ST	CSO019
SPEEDWAY SUPERAMERICA LLC SUPERAMI	2112 DUNCAN ST	CSO019

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

<b>Company Name</b>	<b>Address</b>	<b>Tributary to CSO#</b>
WILLIAMS FOOD SERVICE WILLIAMS INDUS	227 S 30TH ST	CSO019
HUNT TRACTOR INC.	1000 E MARKET ST	CSO020
J. EDINGER & SON TRUCK AND BODY	1021 STORY AVE	CSO020
PLUMBERS SUPPLY CO	1000 E MAIN ST	CSO020
BADERS FOOD MART	300 S 1ST ST	CSO022
HYATT REGENCY OF LOUISVILLE	320 W JEFFERSON ST	CSO022
JEFFCO BOILER PLANT BLDGS & GRDS	514 W LIBERTY ST	CSO022
JEFFERSON COUNTY ARMORY PL GARAGE	415 S 8TH ST	CSO022
LOUISVILLE WATER CO-MAIN OFFICE	550 S 3RD ST	CSO022
STARKS PARKING CENTER	430 S 3RD ST	CSO022
THRIFTY CAR & TRUCK RENTAL	456 S 2ND ST	CSO022
WHAS-TV	520 W CHESTNUT ST	CSO022
THE COURIER JOURNAL CO.	525 W BROADWAY	CSO026
AMERICAN CAR RENTAL INC	821 W BROADWAY	CSO030
HCA INFO. SYSTEMS BLDG HUMANA INFO. S	708 MAGAZINE ST	CSO030
LOUISVILLE GAS & ELECTRIC COMPANY	820 W BROADWAY	CSO030
GENERAL CAR & TRUCK LEASING SYS INC.	200 S 13TH ST	CSO050
HARMON'S SERVICE CENTER	1237 W MAIN ST	CSO050
MARTIN W R COMPANY INC 1204 WE MAIN	1204 W MAIN ST	CSO050
MERCER TRANSPORTATION COMPANY	1128 W MAIN ST	CSO050
PHOENIX BUSINESS SYSTEMS	212 S 12TH ST	CSO050
R.C. INDUSTRIES INC. R.C. RADIATOR COMF	1030 W MAIN ST	CSO051
ROUCK PLUMBING CO.	930 W MAIN ST	CSO052
JEFFERSON COUNTY HALL OF JUSTICE	600 W JEFFERSON ST	CSO053 150
KENTUCKY MIRROR & PLATE GLASS CO 822	822 W MAIN ST	CSO053 150
LOUISVILLE / JEFFERSON COUNTY EMERGE	600 W JEFFERSON ST	CSO053 150
LOUISVILLE / JEFFERSON COUNTY EMERGE	601 W JEFFERSON ST	CSO053 150
LOUISVILLE POLICE DEPARTMENT	633 W JEFFERSON ST	CSO053 150
EMCOR FACILITIES SERVICES PNC PLAZA PI	500 W JEFFERSON ST	CSO055
HUMANA, INC.	500 W MAIN ST	CSO055
HURT PRINTING CO. 522 WE MAIN COPY BO	522 W MAIN ST	CSO055
FEDERAL RESERVE BANK	410 S 5TH ST	CSO056
BITTNER'S	731 E MAIN ST	CSO058
GATCHELS	720 E MARKET ST	CSO058
GOLD SEAL PEST CONTROL INC	717 E MARKET ST	CSO058
GROCERS ICE & COLD STORAGE COMPANY	609 E MAIN ST	CSO058
HOUSING AUTHORITY OF LOUISVILLE DOSKI	413 E MUHAMMAD ALI BLVD	CSO058
PROGRESS PAINT CO. KCI COATINGS, INC.	201 E MARKET ST	CSO058
SERVICE WELDING & MACHINE CO INC	700 E MAIN ST	CSO058
STANDARD AUTO SHOP	1399 LEXINGTON RD	CSO080
VOLKSDOKTOR IMPORT SERVICE	1387 LEXINGTON RD	CSO080
J & M LABORATORIES, INC. 658 BARRET AVE	658 BARRET AVE	CSO083
KINDRED HOSPITAL-LOUISVILLE VENCOR H	1313 ST ANTHONY PL	CSO083
BADERS FOOD MART #2	1244 E BROADWAY	CSO084
HOUSING AUTHORITY OF JEFFERSON COUN	801 VINE ST	CSO084
ISCO INDUSTRIES, LLC 700 VINE ST.	700 VINE ST	CSO084
MR TRANSMISSION BAXTER AVENUE	800 BAXTER AVE	CSO084
NATIONAL PRODUCTS COMPANY L.L.C.	900 BAXTER AVE	CSO084
RILEY JOHN AUTO SERV-GARAGE & BODY S	2011 GRINSTEAD DR	CSO084
ROPPEL'S AUTO SERVICE CENTER ROPPEL	632 BAXTER AVE	CSO084
SMITH IMPORTED CAR SERVICE	1250 E BROADWAY	CSO084
BAUMER'S QUALITY AUTOMOTIVE CARE BA	1757 MELLWOOD AVE	CSO088
RIVER CITY AUTO CENTER	1800 BROWNSBORO RD	CSO088
HADDAD'S AUTO SERVICE HADDAD MARATI	1132 E ST CATHERINE ST	CSO092
B-LINE FOOD MART 1648 MELLWOOD AVE.	1648 MELLWOOD AVE	CSO093
H.W. KRAUTH & SON, INC.	1612 MELLWOOD AVE	CSO093
AMERICAN DISPERSIONS	2815 MAGAZINE ST	CSO105
ANDERSON WOOD PRODUCTS	1381 BEECH ST	CSO105
AST - ACME COATINGS AND LININGS ACME-	728 S 13TH ST	CSO105
AST ELECTROFIN APPLIED SURFACE TECHI	1423 W ORMSBY AVE	CSO105
AUTO ZONE 2131 W. BROADWAY	2131 W BROADWAY	CSO105
B.P. OIL #25 KIEL BROS.	2701 W BROADWAY	CSO105
BELLSOUTH COMMUNICATIONS, INC. SOUTI	2529 MAGAZINE ST	CSO105
BELLSOUTH COMMUNICATIONS, INC. 623 S	623 S 26TH ST	CSO105
B-LINE FOOD MART	931 DIXIE HWY	CSO105
B-LINE FOOD MART	3501 W BROADWAY	CSO105
B-LINE FOOD MART 1711 W BROADWAY	1711 W BROADWAY	CSO105
B-LINE FOOD MART 2532 W. BROADWAY SPE	2532 W BROADWAY	CSO105
BOWLING JOSEPH S CO.	1421 W BRECKINRIDGE ST	CSO105
BROWN-FORMAN DISTILLERY CO. LOUISVILL	850 DIXIE HWY	CSO105
COMPONENT FINISHING UNLIMITED	3138 DEL PARK TER	CSO105
CONNER MFG. COMPANY BLUE GRASS PIPE	828 S 17TH ST	CSO105
CONSOLIDATED GRAIN & BARGE CO	1047 S 15TH ST	CSO105
DARRYL'S TIRE SERVICE	1534 W BROADWAY	CSO105

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
DOOR SERVICE CO DBA OVERHEAD DOOR CO OF LOUISVILLE □	1328 W JEFFERSON ST	CSO105
ELI'S AUTOMATIC TRANSMISSION CLINIC 604	604 S 30TH ST	CSO105
FALLS CITY MACHINE TECHNOLOGY HARGA	667 S 31ST ST	CSO105
FISHER EQUIPMENT COMPANY 2500 W MAF	2500 MAPLE ST	CSO105
FLOORPRO INC	2928 GARLAND AVE	CSO105
FREEDOM METALS, INC.	1225 S 15TH ST	CSO105
G&K SERVICES, INC.	1200 MAPLE ST	CSO105
GEOGHEGAN CORP 1405 GARLAND AVENUE	1405 GARLAND AVE	CSO105
GREYHOUND LINES INC. GREYHOUND CORP	830 S 13TH ST	CSO105
HANSEN A L PAINT & METAL SHOP INC	2620 W CHESTNUT ST	CSO105
HEAVEN HILL DISTILLERIES, INC. BERNHEIM	1701 W BRECKINRIDGE ST	CSO105
JELICO CHEMICAL CO., INC.	829 S 26TH ST	CSO105
KENTUCKY PAPER BOX CO INC 823 SO 15TH	823 S 15TH ST	CSO105
KROGER STORE & FUEL L-327 2710 W. BROAD	2710 W BROADWAY	CSO105
LAUYANS & COMPANY, INC.	2929 W CHESTNUT ST	CSO105
LOUISVILLE FIRE DEPARTMENT ENGINE 22 -	3228 RIVER PARK DR	CSO105
LOUISVILLE TIN & STOVE CO 737 SO 13TH	737 S 13TH ST	CSO105
ONE STEP FOOD MART PREVIOUSLY B-LINE	1420 W BROADWAY	CSO105
PADUCAH AND LOUISVILLE RAILWAY	1221 S 15TH ST	CSO105
PERRYMAN'S FUNERAL HOME	3237 W BROADWAY	CSO105
PPG ARCHITECTURAL FINISHES, INC. PORTE	400 S 13TH ST	CSO105
PSC FABRICATING SHARES ADDRESS/FACIL	3001 W KENTUCKY ST	CSO105
RELIABLE LITHOGRAPHIC	1325 W BROADWAY	CSO105
REPUBLIC INDUSTRIES, INC. REPUBLIC DIE	3000 W BROADWAY	CSO105
REYNOLDS METALS COMPANY LOUISVILLE F	2827 HALE AVE	CSO105
STRY-LENKOFF CO.	1100 W BROADWAY	CSO105
SUPERIOR DIECUTTING	3025 W MADISON ST	CSO105
SYPRIS TECHNOLOGIES TUBE TURNS TECH	2900 W BROADWAY	CSO105
THIRTY-FIFTH & BROADWAY CHEVRON OIL	3410 W BROADWAY	CSO105
THORNTON OIL CO	1025 W BROADWAY	CSO105
TRANSIT AUTHORITY OF RIVER CITY BROAD	2905 W BROADWAY	CSO105
TRI-TECH	2612 HOWARD ST	CSO105
ZIP EXPRESS COURIER SERVICE	1234 W BROADWAY	CSO105
BRENZELS CHEVRON SERVICE JIM BRENZE	2501 BARDSTOWN RD	CSO108
EASTVIEW AUTO PARTS	2621 BARDSTOWN RD	CSO108
HIGHLAND CLEANERS	2455 BARDSTOWN RD	CSO108
JIFFY LUBE #185 2601 BARDSTOWN ROAD B	2601 BARDSTOWN RD	CSO108
LAKESIDE SWIM CLUB	2010 TREVILIAN WAY	CSO108
REECE SERVICE STATION	1632 NORRIS PL	CSO109
BLUEGRASS SURGERY & LASER CENTER LC	1400 POPLAR LEVEL RD	CSO110
SPEEDWAY SUPERAMERICA LLC SUPERAMI	1422 POPLAR LEVEL RD	CSO110
MAC'S CONVENIENCE STORE DBA DAIRY MA	1056 E OAK ST	CSO113
PARROT CLEANERS 1133 ELLISON AVENUE	1133 ELLISON AVE	CSO113
ST. MICHAEL CEMETARY	1153 CHARLES ST	CSO113
ALLIANCE LAUNDRY SYSTEMS, LLC	831 S 1ST ST	CSO117 149 179
831 SOUTH FIRST STREET		
ALLIANT HEALTH SYSTEM ALLIANT CABINET	747 S BROOK ST	CSO117 149 179
ANTEC-INC.	721 BERGMAN ST	CSO117 149 179
BELL MOTOR SERVICE INC GAS & DIESEL EN	309 W KENTUCKY ST	CSO117 149 179
CENTRAL PIPING & PLUMBING, INC.	1253 S PRESTON ST	CSO117 149 179
DECKEL & MONEYPENNY INC	615 MARRET AVE	CSO117 149 179
EWALD SPRING & RADIATOR CO INC 225 EA	225 E BRECKINRIDGE ST	CSO117 149 179
FORTH TECHNOLOGIES, INC. BERGMAN FAC	600 BERGMAN ST	CSO117 149 179
GRIFFIN & COMPANY, INC.	500 BERGMAN ST	CSO117 149 179
INDUSTRIAL DISPOSAL COMPANY	1423 S JACKSON ST	CSO117 149 179
JIM COOKE BUICK	118 W BRECKINRIDGE ST	CSO117 149 179
LAILAW TRANSIT SERVICES, INC. LAID LAV	1340 S SHELBY ST	CSO117 149 179
LOUISVILLE TRANSPORTATION COMPANY Y	1601 S PRESTON ST	CSO117 149 179
MAC'S CONVENIENCE STORE DBA BIG FOOT	309 E ST CATHERINE ST	CSO117 149 179
METROPOLITAN PKS/EA BRECKENRIDGE RE	315 E BRECKINRIDGE ST	CSO117 149 179
NORTH COAST COMMERCIAL ROOFING SYS	605 MARRET AVE	CSO117 149 179
PARADISE TOMATO KITCHENS	1500 S BROOK ST	CSO117 149 179
PURITAN CLEANERS, INC.	206 W BRECKINRIDGE ST	CSO117 149 179
RIVER CITY BODY SHOP 415 E. ST. CATHERI	415 E ST CATHERINE ST	CSO117 149 179
SANDVIK SORTING SYSTEM	500 E BURNETT AVE	CSO117 149 179
SHELL FOOD MART 1123 SO. FLOYD ST.	1123 S FLOYD ST	CSO117 149 179
SILVERCREST DRY CLEANERS SILVERCRE	1036 S 4TH ST	CSO117 149 179
STEINER-RECK INC-ORGAN BUILDERS	415 WOODBINE ST	CSO117 149 179
STINSON B F & SON	818 S FLOYD ST	CSO117 149 179
THE BARBEE CO., INC.	418 E BRECKINRIDGE ST	CSO117 149 179
VALLEY MEDICAL TRANSPORTATION	501 WOODBINE ST	CSO117 149 179
AAMCO AUTOMATIC TRANSMISSIONS CENT	434 E BROADWAY	CSO118
A-C BRAKE CO INC	308 E COLLEGE ST	CSO118

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
ACE GLASS INC	639 S HANCOCK ST	CSO118
ALLIANT HEALTH SYSTEM 224 BUILDING	224 E BROADWAY	CSO118
AMERICAN RED CROSS LOUISVILLE CHAPTE	510 E CHESTNUT ST	CSO118
AUTOMOTION INC.	636 E BROADWAY	CSO118
BLACKHAWK ENTERPRISES INC.	812 S PRESTON ST	CSO118
CITY OF LOUISVILLE BULK WASTE	906 LOGAN ST	CSO118
FIRESTONE TIRE & SERVICE CENTER 401 E.	401 E BROADWAY	CSO118
GENUINE PARTS COMPANY DBA NAPA NAP	211 E COLLEGE ST	CSO118
HERRICK ELECTRIC CORP.	733 LOGAN ST	CSO118
JEFFERSON COUNTY PUBLIC PROPERTIES C	316 E CHESTNUT ST	CSO118
KOSAIR CHILDREN'S HOSPITAL KOSAIR CHIL	231 E CHESTNUT ST	CSO118
LABORATORY CORPORATION OF AMERICA S	310 E BROADWAY	CSO118
LOUISVILLE & JEFF CO HEALTH DEPT	400 E GRAY ST	CSO118
LOUISVILLE AND FENDER	430 E BROADWAY	CSO118
MEDICAL CENTER STEAM AND CHILLED WA	235 ABRAHAM FLEXNER WAY	CSO118
MULTI METALS DIVISION VERMONT AMERIC	715 E GRAY ST	CSO118
MV TRANSPORTATION	958 LOGAN ST	CSO118
NORTON HEALTH CARE PAVILION ALLIANT M	315 E BROADWAY	CSO118
NORTON HEALTHCARE, INC. 210 BUILDING	210 E GRAY ST	CSO118
NORTON HEALTHCARE, INC. CHILDREN'S HC	601 S FLOYD ST	CSO118
OSCAR'S HARDWARE	632 S SHELBY ST	CSO118
REPUBLIC DIESEL	305 E COLLEGE ST	CSO118
ROBERTS BRAKES & AUTO SERVICE	753 S CLAY ST	CSO118
STURGEON PEST CONTROL	612 E BROADWAY	CSO118
THORNTON OIL CORP #28	100 W BROADWAY	CSO118
UNIVERSITY MEDICAL CENTER, INC. UNIVER	530 S JACKSON ST	CSO118
UNIVERSITY OF LOUISVILLE HEALTH SCIENC	511 S FLOYD ST	CSO118
ACTION GRAPHICS	821 E MARKET ST	CSO121
AMERICAN COMMERCIAL, INC. COMMERCIA	1032 E CHESTNUT ST	CSO121
BLATZ PAINT CO., INC.	319 S SHELBY ST	CSO121
EAGLE SIGN & DESIGN FORMERLY AT 312 O	901 E LIBERTY ST .	CSO121
FUNERAL DIRECTORS VAULT, LTD.	817 E JEFFERSON ST	CSO121
LOUISVILLE DISPLAY MFG. COMPANY	927 E MADISON ST	CSO121
MERRICK PRINTING COMPANY, INC.	808 E LIBERTY ST	CSO121
CITY OF LOUISVILLE POLICE	2301 DOUGLASS BLVD	CSO123
LOUISVILLE WATER CO-GROUNDS MAINT. 3	3015 GRINSTEAD DR	CSO125
SOUTHERN BAPTIST SEMINARY	2825 LEXINGTON RD	CSO125
VOLK'S DRY CLEANING	3202 FRANKFORT AVE	CSO125
FAHEY'S AUTO SERVICE	2294 LEXINGTON RD	CSO127
GATES CHEVRON SERVICE STATION	1546 BARDSTOWN RD	CSO127
HIGHLAND AUTOMOTIVE	2036 MIDLAND AVE	CSO127
MALIBU - HIGHLAND CLEANERS	1444 BARDSTOWN RD	CSO127
VALVOLINE INSTANT OIL CHANGE 1450 BARD	1450 BARDSTOWN RD	CSO127
MEDICAL CENTER LAUNDRY	1400 STORY AVE	CSO130
SWIFT & COMPANY	1200 STORY AVE	CSO130
WIELAND CABINET CO	1320 E WASHINGTON ST	CSO130
AMERICAN PRINTING HOUSE FOR THE BLIND	1839 FRANKFORT AVE	CSO131
C.F.B. INC. SHELL FOOD MART	2912 BROWNSBORO RD	CSO132 167
CRESCENT BODY SHOP 110 S. JANE ST.	2258 FRANKFORT AVE	CSO132 167
CRESCENT HILL GOLF COURSE METRO PAF	3110 BROWNSBORO RD	CSO132 167
DIXIE DRY CLEANERS	2204 BROWNSBORO RD	CSO132 167
LOUISVILLE FIRE DEPARTMENT ENGINE 4/ T	2620 FRANKFORT AVE	CSO132 167
METRO PARKS MARY T. MEAGHER NATATOR	201 RESERVOIR AVE	CSO132 167
READY ELECTRIC CO INC	2030 FRANKFORT AVE	CSO132 167
SPEEDWAY #8132	2300 BROWNSBORO RD	CSO132 167
THORNTON OIL CORP #27	2007 BROWNSBORO RD	CSO132 167
D. D. WILLIAMSON & COMPANY	1901 PAYNE ST	CSO140
LOUISVILLE PAVING	1801 PAYNE ST	CSO140
NETWORK PRINTING, INC.	1500 ARLINGTON AVE	CSO140
ACME AUTO ELECTRIC INC	508 BAXTER AVE	CSO141
A & B ABELL ELEVATOR INC CO	1256 LOGAN ST	CSO146
AXTON CANDY-TOBACCO CO	900 E KENTUCKY ST	CSO146
C & J AUTO SHELBY STREET MOTORS	1501 S SHELBY ST	CSO146
CENTRAL CONSTRUCTION	1020 LOGAN ST	CSO146
GERMANTOWN MARATHON MARATHON SER	1137 E BURNETT AVE	CSO146
KNOCK'S AUTOMOTIVE	1268 S SHELBY ST	CSO146
OSCAR'S GERMANTOWN HARDWARE	1515 S SHELBY ST	CSO146
PARROT-BROCK CLEANERS	2707 PRESTON HWY	CSO146
PRECISION AN ELAMEX USA CO. PRECISION	1458 S SHELBY ST	CSO146
SHORT'S ARAB TERMITE & PEST CONTROL	1234 BOYLE ST	CSO146
SHUFFIT'S MOBIL, INC. 2313 S. PRESTON ST.	2313 S PRESTON ST	CSO146
KEITH'S HARDWARE	1201 BARDSTOWN RD	CSO152
LOUISVILLE FIRE DEPARTMENT ENGINE 11 /	1025 RUBEL AVE	CSO152
MELTON B.P.OIL INC. 1221 BAXTER AVENUE	1221 BAXTER AVE	CSO152
SPEEDWAY SUPERAMERICA LLC SUPERAM	1101 BARDSTOWN RD	CSO152
SPEIER ACE HARDWARE	992 BARRET AVE	CSO152

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

<b>Company Name</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ADKINS CONSTRUCTION CO	1301 PORTLAND AVE	CSO155
CHAMPION ROLLER - KENTUCKY PLANT	1200 ROWAN ST	CSO155
REYNOLDS INC. MOVED FROM #8394	1301 W MAIN ST	CSO155
SCHMUTZ TECHNOLOGY 1200 ROWAN ST. H	1200 ROWAN ST	CSO155
BALLOU'S RENT-ALL INC	3230 FRANKFORT AVE	CSO166
BELLSOUTH COMMUNICATIONS, INC. 111 BA	111 BAUER AVE	CSO166
BIG O TIRE STORES 3623 LEXINGTON ROAD	3623 LEXINGTON RD	CSO166
BOONE'S FOOD MART	3320 FRANKFORT AVE	CSO166
HEUSTIS SERVICE CENTER HEUSTIS GENE	3330 FRANKFORT AVE	CSO166
JAGUAR OF LOUISVILLE	3700 FRANKFORT AVE	CSO166
PRUITT'S CHEVRON SERVICE NO. 1 3795 LEX	3795 LEXINGTON RD	CSO166
URSULINE SOCIETY & ACADEMY OF ED.	3105 LEXINGTON RD	CSO166
VALVOLINE INSTANT OIL CHANGE 3800 LEXI	3800 LEXINGTON RD	CSO166
BLOEMER FOOD SALES	925 S 7TH ST	CSO178
C. LEE COOK DIVISION OF DOVER CORPOR	916 S 8TH ST	CSO178
HESCO PARTS LLC	990 S 9TH ST	CSO178
NEW AUTO PROCESSING, INC. 939 S. NINTH	939 S 9TH ST	CSO178
OLSON / BECKER'S AUTO SERVICE BECKER	721 W BRECKINRIDGE ST	CSO178
B-LINE FOOD MART 3320 W MARKET ST.	3320 W MARKET ST	CSO189
BUSH-KREBS COMPANY	220 S 18TH ST	CSO189
CAMBRON EUGENE B PAINTERS AND DECO	4143 W MARKET ST	CSO189
D & B ROOFING	1819 W MAIN ST	CSO189
F & Y FOOD MART FORMERLY FIVE STAR FC	3801 W MARKET ST	CSO189
K & F GROCERY #2	4100 W MUHAMMAD ALI BLVD	CSO189
LOUISVILLE - JEFFERSON CO. METRO PARK	4018 W MARKET ST	CSO189
LOUISVILLE LABEL INC 417 SO 32ND STREE	417 S 32ND ST	CSO189
LOUISVILLE/JEFFERSON COUNTY PARKS 22	2124 W MARKET ST	CSO189
MAC'S CONVENIENCE STORE DBA DAIRY MA	2728 W MARKET ST	CSO189
MIDWEST ENVIRONMENTAL SERVICES, INC.	3601 PARKER AVE	CSO189
NATIONAL TOBACCO COMPANY LORILLARD	3029 W MUHAMMAD ALI BLVD	CSO189
STOLL CONSTRUCTION & PAVING CO. 3100	3100 HERMAN ST	CSO189
TWINS HARDWARE	3317 W MARKET ST	CSO189
AGI MEDIA PACKAGING COMMERCIAL LITHO	1705 W JEFFERSON ST	CSO190
CITY OF LOUISVILLE OPEN SPACES MANAGE	1731 NORTHWESTERN PKY	CSO190
D.A.E. INDUSTRIES	1615 PORTLAND AVE	CSO190
GLENN'S PAINT CENTER	1801 W MARKET ST	CSO190
INDUSTRIAL POWER SERVICE COMPANY, IN	1510 W MAIN ST	CSO190
LANNING AUTO SERVICE 1716 PORTLAND A	1716 PORTLAND AVE	CSO190
NIEMCO FABRICATORS, INC. NIEMCO INDUS	1600 NORTHWESTERN PKY	CSO190
POTTS MELVIN & SON SCREEN PRINTING	1621 W MAIN ST	CSO190
BULK FIRST	3801 BELLS LN	CSO191
CENTRAL TRANSPORT	3804 BELLS LN	CSO191
CHAZ CONCRETE CO.	4121 ALGONQUIN PKY	CSO191
HEIL TRAILER INTERNATIONAL	3808 BELLS LN	CSO191
R.A.R. TANK CLEANING & REPAIR SPECIALIS	4107 BELLS LN	CSO191
LOU. JEFF. CO. COMM. ACTION AGENCY	1018 S 7TH ST	CSO193
BELLSOUTH COMMUNICATIONS, INC. 2404 B	2404 BARDSTOWN RD	CSO206
CONN'S BODY SHOP 2247 BARDSTOWN RD.	2247 BARDSTOWN RD	CSO206
K'S FOOD MART SAVE-A-STEP	1779 BARDSTOWN RD	CSO206
LEE FARAHS DRY CLEANER 1985 DOUGLAS	1985 DOUGLASS BLVD	CSO206
STRIP-EASE OF LOUISVILLE	2003 WOODBOURNE AVE	CSO206
ARCH L. HEADY & SON FUNERAL DIRECTOR	1201 E OAK ST	DTC
DAGES PAINT CO.	1140 E OAK ST	DTC
ISCO INDUSTRIES, LLC 962 E. CHESTNUT ST	962 E CHESTNUT ST	DTC
KENT FEEDS, INC.	932 E CHESTNUT ST	DTC
PREMIER MAT & TEXTILE RENTAL, INC.	1344 ELLISON AVE	DTC
ADVANCE READY MIX CONCRETE, INC.	161 N SHELBY ST	DTOR
BELLSOUTH COMMUNICATIONS, INC. 526 AR	526 ARMORY PL	DTOR
BELLSOUTH TELECOMMUNICATIONS INC. S	601 W CHESTNUT ST	DTOR
CECIL'S SERVICE CENTER	447 S 8TH ST	DTOR
CHALLENGER LIFTS	200 CABEL ST	DTOR
CITY BLUE PRINT CO	140 W JEFFERSON ST	DTOR
CULINARY STANDARDS CORP. STANDARD F	1101 E WASHINGTON ST	DTOR
FRAZIER REHAB CENTER	220 ABRAHAM FLEXNER WAY	DTOR
GREYHOUND BUS LINES 720 WE MUHAMMA	720 W MUHAMMAD ALI BLVD	DTOR
HOUSING AUTHORITY OF LOUISVILLE AVENU	400 S 8TH ST	DTOR
HUMANA INC WATERSIDE BLDG	110 W MAIN ST	DTOR
INDUSTRIAL AIR CENTER	118 S 1ST ST	DTOR
JAGS AUTOMOTIVE 430 S. 1ST ST. MIDAS AU	430 S 1ST ST	DTOR
JEWISH HOSPITAL HEALTHCARE SERVICES	217 E CHESTNUT ST	DTOR
LOUISVILLE - JEFFERSON CO. METRO PARK	1130 W CHESTNUT ST	DTOR
LOUISVILLE FIRE DEPARTMENT ENGINE 2/ T	1135 W JEFFERSON ST	DTOR
M B OIL COMPANY, INC. KP OIL	207 N CAMPBELL ST	DTOR
MARSHALL'S AUTO PARTS INC	375 ADAMS ST	DTOR
MURPHY THE ELEVATOR CO INC	128 E MAIN ST	DTOR
NORTON HOSPITAL NORTON HOSPITAL	200 E CHESTNUT ST	DTOR

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
PIERSON TRANSMISSION SERVICE 156 NO	1156 N CAMPBELL ST	DTOR
POWER TRAIN SERVICE OF KY	701 E MAIN ST	DTOR
RELIABLE EXPRESS INC	1101 STORY AVE	DTOR
RUEFF SIGN CO.	1530 E WASHINGTON ST	DTOR
SERVICE WELDING & MACHINE CO. WAREH	175 N WENZEL ST	DTOR
SWH SUPPLY COMPANY INC	242 E MAIN ST	DTOR
TASMAN INDUSTRIES	930 GEIGER ST	DTOR
VENDOME COPPER & BRASS WORKS	729 FRANKLIN ST	DTOR
CENTRAL AMERICAN AIRWAYS	2805 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
COLONEL QUICK	3333 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
FEDERAL AVIATION ADMINISTRATION BOWM	2911 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GARDINER LANE CLEANERS DIXIE DRY CLE	2140 GARDINER LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GRISSOM AUTO CARE	3337 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
HOUCHEIN'S AUTO SPECIALTIES INC	3337 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
JAGS AUTOMOTIVE 3325 BARDSTOWN ROA	3325 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
JEWISH COMMUNITY CENTER	3600 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
LOUISVILLE FIRE DEPARTMENT QUINT 10 - 3	3401 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
REGIONAL AIRPORT AUTHORITY BOWMAN F	2815 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
RESCO RENTS	3485 ROGER E SCHUPP ST	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
SPEEDWAY SUPERAMERICA LLC SUPERAM	2720 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
STEIN AUTOMOTIVE BOWMAN FIELD	2816 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
THORNTON OIL CORP #25	3301 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
THORNTON QUICK CAFE & MARKET THORT	3300 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
A.P. FOOD MART	2631 S 3RD ST	MDS (CSO 211)
ALCOA FLEXIBLE PACKAGING LOUISVILLE LA	1225 W BURNETT AVE	MDS (CSO 211)
ALLIED DRUM SERVICE, INC.	401 COLORADO AVE	MDS (CSO 211)
ALRO STEEL CORP	310 BOXLEY AVE	MDS (CSO 211)
AMERICAN BLUEGRASS MARBLE	1510 ALGONQUIN PKY	MDS (CSO 211)
BELL SOUTH COMMUNICATIONS, INC. 1616 S	1616 S 3RD ST	MDS (CSO 211)
B-LINE FOOD MART 1420 DIXIE HWY.	1420 DIXIE HWY	MDS (CSO 211)
B-LINE FOOD MART 3291 TAYLOR BLVD.	3291 TAYLOR BLVD	MDS (CSO 211)
B-LINE FOOD MART 700 W. OAK ST. SPEEDW	700 W OAK ST	MDS (CSO 211)
BRIDGES SMITH, & CO. INC.	826 S 8TH ST	MDS (CSO 211)
BROWN BROS CADILLAC	728 S 4TH ST	MDS (CSO 211)
BUSTER'S TRANSMISSION SERVICE	1223 S 7TH ST	MDS (CSO 211)
CASA DE ORO FOODS MESA FOODS	3701 W MAGNOLIA AVE	MDS (CSO 211)
CHAMPION WIRE & IRON WORKS INC	2931 S FLOYD ST	MDS (CSO 211)
CHEVRONTXACO GLOBAL LUBRICANTS LO	430 W CARDINAL BLVD	MDS (CSO 211)
COMMONWEALTH PRINTING CO	2901 S 2ND ST	MDS (CSO 211)
CORHART REFRACTORIES CORPORATION	1600 W LEE ST	MDS (CSO 211)
COURTAULDS COATINGS DISTRIBUTION CEI	938 S 12TH ST	MDS (CSO 211)
DIVERSIFIED DESIGNS	935 W OAK ST	MDS (CSO 211)
DOWNTOWN FORD INC 809 S 5TH STREET	809 S 5TH ST	MDS (CSO 211)
EARTHGRAINS CO. DIVISION OF SARA LEE R	1455 S 7TH ST	MDS (CSO 211)
F.W. OWENS CO.	331 BOXLEY AVE	MDS (CSO 211)
FETTER PRINTING CO	700 LOCUST LN	MDS (CSO 211)
FREEDOM EXPRESS ENTITY 9759	3515 W MAGNOLIA AVE	MDS (CSO 211)
FUNERAL AUTO CO	724 CAWTHON ST	MDS (CSO 211)
GENERAL WELDING PRODUCTS 2603 S FLO	2603 S FLOYD ST	MDS (CSO 211)
GOLD PROOF ELEVATOR 1340 WE ORMSBY	1340 W ORMSBY AVE	MDS (CSO 211)
HAMILTON PRINTING COMPANY	1703 S BROOK ST	MDS (CSO 211)
HARPRING INC	330 BOXLEY AVE	MDS (CSO 211)
HOFFMAN TRAILER COMPANY, INC.	1368 S 11TH ST	MDS (CSO 211)
HOUSING AUTHORITY OF LOUISVILLE ST. CA	1114 S 4TH ST	MDS (CSO 211)
HUHN PLUMBING & HEATING INC	1600 S PRESTON ST	MDS (CSO 211)
HY-KLAS PAINTS, INC.	1401 S 12TH ST	MDS (CSO 211)
INDUSTRIAL EQUIPMENT CO, IND, OXYGEN	741 S 3RD ST	MDS (CSO 211)
JANSEN INDUSTRIAL EQUIPMENT	1116 S 7TH ST	MDS (CSO 211)
JEFFERSON SMURFIT CORP	750 S 11TH ST	MDS (CSO 211)
KELLEY TECHNICAL COATINGS, INC. PLANT	1445 S 15TH ST	MDS (CSO 211)
KELLEY TECHNICAL COATINGS, INC. PLANT	1401 S 15TH ST	MDS (CSO 211)
KENTUCKY FORGE	990 W ORMSBY AVE	MDS (CSO 211)
KENTUCKY TRAILER, R.C. TWAY COMPANY,	2601 S 3RD ST	MDS (CSO 211)
KENTUCKY-INDIANA LUMBER CO 227 EA LEE	227 E LEE ST	MDS (CSO 211)
KIRK & BLUM MFG CO-LIBERTY ENG DIV 1450	1450 S 15TH ST	MDS (CSO 211)
KRISH BROS. DBA COIT SERVICES	2730 CRITTENDEN DR	MDS (CSO 211)
KRUSE PLASTIC & PLYWOOD INC 1443 SO	1443 S 15TH ST	MDS (CSO 211)
KY NATIONAL GUARD ORGANIZATIONAL MAI	2729 CRITTENDEN DR	MDS (CSO 211)
LIBERTY NATIONAL BANK	1251 S 4TH ST	MDS (CSO 211)
LOMA AUTOMATED TECHNOLOGOIES, INC.	1000 ZANE ST	MDS (CSO 211)
LOUISVILLE FIRE DEPARTMENT ENGINE 167	1500 S 6TH ST	MDS (CSO 211)
LOUISVILLE FREEZER CENTER DBA AMERIC	607 INDUSTRY RD	MDS (CSO 211)
LOUISVILLE HARLEY-DAVIDSON, INC.	1700 ARTHUR ST	MDS (CSO 211)
LOUISVILLE MAINTENANCE SUPPLY & INC 10	1551 S 10TH ST	MDS (CSO 211)
LOUISVILLE/JEFFERSON COUNTY PARKS CE	2649 HELM ST	MDS (CSO 211)
M & L MARINE, INC.	541 INDUSTRY RD	MDS (CSO 211)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
MAC'S CONVENIENCE STORE DBA BIG FOOT	1630 ARTHUR ST	MDS (CSO 211)
METROPOLITAN PKS SHELBY POOL	604 W OAK ST	MDS (CSO 211)
MILLS SUPPLY COMPANY COMPANY, INC.	1100 S 9TH ST	MDS (CSO 211)
NEILL-LAVIELLE SUPPLY CO., INC. INDUSTRIAL	1711 S FLOYD ST	MDS (CSO 211)
NELCO, INC.	1045 S 12TH ST	MDS (CSO 211)
NOVELIS ALUMINUM CORPORATION - LOUISVILLE	1430 S 13TH ST	MDS (CSO 211)
PACKAGING UNLIMITED INC.	1121 W KENTUCKY ST	MDS (CSO 211)
PETTIT ENVIRONMENTAL, INC.	340 BYRNE AVE	MDS (CSO 211)
PRACTICAL MECHANICS INC	1809 COMMERCE RD	MDS (CSO 211)
PRECISION METAL PROCESSORS	1000 W ORMSBY AVE	MDS (CSO 211)
QUALITY DRY CLEANERS	1312 DIXIE HWY	MDS (CSO 211)
RAMCO LEASING	3212 WOODLAND AVE	MDS (CSO 211)
ROYAL LACE	1120 W MAGNOLIA AVE	MDS (CSO 211)
S & S PORCELAIN METALS LLC	1400 S 13TH ST	MDS (CSO 211)
SAM'S KWIK MART 1480 S. 7TH ST. ONE STE	1480 S 7TH ST	MDS (CSO 211)
SCHUE & KNISS, INC	1500 W ORMSBY AVE	MDS (CSO 211)
SCHULER MACHINE & TOOL CO. 902 W. HILL	1500 S 10TH ST	MDS (CSO 211)
SOLAE L.L.C. DUPONT SOY POLYMERS PTI,	2441 S FLOYD ST	MDS (CSO 211)
SOUTHERN GRAPHIC SYSTEMS, INC. 2823 S	2823 S FLOYD ST	MDS (CSO 211)
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	3030 TAYLOR BLVD	MDS (CSO 211)
SPEEDY MART 401 WINKLER AVE. BP OIL CO	401 WINKLER AVE	MDS (CSO 211)
SUD-CHEMIE INC. LABORATORIES UNITED C	1600 W HILL ST	MDS (CSO 211)
SUD-CHEMIE INC. WEST PLANT WEST CATA	1227 S 12TH ST	MDS (CSO 211)
TABLER COMPANY	1331 S 15TH ST	MDS (CSO 211)
THIRTY-SECOND & GARLAND AUTO SVC CTR	910 S 32ND ST	MDS (CSO 211)
TRANSIT AUTHORITY OF RIVER CITY UNION	1000 W BROADWAY	MDS (CSO 211)
TRI-STATE PLATING, INC.	1125 QUALITY CHOICE PL	MDS (CSO 211)
UNIVERSAL LINEN SERVICE	1803 COMMERCE RD	MDS (CSO 211)
UNIVERSITY OF LOUISVILLE BELKNAP CAMP	1800 ARTHUR ST	MDS (CSO 211)
VOGT TUBE ICE	1000 W ORMSBY AVE	MDS (CSO 211)
VOGT VALVE COMPANY	901 W MAGNOLIA AVE	MDS (CSO 211)
WELDERS SUPPLY CO. OF LOU.	335 BOXLEY AVE	MDS (CSO 211)
WEST ROOFING & SUPPLY CO INC	620 INDUSTRY RD	MDS (CSO 211)
WHAYNE SUPPLY COMPANY	1400 CECIL AVE	MDS (CSO 211)
WHIP-MIX CORP	361 FARMINGTON AVE	MDS (CSO 211)
WINN-DIXIE LOGISTICS	720 LOCUST LN	MDS (CSO 211)
YELLOW FREIGHT SYSTEM INC	1400 S 34TH ST	MDS (CSO 211)
ZELLER'S HARDWARE STORE	1452 DIXIE HWY	MDS (CSO 211)
ZEOCHEM	1314 S 12TH ST	MDS (CSO 211)
BIG SPRING COUNTRY CLUB	5901 DUTCHMANS LN	Middle Fork Downstream of Breckenridge (CSO 020)
C & T TRANSMISSION CENTER	3950 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
CAVE HILL CEMETERY	701 BAXTER AVE	Middle Fork Downstream of Breckenridge (CSO 020)
CITY OF LOUISVILLE STREET REPAIR	1450 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
CITY OF LOUISVILLE, ROADS DIVISION	1450 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
COTTMAN TRANSMISSION 3949 SHELBYVILLE	3949 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
ELITE CLEANERS	137 N SHERRIN AVE	Middle Fork Downstream of Breckenridge (CSO 020)
HENDRIX JIM SERVICE CENTER	145 ST MATTHEWS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
HUBBARDS LANE CHEVRON	296 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
JAGS AUTOMOTIVE MIDAS AUTO SYSTEMS	4024 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
JIFFY LUBE INTERNATIONAL, INC. #846 4180	4180 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
LOUISVILLE EXECUTIVE AVIATION LLC	2700 GAST BLVD	Middle Fork Downstream of Breckenridge (CSO 020)
LOUISVILLE/JEFFERSON COUNTY PARKS CH	745 COCHRAN HILL RD	Middle Fork Downstream of Breckenridge (CSO 020)
MAC'S CONVENIENCE STORE DBA BIG FOOT	4300 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
METROPOLITAN PKS BRESLIN POOL	1388 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
METROPOLITAN PKS CHEROKEE GOLF CRSE	2501 ALEXANDER RD	Middle Fork Downstream of Breckenridge (CSO 020)
METROPOLITAN PKS SENECA GOLF COURSE	2300 PEE WEE REESE RD	Middle Fork Downstream of Breckenridge (CSO 020)
NEIL HUFFMAN CHRYSLER-PLYMOUTH	4136 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
NEIL HUFFMAN NISSAN 4311 SHELBYVILLE	4311 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
OXMOOR LINCOLN-MERCURY	4301 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
PALMER PRODUCTS CORP. 146 ST. MATTHE	146 ST MATTHEWS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
SAINT MATTHEWS IMPORT SERVICE, INC.	280 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
SAV A STEP #39	1400 PAYNE ST	Middle Fork Downstream of Breckenridge (CSO 020)
SERVICE PLUS CHEVRON # 5 TOM ENGLE C	4217 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SPRINGS	1099 BALMORAL DR	Middle Fork Downstream of Breckenridge (CSO 020)
ST MATTHEWS EXTERMINATING CO	129 FAIRFAX AVE	Middle Fork Downstream of Breckenridge (CSO 020)
ST MATTHEWS FEED & SEED INC	225 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
ST MATTHEWS HARDWARE	3919 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
ST. MATTHEWS FIRE PROTECTION DISTRICT	240 SEARS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
ST. MATTHEWS MOTOR PLEX INC.	4155 LYNDON WAY	Middle Fork Downstream of Breckenridge (CSO 020)
STEEPLETON COMPANY	282 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
TAFEL MOTORS	4156 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
U.S. ARMY MN SUPPORT ACTIVITY #70	2730 CANNONS LN	Middle Fork Downstream of Breckenridge (CSO 020)
VALVILINE INSTANT OIL CHANGE	4213 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
BAPTIST EAST/MILESTONE WELLNESS CENT	750 CYPRESS STATION DR	Middle Fork Upstream of Breckenridge (various)
BAPTIST HEALTHCARE SYSTEM, INC. BAPTIS	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BEHA'S CLEANERS	7907 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
BELLSOUTH COMMUNICATIONS, INC. 411 EV	411 EVERGREEN RD	Middle Fork Upstream of Breckenridge (various)
BLAIRWOOD HEALTH AND SPORT CLUB	9300 BLAIRWOOD RD	Middle Fork Upstream of Breckenridge (various)
BLUE GRASS AUTOMOTIVE LAND ROVER / J	4700 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
BLUE GRASS AUTOMOTIVE PORSCHE / SAA	4710 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
BLUE GRASS COLLISION CENTER	8011 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS SHELL	1400 S HURSTBOURNE PKY	Middle Fork Upstream of Breckenridge (various)
BOB RAY CO INC	717 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
BOB SHELBURNE'S AUTO BODY SHOP LYND	730 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
BOB WASON AND ASSOCIATES DBA GYM & S	8130 NEW LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
BOB'S MIDDLETOWN BP	12000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BP OIL COMPANY LYNDON GULF TIRE STOR	600 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
BUDGET CAR AND TRUCK SALES HUBER'S	7301 NEW LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
BURBANK CHEVRON (FORMER SITE OF CSC	1001 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
CAMDEN DEVELOPMENT, INC. HURSTBOUR	8916 MARKSFIELD RD	Middle Fork Upstream of Breckenridge (various)
CAMDEN DEVELOPMENT, INC. POST OAK AP	8000 POST OAK PL	Middle Fork Upstream of Breckenridge (various)
CAMDEN DEVELOPMENT, INC. SUNDANCE A	7716 SUNDANCE DR	Middle Fork Upstream of Breckenridge (various)
CAREFREE LAWS INC	700 BEECHWOOD RD	Middle Fork Upstream of Breckenridge (various)
CAUDILL BP DOUGLASS HILLS GULF SERVIC	10600 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
CENTRAL STATE HOSPITAL	10510 LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
CONCORD CUSTOM CLEANERS 9901 LA GRA	9901 LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
DAYS INN OF LOUISVILLE (EAST) ENTITY 94	4821 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
DIXIE DRY CLEANERS	10308 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
DORAL APARTMENTS FIRST PROPERTY MA	9400 HURSTBOURNE PARK BLVD	Middle Fork Upstream of Breckenridge (various)
DOUGLAS HILLS CONDOMINIUMS	800 LOGSDON CT	Middle Fork Upstream of Breckenridge (various)
E. P. "TOM" SAWYER STATE PARK	3000 FREYS HILL RD	Middle Fork Upstream of Breckenridge (various)
EAST END GAS & FOOD MART	815 BLANKENBAKER PKY	Middle Fork Upstream of Breckenridge (various)
FIRESTONE KEN TOWERY 11811 SHELBYVIL	11811 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
FIRESTONE KEN TOWERY'S-NO 3 7511 SHE	7511 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
FOXBORO MANOR SWIM CLUB	702 VANNAH AVE	Middle Fork Upstream of Breckenridge (various)
GOODYEAR ASSURED AUTO CARE, INC. 290	2901 GOOSE CREEK RD	Middle Fork Upstream of Breckenridge (various)
GOODYEAR ASSURED AUTO CARE, INC. 403	4037 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
GOODYEAR TIRE & RUBBER CO THE 4909 S	4909 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
GRIDER & PEARL INC. 9705 LAGRANGE ROA	9705 LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
GYM & SWIM WASON ASSOC. THIS IS SEP.	8130 NEW LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
HANNAH CLEANERS	8730 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
HURSTBOURNE COUNTRY CLUB	9000 HURSTBOURNE CLUB LN	Middle Fork Upstream of Breckenridge (various)
HURSTBOURNE PLACE	9300 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
INVERNESS CONDOMINIUM	1234 INVERARY CT	Middle Fork Upstream of Breckenridge (various)
J.C. CIGARETTE OUTLET 8730 WESTPORT R	8730 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
JAGS AUTOMOTIVE MIDAS AUTO SYSTEMS	11514 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
JAGS AUTOMOTIVE 4047 TAYLORSVILLE RO	4047 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
JEFFERSON COUNTY RECYCLING CENTER #	9300 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
JEFFRIES SHELL	9260 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
JEWISH MEDICAL CENTER EAST	3922 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
JEFF LUBE SHELBYVILLE RD	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
K M I MEDICAL CENTER TEN BROECK HOSP	8521 LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
KIEL BROS. BP # 217 1323 HURSTBOURNE LN	1323 S HURSTBOURNE PKY	Middle Fork Upstream of Breckenridge (various)
KIM'S CLEANERS	221 S HURSTBOURNE PKY	Middle Fork Upstream of Breckenridge (various)
KINDERCARE 371	1100 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
KINGSWOOD APARTMENTS	7805 ROYALTY AVE	Middle Fork Upstream of Breckenridge (various)
KROGER STORE & FUEL L-272 9236 WESTP	9236 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
KROGER STORE L-309 9812 LINN STATIONRI	9812 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
LAWNCO	8110 WARWICK AVE	Middle Fork Upstream of Breckenridge (various)
LEIS TOM SALES & SERVICE INC 12013 SHE	12013 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
LESLIE'S SWIMMING POOL SUPPLY ENTITY	9800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
LONG RUN AUTO CARE	12344 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
LOUISVILLE INDOOR RACQUET CLUB PLAN	8609 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
LYNDON FIRE DISTRICT	8126 NEW LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
LYNDON FIRE PROTECTION	8414 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
MAC'S CONVENIENCE STORE DBA BIG FOOT	9619 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
MAC'S CONVENIENCE STORE DBA BIG FOOT	1330 S HURSTBOURNE PKY	Middle Fork Upstream of Breckenridge (various)
MAC'S CONVENIENCE STORE DBA DAIRY MA	9901 LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
MAC'S CONVENIENCE STORES DBA BIGFOO	9401 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
MCMAHAN FIRE DEPT./JEFF CTY. FIRE PROT	4318 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
METROPOLITAN PKS SAWYER DISTRICT	9300 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
METROPOLITAN SEWER DISTRICT GOOSE C	7800 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
METROPOLITAN SEWER DISTRICT RUNNING	12021 RUNNING CREEK RD	Middle Fork Upstream of Breckenridge (various)
MIDDLETOWN FIRE PROTECTION DISTRICT	10217 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MIKE VILLAGE CLEANERS	11802 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NORTHEAST YMCA	9400 MILL BROOK RD	Middle Fork Upstream of Breckenridge (various)
NORTON HOSPITAL INC. DBA, NORTON SUBI	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NSS ENVIRONMENTAL, INC.	8003 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
OCHSNER'S GARAGE SERVICE 4502 SHEL	4502 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ONE HOUR MARTINIZING	12121 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
OXMOOR HYUNDAI	4520 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
OXMOOR TOYOTA	8107 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)



**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
PARK LAUREATE APARTMENTS INSIGNIA MANAGE	2050 STONY BROOK DR	Middle Fork Upstream of Breckenridge (various)
PENNZOIL 10 MINUTE OIL CHANGE CENTER	813 BLANKENBAKER PKY	Middle Fork Upstream of Breckenridge (various)
PENNZOIL OIL CHANGE	613 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
PEP BOYS AUTOMOTIVE SUPERCENTER 100	1001 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
PLAINVIEW APARTMENTS INSIGNIA MANAGE	1000 STONE SPRING WAY	Middle Fork Upstream of Breckenridge (various)
PRECISION TUNE AUTO CARE 4601 SHELBYVILLE	4601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PRESSED FOR YOU	201 MOSER RD	Middle Fork Upstream of Breckenridge (various)
ROD'S AUTOMOTIVE SVC	7917 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ROPPEL'S AUTO SERVICE CENTER ROPPEL	11601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SCOTT HALL'S IMPORTS	206 OLD HARRODS CREEK RD	Middle Fork Upstream of Breckenridge (various)
SHELBURNE'S BOB BODY SHOP	8025 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
SHIELDS SERVICE LLC	2502 HERMITAGE WAY	Middle Fork Upstream of Breckenridge (various)
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	1415 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	9416 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	12102 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	4547 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
SPINDLEWICK CONDOS	810 WASHBURN AVE	Middle Fork Upstream of Breckenridge (various)
STAR CHEMICAL CO. INC.	8027 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
STAR FORD AT OXMOOR	100 OXMOOR LN	Middle Fork Upstream of Breckenridge (various)
STEIN AUTOMOTIVE, INC. MIDDLETOWN	12200 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
STONY BROOK CHEVRON #854 FIVE STAR F	4548 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
STUDIO PLUS AT LOUISVILLE ST. MATTHEW	1401 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
SUBURBAN CLEANERS	9613 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
SUNTIME POOLS WEST	11509 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
THORNTON OIL CORP NO 102 3909 TAYLORS	3911 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
THORNTON OIL CORP. #34 605 LYNDON LN.	605 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
THORNTON OIL CORP. #97 4500 SHELBYVILLE	4500 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
TRAN'S-GO TRANSMISSION 8022 LA GRANGE	8022 NEW LA GRANGE RD	Middle Fork Upstream of Breckenridge (various)
UNIVERSITY OF LOUISVILLE SHELBY CAMPUS	9001 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE	8701 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE	11813 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE 3920 TAYLORS	3920 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
WESTBURY HARBOR APARTMENTS	1007 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
B.P. OIL COMPANY #51 1035 ZORN AVE. FORT	1035 ZORN AVE	Muddy Fork (CSO 154)
CARGILL 2601 UPPER RIVER ROAD	2601 RIVER RD	Muddy Fork (CSO 154)
DEPARTMENT OF VETERANS AFFAIRS MEDICAL	800 ZORN AVE	Muddy Fork (CSO 154)
JIM HENDRIX CHEVRON SERVICE, INC.	3002 RIVER RD	Muddy Fork (CSO 154)
LOUISVILLE WATER CO-ZORN PUMP STA	3005 RIVER RD	Muddy Fork (CSO 154)
MARINE SALES AND SERVICE	2929 RIVER RD	Muddy Fork (CSO 154)
METAL SERVICES INTERNATIONAL, INC. METAL	2033 METAL LN	Muddy Fork (CSO 154)
RIVER METALS RECYCLING RIVER CITY SHREVEPORT	2050 RIVER RD	Muddy Fork (CSO 154)
RIVER ROAD TERMINAL	2601 RIVER RD	Muddy Fork (CSO 154)
RIVER METALS	2114 METAL LN	Muddy Fork (CSO 154)
ADVANTAGE PLASTICS ENGINEERING	4524 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
AIR SYSTEMS INC	4512 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
AIRGAS FORMERLY AIRCO GAS AND GEAR, INC.	4534 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
A-LINE TOOL & DIE INC.	4158 RESERVOIR AVE	Nightingale PS (CSO 015 or South Fork CSOs)
ALL-STATE FORD TRUCK SALES	1357 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
ALPINE ICE ARENA	1825 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
APOLLO OIL LLC EXPRESS CARE (NORTH SHREVEPORT)	3028 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
ART'S SERVICE CENTER	4213 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
AUGIE'S CAR CARE	1424 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
BLAZER TRUCK LINES	1234 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
BLUEGRASS GRAPHIC SUPPLY CO INC	4340 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
C & O PRECISION COLLISION CENTER ENTERTAINMENT	3103 STOBER RD	Nightingale PS (CSO 015 or South Fork CSOs)
CALVARY CEMETARY	1600 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARITAS PEACE CENTER OUR LADY OF PEACE	2020 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
CLEAR CHANNEL COMMUNICATIONS	4000 RADIO DR	Nightingale PS (CSO 015 or South Fork CSOs)
CROSS PONTIAC-AMC-JEEP-RENAULT	1501 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
DEAN MILK	4420 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
DRY RIDGE DIST.	1234 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
FINISHMASTERS, INC		
SUITE B	4350 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
FISHEL COMPANY	4508 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
FIVE STAR FOOD MART NEWBURG CHEVRON	3333 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
FLYNN BROTHERS CONTRACTING	4620 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
FRANCK BROTHERS COLLISION CENTER 1709	1709 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
FRANK OTTE NURSERY INC	2930 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
GATEWAY PRESS, INC.	4500 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
GOODYEAR TIRE & RUBBER CO THE 3006 BARDSTOWN	3006 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
HAAS AUTO PARTS AND MACHINE	4326 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
HANCOCK ENGINEERING CORP	4427 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
HANNAH'S 1 HOUR CLEANERS	2904 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
HEAVENLY HAM	3002 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
HOWARD'S CLEANERS	1000 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
KENTUCKY ASSOCIATION OF ELECTRIC COOPERATIVES	4515 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

<b>Company Name</b>	<b>Address</b>	<b>Tributary to CSO#</b>
LAMBERT'S PAINT AND BODY SHOP	1400 BELMAR DR	Nightingale PS (CSO 015 or South Fork CSOs)
LAMINATING SERVICES, INC.	4700 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
LOUISVILLE FIRE DEPARTMENT QUINT 9 - 35	3511 FINCASTLE RD	Nightingale PS (CSO 015 or South Fork CSOs)
LOUISVILLE LUMBER & MILLWORK CO INC	1400 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
LOUISVILLE ZOOLOGICAL GARDEN	1100 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
METROPOLITAN PARKS CREASON DISTRICT	1297 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
METROPOLITAN PKS NORTON POOL	4201 LEE AVE	Nightingale PS (CSO 015 or South Fork CSOs)
NORTON AUDUBON HOSPITAL COLUMBIA, C	1 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
PREMIUM FOIL PRODUCTS CO.	4500 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
RITE-WAY EQUIPMENT CO INC	4705 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
RYDER TRUCK RENTAL, INC. SCHMITT AVEN	4150 SCHMITT AVE	Nightingale PS (CSO 015 or South Fork CSOs)
SAFETY MOVING STORAGE	3410 ROBARDS CT	Nightingale PS (CSO 015 or South Fork CSOs)
SPEEDWAY SUPERAMERICA LLC SUPERAME	4308 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
SPEEDWAY SUPERAMERICA LLC SUPERAME	4239 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
UHL TRUCK LEASE	4300 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
UNITED STATES POSTAL SERVICE	1420 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
A & A MECHANICAL, INC.	1101 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
A.R.E. MACHINE PRODUCTS	209 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
A-1 ORNAMENTAL IRON INC	4653 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AAA COOPER TRANSPORTATION	3906 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
ACCURITE MACHINE AND MANUFACTURING	4421 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ACTION TRANSMISSIONS CHANGED ADDRE	3215 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ADI	3908 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ADVANCED ENGINE EXCHANGE	1006 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
ADVANCED MECHANICAL SERVICES	4644 ILLINOIS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
AIR DYNAMICS INC.	4016 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
AIR PRODUCTS AND CHEMICALS 4505 PROD	4505 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ALL STAR TRUCKING CO HOLBERTTRUCKIN	4619 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ALL TUNE & LUBE	3305 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ALLGEIER EXCAVATING	4642 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AMAZING PRODUCTS	6214 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015
AMERICAN ROOFING AND METAL CO. 4610 R	4610 ROOFING RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AMERICAN TRANSMISSION CENTER	6313 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
AMERICOMM	5534 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
AMPRO AMER. PROFESSIONAL PEST CTRL	4627 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ANHEUSER-BUSCH INCORPORATED	4400 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
APOLLO OIL OF LOUISVILLE	1508 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
ARK SERVICES, L.L.C.	1113 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
ASHBY TRUCKING ENTERPRISES	1001 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
AST/ACME COATINGS & LININGS TECHNOLO	100 ROCHESTER DR	Northern Ditch & SW Sanitary Service Area (CSO 015
ATLANTIC AVIATION SERVICES	1131 STANDIFORD AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
AUTO BODY OF LOUISVILLE INC	6300 FERN VALLEY PASS	Northern Ditch & SW Sanitary Service Area (CSO 015
AUTO RADIATOR CO	1820 GARRS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
AUTO ZONE 3940 DIXIE HWY.	3940 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
B A MERCHANT SERVICES	1231 DURRETT LN	Northern Ditch & SW Sanitary Service Area (CSO 015
B. R. TIRES, INC.	4839 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
BARNES AUTO SERVICE	3730 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
BELLSOUTH TELECOMMUNICATIONS, INC. B	4711 ROBARDS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
BELLSOUTH TELECOMMUNICATIONS, INC. S	2201 AUBURN DR	Northern Ditch & SW Sanitary Service Area (CSO 015
BENEKE WIRE COMPANY BENEKE SPECIALT	5540 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
BETTER WAY FOOD MART	4001 CANE RUN RD	Northern Ditch & SW Sanitary Service Area (CSO 015
BILL WHITE'S KEYSTOP 4703 DIXIE HIGHWA	4703 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
BIO ADDITIVES, LLC	4820 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
BLANCHARD'S AUTO SERVICE	4106 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
BLUEGRASS COOPERAGE COMPANY	402 MACLEAN AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
BLUEGRASS KESCO, INC.	1101 INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015
BLUEGRASS SEALING & STRIPING, INC.	1420 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
BRANHAM CORPORATION	207 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
BRYAN EQUIPMENT, INC. MOVED FROM 400	4648 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
BYERLY FORD INC	4041 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
C & O GARAGE & BODY SHOP INC.	4620 BITTERSWEET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CADILLAC SIGN & DECAL	4646 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CAMP TAYLOR FIRE PROTECTION DIST.	4649 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CARDINAL MANUFACTURING	225 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CARRIER VIBRATING EQUIPMENT, INC.	3400 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CAVALIER PRINTING INK	455 DOWNES TER	Northern Ditch & SW Sanitary Service Area (CSO 015
CENTRAL TRANSPORT INC	4520 MASON DIXON LN	Northern Ditch & SW Sanitary Service Area (CSO 015
CHEMCENTRAL/LOUISVILLE	1825 APPLETON LN	Northern Ditch & SW Sanitary Service Area (CSO 015
CHEMSTATION	4811 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CHURCHILL DOWNS TRACKSIDE CHURCHIL	4520 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CLIFFORD'S INC PAINT & BODY SHOP 4432 F	4432 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CLIFFORD'S-RADIATOR & AIR CTNG SCV SE	4436 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CLINTON KORPHAGE NURSERY	1823 HEATON RD	Northern Ditch & SW Sanitary Service Area (CSO 015
COFFEY'S, INC. 4534 POPLAR LEVEL ROAD	4534 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
COMMONWEALTH DODGE	6408 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
COMMONWEALTH ROOFING CORP	1449 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

<b>Company Name</b>	<b>Address</b>	<b>Tributary to CSO#</b>
COOK & REEVES CARS, INC. DBA SUPERIOR	4734 ROCKFORD PLZ	Northern Ditch & SW Sanitary Service Area (CSO 015
CORPORATE HANGER LLC	1179 STANDIFORD CT	Northern Ditch & SW Sanitary Service Area (CSO 015
COTTMAN TRANSMISSION 3121 FERN VALLE	3221 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CRAWFORD EXCAVATING	1433 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CUNAGINS AUTOMOTIVE	4610 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CUNDIFF CONSTRUCTION COMPANY, INC.	5800 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CUSTOM PACKAGING, INC.	4841 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
D & F ELECTRIC, INC.	4616 BITTERSWEET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
D.P.W. SERVICES DERBY PRESSURE WASH	908 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
DACCO/ DETROIT OF KENTUCKY	3899 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DAVIS MEDICAL	4802 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DAWN FOOD PRODUCTS	6303 KENJOY DR	Northern Ditch & SW Sanitary Service Area (CSO 015
DELI DELIGHTS FOOD SERVICE	3306 GILMORE INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015
DEPENDABLE AUTO REPAIR	4935 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DERBY WELDING & WELDING MACHINE CO I	4624 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DIXIE WAREHOUSE & CARTAGE BUILDING 10	7929 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
DIXIE WAREHOUSE & CARTAGE CO	6406 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
DIXIE WAREHOUSE SERVICES HAZARDOUS	7735 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
DO ALL INC.	3309 GILMORE INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015
DOVER ELEVATOR COMPANY 5670 SHEPHE	5670 SHEPHERDSVILLE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
EVERGREEN CEMETERY	4623 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
FABRICATED METALS CORPORATION	6300 KENJOY DR	Northern Ditch & SW Sanitary Service Area (CSO 015
FAURECIA EXHAUST SYSTEMS LOUISVILLE	4415 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
FEDERAL AVIATION ADMINISTRATION LOUIS	4857 CRITTENDEN DR	Northern Ditch & SW Sanitary Service Area (CSO 015
FEDERAL EXPRESS CORP. SORT WAREHOU	4901 CRITTENDEN DR	Northern Ditch & SW Sanitary Service Area (CSO 015
FIRST STOP FOOD MART (MORE 4 LESS)	4903 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
FIVE STAR FOOD MART 2720 CRUMS LANE	2720 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
FLEET MAINTENANCE USA	4602 BITTERSWEET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
FORD MOTOR COMPANY LOUISVILLE ASSEM	2000 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
FOURTH STREET AUTO	5109 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
GENERAL ELECTRIC CONSUMER PRODUCTS	4000 BUECHEL BANK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
GRAND AIRE EXPRESS	1151 STANDIFORD AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
GRAPHIC SCIENCES INC.	3328 GILMORE INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015
GRAPHIC WORKS LLC	1504 PETUNIA AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
GREENLEE TEXTRON, INC. TEXTRON, INC. B	4601 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
H & S HARDWARE 5416 PRESTON HIGHWA	5416 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
HABANA AUTO SERVICE	6309 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015
HAZELWOOD CENTER	1800 OLD BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
HIGHLAND ROOFING COMPANY	4007 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
HIGHWAY MILLING CO.	258 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
HIGHWAY STRUCTURES, INC. GUST K. NEW	4623 ILLINOIS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
HINES UNION SERVICE CENTER	5311 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
HOLIDAY INN	4110 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
HORTON FRUIT	4701 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
HOSTMANN-STEINBERG INC NATIONAL PRIM	4825 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
HS SPRING GROUP OF KY.	3805 BUSINESS PARK DR	Northern Ditch & SW Sanitary Service Area (CSO 015
IKE'S AUTO SERVICE	7110 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
ILARI AUTO SERVICE, INC.	4326 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
INDUSTRIAL CARBIDE SAW & TOOL CORP	3810 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
IRVING MATERIALS INC. AMERICAN BUILDEF	1440 SELINDA AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
IVAN WARE & SON, INC.	4005 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
J.C. CIGARETTE OUTLET 2714 CRUMS LN.	2714 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
JAGS AUTOMOTIVE MIDAS AUTO SYSTEMS	4516 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
JAGS AUTOMOTIVE DBA MIDAS AUTO SYSTE	5601 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFF COUNTY PUBLIC WKS SECOND DIST	3528 NEWBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFF/COUNTY TRANSPORTATION GARAGE	3528 NEWBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFFERSON COUNTY PUBLIC SCHOOLS NICH	3686 PARTHENIA AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFFERSON COUNTY PUBLIC WORKS HEAV	3528 NEWBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFFERSON COUNTY RECYCLING CENTER #	3528 NEWBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JEWELL ENGINEERING & MFG CO INC	4812 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JIFFY LUBE 6508 PRESTON HWY. BLUEGRAS	6508 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
JIM BROWN AUTO SALES	4719 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JIM VINCENT BODY SHOP	4411 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
JUNGBERT CORPORATION	7141 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
KEN TOWERY FIRESTONE 6919 SOUTHSIDE	6919 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
KENTUCKIANA AUTO STORAGE POOL	4420 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KENTUCKIANA LAWN CARE INC.	4441 KILN CT	Northern Ditch & SW Sanitary Service Area (CSO 015
KENTUCKY AIR NATIONAL GUARD	1101 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
KENTUCKY ASSOCIATION OF ELECTRICAL C	4300 CHAMPIONS TRACE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
KIRK NATIONALLEASE	3939 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KROGER STORE & FUEL L-191	3917 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KUSTES HYDRAULICS	4623 PINEWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LEWIS CONCRETE CONSTRUCTION	1330 TILE FACTORY LN	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE/JEFFERSON COUNTY PARKS IRO	1080 AMPHITHEATER RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LOSE BROS. 4530 POPLAR LEVEL RD	4530 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE COOLER MFG CO.	7635 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
LOUISVILLE DRYWALL SHARED ADDRESS A	4743 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE FIRE DEPARTMENT ENGINE 12 -	4535 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE GAS & ELECTRIC COMPANY AUE	6900 ENTERPRISE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE GAS & ELECTRIC COMPANY SOL	4664 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE METRO PUBLIC WORKS SECONI	3528 NEWBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
LOUISVILLE SEALCOAT COMPANY, INC.	4610 SCHUFF AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
L-V DISTRIBUTORS INC	4719 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MAC'S CONVENIENCE STORE DBA BIG FOOT	4100 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MAC'S CONVENIENCE STORE DBA BIG FOOT	4301 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MAC'S CONVENIENCE STORE DBA BIG FOOT	3400 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
MAC'S CONVENIENCE STORE DBA DAIRY MA	5001 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MARTIN & MCDONALD CO. 4650 ASTOR ROA	4650 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
MCW GRAPHICS IMC WEB GRAPHICS	4200 CHAMPIONS TRACE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
MEDLEY'S AUTO CARE	3955 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
METROPOLITAN LINCOLN MERCURY INC 650	6507 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
METROPOLITAN PKS WESTERN POOL	2501 ROCKFORD LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
METROPOLITAN SEWER DISTRICT NORTHEF	341 MAC BRAE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
MICHEL TIRE CO. TIRES PLUS - 6108 PRESTO	6108 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MIKE PROTT TRANSMISSION CENTER	1400 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
MITCHELL MOORE ENTERPRISES SPECIAL IN	4635 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
MONTGOMERY CHEVROLET	5325 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
MORRIS ELECTRIC COMPANY INC.	3933 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
MR. MUFFLER #2 AUTO UNLIMITED SERVICE	4915 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
NATIONS RENT JOB RENTALS & SALES	3816 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
NEILL-LAVIELLE - STEEL PLANT 1 - 4575 JENI	4575 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
NELSON B. BOONE CO., INC	6330 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
NOLAN RAY ROOFING CO.	4608 ILLINOIS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
PAPERONE CORP.	3200 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
PARRISH TRACTOR	3921 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
PENSKE TRUCK LEASING HERTZ-PENSKE T	4300 PETERSBURG RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
PEP BOYS AUTOMOTIVE SUPERCENTER 560	5607 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
PETERSON GMC-KENWORTH INC 4330 POP	4330 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
POLYMERICA	4026 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
PPG ARCHITECTURAL FINISHES, INC. LOUIS	6804 ENTERPRISE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
PRESTON HIGHWAY METERED CONCRETE	1122 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
PRESTON RADIATOR & AIR CONDITIONING	5212 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
PROGRESS RAIL SERVICE	3000 INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015)
PURINA MILLS, INCORPORATED	3001 INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015)
QUALITY CONTAINERS	6300 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
QUICK FUEL	3700 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
RAAPS AUTO BODY	3904 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
RAYTHEON COMPANY LOUISVILLE BUILDING	6201 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
RC-CANADA DRY BOTTLING CO.	6207 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
REPUBLIC SERVICES OF KENTUCKY TRANS	4446 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
REYNOLDS METALS COMPANY PLANT NO. 1	4301 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
RIVER CITY TRUCK PARTS, INC.	1007 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
RIVERSIDE PAVING & CONTRACTING	263 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
ROADWAY EXPRESS INC.	4715 PINWOOD RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
ROCKET CLEANERS	4525 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
RUDD EQUIPMENT CO.	4344 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
S & S TIRE	5203 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SAFETY KLEEN CORP. EILER AVENUE FACIL	261 EILER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
SAM'S AUTO WASH 4419 DIXIE HWY. HOT SP	4419 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SCHNELL CONTRACTORS INC	1343 TILE FACTORY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
SCOTT-GROSS CO.	4392 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SEARS AUTO CENTER	4115 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SEXTON INSULATION	4024 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SHERWIN WILLIAMS 4702 POPLAR LEVEL RD	4702 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SHERWIN WILLIAMS BLENDING FACILITY	4702 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SHIVELY WOOD PRODUCTS	1951 APPLETON LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
SHORT STOP / CITGO FOOD MART	4953 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SMITH'S LAMINATING SHOP INC	7755 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015)
SMURFIT-STONE CONTAINER ENTERPRISES	6820 ENTERPRISE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
SOUTH END SERVICES INC.	436 DOWNES TER	Northern Ditch & SW Sanitary Service Area (CSO 015)
SOUTHERN WATER TREATMENT SERVICES	4340 SANITA CT	Northern Ditch & SW Sanitary Service Area (CSO 015)
SP RECYCLING COMPANY FORMERLY REPU	2000 INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPECIALTY PRODUCTS & INSULATION CO.	3899 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPECIALTY TOOL CO., INC.	3331 GILMORE INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY #3704	5608 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SPEEDWA	6000 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SPEEDWA	4417 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SPEEDWA	4565 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SUPERAM	4720 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SUPERAM	7400 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SUPERAM	3915 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SPEEDWAY SUPERAMERICA LLC SUPERAM	6821 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
SPORTPAINT PLANT #2	4015 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
STAUBLE MACHINE & TOOL COMPANY, INC.	1427 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
STEWART MECHANICAL ENTERPRISES INC.	757 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
STRONG HOLD PRODUCTS	6210 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
SUBURBAN WRECKER SERVICE	1006 INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SUD-CHEMIE INC. SOUTH PLANT UNITED CA	4900 CRITTENDEN DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
SWIFTY OIL COMPANY 4243 PRESTON	4243 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SWIFTY SERVICE STA. #188 5389 NEW CUT	5383 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
SWIFTY SERVICE STATION #22	3611 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
SYSCO LOUISVILLE FOOD SVC CO 7705 NAT	7705 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015)
T.B.A. INC.	6700 ENTERPRISE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
TEXACO XPRESS LUBE CORPORATE NAME	5429 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
THORNTON FOOD MART #96, 4516 POPLAR L	4516 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
THORNTON OIL CORP # 41, 5318 PRESTON H	5318 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
THORNTON OIL CORP #21, 2700 FERN VALLE	2700 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
THORNTON OIL CORP NO 50 4520 DIXIE HIG	4520 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
TODD'S RADIATOR SERVICE 2005 CRUMS L	2005 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
TOM BROWN CONSTRUCTION CO.	7965 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015)
TOM'S AUTOMOTIVE SERVICE	5900 SHEPHERDSVILLE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
TONY'S BRAKE AND ALIGNMENT SERVICE	4800 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
TOP WORX GENERAL EQUIPMENT & MFG CO	3300 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
TOWN & COUNTRY FORD INC 6015 PRESTO	6015 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
TRIDEN CONSTRUCTION SUPPLY, INC.	4504 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
TYRA ROOFING & SHEET METAL COMPANY	3921 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
U.S. ARMY RESERVE CENTER	1101 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
U-HAUL CENTER OF PRESTON STREET 4612	4612 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
UNITED PARCEL SERVICE GRADE LANE FAC	911 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
UNITED RENTALS BLACKBURN TRAILER & E	4019 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
UNIVAR USA INC. VAN WATERS & ROGERS	6800 ENTERPRISE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
USF HOLLAND	3906 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
UTILITY METALS DIV OF FABRICATED METAL	6210 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
VALLEY CREST LANDSCAPE MANAGEMENT	4510 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
VALVOLINE INSTANT OIL CHANGE 3912 SEV	3912 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
VALVOLINE INSTANT OIL CHANGE 7401 THIF	7401 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
VANTAGE CONTRACTING INC.	1119 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
VEH-I-CYCLE INCORPORATED	4620 ASTOR RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
VINCENT QUALITY AUTO CARE	1357 GILMORE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
WEYERHAEUSER COMPANY	1360 DURRETT LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
WHITEHOUSE IRVIN H & SONS CO.	4600 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
WIMSATT BROTHERS INC	4400 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
WIRECRAFTERS INC.	6208 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
WYNN STARR FOODS OF KENTUCKY DRYMI	4820 ALLMOND AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
YA-HA, INC. DBA SHOPPER'S KWIK SHOP	1629 GAGEL AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
BELLSOUTH COMMUNICATIONS, INC. 3323 F	3323 FREYS HILL RD	ORFM (CSO 211)
BELLSOUTH COMMUNICATIONS, INC. 9100 V	9100 WESTPORT RD	ORFM (CSO 211)
BOB SMITH CHEVROLET	10500 WESTPORT RD	ORFM (CSO 211)
BP OIL COMPANY - # 62 10490 WESTPORT F	10490 WESTPORT RD	ORFM (CSO 211)
CONCORD CUSTOM CLEANERS LIME KILN LN	2420 LIME KILN LN	ORFM (CSO 211)
HOLIDAY CLEANERS, INC. JOHN COPE THE	2229 HOLIDAY MANOR CTR	ORFM (CSO 211)
HOLIDAY MANOR BP OIL	4944 U S HIGHWAY 42	ORFM (CSO 211)
JEFF/COUNTY PUBLIC WKS FIRST DIST	595 N HUBBARDS LN	ORFM (CSO 211)
JEFFERSON COUNTY PUBLIC WORKS 1ST D	595 N HUBBARDS LN	ORFM (CSO 211)
JEFFERSON COUNTY RECYCLING CENTER #	595 N HUBBARDS LN	ORFM (CSO 211)
MAC'S CONVENIENCE STORE DBA DAIRY MA	8001 BROWNSBORO RD	ORFM (CSO 211)
MEIJER INC. STORE #164 4100 TOWNE CENT	4100 TOWNE CENTER DR	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT BANCROF	7610 OLD ORCHARD CIR	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT HILLSDAL	3727 HILLSDALE RD	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT MUDDY F	2120 INDIAN HILLS TRL	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT OLD BRO	7302 BROWNSBORO RD	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT PHOENIX	2630 PHOENIX HILL DR	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT WEST GC	6600 SEMINARY WOODS PL	ORFM (CSO 211)
METROPOLITAN SEWER DISTRICT WOODS	2835 AVENUE OF THE WOODS	ORFM (CSO 211)
SERVICE PLUS CHEVRON # 4 HOLIDAY MAN	4900 BROWNSBORO RD	ORFM (CSO 211)
SPEEDWAY SUPERAMERICA LLC SPEEDWA	4150 WESTPORT RD	ORFM (CSO 211)
SPEEDWAY SUPERAMERICA LLC SUPERAM	9500 BROWNSBORO RD	ORFM (CSO 211)
SPRINGDALE AUTOMOTIVE CENTER FREIBE	8005 BROWNSBORO RD	ORFM (CSO 211)
STANDARD COUNTRY CLUB	8208 STANDARD CLUB LN	ORFM (CSO 211)
SWIFTY SERVICE STATION # 274	4946 U S HIGHWAY 42	ORFM (CSO 211)
THE HOME DEPOT, STORE #2305	10301 WESTPORT RD	ORFM (CSO 211)
THE WOODS OF ST. THOMAS CLUBHOUSE	6701 FALLEN LEAF CIR	ORFM (CSO 211)
THORNTON	4950 BROWNSBORO RD	ORFM (CSO 211)
THORNTON OIL CORP NO. 57	10320 WESTPORT RD	ORFM (CSO 211)
VALVOLINE INSTANT OIL CHANGE	4935 BROWNSBORO RD	ORFM (CSO 211)
VANCE'S TRUE VALUE HARDWARE	9200 WESTPORT RD	ORFM (CSO 211)
KROGER FUEL L-764	9501 WESTPORT RD	ORFM (CSO 211)
CASTROL	4510 BELLS LN	Rubbertown FM (None)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

Company Name	Address	Tributary to CSO#
DUPONT PERFORMANCE ELASTOMERS	4242 CAMP GROUND RD	Rubbertown FM (None)
E.I. DU PONT DE NEMOURS & CO., INC. DUPON	4200 CAMP GROUND RD	Rubbertown FM (None)
ECKART AMERICA CORPORATION	4101 CAMP GROUND RD	Rubbertown FM (None)
NOVEON, INC. PMG GROUP, & B.F.GOODRIC	4200 BELLS LN	Rubbertown FM (None)
ROHM AND HAAS CHEMICALS LLC - LOUISVILLE PLANT		
	4300 CAMP GROUND RD	Rubbertown FM (None)
TRANS MONTAIGNE TERMINALING INC. ITAF	4510 BELLS LN	Rubbertown FM (None)
ZEON CHEMICALS L.P.	4100 BELLS LN	Rubbertown FM (None)
AB LANDSCAPING, INC.	6616 SIX MILE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
ABEL CONSTRUCTION COMPANY, INC. ABEL	3401 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
ACE EXTERMINATING CO.	3826 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
ALL TUNE AND LUBE 2129 OLD SHEPHERDS	2129 OLD SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
AMERICAN BRAKE CENTER	3435 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
ARMY NATIONAL GUARD BUECHEL ARMORY	4815 PROGRESS BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
AUTO ZONE 2231 HIKES LN.	2221 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
AVERITT EXPRESS, INC.	4020 MCCOLLUM CT	Southeast Diversion (CSO 015 or South Fork CSOs)
BACHMAN CHEVROLET	9650 BLUEGRASS PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
BACHMAN SUBARU	1851 EMBASSY SQUARE BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
BACHMAN VOLKSWAGEN	9652 BLUEGRASS PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
BELLSOUTH COMMUNICATIONS, INC. SOUTH	3719 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BELLSOUTH COMMUNICATIONS, INC. 7500 T	7500 TEMPSCLAIR RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BELLSOUTH TELECOMMUNICATIONS, INC. 4	4711 PROGRESS BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
BILL COLLINS FORD	4220 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BILL ETSCORN BODY SHOP	3933 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BILL ETSCORN'S SERVICE CENTER 2930 HIK	2930 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BILL'S BODY SHOP	3718 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BOB HOOK CHEVY CENTER	4144 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BRECKINRIDGE SQUARE APARTMENTS INSID	203 BRECKINRIDGE SQ	Southeast Diversion (CSO 015 or South Fork CSOs)
BROWN JERRY SUPER SHELL	2911 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BUECHEL CHEVRON 3700 BARDSTOWN RD.	3700 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BUECHEL FIRE DEPARTMENT	4101 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CHURCHILL PARK APARTMENTS	7204 CHURCHILL PARK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
COMET 1 HOUR CLEANERS & LAUNDRY BAR	3607 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CRENSHAW EXCAVATING CO	4009 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CROWN CASTLE USA HIKES POINT LUV057	3034 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
D G INDUSTRIES 3918 BARDSTOWN RD., BLE	3918 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DAIRY FARMER'S OF AMERICA DAIRYMAN, H	3941 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DERMATOPATHOLOGY CONSULTANTS PCS	2211 GREENE WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
ENTECH	2110 REYNOLDS LN	Southeast Diversion (CSO 015 or South Fork CSOs)
FIRESTONE KEN TOWERY'S-NO 2	3421 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
GREASE JOCKEY QUIK LUBE 3453 BRECKINF	3453 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HALLS BODY SHOP THE	3947 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
HARPER'S CHEVRON SERVICE CENTER 4219	4219 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
HERITAGE ENVIRONMENTAL SERVICES, INC	4925 HELLER ST	Southeast Diversion (CSO 015 or South Fork CSOs)
IVY HILL CORPORATION COURIER GRAPHIC	4325 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
J.C. CIGARETTE OUTLET 6620 SIX MILE LN.	6620 SIX MILE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
JR VOLVO 2211 BUECHEL AVE.	2211 BUECHEL AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
KEIL BROTHERS BRECKINRIDGE PLAZA GUL	3401 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KIEL BROS. BP#55	4213 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER STORE & FUEL L-346 3039 BRECKE	3039 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER STORE & FUEL L-367	9080 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
L. HAROLD HARPER'S CHEVRON #1, INC. 292	2925 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
LOWE'S HOME IMPROVEMENT WAREHOUSE	2100 BASHFORD MANOR LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MAC'S CONVENIENCE STORE DBA DAIRY MA	3927 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MAC'S CONVENIENT STORE DBA DAIRY MAR	5000 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MEDLEY'S AUTO & TRUCK ALIGN SERVICE IN	3913 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MEIJER INC. STORE #160 4500 S. HURSTBOU	4500 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
MEINEKE DISCOUNT MUFFLERS 4170 BARD	4170 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
METROPOLITAN PKS WATTERSON POOL	3900 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MICHEL TIRE CO, TIRES PLUS - 4515 BARD	4515 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MID AMERICA AUTO AUCTION	3515 NEWBURG RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MR TRANSMISSION 3014 HUNSINGER LANE	3014 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MUFFLERS AND MORE	4133 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
ONE HOUR MARTINIZING MERAH, INC.	2723 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
RJF INTERNATIONAL	4700 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
S & S TRANSMISSION	4163 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM MEYERS	3400 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE / SATURN OF LOUISVILLE THE	2 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE BMW / LEXUS SWOPE AUTOC	4 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE CADILLAC 6 SWOPE AUTOCEN	6 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE HONDA COURTESY SUZUKI	1 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE MITSUBISHI	5 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM SWOPE PONTIAC-BUICK 7 SWOPE AUT	7 SWOPE AUTOCENTER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
SPEEDWAY SUPERAMERICA LLC SUPERAMI	3741 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
SPEEDWAY SUPERAMERICA LLC SUPERAMI	4527 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)

**TABLE 4-4  
HMPC PLANS WITHIN MFWTP SERVICE AREA**

<b>Company Name</b>	<b>Address</b>	<b>Tributary to CSO#</b>
SPEEDWAY SUPERAMERICA LLC SUPERAMERICA	2965 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
STRUCTURAL DESIGN MANUFACTURING, INC	4520 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TEMPLE-INLAND INLAND PAPERBOARD AND	4201 OLD SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
THE HOME DEPOT	2600 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
THORNTON OIL #24 3710 TAYLORSVILLE RO	3710 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
THORNTON OIL CORP #54	4154 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
THORTON OIL COMPANY	3726 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
U-HAUL CENTER OF BARDSTOWN 4128 BAR	4128 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
VALVOLINE INSTANT OIL CHANGE	3604 BUECHEL BYP	Southeast Diversion (CSO 015 or South Fork CSOs)
VALVOLINE INSTANT OIL CHANGE	3820 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
VALVOLINE INSTANT OIL CHANGE 8601 CITA	8601 CITADEL WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
WAL-MART	1915 S HURSTBOURNE PKY	Southeast Diversion (CSO 015 or South Fork CSOs)
WEYERHAEUSER COMPANY FORMERLY WIL	4400 PROGRESS BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
WINDSOR GATE COUNCIL OF CO-OWNERS	8601 AMBROSSE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
LOUISVILLE WATER COMPANY CRESCENT H	3018 FRANKFORT AVE	Water Co

**TABLE 4-5  
SUMMARY OF HOSPITAL MONITORING DATA**

Hospital Name: Norton Audubon Hospital  
 Tributary to CSO: Nightingale PS (CSO015 or South Fork CSOs)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.094	0.117	0.134	0.153	0.096	0.153
BOD, mg/L	568	239	255	193	241	235
COD, mg/L	1433	418	477	442	409	586
TSS, mg/L	569	262	236	201	236	320
Silver, mg/L	0.0664	0.1180	0.0801	0.1620	0.0913	0.0878
Mercury, µg/L	0.2734	0.1525	0.2103	0.2038	0.3000	0.1000
Oil and Grease, mg/L	7	10	55	4	6	33
pH, standard units	7.7	7.0	7.2	7.3	7.6	7.5

Hospital Name: Baptist Healthcare System East  
 Tributary to CSO: Middle Fork Upstream of Breckenridge (Various)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.228	0.221	0.238	0.205	0.200	0.223
BOD, mg/L	170	193	199	315	210	217
COD, mg/L	304	315	344	672	290	273
TSS, mg/L	120	126	188	202	117	152
Silver, mg/L	0.0527	0.1280	0.1340	0.1270	0.0892	0.0370
Mercury, µg/L	0.1100	0.0974	0.2009	0.0772	0.1000	
Oil and Grease, mg/L	14	8	6	6		11
pH, standard units	7.2	6.5	7.1	7.0	7.0	7.4

Hospital Name: Norton Healthcare Southwest  
 Tributary to CSO: None - West County

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.016	0.027	0.002	0.056	0.032	0.027
BOD, mg/L	185	132	185	174	250	207
COD, mg/L	385	253	454	466	589	531
TSS, mg/L	174	134	201	132	207	205
Silver, mg/L	0.1007	0.1394	0.1387	0.0385	0.0753	0.0518
Mercury, µg/L	0.1933	0.1799	0.2000	0.0948	0.0150	
Oil and Grease, mg/L	9	5	5	5	6	15
pH, standard units	7.4	7.1	7.4	7.3	7.3	7.3

Hospital Name: Kosair Children's Hospital  
 Tributary to CSO: CSO118 (SFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.019	0.028	0.029	0.026	0.021	0.027
BOD, mg/L	173	193	146	194	184	185
COD, mg/L	402	339	404	478	464	337
TSS, mg/L	47	165	171	292	253	169
Silver, mg/L	0.0056	0.0667	0.0190	0.0161	0.0030	0.0013
Mercury, µg/L	0.6000	0.6173	0.3714	1.2011	0.5000	0.3333
Oil and Grease, mg/L	8	5	13	8	5	9
pH, standard units	7.9	7.8	7.6	7.6	7.4	7.5



**TABLE 4-5  
SUMMARY OF HOSPITAL MONITORING DATA**

Hospital Name: U of L Medical Center  
Tributary to CSO: CSO118 (SFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.044	0.047	0.038	0.039	0.096	0.057
BOD, mg/L	221	209	186	183	180	337
COD, mg/L	504	502	427	464	350	879
TSS, mg/L	255	231	143	220	176	460
Silver, mg/L	0.0635	0.2772	0.0662	0.0083	0.0104	0.0079
Mercury, µg/L	0.4023	0.2462	0.2505	0.1806	0.2078	
Oil and Grease, mg/L	19	5	8	7	12	14
pH, standard units	7.7	7.8	7.6	7.5	7.9	7.6

Hospital Name: Jewish Hospital  
Tributary to CSO: Ohio River

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.111	0.135	0.098	0.105	0.085	0.094
BOD, mg/L	405	315	168	158	200	135
COD, mg/L	768	607	431	326	354	253
TSS, mg/L	399	227	129	131	160	154
Silver, mg/L	0.1505	0.1843	0.0631	0.0100	0.0100	0.0102
Mercury, µg/L	0.1314	0.2158	0.1852	0.4000	0.1641	0.2000
Oil and Grease, mg/L	13	18	14	30	29	10
pH, standard units	7.4	7.4	7.5	8.1	7.6	7.3

Hospital Name: Norton Alliant Pavilion  
Tributary to CSO: CSO118 (SFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.028	0.024	0.016	0.022	0.020	0.015
BOD, mg/L	180	252	177	284	250	201
COD, mg/L	489	478	474	507	587	420
TSS, mg/L	84	233	175	178	287	98
Silver, mg/L	0.0420	0.1017	0.0215	0.0281	0.0040	0.0063
Mercury, µg/L	0.4425	0.7259	0.4666	0.3685	0.5000	0.4667
Oil and Grease, mg/L	14	6	12	16	7	11
pH, standard units	7.8	7.3	7.4	7.6	7.3	7.4

Hospital Name: Norton Hospital  
Tributary to CSO: Ohio River

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.030	0.033	0.044	0.035	0.048	0.074
BOD, mg/L	289	267	244	321	313	925
COD, mg/L	583	645	601	833	633	1684
TSS, mg/L	148	159	203	282	295	1536
Silver, mg/L	0.0271	0.0015	0.0014	0.0016	0.0013	0.0016
Mercury, µg/L	0.3875	0.3728	0.2704	0.3500	0.6902	0.2500
Oil and Grease, mg/L	8	13	16	18	9	21
pH, standard units	7.7	7.5	7.9	8.1	7.8	8.2

**TABLE 4-5  
SUMMARY OF HOSPITAL MONITORING DATA**

Hospital Name: Caritas Medical Center  
Tributary to CSO: CSO015 (Ohio River)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.054	0.050	0.047	0.033	0.039	0.036
BOD, mg/L	218	177	169	257	283	223
COD, mg/L	488	378	352	493	600	450
TSS, mg/L	169	215	136	244	312	177
Silver, mg/L	0.0821	0.1358	0.0510	0.0823	0.0381	0.0494
Mercury, µg/L	0.2508	0.2381	0.1912	0.2217	0.0060	
Oil and Grease, mg/L	6	4	8	5	5	
pH, standard units	8.0	7.0	7.9	8.1	7.6	7.8

Hospital Name: Kindred Hospital  
Tributary to CSO: CSO083 (SFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.016	0.011	0.014	0.017	0.024	0.015
BOD, mg/L	69	133	109	130	140	252
COD, mg/L	138	151	287	194	237	523
TSS, mg/L	167	67	174	220	167	324
Silver, mg/L	0.0150	0.0929	0.0444	0.0423	0.0714	0.0600
Mercury, µg/L	0.0750	0.1043	0.5766	0.1088	0.1000	
Oil and Grease, mg/L	8	2	6	4	1	5
pH, standard units	7.0	6.7	7.5	7.1	7.3	7.3

Hospital Name: Norton Healthcare Suburban  
Tributary to CSO: Middle Fork Upstream of Breckenridge (Various)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.064	0.073	0.085	0.083	0.095	0.120
BOD, mg/L	336	178	144	97	95	112
COD, mg/L	446	428	347	198	274	254
TSS, mg/L	78	242	164	74	178	129
Silver, mg/L	0.0664	0.1180	0.0801	0.1620	0.0913	0.0878
Mercury, µg/L	0.5000	0.1815	0.1749	0.2869	0.2000	0.2000
Oil and Grease, mg/L	6	5	7	6	6	11
pH, standard units	8.3	7.2	7.9	7.8	7.6	7.8

Hospital Name: Veterans Medical Center  
Tributary to CSO: CSO154 (MuddyFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD	0.100	0.086	0.110	0.128	0.134	0.151
BOD, mg/L	209	307	179	201	267	167
COD, mg/L	516	499	486	435	837	430
TSS, mg/L	199	186	225	188	339	222
Silver, mg/L	0.0553	0.2353	0.0642	0.0546	0.0098	0.0147
Mercury, µg/L	0.4833	0.4174	0.4160	0.4788	0.3536	0.0092
Oil and Grease, mg/L	50	5	13	9	9	14
pH, standard units	7.9	8.6	8.3	9.0	8.1	8.8

**TABLE 4-5  
SUMMARY OF HOSPITAL MONITORING DATA**

Hospital Name: UofL HealthScienceCampus  
 Tributary to CSO: CSO118 (SFBGC)

Parameters	2000	2001	2002	2003	2004	2005
Flow, MGD						
BOD, mg/L	45	41	56	10		
COD, mg/L	172	78	117	30		
TSS, mg/L	30	31	21	10		
Silver, mg/L	0.0127	0.1000	0.0516	0.0100		
Mercury, µg/L	0.8000	0.8500	1.7031	0.8833		
Oil and Grease, mg/L	5	6	5	5		
pH, standard units	7.2	6.5	8.6	8.2		

**TABLE 4-6  
303(d) LIST OF WATERS FOR JEFFERSON COUNTY KENTUCKY**

<b>Stream Name</b>	<b>Reach (Mile)</b>	<b>Impaired Use(s)</b>	<b>Pollutant(s)</b>	<b>Suspected Sources</b>	<b>Status</b>
Beargrass Creek of Ohio River	River Mile 0.0 - 1.5	Aquatic Life (Nonsupport)	Metals (cadmium), Organic Enrichment/Low DO	Municipal Point Sources, Combined Sewer Overflows, Urban Runoff/Storm Sewers, Land Disposal	1st Priority
Middle Fork Beargrass Creek of Beargrass Creek	River Mile 2.3 - 15.2	Aquatic Life (Nonsupport)	Organic Enrichment/Low DO	Municipal Point Sources, Industrial Point Sources, Urban Runoff/Storm Sewers, Land Disposal, Combined Sewer Overflows, Sanitary Sewer Overflows	Delisted
Middle Fork Beargrass Creek of Beargrass Creek	River Mile 0.0 - 2.3	Aquatic Life (Nonsupport), Swimming (Nonsupport)	Organic Enrichment/Low DO, Habitat Alteration (other than flow), Metals (cadmium), Pathogens	Combined Sewer Overflows, Urban Runoff/Storm Sewers, Hydromodification (Channelization)	1st Priority
Middle Fork Beargrass Creek of Beargrass Creek	River Mile 2.3 - 15.2	Swimming (Nonsupport), Aquatic Life (Partial Support)	Pathogens, Metals (Cadmium)	Urban Runoff/Storm Sewer, Land Disposal, Combined Sewer Overflows, Sanitary Sewer Overflows	1st Priority
Muddy Fork of Beargrass Creek	River Mile 0.0 - 6.9	Swimming (Nonsupport)	Pathogens	Industrial Point Sources, Municipal Point Sources, Urban Runoff/Storm Sewers, Land Disposal	1st Priority
South Fork Beargrass Creek of Beargrass Creek	River Mile 0.0 - 2.7	Aquatic Life (Partial Support), Swimming (Nonsupport)	Metals (cadmium), Pathogens, Organic Enrichment/Low DO	Municipal Point Sources, Urban Runoff/Storm Sewers, Land Disposal, Combined Sewer Overflows, Sanitary Sewer Overflows	1st Priority
South Fork Beargrass Creek of Beargrass Creek	River Mile 2.7 - 14.6	Swimming (Nonsupport), Aquatic Life (Partial Support)	Pathogens, Organic Enrichment/Low DO	Municipal Point Sources, Urban Runoff/Storm Sewers, Land Disposal, Combined Sewer Overflows, Sanitary Sewer Overflows	1st Priority

**TABLE 4-6  
303(d) LIST OF WATERS FOR JEFFERSON COUNTY KENTUCKY**

<b>Stream Name</b>	<b>Reach (Mile)</b>	<b>Impaired Use(s)</b>	<b>Pollutant(s)</b>	<b>Suspected Sources</b>	<b>Status</b>
Ohio River	River Mile 317.1 - 981.0	Fish Consumption (Partial Support)	Chlordane		Delisted
Ohio River	River Mile 606.8 - 609.7	Swimming (Nonsupport), Fish Consumption (Partial Support)	Pathogens, PCBs, Dioxin	Combined Sewer Overflows, Urban Runoff/Storm Sewers, Land Disposal, Agriculture, Municipal Point Sources, Industrial Point Sources	1st Priority
Ohio River	River Mile 617.6 - 629.9	Swimming (Nonsupport), Fish Consumption (Partial Support), Domestic Water Supply (Nonsupport)	Pathogens, PCBs, Dioxin	Combined Sewer Overflows, Urban Runoff/Storm Sewers, Land Disposal, Agri	1st Priority
Ohio River	River Mile 567.6 - 606.8	Aquatic Life (Partial Support), Swimming (Partial Support)	Unknown, Pathogens	Unknown, Combined Sewer Overflows, Urban Runoff/Storm Sewers, Land Disposal, Agriculture, Municipal Point Sources	2nd Priority- Several Dilistings Requested
Ohio River	River Mile 609.7 - 617.6	Swimming (Partial Support)	Pathogens	Combined Sewer Overflows, Urban Runoff/Storm Sewers, Land Disposal, Agriculture, Municipal Point Sources	2nd Priority- Several Dilistings Requested

TABLE 4-7  
NON-DOMESTIC DISCHARGERS OF INTEREST POLLUTANTS OF CONCERN SUMMARY DATA

Co. Number	LIMS LocCode	Company Name	Flow AVG MGD	BOD AVG mg/L	TSS AVG mg/L	Ammonia AVG mg/L	Cadmium AVG mg/L	CSO Outfall	CSO Location
8770	P0000291 P0000127	Opta Food Ingredients Loc 3 D.D. Williamson Kingfish - River Road *(5 data pts)	0.237091 0.0544	13759 5249	3157 189	no data	no data	CSO130 CSO140	Beargrass Creek Beargrass Creek
4411	P0000259		0.006204	4904 *	4828 *		0.0018	CSO154	Beargrass Creek
9879	P0000024	Kent Feeds	0.0639	1331	108		0.0016	DTC	Beargrass Creek
9415	P0000067	Puritan Cleaners	0.0268	1315	229		0.0134	CSO117 149 179	Beargrass Creek
240	P0000347	Swift & Company Armour Food Company, Monfort Inc.	0.894861	1185	867		0.0015	CSO130	Beargrass Creek
5513	P0000234	Forth Technologies - Bergman	0.1009	1085	265		0.0041	CSO117 149 179	Beargrass Creek
3850	P0000323	U of L Medical Center Outfall #1	0.0586	469	661		0.0015	CSO118	Beargrass Creek
3850	P0000321	U of L Medical Center Outfall #4	0.0349	282	427		0.0018	CSO118	Beargrass Creek
3850	P0000322	U of L Medical Center Outfall #5	0.0443	219	216		0.0015	CSO118	Beargrass Creek
8310	P0000271	Veterans Medical Center	0.1218	207	240		no data	0.0023 Muddy Fork (CSO 154)	Beargrass Creek
3850	P0000319	U of L Medical Center Outfall #2	0.0685	192	218		0.0015	CSO118	Beargrass Creek
3850	P0000318	U of L Medical Center Outfall #6	0.0585	163	181		0.0016	CSO118	Beargrass Creek
3850	P0000320	U of L Medical Center Outfall #3	0.0489	105	75		0.0015	CSO118	Beargrass Creek
1450	P0000281	Cissell Manufacturing Co.	0.009109	216.4	442.0		0.0045	CSO117 149 179	Beargrass Creek
3380	P0000160	Stiglitz Corp.	0.015223	124.4	96.3		no data	0.0072 CSO088	Beargrass Creek
1960	P0000003	Dean Milk	0.2449	2532	1138		no data	Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
790	P0000136	Weyerhaeuser Company	0.0325	1065	1901		0.0080	Southeast Diversion (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
3920	P0000196	Inland Paperboard - Old Shep (out of business)	0.0377	460	896		0.0066	Southeast Diversion (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
390	P0000289	Baptist East Hospital	0.2179	255	163		0.0025	Middle Fork Upstream of Breckenridge (various)	Both Ohio & Beargrass
290	P0000030	Norton - Audubon Hospital	0.1311	226	264		no data	0.0027 Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
7820	P0000260	Norton - Suburban	0.0918	102	131		0.0024	Middle Fork Upstream of Breckenridge (various)	Both Ohio & Beargrass
8530	P0000282	Kentucky Assoc. of Electric Cooperatives, Inc	0.0131	58.9	67.8		0.0053	Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
8530	P0000283	Kentucky Assoc. of Electric Cooperatives, Inc	0.0011	2.0	12.4		no data	0.0019 Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
9752	P0000360	Kentuckiana Tank Wash	0.0213	No Data	No Data		no data	0.0026 CSO015	Ohio River
6330	P0000173	Porcelain Metals #2	no data	No Data	No Data		no data	0.0119 MDS (CSO 211) Northern Ditch & SW Sanitary Service Area	Ohio River
1951	P0000049	Dawn Food Products Loc 2	0.0304	15067	3145		no data	0.0015 (CSO 015)	Ohio River
1712	P0000397	Brown-Forman Lou Prod Loc 3	0.009859	14572	775		no data	CSO105	Ohio River
4897	P0000232	Golden Foods Loc 1	0.239231	13051	3778		no data	0.0024 CSO015	Ohio River
6491	P0000222	Solae L.L.C. DuPont Soy Polymers PTI, Previously Ralston Purina, Protein Technologies	0.6547	8210	2027		81	0.0090 MDS (CSO 211)	Ohio River
4369	P0000209	US Liquids Parallel Prod Loc 1	0.053037	7060	841		no data	0.0083 CSO015	Ohio River
8542	P0000148	Florida Distillers	0.0803	5440	807		no data	CSO015	Ohio River
7050	P0000270	Heaven Hill Bernheim Distillery	0.1700	3713	3644		4	0.0019 CSO105	Ohio River
5390	P0000043	Casa de Oro Foods Loc 3	0.2017	3203	3797		no data	0.0015 MDS (CSO 211)	Ohio River
2375	P0000008	RAR Tank Cleaning & Repair (Mattack) Outfall#2 (*3data pts)	0.0267	2936 *	667 *		no data	0.0211 CSO191	Ohio River
990	P0000298	Brown-Forman Early Times Loc 2	0.069676	2802	2825		no data	0.0044 CSO015	Ohio River
990	P0000297	Brown-Forman Early Times Loc 1	0.146691	2062	914		no data	0.0027 CSO015	Ohio River
1712	P0000317	Brown-Forman Lou Prod Loc 2	0.064426	1955	82		no data	0.0025 CSO105	Ohio River
6340	P0000299	PPG - Porter Paints	0.0248	1888	4044		15	0.0110 CSO105	Ohio River
5700	P0000083	Mothers Cookie Company	0.0309	1297	738			0.0021 CSO015	Ohio River
3922	P0000191	Affordable Waste Control	0.1600	1245	796		209	0.0146 CSO015	Ohio River
6611	P0000051	Cintas	0.060803	1216	763		5	0.0172 Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
2035	P0000125	Derby City Tank Wash	0.0468	1152	622			0.0091 CSO015	Ohio River
6042	P0000159	Aliwaste Container Services	0.0134	1143	824		4	0.0083 CSO015	Ohio River
7015	P0000351	Wynn Starr Foods of Kentucky	0.0579	1129	1638		no data	0.0015 Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
6470	P0000135	RC-Canada Dry Bottling Company	0.0788	1091	39		1	0.0018 Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
7641	P0000163	Standard Foods Inc.	0.035568	1064	628			0.0015 DTOR	Ohio River
4790	P0000126	Liquid Transporters, Inc. (Trimac)	0.0286	934	796		no data	0.0025 CSO015	Ohio River
5910	P0000022	Norton Hospital #1	0.0313	712	532		29	0.0023 DTOR	Ohio River
3370	P0000236	Engelhard Corp Harshaw Chem	0.4693	624	243		12	0.0202 CSO019	Ohio River
8696	P0000352	G & K Services, Inc.	0.0430	568	420		no data	0.0185 CSO105	Ohio River
8113	P0000388	Universal Linen Service	0.1533	547	281		no data	0.0031 MDS (CSO 211)	Ohio River
5910	P0000023	Norton Hospital #2	0.0615	407	292		no data	0.0024 DTOR	Ohio River
8212	P0000168	Southern Clay Prods., Inc.	0.2923	394	902		3	0.0060 MDS (CSO 211)	Ohio River
6610	P0000036	Akzo Nobel Outfall #2	0.029339	385	231		6	0.0019 CSO015	Ohio River

TABLE 4-7  
NON-DOMESTIC DISCHARGERS OF INTEREST POLLUTANTS OF CONCERN SUMMARY DATA

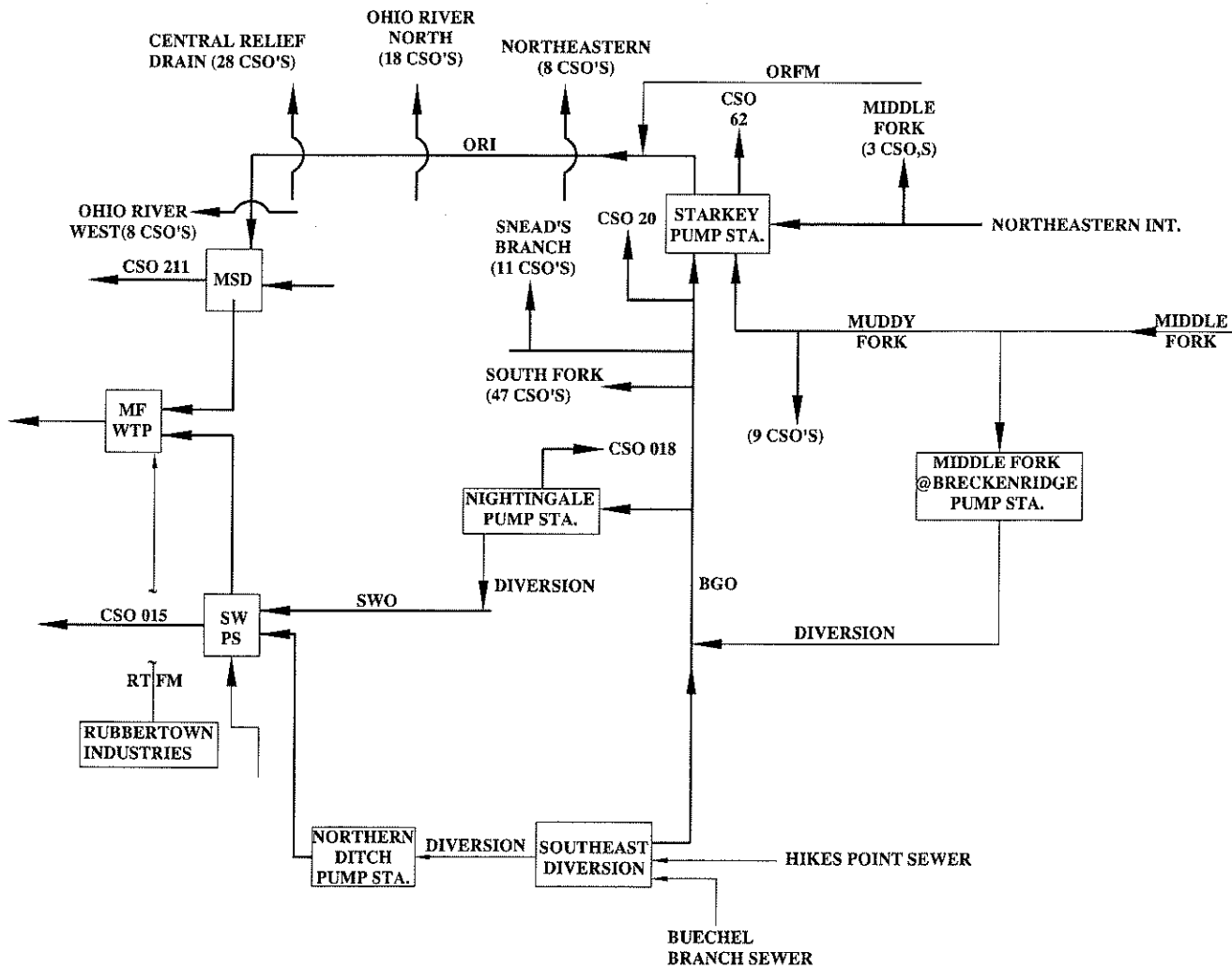
Co. Number	LIMS LocCode	Company Name	Flow AVG MGD	BOD AVG mg/L	TSS AVG mg/L	Ammonia AVG mg/L	Cadmium AVG mg/L	CSO Outfall	CSO Location
2780	P0000006	Galt House	0.069298	313	241	no data	0.0015	CSO 149	Ohio River
6960	P0000096	Caritas Medical Center #1	0.0674	270	320	no data	0.0028	CSO015	Ohio River
6610	P0000035	Akzo Nobel Outfall #1	0.0537	161	314	12	0.0032	CSO015	Ohio River
710	P0000412	Brown Forman formerly Bluegrass Cooperage Company	0.109461	119	768	no data		Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
5924	P0000013	Dant Clayton Loc #2	0.0168	118	215	no data	0.0015	CSO015	Ohio River
710	P0000155	Brown Forman formerly Bluegrass Cooperage Company	0.114292	100	372	no data	0.0017	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
6330	P0000172	Porcelain Metals #1	0.029474	52	47	no data	0.0153	MDS (CSO 211)	Ohio River
2850	P0000215	General Electric	1.9826	31	65	6	0.0070	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
8212	P0000167	Sud-Chemie West Plant Loc 1	0.8296	9	129	24	0.0103	MDS (CSO 211)	Ohio River
8210	P0000189	Sud-Chemie South Outfall #2	0.2376	5	7	174	0.0135	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
4611	P0000407	Progress Rail Lincoln Ind.	no data			no data	0.0185	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
4321	P0000154	Kentucky Manufacturing Co.	0.000249		231.2	no data	0.0225	MDS (CSO 211)	Ohio River
4881	P0000303	United Defense	0.023716	29.9	5.4	no data	0.0081	CSO015	Ohio River
4443	P0000031	Challenger Lifts	0.003095	2335.7	60.3	24	0.0129	DTOR	Ohio River
4443	P0000032	Challenger Lifts	0.003004	104.0	65.9	30	0.0153	DTOR	Ohio River
3912	P0000198	Fabricated Metals Utility Metals	0.0015	2280.0	212.0	no data	0.0050	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
2140	P0000041	C Lee Cook Dover Corp	0.0006	13.1	15.5	no data	0.0123	CSO178	Ohio River
1722	P0000098	Hesco Parts	0.0008	444.5	108.0	no data	0.0053	CSO178	Ohio River
4619	P0000007	Zoeller Pump Co.	0.0021	575.3	120.0	no data	0.0038	CSO015	Ohio River
4450	P0000254	FM Fabricated Metals	0.000557	85.6	54.0	no data	0.0046	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
636	P0000140	Green Lea Textron	0.0032		139.2	no data	0.0038	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
8140	P0000080	Tri-State Plating	0.0512	26.2	14.3	no data	0.0079	MDS (CSO 211)	Ohio River
6674	P0000354	Kelly Fabricators Corp	0.0046	70.4	125.1	no data	0.0049	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
5924	P0000012	Dant Clayton Corp.	0.0168	15.4	128.6	no data	0.0054	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
3912	P0000197	Fabricated Metals Utility Metals	0.000557	431.5	173.9	no data	0.0041	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
2850	P0000215	General Electric Consumer Products	1.9826	30.7	71.3	6	0.0070	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
7250	P0000396	Precision Almond Facility	0.008558	96.3	32.5	1	0.0014	CSO015	Ohio River
7663	P0000395	AST ACME Coatings	no data		no data	0	0.1227	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
7105	P0000204	Advanced Filtration	0.0346	622.9	90.5	44	0.0018	CSO015	Ohio River
6810	P0000331	Rohm and Haas Kentucky Loc 5	0.8942	177	675	11	0.0024	Rubbertown FM (None)	None
4593	P0000302	DuPont Dow Elastomers LLC	2.6978	154	177	2	0.0027	Rubbertown FM (None)	None
2980	P0000014	Oxy Vinyls LP Loc 1	2.3668	66	241	5	0.0099	Rubbertown FM (None)	None
<b>Criteria for Ohio River to be of Concern</b>			<b>&gt;0.5</b>	<b>&gt;10000</b>	<b>&gt;10000</b>	<b>&gt;2000</b>	<b>None</b>		
<b>Criteria for Beargrass Creek to be of Concern</b>			<b>&gt;0.01</b>	<b>&gt;1000</b>	<b>&gt;1000</b>	<b>&gt;200</b>	<b>&gt;0.02</b>		

**TABLE 4-8  
NON-DOMESTIC DISCHARGERS OF CONCERN**

Co. Number	LIMS LocCode	Company Name	Flow AVG MGD	BOD AVG mg/L	TSS AVG mg/L	Ammonia AVG mg/L	Cadmium AVG mg/L	CSO Outfall	CSO Location
	P0000291	Opta Food Ingredients Loc 3	0.2371	13759	3157	no data	no data	CSO130	Beargrass Creek
8770	P0000127	D.D. Williamson	0.0544	5249	189	174	0.0213	CSO140	Beargrass Creek
9879	P0000024	Kent Feeds	0.0639	1331	108	4	0.0016	DTC	Beargrass Creek
9415	P0000067	Puritan Cleaners	0.0268	1315	229	3	0.0134	CSO117 149 179	Beargrass Creek
240	P0000347	Swift & Company Armour Food Company, Monfort Inc.	0.8949	1185	867	97	0.0015	CSO130	Beargrass Creek
5513	P0000234	Forth Technologies - Bergman	0.1009	1085	265	27	0.0041	CSO117 149 179	Beargrass Creek
1960	P0000003	Dean Milk	0.2449	2532	1138	no data	0.0040	Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
790	P0000136	Weyerhaeuser Company	0.0325	1065	1901	8	0.0080	Southeast Diversion (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
		Zoo Commission	0.0623					Nightingale PS (CSO 015 or South Fork CSOs)	Both Ohio & Beargrass
1951	P0000049	Dawn Food Products Loc 2	0.0304	15067	3145	no data	0.0015	Northern Ditch & SW Sanitary Service Area (CSO 015)	Ohio River
1712	P0000397	Brown-Forman Lou Prod Loc 3	0.0099	14572	775	no data	no data	CSO105	Ohio River
4897	P0000232	Golden Foods Loc 1	0.2392	13051	3778	no data	0.0024	CSO015	Ohio River
6491	P0000222	Solae L.L.C. DuPont Soy Polymers PTI, Previously Ralston Purina, Protein Technologies	0.6547	8210	2027	81	0.0090	MDS (CSO 211)	Ohio River
		Churchill Downs, Inc.	0.2980					CSO015	Ohio River

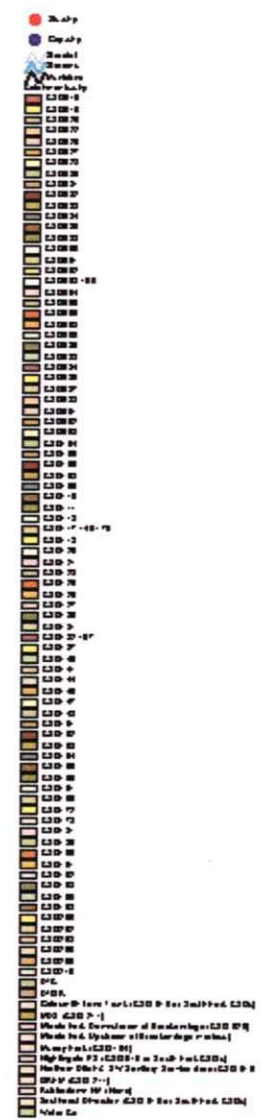
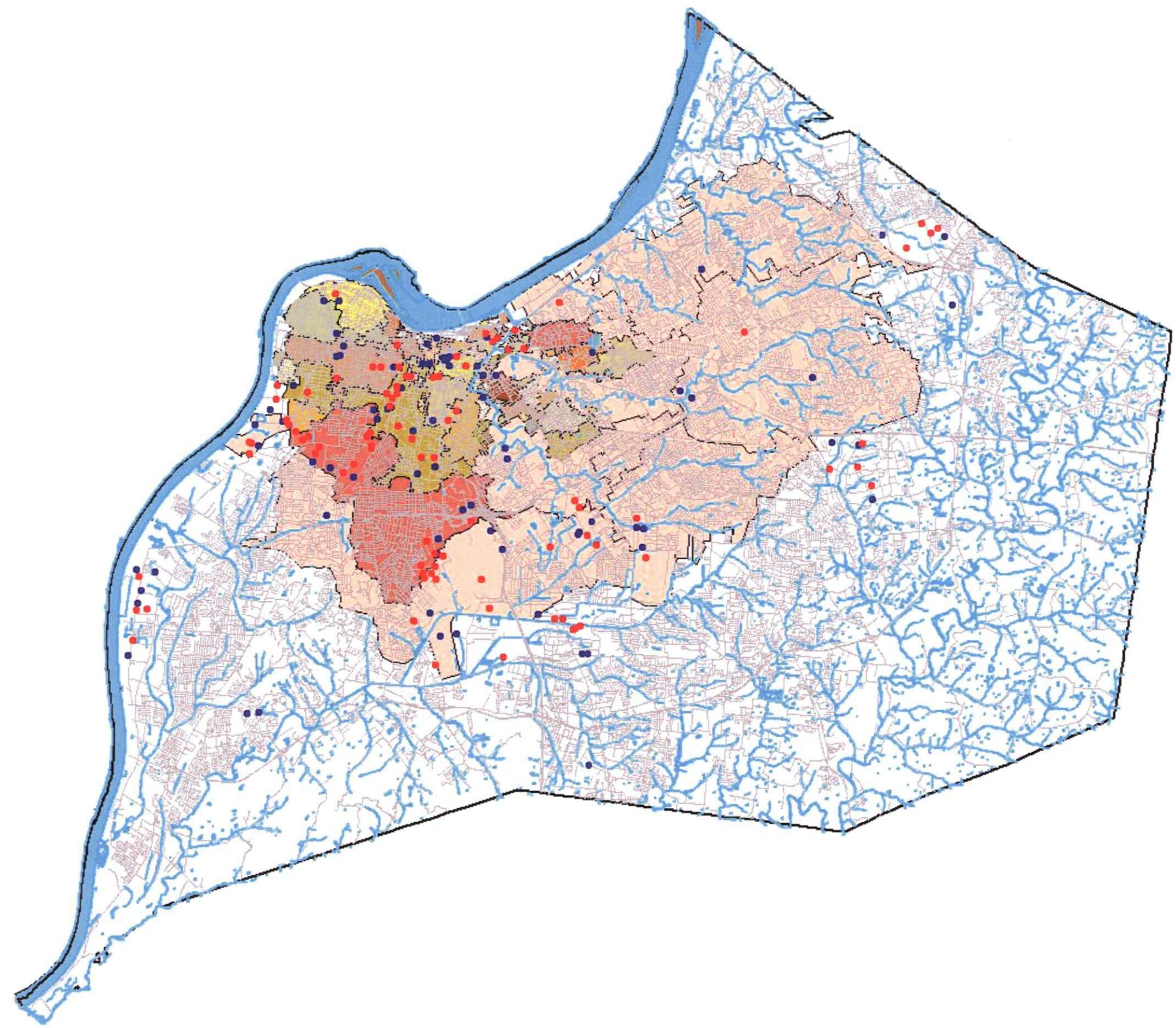


**FIGURE 4-1  
MF COLLECTION  
SYSTEM SCHEMATIC**



Louisville and Jefferson County  
Metropolitan Sewer District

**FIGURE 4-2  
SIU and GDP**





**MSD IWD**

**Figure 4-12 Industrial/Commercial Facility Inspection**

**FACILITY GENERAL INFORMATION**

<b>Company Name:</b>	<b>Permit #</b>
<b>Address:</b>	
<b>Contact Name:</b>	<b>Phone #</b>
<b>Inspected By:</b>	<b>Inspection DATE:</b>

Facility Compliance Status					
	Yes	No	N/A	Comments/Details	Deficiency Observed
Have any NOV's been issued in past year?					
Has the facility been in SNC in past 2 years?					
Compliance Schedule dates:	to				
Is the facility currently subject to enforcement?					
If yes, what has been done to correct the violations?					
Has the facility had any Incidents since last inspection?					

Facility & Data Areas Evaluated Today				Regulatory Program:
<b>Hazardous Materials Storage</b>			<b>I</b>	HMO, Pretreatment (P/T) Slug Control, CSO LTCP, MS4 & Floodplain protection
<b>Non-hazardous Materials Storage-</b>			<b>II</b>	P/T Slug Control, CSO LTCP & MS4
<b>Water Conservation</b>			<b>III</b>	CSO LTCP, P2
<b>Wet Weather Process Discharge Minimization</b>			<b>IV</b>	P2- CSO LTCP
<b>P/T Discharge Permit Conditions</b>			<b>V</b>	P/T
<b>Self-Monitoring</b>			<b>VI</b>	P/T
<b>Process Operations for P/T Req</b>			<b>VII</b>	P/T
<b>Pretreatment System Operations</b>			<b>VIII</b>	P/T
<b>Pretreatment Recordkeeping Req</b>			<b>IX</b>	P/T
<b>Stormwater Management</b>			<b>X</b>	CSO LTCP, MS4
<b>Other</b>			<b>XI</b>	



**MSD IWD**

**Figure 4-12 Industrial/Commercial Facility Inspection**

<b>I Hazardous Materials Storage- HMPC, P/T Slug Control, CSO LTCP, MS4 &amp; Floodplain</b>					
	Yes	No	N/A	Comments/Details	Deficiency Observed
Is HMPC Contact Information Correct?					
Are all Chemicals/Raw Materials, Products and Hazardous Wastes Correctly Inventoried & Mapped?					
Is chemical containment adequate?					
Are chemicals in each containment compatible?					
Are spill kits adequate and accessible?					
Are emergency instructions posted?					
Are MSDS available and accessible?					
Are outdoor storage areas located in floodplain?					
Are outdoor storage areas roofed?					
Are loading dock areas contained?					
Can chemicals reach a drain if spilled?					
Are all containment area drains sealed or valved shut?					
<b>II Non-hazardous Materials Storage- P/T Slug Control, CSO LTCP &amp; MS4</b>					
	Yes	No	N/A	Comments/Details	Deficiency Observed
Are sludges or tank bottoms discharged to MSD?					
Are "off-spec" or non-routine products or raw materials discharged to MSD?					
Is this a batch discharge facility?					
Are bypass lines or practices present in either production or pretreatment areas?					
<b>III P2- CSO LTCP Water Conservation</b>					
Is once-through cooling water used?					
Has the facility implemented water conservation or recycling?					
<b>IV P2- CSO LTCP Wet Weather Process Discharge Minimization</b>					
Does the facility have wet weather storage capacity for process wastewater?					



**MSD IWD**

**Figure 4-12 Industrial/Commercial Facility Inspection**

<b>V P/T Discharge Permit Conditions</b>					
	Yes	No	N/A	Comments/Details	Deficiency Observed
Is the contact list correct?					
Does the facility have a TOMP or a PMP?					
Is the management plan being followed?					
Has the facility had any past slug discharges?					
Does the Industrial User have a Slug Control plan ?					
Date of last Slug Control Inspection:					
Are wastewater types and quantities as described in WCS?					
Does the facility TRI report materials actually discharged to the POTW?					
<b>VI P/T Self-Monitoring</b>					
Who performs routine sampling?					
Is the IU collecting samples in accordance with permit requirements or standard procedures-- sample type, preservatives, holding times, chain-of-custody, etc.?					
Which lab performs the sampling analysis?					
Is Flow Measurement an accurate representation of monitored discharge?					
Sampling Location Observations:					
Are discharge-monitoring reports being completed correctly?					
<b>VII Process Operations</b>					
O&M Observations					
How often are floors/equipment washed?					
Have there been any significant changes from the last inspection?					
Has the facility experienced an operational upset since last inspected?					
Is sludge/waste handling adequate to prevent discharge?					
Method of sludge disposal:					
Is Hazardous Waste generated?					
Is there any seasonal variation in process wastewater flow volume?					
<b>VIII Pretreatment System Operations</b>					
Is the pretreatment unit operating in accordance with the Permit Application?					
Are monitoring instruments calibrated?					
<b>IX Pretreatment Recordkeeping Requirements</b>					
Copy of IU Permit on file at IU?					
Monitoring results on file at IU?					



**MSD IWD**

**Figure 4-12 Industrial/Commercial Facility Inspection**

<b>X Stormwater Management- MS4 &amp; CSO LTCP</b>					
	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments/Details</b>	<b>Deficiency Observed</b>
Is the facility located in CSS?					
Are facility downspouts "daylighted"?					
Does the facility discharge stormwater directly to a stream?					
Does the facility discharge stormwater to an MS4 storm drain?					
Are any process wastewaters discharged to a stream?					
Is the facility permitted under KPDES?					
Does the facility have KPDES DMR Requirements?					
Does the Facility have Stormwater Effluent Quality Control BMPs or Treatment?					
Does the facility have Stormwater Quantity BMPs installed?					
Storm Drain Observations (trapped/untrapped, floatables control, evidence of dumping etc.)					
Stormwater Outfall Observations (color, sheen, odor, dry weather discharge?):					
Does the facility have any stream Pollutants of Concern exposed to the weather?					

<b>Inspection Findings</b>					
HMPC update needed?					
Slug control plan needed?					
Safety of MSD Sampling Techs assured?					
Permit modification needed?					
KPDES Permit/Compliance referral needed?					
General Facility Observations:					
Housekeeping Observations					
Closing Review Conducted?					
Does IU request technical assistance?					
Correction Notice Issued?					
Required Corrective Actions Due Date:					
Additional Recommended Actions:					

## **APPENDIX 4A SUMMARY OF EXISTING PROGRAMMATIC MEASURES**

### **Pretreatment Program**

MSD's pretreatment program is administered by the Industrial Waste Department (IWD) within the Regulatory Management Services (RMS) Division. MSD underwent a restructuring in late 2003. One result of that effort was the merger of IWD with the Wet Weather Area Team (WWAT) to better utilize existing resources to fulfill the needs of both the wet weather and pretreatment programs. Since that time, IWD has been addressing wet weather related issues at facilities when performing pretreatment program and HMPC inspection and follow-up activities, as well during response to emergency incidents in the CSS.

### **MSD Wastewater/Stormwater Discharge Regulations (WDRs)**

MSD has its legal authority through the Wastewater/Stormwater Discharge Regulation (WDRs). Included in these regulations is a general list of prohibited discharges and specific discharge limitations designed to protect collection system and treatment work operations and enable compliance with water quality standards and effluent limitations specified in MSD's KPDES permits. The discharge limitations listed in the WDRs are site specific pretreatment limits known as Local Limits (LL). Local Limits have been developed for each wastewater treatment plant with an approved pretreatment program. The DOW requires these limits to be reevaluated every five years. MSD's current local limits were evaluated using an approach which combines sound, technically defensible procedures based on water quality, inhibition criteria and treatment plant removal efficiency. Data from industrial and non-industrial entities was also factored into the calculations. MSD currently allocates the local limits by uniform distribution. For Categorical Industries (CI), MSD is required to apply the most stringent of the Categorical and local limits to CI.

The WDRs provide MSD with enforcement authority against illicit discharges, slug discharges, and discharges of prohibited materials to the public sewers, as well as to streams. MSD enforces compliance with the WDRs on users that are subject to the provisions of the WDRs. Enforcement actions authorized in the WDRs include Correction Notices (CN), Notices of Violation (NOV), Fines, Compliance Schedules (CS), and Consent Orders (CO). The WDRs can be found on MSD's website at [www.msdlouky.org](http://www.msdlouky.org).

### **Industrial User Permits**

Wastewater discharge permits issued by MSD detail specific discharge limitations for pollutants that may cause harm to MSD facilities or the environment. The wastewater from permitted users is periodically monitored to ensure that those users comply with the limitations listed in their respective permits. The program issues three types of permits: Federal SIU Permits, General Discharge Permits (GDP) and Unusual Discharge Request (UDR) Permits.

IUs are required to complete and file an application with MSD for a wastewater discharge permit (WDP). Permits are issued for a specified time period and include standard conditions and other site specific special conditions such as: volume limitations, limits on rates and times of discharges; requirements for installation, operation and maintenance of monitoring, inspection and sampling facilities, and pretreatment requirements. Permits are an existing mechanism to allow MSD to enforce special requirements such as flow detention during wet weather and include a schedule for such compliance. In addition, discharge permits require IUs to meet Federal Categorical Pretreatment Standards where they are more stringent than MSD's



standards. Special permit conditions, slug control plans, and enforcement actions with requirements for remedial measures are some of the tools used to protect the CSS from slug discharges and to require the implementation of pollution prevention measures. Each IU is required, at a minimum, to submit biannual reports indicating the nature and concentration of pollutants in its effluent which are limited by pretreatment standards, as well as records of daily flows which exceed an average daily flow. These reports are called Self-Monitoring Reports (SMR). In addition, IUs are required to retain pretreatment records for a minimum of three years.

### **Non-Compliance with Permit Limitations**

Compliance is determined by comparing the results of sampling activities to the discharge limitations listed in an IU's permit. When an IU violates the specific discharge limitation for a given parameter, a NOV is issued and the industry is required to resample within thirty (30) days for the violating pollutant. If the results of the additional sampling exceed the discharge limits, the IU may meet the criteria for Significant Non-compliance (SNC). An IU is considered to be in SNC if it meets one of the following criteria:

- Chronic violations of wastewater discharge limits, are those in which sixty-six (66) percent or more of all of the measurements taken during a six-month period exceed (by any magnitude) the daily maximum limit or the average limit for the same pollutant parameter;
- Technical Review Criteria (TRC) are those in which thirty-three (33) percent or more of all of the measurements for each pollutant parameter taken during a six-month period equal or exceed the product of the daily maximum limit or the average limit multiplied by the applicable TRC (TRC = 1.4 for BOD, TSS, fats, oil and grease, and 1.2 for all other pollutants except pH);
- Any other violation of a pretreatment effluent limit (daily maximum or longer-term average) that MSD determines has caused, alone or in combination with other discharges, interference or pass-through (including endangering the health of POTW personnel or the general public);
- Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment or has resulted in the POTW's exercise of its emergency authority to halt or prevent such a discharge;
- Failure to meet, within ninety (90) days after the due date, a compliance schedule milestone contained in a WDP or other order issued by MSD for starting construction, completing construction or attaining final compliance;
- Failure to provide, within thirty (30) days after the due date, required reports such as baseline monitoring reports, ninety (90) day compliance reports, periodic SMRs and reports on compliance with compliance schedules;
- Failure to accurately report non-compliance;
- Any other violation or group of violations which MSD determines will adversely affect the operation or implementation of the pretreatment program.

### **Slug Control Plans**

SIUs are required to comply with the slug prevention and control provisions of Article 4.07 of the WDRs as required in 40 CFR 403.8(f)(2)(v). Slug control plans are solicited from SIUs that pose a threat to MSD facilities, including the CSS during wet weather events, as well as those that have non-hazardous materials that could create interference or pass-through at the



treatment plant. Slug control plans have specifically been required of industries within the CSS that have the potential to discharge wet-weather settleable or suspended solids, lack erosion controls around catch basins on dirt lots, or have inadequate secondary containment for non-hazardous materials storage tanks. SIUs are inspected according to Federal Pretreatment Regulation requirements. Erosion Prevention and Sediment Control Ordinance (EPSC) violations found during these inspections are referred to the EPSC group for enforcement. See Item 4-4 for a copy of MSD's Slug Control Questionnaire form and an example of a completed slug control questionnaire form.

### **Reporting for Pretreatment Program**

MSD submits several different reports to DOW for the pretreatment program. Kentucky reporting requirements for the pretreatment program are more stringent than Federal rules. Reports submitted by MSD are:

- Annual Pretreatment Discharge Monitoring Report (PTDMR)
- Annual Pretreatment Report (APR)
- Semi-annual Pretreatment Report (SAPR)
- Industrial User Report for Kentucky Pollutant Discharge Elimination System (KPDES) renewals

The PTDMR is a summary of influent, effluent and biosolids data for those WTPs with an approved pretreatment program is due annually in January. The APR is due in March each year and includes summaries for each individual permitted user, as well as statistics on the pretreatment program which include compliance and enforcement activities. Publication of those users in SNC is required annually. It involves publishing a listing of those IUs found to be in SNC during the reporting year and must appear in a local newspaper. The SAPR is due each September. It summarizes the first half of the calendar year covering program statistics. Every five years, summary industrial data, similar to the Pretreatment Annual Report must be collected to satisfy permit application requirements of the KPDES renewal process at those wastewater treatment plants with an approved pretreatment program.

### **Best Management Practices for Dischargers to the CSS**

Beginning in 1998, a partnership was formed between MSD and the Louisville Water Company (LWC) to develop a Best Management Practices and Procedures (BMP&P) for Chlorinated Water Disposal to address the discharge of potable and chlorinated water to MSD's collection system. The LWC regularly must dispose of potable and chlorinated water associated with routine operation and maintenance activities, such as water main flushing and repairs and construction of new water mains. Large discharges to the collection system can overload the sewer, pump stations and wastewater treatment plants and discharges to the CSS can cause dry weather overflows.

Both agencies recognized the need to protect MSD operations and facilities, adhere to Clean Water Act (CWA) requirements while providing safe, clean drinking water for Louisville residents and sufficient pressure for fire fighting activities. Procedures identified in the BMP&P are based upon limitations dictated by the receiving system, as well as at downstream PSs or WTPs. Data on sewer pipe size, slope, invert elevation, etc. is available to LWC digitally through the LOJIC GIS using a software application called ArcView. The BMP&P also reviews equipment and techniques, dechlorinating agents and monitoring and notification procedures for LWC and MSD

personnel. A memorandum of understanding was developed in a joint effort between MSD and the LWC.

### **Flow metering activities in the CSS**

As a result of the concerns EPA had with the traditional programmatic approach to the Pretreatment Program, MSD became a participant in the Project XL (eXcellence in Leadership) initiative in September of 1998. MSD was awarded a 104(b)(3) Grant from EPA for the Development of Pretreatment Performance Measures. The objective of this project was to develop, implement, and assess specific performance measures designed to indicate the environmental impact of the Pretreatment Program in the Jeffersontown sewershed. In order to apply the lessons learned from the Grant project, MSD applied for a Pilot Project through the XL (eXcellence in Leadership) program. EPA authorized the pilot study on September 28, 2000. MSD's Board approved modifications to MSD's Waste Discharge Regulations to include Project XL. Kentucky Division of Water incorporated Project XL into MSD's KPDES permit, which became effective on June 1, 2002. Project XL applies only to the Jeffersontown Wastewater Treatment Plant which does not serve the CSS.

One outcome of the Project XL was the learned knowledge that collection system monitoring is an important tool to assist in determining conditions in the collection system and to conduct mass loading exercises. As a result, MSD installed flow meters at 4 sites within the CSS for that purpose; one on each of the two major trunk lines that merge into the Southwestern Outfall, one on the Southern Outfall, and one on the Southwestern Outfall. MSD initially experienced problems installing a meter on the Ohio River Interceptor (ORI) at the first location chosen. Since that time, MSD has determined another location for a flow meter on the ORI and is in the process of installing the meter. MSD conducts periodic sampling on the three contributing trunk lines to assess the concentrations of pollutants entering the MFWTP. This concentration data provides a more precise picture of the concentration of pollutants to the plant from the three trunk lines and will be used by MSD in upcoming Local Limits evaluations.

While MSD has not yet initiated mass balance projects utilizing the 4 CSS meters, flow readings from the meters have proven to be useful in the Real Time Control (RTC) Program. Additionally, the RTC Program will provide an indirect benefit to the pretreatment program since downstream flows containing industrial flow will be held and not overflow from the CSS. Additionally, these meters, along with those used for MSD's modeling project, will be used to establish flow conditions in the CSS during wet weather to assess the potential impact of non-domestic dischargers to the CSS. Refer to Figure 4A-1 for a graphical representation of these meters.

### **HAZARDOUS MATERIALS ORDINANCE/SPILL PREVENTION AND CONTROL PLANS**

MSD is the administering agency for the Louisville Metro Hazardous Materials Ordinance (HMO). As such MSD reviews and approves Hazardous Materials Spill Prevention and Control (HMPC) plans, as well as inspects HMPC facilities. The role of HMPC spill planning in the inventory and assessment of non-domestic dischargers to the CSS is discussed in more detail in Section 4.3.5. MSD employs Emergency Response Pretreatment Inspectors (ERPI) to perform facility inspections, review and approve HMPC plans and issue permits to IUs. These personnel are assigned the HMPC plan for those facilities for which they oversee wastewater discharge permits. Therefore, they possess an in depth knowledge of the facilities that pose the greatest risk to CSO discharges. HMPC plans are reviewed and facilities are inspected prior to approval. SIUs with a HMPC plan are inspected annually. Since the activities associated with

this program are performed by the same personnel as the pretreatment program, it adds an extra layer of scrutiny for non-domestic dischargers to the CSS.

### **Hazardous Material Ordinance (HMO)**

All commercial and industrial sites in Louisville Metro, including the CSS that have a reportable quantity of hazardous materials on-site are required by MSD to file a current Hazardous Materials (Spill) Prevention and Control (HMPC) plan. Retail sales establishments are not exempt from the HMPC program.

The HMPC plan is required to include all hazardous materials stored, amounts, locations, primary storage container type, secondary containment type, response equipment and procedures. MSD is the administering agency for the Hazardous Materials Ordinance (HMO). As such, MSD reviews and approves Hazardous Materials Prevention and Control (HMPC) plans. Plans include a list of specific materials, amounts, locations, containment and spill reporting and response. Specifically, HMPC plans address how the facility will prevent the release from ever reaching the sewer system. HMPC Plans are reviewed and the sites are inspected prior to plan approval. Significant industrial users (SIUs) are inspected annually and non-SIUs are inspected on a risk-based schedule.

The HMO affords MSD with an opportunity to consider the impact of non-domestic facilities that discharge to the CSS since it scrutinizes many facilities that do not meet the requirements for a wastewater discharge permit due to insignificant wastewater discharges. HMPC plans also meet the minimum elements of a slug control plan in accordance with 40 CFR 03.8(f)(2)(v)(a) to (D), which are:

- Description of discharge practices, including non-routine batch discharges;
- Description of stored chemicals;
- Procedures for immediately notifying the POTW of slug discharges, including any discharge prohibited under 40 CFR 403.5(b), with procedures for follow-up written notification within five (5) days;
- If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site runoff, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response.

The HMO list of hazardous materials includes all federally listed substances as well as other characteristically hazardous wastes and petroleum. IWD has created a hazardous materials inventory database that tracks the location and contents of all hazardous materials storage locations in the Louisville Jefferson County Information Consortium (LOJIC) Geographic Information System (GIS). CSOs and drainage structures can also be seen in the GIS system. The hazardous material information and CSO information can be viewed simultaneously to assess risks to CSOs and streams from upstream hazmat storage locations.

In addition to the HMPC plan, the Ordinance requires immediate local spill response reporting to 911 for any size spill that enters a sewer, drainage inlet or a reportable quantity of materials that is released to the environment. The result is that hazardous materials best management practices have been implemented throughout the Louisville Metro area. ERPIs are the MSD personnel that are responsible for responding to emergency incidents, reports of slug



discharges and illicit discharges, as well as treatment plant upsets and blockages in the collections system due to grease. Immediate containment and mitigation efforts are taken by responding ERPIs on-scene and downstream of the release. ERPIs utilize the GIS system to conduct sewer traces to assist in locating possible sources of released materials, remain at the scene until a responsible party agent arrives to undertake remedial actions and confirms that appropriate mitigation actions are taken downstream to minimize impacts to CSOs as much as possible. ERPIs perform follow-up activities to ensure that relevant issues such as appropriate enforcement actions, wastewater permitting, stormwater drainage (includes CSS), HMPC spill planning and control activities, implementation of pollution prevention BMPs, if applicable, whether the facility has an HMPC spill plan if needed, and that an existing HMPC spill plan is being followed and issues properly addressed. If these follow-up activities indicate a facility needs an HMPC plan and/or permit, the appropriate review process is initiated.

As administering agency for the HMO, MSD has enforcement authority to include NOVs, Fines, Compliance Schedules, and Consent Orders. Emergency incidents are reviewed bi-weekly with MSD's Legal department to determine if facilities have violated the HMO. Additionally, since the same personnel that respond to emergency incidents are responsible for permitted facilities, MSD is also able to address pretreatment related violations of the WDRs in conjunction with HMO violation review. This compliance review includes those facilities that introduce grease to the sewer system, including the CSS, in amounts that cause blockages.

Refer to Item 4-3 of the NMC Supplemental Information binder dated June 3, 2006, for a copy of the HMO, a copy of the Preliminary Response Report form and an emergency incident listing for the month of April 2006.

#### **Motor Vehicle Accident (MVA) Mitigation Program**

MSD implemented a Motor Vehicle Accident (MVA) Mitigation Program in the early 1990s. It is a cooperative effort between MSD and Louisville Metro fire departments. MVAs often create minor releases of hazardous materials and petroleum products onto the roadway. Prior to implementation of the mitigation program, fire departments would wash the spillage off the road into the CSS or Municipal Separate Storm Sewer System (MS4). Under the program, MSD's IWD offers oil absorbent material and five-gallon plastic buckets to fire department personnel at no cost. The fire departments use the absorbent material to pick up leaked or spilled MVA fluids instead of flushing the materials. They return the used absorbent to IWD in the plastic bucket. IWD re-supplies them with absorbent and a clean bucket. IWD manages and disposes of the used absorbent in compliance with RCRA regulations.

#### **INDUSTRIAL/COMMERCIAL PLUMBING PLAN REVIEW PROGRAM**

New non-domestic dischargers are scrutinized by MSD through the Industrial/Commercial Plumbing Plan Review (I/CPPR) program which focuses on identification of targeted dischargers during the building permit acquisition phase for required pretreatment, as well as future permitting. This program allows MSD to both identify a facility as a non-domestic discharger to the CSS and to assess potential wastestreams from these facilities. New users to the sewer system are required to complete and submit an IWD Plan Submittal Survey Form. If facility representatives answer yes to any of questions on the form, they are required to submit plumbing plans to MSD for review and approval prior to obtaining a building permit. This program is part of the Louisville Metro building permit approval process and, therefore, assures that targeted facilities are accounted for and assessed, prior to construction. It is at this point in

the process that facilities are identified as being non-domestic dischargers to the CSS, as well referred for possibly requiring a wastewater discharge permit. It is also the point at which conditions can be placed on discharges from facilities on the CSS. Once the facility is built, MSD inspects to verify that the approved plan was followed. Those facilities subject to regulation under a wastewater discharge permit are sent a permit application to complete and submit to MSD. Since the program's inception, MSD has conducted over 1,500 plan reviews and inspections. Refer to Figures 4A-1a and 4A-1b and 4A-2a and 4A-2b for copies of the forms used in the I/CPFR program and examples of completed forms.

Food Service Establishments (FSEs) are a major group of non-domestic dischargers that receive scrutiny from MSD under the (I/CPFR) program. There are approximately 3,000 FSEs in Louisville Metro. FSEs without proper pretreatment devices installed can discharge large amounts of grease to the sewer which in turn, can obstruct the sewer and cause an overflow. The I/CPFR program requires that new FSE facilities install a minimum 1,000 gallon, double compartment, outdoor grease trap. Existing buildings in which the kitchen or greasy waste lines are not segregated from the restroom lines are allowed to install fixture traps on individual grease bearing devices such as a three-compartment sink.

#### **Industrial/Commercial Plumbing Plan Review**

In 1995, MSD began a program that targets commercial and industrial facilities with the potential to discharge regulated substances to the collection system. The program, called Industrial/Commercial Plumbing Plan Review (ICPPR), focuses on identification of targeted dischargers during the building permit acquisition phase for required pretreatment, as well as future permitting. ICPPR is part of the Metro Louisville building permit approval process and, therefore, assures that targeted facilities are accounted for and assessed, prior to construction. Once the facility is built, MSD inspects to ensure the approved plan was followed. Those facilities subject to regulation under a wastewater discharge permit or HMPC plan are sent a permit/HMPC application to complete and submit to MSD. Since the program's inception, MSD has conducted over 1,500 plan approvals and inspections.

In addition to identifying those facilities that may require a wastewater discharge permit and/or a HMPC plan, the ICPPR identifies non-domestic dischargers that may require additional controls. The program allows MSD to both identify a facility as a non-domestic discharger to the CSS and to assess potential wastestreams from these facilities. New users to the sewer system are required to complete and submit an IWD Plan Submittal Survey Form. If facility representatives answer yes to any of questions on the form, they are required to submit plumbing plans to MSD for review and approval prior to obtaining a building permit. It is at this point in the process that facilities are identified as being non-domestic dischargers to the CSS, as well referred for possibly requiring a wastewater discharge permit. It is also the point at which conditions can be placed on discharges from facilities on the CSS.

Some major categories controlled through this program include:

- Food Service Establishments (commercial)
- Hospitals
- Photo/X-ray Processors
- Dental Offices
- Car/Truck Washes
- Auto/Truck Service or Repair



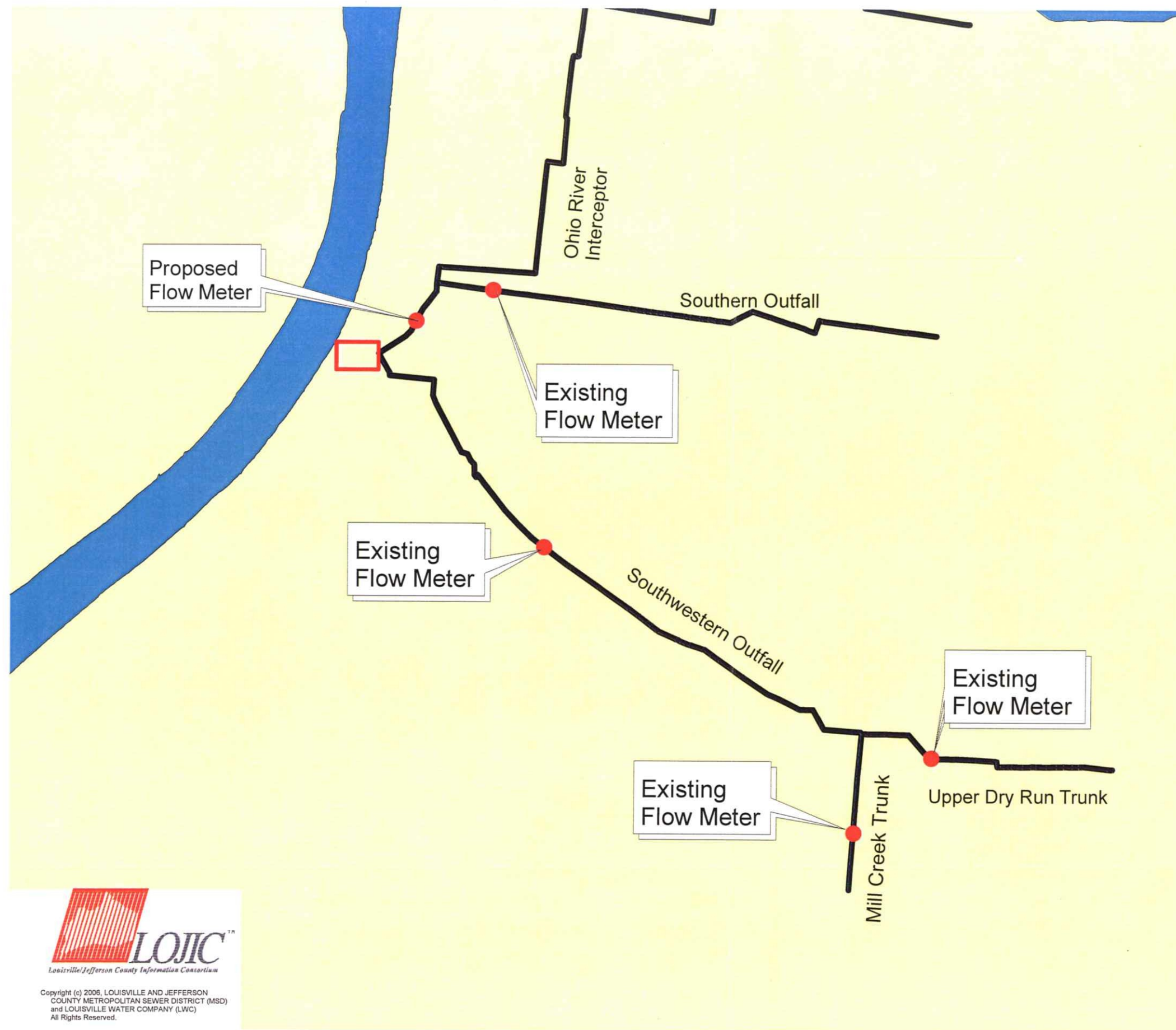
**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

Discharge controls for these groups generally are targeted to keeping pollutants of concern out of the sewer system. Therefore, these controls generally need not be modified for wet weather conditions to prevent discharges through CSOs. It is necessary, however, to ensure that the required controls are properly installed and maintained.

Appendix 4A Table 1 includes a list of all facilities that have been processed through the Industrial/Commercial plumbing Plan Review since 1995 and their type of pretreatment device.

FIGURE 4A-1  
FLOW METERS ON MFWTP  
COMBINED SEWER SYSTEM



Flow meters  
Trunklines

Not to Scale  
This document was developed in color.  
Reproduction in black & white may not  
represent the data as intended.



Copyright (c) 2006, LOUISVILLE AND JEFFERSON  
COUNTY METROPOLITAN SEWER DISTRICT (MSD)  
and LOUISVILLE WATER COMPANY (LWC)  
All Rights Reserved.

K:\data\RMS\Patrick\  
9 Minimum Controls Submittal  
June 3 2006\Shapefiles\  
9 minimum controls.apr



### IWD Plan Submittal Survey Form

Project Name \_\_\_\_\_ Telephone \_\_\_\_\_  
 Site Address \_\_\_\_\_ Zip Code \_\_\_\_\_  
 Owners Name \_\_\_\_\_ Telephone \_\_\_\_\_  
 Submitting Firm/Co. \_\_\_\_\_ Telephone \_\_\_\_\_  
 Person Submitting \_\_\_\_\_ Telephone \_\_\_\_\_

#### DESCRIPTION OF INDUSTRIAL PROCESSES OR ACTIVITIES

Provide a brief description of industrial processes, manufacturing, or activities to be performed at this site.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Building is:  New  Existing If existing, is there a current wastewater discharge permit with MSD?  
 Yes  No  unknown, if yes, give permit number \_\_\_\_\_.

Check the appropriate answer:

Yes No

- Will water be discharged to the sewer from sources other than restrooms, hand sinks, air handling equipment or condensate sinks?
- Are floor drains installed in any production or material storage areas?
- Are any solvents or hazardous materials to be used or stored at the facility?
- Is there any treatment planned for wastewater, prior to discharge to the sewer?
- Will this facility operate one of the following processes? If yes, please indicate which is appropriate:
  - Auto/Truck Service or Repair  Photo/X-ray Processor
  - Car/Truck Wash  Printing Operations
  - Food Service/Kitchen  Process Wastewater
  - Industrial Laundry  Wastewater Treatment
  - Materials/Equipment Washing

If the answer to any of the above questions is *yes*, you must have plumbing (riser) and site plans reviewed by the Industrial Waste Department of the Louisville and Jefferson County Metropolitan Sewer District prior to obtaining a construction permit. A review of your plans will be conducted. A wastewater discharge permit, pretreatment facilities or monitoring provisions *may* be required. Initial release will be given once these items have been addressed in the plans. **PLEASE BE ADVISED THAT plans must also be approved by MSD's Stormwater Management Department, prior to obtaining a building permit.**

*Person submitting plan must sign below.*

I, the undersigned have correctly answered the above questions to the best of my knowledge.

Signed \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Title \_\_\_\_\_

**For IWD review of plans, please call Peggy Burgin 540-6974, to make an appointment. Plans may be dropped off or mailed to MSD IWD, 700 West Liberty Street, 40203-191, Monday - Friday, 7:30AM - 4:00PM**





IWD FIRST RELEASE
(submit this form with request for building permit)

Proj. No.
Hansen No.
SW No.

Project Name:
Site Address: Zip Code
Owner's Name: Telephone
Contract Name: Telephone

Hand Delivered Mailed DOEH Owner Contractor Other

MSD has reviewed and accepted the Industrial Waste Survey Form and plans dated

Pretreatment equipment required: Exempt Monitoring Interceptor

Comments: (Please circle one of the items below)

Minimum 25 gpm/50# capacity GREASE INTERCEPTOR w/CO Required by MSD/IWD
Minimum 50 gpm/100# capacity GREASE INTERCEPTOR w/CO Required by MSD/IWD
1000 Gallon GREASE INTERCEPTOR / 1000 Gallon Oil/Water Separator double compartment w/dischage CO and 2 access covers Required by MSD/IWD

C/O on Silver Recovery Unit Acid Dilution Pit Other

IF YOU ARE NOT EXEMPT, the INDUSTRIAL WASTE DEPARTMENT MUST INSPECT THE PLUMBING prior to backfilling to verify that the accepted plans have been followed and that the sample station and/or interceptor requirements have been met. PLEASE MAKE AN APPOINTMENT FOR INSPECTION a minimum of 24 hours prior to backfilling to reduce delays in construction.

If you have any questions or if you wish to make an appointment, please call Peggy Burgin (502) 540-6974

MSD Reviewer Date

FINAL RELEASE

ROUGH PLUMBING INSPECTION MSD Inspector

Acceptable, Date

Unacceptable

Comments

INTERCEPTOR/SAMPLE STATION INSPECTION MSD Inspector

Acceptable, Date

Unacceptable

Comments

INTERCEPTOR/SAMPLE STATION RE-INSPECTION MSD Inspector

Acceptable, Date

Unacceptable

Comments

MSD accepts the rough plumbing and interceptor as now constituted. The Applicant agrees he, his business or agents will make no changes without prior approval of MSD's Industrial Waste Department.

MSD Representative Date Applicant's Signature Date



**MSD**

Louisville and Jefferson County Metropolitan Sewer District  
Industrial Waste Department

**IWD Plan Submittal Survey Form**

Project Name TACO BELL Telephone \_\_\_\_\_  
 Site Address 3520 BARDTOWN ROAD  
 Owners Name YUM - JOHN COVITER Telephone 615-885-4494 #118  
 Submitting Firm/Co. DESIGN +, INC Telephone 502-454-5011 #117  
 Person Submitting DALE RYAN/KEN BROWN Fax No. 502-454-4511

**DESCRIPTION OF INDUSTRIAL PROCESSES OR ACTIVITIES**

Provide a brief description of industrial processes, manufacturing, or activities to be performed at this site.

\_\_\_\_\_  
 \_\_\_\_\_

Building is:  New  Existing If existing, is there a current wastewater discharge permit with MSD?  
 Yes  No  unknown, if yes, give permit number \_\_\_\_\_

Check the appropriate answer:

Yes No

- Will water be discharged to the sewer from sources other than restrooms, hand sinks, air handling equipment or condensate sinks?
- Are floor drains installed in any production or material storage areas?
- Are any solvents or hazardous materials to be used or stored at the facility?
- Is there any treatment planned for wastewater, prior to discharge to the sewer?
- Will this facility operate one of the following processes? If yes, please indicate which is appropriate:
  - Auto/Truck Service or Repair
  - Car/Truck Wash
  - Food Service/Kitchen
  - Industrial Laundry
  - Materials/Equipment Washing
  - Photo/X-ray Processor
  - Printing Operations
  - Process Wastewater
  - Wastewater Treatment

If the answer to any of the above questions is *yes*, you must have plumbing (riser) and site plans reviewed by the Industrial Waste Department of the Louisville and Jefferson County Metropolitan Sewer District prior to obtaining a construction permit. A review of your plans will be conducted. A wastewater discharge permit, pretreatment facilities or monitoring provisions *may* be required. Initial release will be given once these items have been addressed in the plans. **PLEASE BE ADVISED THAT plans must also be approved by MSD's Stormwater Management Department, prior to obtaining a building permit.**

*Person submitting plan must sign below.*

I, the undersigned have correctly answered the above questions to the best of my knowledge.

Signed  Date 4/12/05  
 Title \_\_\_\_\_

*For IWD review of plans, please call Greg Ratliff 540-6470 or Lisa Gaus 540-6467, to make an appointment. Plans may be dropped off at or mailed to MSD IWD, 700 W. Liberty St. 40203-1913, Monday - Friday, 7:30 am - 4:00 pm.*

DISTRIBUTION: White Copy - MSD IWD Department, Canary Copy - Issuing Agency, Pink - Owner



**IWD FIRST RELEASE**  
(submit this form with request for building permit)

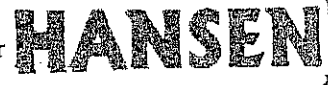
Proj. No. \_\_\_\_\_  
Hansen No. 110630  
SW No. \_\_\_\_\_

Project Name: Gordon Food Service  
Site Address: 7389 Jefferson Blvd Zip Code 40219  
Owner's Name: Same Telephone \_\_\_\_\_  
Contract Name: Jack Watkins Telephone 616-785-5574

Hand Delivered  Mailed  DOEH  Owner  Contractor  Other \_\_\_\_\_

MSD has reviewed and accepted the Industrial Waste Survey Form and plans dated \_\_\_\_/\_\_\_\_/\_\_\_\_

Pretreatment equipment required:  Exempt  Monitoring  Interceptor



Comments: (Please circle one of the items below)

**Minimum 25 gpm/50# capacity  
GREASE INTERCEPTOR w/CO  
Required by MSD/IWD**

Minimum 50 gpm/100# capacity  
GREASE INTERCEPTOR w/CO  
Required by MSD/IWD

1000 Gallon GREASE INTERCEPTOR / 1000 Gallon Oil/Water Separator  
double compartment w/dischage CO and 2 access covers  
Required by MSD/IWD

~~C/O on Silver Recovery Unit~~

Acid Dilution Pit

Other \_\_\_\_\_

IF YOU ARE NOT EXEMPT, the INDUSTRIAL WASTE DEPARTMENT MUST INSPECT THE PLUMBING prior to backfilling to verify that the accepted plans have been followed and that the sample station and/or interceptor requirements have been met. PLEASE MAKE AN APPOINTMENT FOR INSPECTION a minimum of 24 hours prior to backfilling to reduce delays in construction.

If you have any questions or if you wish to make an appointment, please call Peggy Burgin (502) 540-6974

P. Burgin  
MSD Reviewer

4/13/06  
Date

**FINAL RELEASE**

$\pi$  ROUGH PLUMBING INSPECTION MSD Inspector \_\_\_\_\_

$\pi$  Acceptable, Date \_\_\_\_/\_\_\_\_/\_\_\_\_

$\pi$  Unacceptable

Comments \_\_\_\_\_

$\pi$  INTERCEPTOR/SAMPLE STATION INSPECTION MSD Inspector \_\_\_\_\_

$\pi$  Acceptable, Date \_\_\_\_/\_\_\_\_/\_\_\_\_

$\pi$  Unacceptable

Comments \_\_\_\_\_

$\pi$  INTERCEPTOR/SAMPLE STATION RE-INSPECTION MSD Inspector \_\_\_\_\_

$\pi$  Acceptable, Date \_\_\_\_/\_\_\_\_/\_\_\_\_

$\pi$  Unacceptable

Comments \_\_\_\_\_

MSD accepts the rough plumbing and interceptor as now constituted. The Applicant agrees he, his business or agents will make no changes without prior approval of MSD's Industrial Waste Department.

MSD Representative \_\_\_\_\_ Date \_\_\_\_\_ Applicant's Signature \_\_\_\_\_ Date \_\_\_\_\_

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ACCENT ON HAIR	905 HESS LN	CSO015
ALL STAR CUTZ	3115 COMMERCE CENTER PL	CSO015
ANNIE'S CAFE	308 W WOODLAWN AVE	CSO015
AUDUBON ANIMAL MEDICAL CENTER	1311 DURRETT LN	CSO015
AUDUBON SCISSOR PLAY SALON	3127 PRESTON HWY	CSO015
AUTO BODY & FRAME	2343 MILLERS LN	CSO015
AUTOMOTIVE SPECIALISTS	4217 TAYLOR BLVD	CSO015
B MART	3612 CANE RUN RD	CSO015
BARKER'S JAY AUTO REPAIR SERVICE INC	4350 TAYLOR BLVD	CSO015
BLANKENSHIP'S AUTO SERVICE	4238 LOUISVILLE AVE	CSO015
BLUEGRASS COCA COLA BOTTLING CO	1661 W HILL ST	CSO015
BLUEGRASS MEDICAL BUILDING	4402 CHURCHMAN AVE	CSO015
BOWEBB CLEANERS	5213 NEW CUT RD	CSO015
BROOKLINE LAUNDRYMAT	830 BROOKLINE AVE	CSO015
BROOKS DUCT CLEANING	4144 TAYLOR BLVD	CSO015
BROWN BOB ENTERPRIZES	1736 W GAULBERT AVE	CSO015
CARBY CAR WASH	3204 DIXIE HWY	CSO015
CARDINAL HALL OF FAME CAFE	2745 CRITTENDEN DR	CSO015
CARITAS	5305 DEVERS AVE	CSO015
CENTRAL BAR & LOUNGE	2515 7TH STREET RD	CSO015
CHARLIE PAXTON'S ONE HOUR CLEANERS	1600 DIXIE HWY	CSO015
CHURCHILL DOWNS	4422 RICE AVE	CSO015
CHURCHILL DOWNS	700 CENTRAL AVE	CSO015
CHURCHILL VET LAB	3737 S 4TH ST	CSO015
COCA COLA BOTTLING CO	1661 W HILL ST	CSO015
COCA-COLA BOTTLING CO OF LOUIS	1661 W HILL ST	CSO015
COLOR CORP INC	1630 W HILL ST	CSO015
COLOR CORP INC OF AMERICA	1630 W HILL ST	CSO015
DAN'S BAR	1400 CENTRAL AVE	CSO015
DIXIE DENTAL CENTER PSC & ASSOCIATES	1480 DIXIE HWY	CSO015
DUNKIN DONUTS	4500 S 3RD ST	CSO015
EARLY TIMES DISTILLERY	2921 DIXIE HWY	CSO015
EL SHADDAI CHRISTIAN CHILDCARE CENTER	1340 BERRY BLVD	CSO015
F & M FOOD MART	1600 ARCADE AVE	CSO015
FIVE STAR FOOD MART	3901 TAYLOR BLVD	CSO015
FLORIDA DISTILLERS COMPANY	3290 7TH STREET RD	CSO015
GENERAL RUBBER & PLASTICS CO	3118 PRESTON HWY	CSO015
GENTLE EXCELLENCE DENTAL	4133 TAYLOR BLVD	CSO015
GOLDEN STAR CHINESE FAST FOOD RESTA	3458 TAYLOR BLVD	CSO015
GREENBAUM ENVIRONMENTAL	994 LONGFIELD AVE	CSO015
HARDEE'S RESTAURANT	3459 TAYLOR BLVD	CSO015
HAZELWOOD RESTAURANT	4106 TAYLOR BLVD	CSO015
HEADDEN SEPTIC & ENVIRONMENTAL SERV	3111 DIXIE HWY	CSO015
HEADY ARCH L & SON FUNERAL DIRECTORS	3601 TAYLOR BLVD	CSO015
HERMAN & OCHS DNTST	5349 MITSCHER AVE	CSO015
HOPE DENTAL CENTER	4004 PRESTON HWY	CSO015
IROQUOIS ANIMAL CLINIC	5017 S 3RD ST	CSO015
IROQUOIS CHITD CARE CENTER	4100 LENTZ AVE	CSO015
IROQUOIS HAIR & NAIL	5324 S 3RD ST	CSO015
IROQUOIS MANOR COIN LAUNDRY LLC	5337 MITSCHER AVE	CSO015
J & M BODY SHOP	508 DAKOTA ST	CSO015
JOE VINCENTS AUTO REPAIR	1700 BERRY BLVD	CSO015
JOHNNY DOLLAR AUTO REPAIR	1731 DIXIE HWY	CSO015
KENWOOD FAMILY DENTAL CENTER	5305 S 3RD ST	CSO015
LAB CORP	1048 EUCLID AVE	CSO015
LOXX HAIR & NAI	1641 SQUIRES DR	CSO015
LUCAS AUTO REPA	1126 ALGONQUIN PKWY	CSO015
LUCAS AUTO REPAIR	2814 1/2 7TH STREET RD	CSO015
LUXUREE DRY CLEANERS	1400 CENTRAL AVE	CSO015
PHILIP MORRIS USA	2349 MILLERS LN	CSO015
PHILIP MORRIS USA MILLERS LANE COMPLE	2349 MILLERS LN	CSO015
PIERCE & MITCHELL PSC DNTST	4825 S 3RD ST	CSO015
SHARKS FISH & CHICKEN	2001 7TH STREET RD	CSO015
SHARPER IMAGE HAIR STYLES	2139 DIXIE HWY	CSO015
SHEAR PLEASURE HAIR STYLES	509 W WOODLAWN AVE	CSO015
SHIVELY ANIMAL CLINIC & HOSPITAL	2401 DIXIE HWY	CSO015
SOLAE LLC	1125 LILLIAN AVE	CSO015
SOUTHSIDE CHRISBTIAN CHILD CARE	5804 SOUTHSIDE DR	CSO015
SOUTHSIDE CHRISTIAN CHILD CARE II	4016 TAYLOR BLVD	CSO015
SOUTHSIDE CLEANERS	6920 SOUTHSIDE DR	CSO015
SPEEDWAY PETROLEUM INC	3636 CANE RUN RD	CSO015
STEVE'S BAR & GRILL INC	1670 S 17TH ST	CSO015
SUBWAY	3314 PRESTON HWY	CSO015
THE LAUNDRY CONNECTION	1300 SOUTHGATE AVE	CSO015
TOP CITY DRY CLEANERS & LAUNDRY II	3101 PRESTON HWY	CSO015
TRIPLE CROWN DENTAL LAB	642 PHILLIPS LN	CSO015

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ULRICH CHEMICAL INC-LOUISVILLE DIV	3900 TUCKER AVE	CSO015
UNITED DEFENSE LP ARMAMENT SYSTEMS	163 ROCHESTER DR	CSO015
UNIV OF LOUISVILLE	132 OTTAWA AVE	CSO015
VINCENTS AUTO REPAIR	1700 BERRY BLVD	CSO015
VINCENT'S JOE AUTO REPAIR	1700 BERRY BLVD	CSO015
WENDYS	3301 CANE RUN RD	CSO015
ARBYS	2804 CRITTENDEN DR	CSO015
ULRICH CHEMICAL INC LOUISVILLE DIV	3900 TUCKER AVE	CSO015
1ST INTERMODAL	3508 MANSCLICK RD	CSO015
502 COIN LAUNDRY	1739 BERRY BLVD	CSO015
502 LOUNGE	2509 DIXIE HWY	CSO015
A C CHIROPRACTIC CENTER	947 CENTRAL AVE	CSO015
A CHAU GROCERY STORE	5107 S 3RD ST	CSO015
A CHEAP DUMPSTER CO LLC	2820 7TH STREET RD	CSO015
ABRAMS ROOFING & SHEET METAL	1847 BERRY BLVD	CSO015
ABRAMS ROOFING & SHEET METAL INC	1847 BERRY BLVD	CSO015
ADVANCED FILTRATION TECHNOLOGY INC	3111 DIXIE HWY	CSO015
ADVANTAGEB TANK LINES	2600 MILLERS LN	CSO015
AETNA/U S HEALT	1400 SHINGO AVE	CSO015
AFFORDABLE WASTE MANAGEMENT	3848 TUCKER AVE	CSO015
AKZO COATINGS I	4730 CRITTENDEN DR	CSO015
AKZO NOBEL	4730 CRITTENDEN DR	CSO015
ANGELO'S PIZZA	1725 BERRY BLVD	CSO015
ANGILOS PIZZA	1725 BERRY BLVD	CSO015
ANGILO'S PIZZA	1725 BERRY BLVD	CSO015
ANTIQUE CAR CO	2917 DIXIE HWY	CSO015
ARBYS	5022 S 3RD ST	CSO015
AUTOZONE	3102 PRESTON HWY	CSO015
AUTOZONE	5115 NEW CUT RD	CSO015
BACTION AUTO BODY & PAINT SHOP	2911 DIXIE HWY	CSO015
BARBARA DEE COOKIE CO	2287 RALPH AVE	CSO015
BEAUTY SUPPLY CENTER	5324 S 3RD ST	CSO015
BLUEGRASS ORTHOPAEDIC GROUP TOTAL	4402 CHURCHMAN AVE	CSO015
B-MART	3612 CANE RUN RD	CSO015
BUD SMITH PHOTO-VIDEO	4300 S 2ND ST	CSO015
CAFETERIA	425 E KENWOOD DR	CSO015
CARITAS HEALTH	134 E SOUTHLAND BLVD	CSO015
CARITAS HEALTH	1850 BLUEGRASS AVE	CSO015
CARITAS HEALTH SERVICES	1850 BLUEGRASS AVE	CSO015
CARITAS HEALTH SERVICES	4402 CHURCHMAN AVE	CSO015
CARITAS HEALTH SERVICES INC	1850 BLUEGRASS AVE	CSO015
CARITAS MEDICAL CENTER	1850 BLUEGRASS AVE	CSO015
CARITAS PHYSICI	515 BEECHER ST	CSO015
CREDIT BUREAU SYSTEMS INC	2113 ALGONQUIN PKWY	CSO015
DAIRY MART	4347 S 3RD ST	CSO015
DAIRY MART #281	335 E ESPLANADE AVE	CSO015
DAIRY MART #385	1255 W ASHLAND AVE	CSO015
DAIRY MART 1003	1783 CAYUGA AVE	CSO015
DAIRY MART G NUMBER 385	1255 W ASHLAND AVE	CSO015
DAIRY MART SOUTHEAST DIVISION STORE N	1100 ALGONQUIN PKWY	CSO015
DAIRY QUEEN	4137 TAYLOR BLVD	CSO015
DERBY CITY TANK WASH INC	3806 BELLS LN	CSO015
INDI'S RESTAURANT	5009 S 3RD ST	CSO015
JEWISH HOSPITAL MEDICAL OFC	2905 1/2 DIXIE HWY	CSO015
JIMBO'S BARBECUE	801 W KENWOOD DR	CSO015
JIM'S AUTO SERVICE	4319 S BROOK ST	CSO015
KFC	3280 TAYLOR BLVD	CSO015
KFC	5010 S 3RD ST	CSO015
KROGER	4211 S 3RD ST	CSO015
LAB CORP	3711 PARTHENIA AVE	CSO015
LIL' KINGS & QU	3020 PENWAY AVE	CSO015
LITTLE ANGELS DAYCARE	4606 S 2ND ST	CSO015
LITTLE CAESARS PIZZA	816 W KENWOOD DR	CSO015
LITTLE PEOPLE'S CHILD CARE	1507 BERRY BLVD	CSO015
LOU ETTA'S JEAN'S BEAUTY SALON	1000 W WHITNEY AVE	CSO015
LOUISVILLE CHEMICAL COMPANY	3236 COMMERCE CENTER PL	CSO015
LOUISVILLE DREAM DENTISTRY	3803 PRESTON HWY	CSO015
MANDY'S HAIR TECH	1402 CENTRAL AVE	CSO015
MANION'S RESTAURANT AND SPORTS BAR	3631 CANE RUN RD	CSO015
MARTIN'S TAVERN	1614 DIXIE HWY	CSO015
MARYDALE CLUB	1910 DUBOURG AVE	CSO015
MARY'S BEAUTY SHOP	837 DENMARK ST	CSO015
MCDONALDS	806 W EVELYN AVE	CSO015
MCDONALD'S RESTAURANTS	2500 DIXIE HWY	CSO015
MCDONALD'S RESTAURANTS	3340 TAYLOR BLVD	CSO015
MCDONALD'S RESTAURANTS	3350 PRESTON HWY	CSO015

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
MCDONALD'S RESTAURANTS	5001 S 3RD ST	CSO015
MOBY DICK SEAFOOD RESTAURANTS	6810 SOUTHSIDE DR	CSO015
MR GAFTI'S	5600 S 3RD ST	CSO015
MR GATTIS	5600 S 3RD ST	CSO015
MY T SHARP HAIR DESIGNS	4132 TAYLOR BLVD	CSO015
NEW HORIZON HOPE CARE CENTER	2204 DIXIE HWY	CSO015
NUNNELLEY FUNERAL HOME INC	4327 TAYLOR BLVD	CSO015
OLE MEXICAN FOODS INC	3200 COMMERCE CENTER PL	CSO015
ONE HOUR MARTINIZING LAUNDRY	3123 COMMERCE CENTER PL	CSO015
ONE STOP FOOD MART #5	3300 ALGONQUIN PKWY	CSO015
OXY VINYLs	1737 W GAULBERT AVE	CSO015
PAPA JOHNS INTERNATIONAL	3901 SOUTHERN PKWY	CSO015
PENN STATION EAST COAST SUBS	300 W WOODLAWN AVE	CSO015
PEPSI COLA GENERAL BOTTLERS BOTTLE &	4008 CRITTENDEN DR	CSO015
PEPSI-COLA GEN BOTTLERS	4008 CRITTENDEN DR	CSO015
PIZZA MAGIA	3334 LINWOOD AVE	CSO015
PORTER PAINTS	5330 S 3RD ST	CSO015
PREVONNE'S HAIR DESIGNS	3007 DIXIE HWY	CSO015
RALLY'S HAMBURGERS	1800 W HILL ST	CSO015
RALLY'S HAMBURGERS	3455 TAYLOR BLVD	CSO015
RITE AID EXPRESS 1 HOUR PHOTO	4149 TAYLOR BLVD	CSO015
RONE' PHOTOGRAPHY	1749 W HILL ST	CSO015
SALON ROUGE	3103 COMMERCE CENTER PL	CSO015
SHOPPERS CHARGE ACCOUNT	937 PHILLIPS LN	CSO015
SPEEDY MART	2708 DIXIE HWY	CSO015
SPEEDY MART	4406 TAYLOR BLVD	CSO015
SUBWAY SANDWICH SHOP	5338 S 3RD ST	CSO015
SUPERAMERICA	306 W AMHERST AVE	CSO015
SUPERAMERICA	4319 CRITTENDEN DR	CSO015
TACO BELL	3408 PRESTON HWY	CSO015
TACO BELL	5010 S 3RD ST	CSO015
THORNTON OIL CORP 42	4309 CRITTENDEN DR	CSO015
THORNTON OIL CORP 60	3320 PRESTON HWY	CSO015
THORNTON OIL CORP 61	2000 7TH STREET RD	CSO015
UNIV OF LOUISVILLE	4038 LA SALLE AVE	CSO015
WENDYS OLD FASHIONED HAMBURGERS	3422 TAYLOR BLVD	CSO015
ANGELO'S BAR	827 N 34TH ST	CSO019
FIVE STAR FOOD MART	521 N 22ND ST	CSO019
IN & OUT DAIRY MART	2329 PORTLAND AVE	CSO019
VULCAN HART CO	2006 NORTHWESTERN PKWY	CSO019
WEST END FAMILY DENTAL CLINIC ON	2418 W MARKET ST	CSO019
DAIRY QUEEN OF MIDDLESBORO	2058 PORTLAND AVE	CSO019
A BETTER BUY AUTO SALES INC	356 N 26TH ST	CSO019
ANNIE'S PIZZA INC	2520 PORTLAND AVE	CSO019
APPLIANCE DISPOSAL & RECYCLING CENTE	2529 W MARKET ST	CSO019
CARITAS HEALTH SERVICES	2500 W MARKET ST	CSO019
CINDY'S HAIR SALON	2816 PORTLAND AVE	CSO019
DOMINO'S PIZZA	2313 W MARKET ST	CSO019
KROGER	3126 PORTLAND AVE	CSO019
LIL GENIUS CHIL	323 N 25TH ST	CSO019
LIL' KINGS & QU	526 LOCHER ALY	CSO019
MARKET STREET FAMILY DENTISTRY PSC &	2410 W MARKET ST	CSO019
MCDONALD'S RESTAURANTS	520 N 22ND ST	CSO019
SPEEDWAY SUPERAMERICA	2112 DUNCAN ST	CSO019
SUBWAY SANDWICH SHOP	533 N 22ND ST	CSO019
CICIS PIZZA	939 E WASHINGTON ST	CSO020
ABC WELDING & REPAIR	1019 E MAIN ST	CSO020
ASHLAND INC	1004 E WASHINGTON ST	CSO020
HOME OF THE INNOCENTS	1100 E MARKET ST	CSO020
ALSAC SAINT JUDE CHILDRENS RESEARCH	215 W MUHAMMAD ALI BLVD	CSO022
AMICC'S RESTAURANT	641 S 4TH ST	CSO022
BLU-ITALIAN MEDITERRANEAN GRIL	280 W JEFFERSON ST	CSO022
BORDEN CHEMICAL	462 S 4TH ST	CSO022
BRIAN'S DELI	531 S 4TH ST	CSO022
DMITRI'S DELI	521 S 3RD ST	CSO022
ENGLISH GRILL	335 W BROADWAY	CSO022
FEDEX KINKO'S	315 W MARKET ST	CSO022
HARD ROCK CAFE LOUISVILLE	424 S 4TH ST	CSO022
J GRAHAMS CAFE IN THE BROWN	335 W BROADWAY	CSO022
KUNZS BANQUET & CONFERENCE FACILITY	107 S 4TH ST	CSO022
KUNZS FOURTH & MARKET RESTAURANT	115 S 4TH ST	CSO022
KUNZ'S THE DUTCHMAN RESTAURANT & LO	115 S 4TH AVE	CSO022
LOUISVILLE WATER COMPANY	550 S 3RD ST	CSO022
LOUISVILLE WATER COMPANY CORPORATE	550 S 3RD ST	CSO022
PESTO'S ITALIAR RESTAURANT	566 S 5TH ST	CSO022
SAINT JUDE CHILDRENS RESEARCH HOSPIT	215 W MUHAMMAD ALI BLVD	CSO022

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
SPIRE RESTAURANT & BAR	320 W JEFFERSON ST	CSO022
STARBUCKS COFFEE	221 S 4TH ST	CSO022
ALLIANCE FAMILY DENTAL CENTER	410 W CHESTNUT ST	CSO022
ALTERNATIVE HEALTH	400 W MARKET ST	CSO022
AMERICAS TRUCK WASH AND CHROME	221 S 4TH ST	CSO022
ANTHONY'S 4TH ST DELI	22 THEATER SQ	CSO022
ANTONIO'S PRIMIZIE PIZZA	2 THEATER SQ	CSO022
BADER'S FOOD MART	300 S 1ST ST	CSO022
BANGS HAIR SALON	503 S 3RD ST	CSO022
BECKER LAW OFFICE PLLC	401 S 4TH ST	CSO022
BENKIS CHICAGO STYLE DELI	528 S 5TH ST	CSO022
CAFE KILIMANJARO	649 S 4TH ST	CSO022
CINTAS THE UNIFORM PEOPLE	400 S 4TH ST	CSO022
G E FINANCIAL ASSURANCE	462 S 4TH ST	CSO022
PEPPERS SPORTS BAR	320 W JEFFERSON ST	CSO022
PERFECT NAILS & HAIR	558 S 4TH ST	CSO022
SHEER IMAGE SAL	612 S 4TH ST	CSO022
SUBWAY SANDWICH SHOP	411 S 4TH ST	CSO022
TGI FRIDAYS	415 S 4TH ST	CSO022
WENDY'S OLD FASHIONED HAMBURGERS	411 S 4TH ST	CSO022
PERRY'S SNACK BAR	601 W BROADWAY	CSO026
UNCLE SAM'S PLACE CHILD CARE CENTER	600 DR MARTIN LUTHER KING PL	CSO026
COURIER JOURNAL CIRCULATION	525 W BROADWAY	CSO026
COURIER JOURNAL CIRCULATION SERVICES	525 W BROADWAY	CSO026
AMERICAN NAIL	701 W BROADWAY	CSO027
CHILDRENS EDITION CHILD CARE	729 S 6TH ST	CSO028
CHILDREN'S EDITION CHILD CARE CENTER	729 S 6TH ST	CSO028
PHAT'S BAR AND GRILL	632 W BROADWAY	CSO028
BROADWAY CAFETERIA	801 W BROADWAY	CSO030
COMMUNITY COORDINATED CHILD CARE	908 W BROADWAY	CSO030
LG&E	820 W BROADWAY	CSO030
LG&E ENERGY SERVICES, INC	820 W BROADWAY	CSO030
SALON 502	1001 W BROADWAY	CSO030
4-C COMMUNITY COORDINATED CHILD CARE	908 W BROADWAY	CSO030
GAINES BEVERLY & ASSOCIATES MD PSC	305 W BROADWAY	CSO036
M RS ANALYTICAL LABORATORY	323 W BROADWAY	CSO036
MCDONALDS	207 W BROADWAY	CSO036
MCDONALD'S RESTAURANTS	207 W BROADWAY	CSO036
MR LEE'S HAIR SALON	325 W BROADWAY	CSO036
CITY CAFE	505 W BROADWAY	CSO038
KINDRED HEALTHCARE	445 W BROADWAY	CSO038
BROHM MICHAEL PHOTOGRAPHY	1026 W MAIN ST	CSO051
DAVID HARPE PHOTOGRAPHY	815 W MARKET ST	CSO053 150
GAVL'S RESTAURANT INC	222 S 7TH ST	CSO053 150
BIG HOPPS RESTAURANT	800 W MARKET ST	CSO053 150
PORTRAIT WAREHOUSE STUDIO	815 W MARKET ST	CSO053 150
TAYLOR BLDG CORP	800 W MAIN ST	CSO053 150
CONCRETE COATINGS	101 N 7TH ST	CSO054
LUIGI'S PIZZERIA	702 W MAIN ST	CSO054
LULGI'S PLZZERIA	712 W MAIN ST	CSO054
ANOTHER PLACE DOWNTOWN PUB & SAND	119 S 7TH ST	CSO054
SUBWAY 12872	725 W MAIN ST	CSO054
BAYS BROWN LAB	614 W MAIN ST	CSO055
BRISTOL BAR & GRILLE	614 W MAIN ST	CSO055
HEAVEN HILL DISTILLERIES INC	528 W MAIN ST	CSO055
BAYS BROWN LABORATORIES INC	614 W MAIN ST	CSO055
LOS AZTECAS MEXICAN RESTAURANT NO 2	530 W MAIN ST	CSO055
MORTONS THE STEAKHOUSE LOUISVILLE	626 W MAIN ST	CSO055
SUBWAY	539 W MARKET ST	CSO055
CHARLES HEITZMAN BAKENRIES & CAFE	428 W MARKET ST	CSO056
DELTA RESTAURANT	434 W MARKET ST	CSO056
FUNKY PARROT RESTAURANT AND NIGHT C	410 S 4TH ST	CSO056
PERFECTION HAIRSTYLING BY PMINO	101 S 5TH ST	CSO056
SKYLINE CHILI	426 W MARKET ST	CSO056
VINCENZOS ITALIAN RESTAURANT	150 S 5TH ST	CSO056
4TH STREET LIVE	420 W LIBERTY ST	CSO056
A P GROCERY & DELI	225 S 5TH ST	CSO056
ALLEGRO	101 S 5TH ST	CSO056
BENTOYA RESTAURANT	217 S 5TH ST	CSO056
DINO'S SNACK SHOP	239 S 5TH ST	CSO056
QUIZNO'S CLASSIC SUBS	223 S 5TH ST	CSO056
HUGH & ED'S AUTO SERVICE	700 E MARKET ST	CSO058
UNSELD CHILD CARE & DEVELOPMENT CEN	219 S PRESTON ST	CSO058
BLOOD BANK	352 E MARKET ST	CSO058
BRISTOL CATERING	632 E MARKET ST	CSO058
COMMERCIAL PRODUCTS	515 E MARKET ST	CSO058

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
MCDONALDS RESTAURANT	420 E MARKET ST	CSO058
MEDICAL CENTER D M E /LLC	337 S PRESTON ST	CSO058
MEDICAL LABORATORY CONSULTANTS PLLC	221 S PRESTON ST	CSO058
MICHEL TIRES PL	434 E MARKET ST	CSO058
MICHEL TIRES PLUS	434 E MARKET ST	CSO058
RISE AND SHINE CHILD CARE CENTER	207 S HANCOCK ST	CSO058
SERVICE TANKS	700 E MAIN ST	CSO058
J & M LABORATORIES	658 BARRET AVE	CSO083
JILLIAN'S	630 BARRET AVE	CSO083
KINDRED HOSPITAL LOUISVILLE	1313 SAINT ANTHONY PL	CSO083
BADER FOOD MART	1244 E BROADWAY	CSO084
BUFFALO WILD WINGS GRILL & BAR	1055 BARDSTOWN RD	CSO084
CHUCK RUBIN PHOTOGRAPHICS	1031 BARDSTOWN RD	CSO084
DAY CARE AT EASTERN STAR HOME	917 EASTERN STAR CT	CSO084
JACK FRY'S	1007 BARDSTOWN RD	CSO084
KEY LIME HAIR SALON	2009 HIGHLAND AVE	CSO084
LEMONGRASS CAFE	1019 BARDSTOWN RD	CSO084
TACO BELL	1069 BARDSTOWN RD	CSO084
A NEW LIFE CHIROPRACTIC	1033 BARDSTOWN RD	CSO084
ABSENTEE BALLOTS BOARD OF ELECTIONS	810 BARRET AVE	CSO084
ARBYS ROAST BEEF RESTAURANT	1075 BARDSTOWN RD	CSO084
ARBYS ROAST BEEF RESTAURANT	1075 BARDSTOWN RD	CSO084
ATMOSPHERE RESTAURANT & NIGHTCLUB	917 BAXTER AVE	CSO084
MOLLY MALONE'S IRISH PUB & RESTAURANT	933 BAXTER AVE	CSO084
MR TRANSMISSION	800 BAXTER AVE	CSO084
STARBUCKS COFFEE	970 BAXTER AVE	CSO084
STARDUST SALON INC	960 BAXTER AVE	CSO084
WICK'S PIZZA PARLOR & PUB	975 BAXTER AVE	CSO084
BAUMER'S QUALITY AUTOMOTIVE CARE	1757 MELLWOOD AVE	CSO088
KENTUCKIANA CHILDREN'S CENTER	1810 BROWNSBORO RD	CSO088
BAUMER'S QUALITY AUTO CARE LLC	1757 MELLWOOD AVE	CSO088
STARNS DENTAL LABORATORY	1107 E SAINT CATHERINE ST	CSO092
LEONARD BRUSH AND CHEMICAL	1450 MELLWOOD AVE	CSO093
LEONARD BRUSH AND CHEMICAL COMPANY	1450 MELLWOOD AVE	CSO093
SPARTAN CHEMICAL CO	1450 MELLWOOD AVE	CSO093
SPEEDWAY PETROLEUM INC	1648 MELLWOOD AVE	CSO093
ARMSTRONG LABORATORY INC	1626 MELLWOOD AVE	CSO093
AUTOBAHN MOTORS	1501 MELLWOOD AVE	CSO093
MOBY DICK SEAFOOD RESTAURANTS	1500 MELLWOOD AVE	CSO093
QTC INC PARKSIDE GRILL	4532 W BROADWAY	CSO104
BROADWAY DENTAL PSC & ASSOCIATES	1813 W BROADWAY	CSO105
BROWN-FORMAN BEVERAGES WORLDWIDE	850 DIXIE HWY	CSO105
BURGER KING	2622 W BROADWAY	CSO105
CAROYN'S HAIR & NALL BOUTIQUE II	2001 W BROADWAY	CSO105
CLASSIC BEAUTY SALON	2223 MAGAZINE ST	CSO105
CRYSTAL CLEAN CAR WASH	1701 W BROADWAY	CSO105
CUTTIN UP BEAUTY SALON	1921 W BROADWAY	CSO105
DINO # 2 FOODMART	2601 W BROADWAY	CSO105
GOLDEN COMB BEAUTY SALON	2300 W BROADWAY	CSO105
HATHAWAY & CLARK FUNERAL HOME INC	2718 VIRGINIA AVE	CSO105
HEAVEN HILL DISTILLERIES INC BERNHEIM C	1701 W BRECKINRIDGE ST	CSO105
INDILS FAST FOOD RESTAURANT	1033 W BROADWAY	CSO105
J & N FOODMART	4132 W BROADWAY	CSO105
JAY'S CAFETERIA	1812 W MUHAMMAD ALI BLVD	CSO105
KFC	1911 W BROADWAY	CSO105
LEE'S FAMOUS RECIPE COUNTRY CHICKEN	2124 W BROADWAY	CSO105
PERRYMAN'S MORTUARY	3237 W BROADWAY	CSO105
SALON 502	723 S 43RD ST	CSO105
SMITH, EDWIN M DDS/DNTST	2413 W BROADWAY	CSO105
THE GREATEST CAR WASH LLC	2014 W BROADWAY	CSO105
THE LAUNDRY CONNECTION	2600 W BROADWAY	CSO105
UNIV OF LOUISVILLE	1339 CYPRESS ST	CSO105
UNSELD CHILD CARE & DEVELOPMEN	2406 W BROADWAY	CSO105
UNSELD CHILD CARE & DEVELOPMENT CEN	2406 W BROADWAY	CSO105
WILLIAMS G C FUNERAL HOME	1935 W BROADWAY	CSO105
24TH ST LOUNGE	617 S 24TH ST	CSO105
A D PORTER AND SON	1300 W CHESTNUT ST	CSO105
A L HANSEN PAINT & METAL SHOP INC	2620 W CHESTNUT ST	CSO105
A PLACE FOR US DEVELOPMENT	1508 W KENTUCKY ST	CSO105
A TIRE SHOP	1514 W OAK ST	CSO105
AAA CHIROPRACTIC	2623 W BROADWAY	CSO105
AIR PRODUCTS AND CHEMICALS INC	3014 HALE AVE	CSO105
ALCOA LOUISVILL	2827 HALE AVE	CSO105
ANGIES HAIR SENAONSATIONS	1300 W BROADWAY	CSO105
ANNIE E CASEY FOUNDATION	2900 W BROADWAY	CSO105
ASHLAND INC	1127 S 17TH ST	CSO105



**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ASHLAND INC	4407 ELLIOTT AVE	CSO105
AUTO WAR EHOUSE BODY SHOP INC	1400 W BROADWAY	CSO105
AUTOZONE	2131 W BROADWAY	CSO105
BILL'S AUTO SPRING SERVICE	827 S 15TH ST	CSO105
CHOPSTICKS HOUSE	2112 W BROADWAY	CSO105
KIDS KRADLE CHILD DEVELOPMENT CENTE	3632 W BROADWAY	CSO105
KING'S FAST FOOD INC	2101 W BROADWAY	CSO105
KINGS FAST FOODS INC	2101 W BROADWAY	CSO105
KROGER	2710 W BROADWAY	CSO105
KROGER	2916 GREENWOOD AVE	CSO105
KROGER L327	2710 W BROADWAY	CSO105
LIL ANGELS CHILDCARE DEVELOPMENT CEN	687 S 38TH ST	CSO105
LIL ANGELS ENRICHMENT CENTER	3719 W BROADWAY	CSO105
LIL GENIUS CHILD CARE AND TECHNOLOGY	1121 W BROADWAY	CSO105
LIL GENIUS CHILD CARE CENTER	1121 W BROADWAY	CSO105
LIL KINGS & QUEENS DEVELOPMENT KINGD	1240 S 28TH ST	CSO105
LONG JOHN SILVER'S SEAFOOD SHOPPE	3407 W BROADWAY	CSO105
LOUISVILLE FOIL PLANT	2827 HALE AVE	CSO105
LOUISVILLE TESTING LABORATORY INC	1401 W CHESTNUT ST	CSO105
MCDONALD'S	1212 W BROADWAY	CSO105
MCDONALD'S RESTAURANTS	1212 W BROADWAY	CSO105
MCDONALD'S RESTAURANTS	2720 W BROADWAY	CSO105
MINI VERSITY EARLY CHILDHOOD LEARNING	631 S 28TH ST	CSO105
NORTON HEALTHCA	1670 HALE AVE	CSO105
NORTON HEALTHCA	3707 W BROADWAY	CSO105
OLE MEXICAN FOO	2211 DATE ST	CSO105
OOHS & AHHS HAIR AND NAIL SALON	3009 W BROADWAY	CSO105
PARK DUVALLE COMMUNITY HEALTH CENTE	2516 W MADISON ST	CSO105
PIZZA HUT	2733 W BROADWAY	CSO105
PORTER A D & SONS FUNERAL HOME	1300 W CHESTNUT ST	CSO105
PORTER PAINTS	2731 W BROADWAY	CSO105
PORTER PAINTS	300 S 13TH ST	CSO105
PORTER PAINTS	400 S 13TH ST	CSO105
PORTER W P MORTUARY	2611 VIRGINIA AVE	CSO105
PORTERS FUNERAL HOME	1300 W CHESTNUT ST	CSO105
PORTER'S MORTUARY	2611 VIRGINIA AVE	CSO105
PROFESSIONAL HAIR DESIGNERS	663 S 15TH ST	CSO105
QUIZNO'S	2500 W BROADWAY	CSO105
QUIZNO'S	2500 W BROADWAY	CSO105
RALLY'S HAMBURGERS	2130 W BROADWAY	CSO105
REYNOLDS METALS COMPANY	2827 HALE AVE	CSO105
RUTHS HAIR AFFAIR	1114 DIXIE HWY	CSO105
SUD-CHEMIE INC	673 CECIL AVE	CSO105
TACO BELL	2801 W BROADWAY	CSO105
UNIV OF LOUISVILLE	4221 W BROADWAY	CSO105
WENDYS OLD FASHIONED HAMBURGERS	1201 W BROADWAY	CSO105
WENDY'S OLD FASHIONED HAMBURGERS	1201 W BROADWAY	CSO105
AMERICAN EXPRES	1818 FLEMING RD	CSO108
BRENZEL'S CHEVRON SERVICE	2501 BARDSTOWN RD	CSO108
CHEVRON BRENZELS SERVICE	2501 BARDSTOWN RD	CSO108
COLOR CRAFT PAINTING LLC	2221 VALLEY VISTA RD	CSO108
DARWIN'S PHOTOGRAPHY	2620 BARDSTOWN RD	CSO108
G E APPLIANCE	2019 LOWELL AVE	CSO108
GE APPLIANCES	2228 WALTERDALE TER	CSO108
HIGHLAND CLEANERS	2455 BARDSTOWN RD	CSO108
JIFFY LUBE	2601 BARDSTOWN RD	CSO108
KY FRIED CHICKEN	1705 DUNDEE WAY	CSO108
LIGHTNIN LUBE OIL CO	2520 BARDSTOWN RD	CSO108
SALON 1-2-3	2307 TAYLORSVILLE RD	CSO108
SMOKEY BONES BB	2525 BARDSTOWN RD	CSO108
APPLEBEE'S NEIGHBORHOOD GRILL & BAR	2225 TAYLORSVILLE RD	CSO108
HIGHLAND CLEANERS OFFICE AND PLANT	2455 BARDSTOWN RD	CSO108
KY FRIED CHICKEN	2531 DUNDEE RD	CSO108
MCDONALD'S RESTAURANTS	2209 TAYLORSVILLE RD	CSO108
PIE KITCHEN	2525 BARDSTOWN RD	CSO108
PORCINI RESTAUR	2515 WALLACE AVE	CSO108
KAELIN'S RESTAURANT	1801 NEWBURG RD	CSO109
SPINELLI'S PIZZ	1816 RICHMOND DR	CSO109
AUDUBON DENTAL HEALTH CENTER	1430 POPLAR LEVEL RD	CSO110
SUPERAMERICA	1422 POPLAR LEVEL RD	CSO110
TACO BELL EXPRESS	1422 POPLAR LEVEL RD	CSO110
LAB CORP	1225 E BURNETT AVE	CSO111
SOLAE LLC	1072 EASTERN PKWY	CSO111
DAIRY MART	1056 E OAK ST	CSO113
PARROT CLEANERS	1133 ELLISON AVE	CSO113
PLACE TO GO HAIR STYLING THE	1100 RAMMERS AVE	CSO113

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
BAPTIST TOWERS INC	1014 S 2ND ST	CSO117 149 179
BARBARA & ANN BEAUTY SHOP	960 S 4TH ST	CSO117 149 179
COMMUNITY COORDINATED CHILD CARE	960 S 3RD ST	CSO117 149 179
DAVID LS PAINT & BODY SHOP	943 S SHELBY ST	CSO117 149 179
DERBY CAFE	621 E BURNETT AVE	CSO117 149 179
DIZZY WHIZZ DRIVE IN	217 W SAINT CATHERINE ST	CSO117 149 179
DOWNTOWN CHILD CARE INC	911 S BROOK ST	CSO117 149 179
FAMILY DOCTORS PSC	330 E OAK ST	CSO117 149 179
FOURTH STREET DENTAL CENTER PSC	1018 S 4TH ST	CSO117 149 179
HAVE A NICE DAY CAFE	1815 S PRESTON ST	CSO117 149 179
HYMAN SCRAP CO KY	1423 S JACKSON ST	CSO117 149 179
J ALEXANDER'S R	206 W OAK ST	CSO117 149 179
KENTUCKIANA SHEET METAL	1501 S PRESTON ST	CSO117 149 179
SHERWIN-WILLIAM	513 RAWLINGS ST	CSO117 149 179
SILVERCREST DRY CLEANERS	1036 S 4TH ST	CSO117 149 179
TOUCH OF GOLD BEAUTY SALON	213 W ORMSBY AVE	CSO117 149 179
AMERICAN PLASTIC ENGRAVERS	235 E BURNETT AVE	CSO117 149 179
ARAMARK UNIFORM	919 S FLOYD ST	CSO117 149 179
ARAMARK UNIFORM SERVICES INC	919 S FLOYD ST	CSO117 149 179
AUDUBON HAIR NA	1211 S 2ND ST	CSO117 149 179
AWKARD RODGERS FUNERAL HOME	951 S PRESTON ST	CSO117 149 179
BIGFOOT FOOD STORES	309 E SAINT CATHERINE ST	CSO117 149 179
JEWISH HOSPITAL	223 E ORMSBY AVE	CSO117 149 179
KINDRED HOSPITA	236 E OAK ST	CSO117 149 179
KROGER	924 S 2ND ST	CSO117 149 179
KROGER RETAIL STORES	924 S 2ND ST	CSO117 149 179
LYONS FUNERAL HOME	951 S PRESTON ST	CSO117 149 179
MAGNOLIA BAR & GRILL	1398 S 2ND ST	CSO117 149 179
MASON GEORGE R SR FUNERAL HOME	977 S PRESTON ST	CSO117 149 179
MIDAS AUTO SYST	962 S 3RD ST	CSO117 149 179
NORTON HEALTHCA	514 E BRECKINRIDGE ST	CSO117 149 179
OLD LOUISVILLE LAUNDRY & DRY CLEANERS	1036 S 4TH ST	CSO117 149 179
OLLIES TROLLEY	978 S 3RD ST	CSO117 149 179
OMAR'S FOOD MART	329 E OAK ST	CSO117 149 179
PAPA JOHNS INTERNATIONAL	970 S 1ST ST	CSO117 149 179
PARADISE TOMATO KITCHENS	1500 S BROOK ST	CSO117 149 179
PARADISE TOMATO KITCHENS INC	1500 S BROOK ST	CSO117 149 179
RODGERS AWKARD FUNERAL HOME	951 S PRESTON ST	CSO117 149 179
AL'S AUTO SERVICE	753 S CLAY ST	CSO118
BLOOD & MARROW TRANSPLANT	529 S JACKSON ST	CSO118
BLUE CROSS ANIMAL HOSPITAL	827 E BROADWAY	CSO118
BOONE'S CHEVRON	601 E BROADWAY	CSO118
CARMERICA TIRE & SERVICE CENTER	701 E BROADWAY	CSO118
CHOPSTICKS	416 E BROADWAY	CSO118
CLASSIE CARWASH	510 E BROADWAY	CSO118
GATEWAY REHABILITATION HOSPITAL	315 E BROADWAY	CSO118
HUMANA HOSPITAL UNIVERSITY OF LOUISV	530 S JACKSON ST	CSO118
INFECTIOUS DISEASE	550 S JACKSON ST	CSO118
KOSAIR CHILDRENS HOSPITAL	231 E CHESTNUT ST	CSO118
KOSAIR CHILDREN'S HOSPITAL	231 E CHESTNUT ST	CSO118
PEARL'S BEAUTY SALON	781 S CLAY ST	CSO118
SHERWIN WILLIAMS CO	717 S 1ST ST	CSO118
SOUTHSIDE CHRISTIAN CHILD CARE	817 S 2ND ST	CSO118
SPECTRA LABS	615 S PRESTON ST	CSO118
TACO BELL	110 E BROADWAY	CSO118
U OF L HEALTH CARE UNIVERSITY	530 S JACKSON ST	CSO118
U OF L HEALTH CARE UNIVERSITY HOSPITAL	530 S JACKSON ST	CSO118
U OF L HEALTH CARE UNIVERSITY HOSPITAL	550 S JACKSON ST	CSO118
UNIVERSITY OF LOUISVILLE DENTAL SCHOC	501 S PRESTON ST	CSO118
A C BRAKE CO INC	308 E COLLEGE ST	CSO118
AAMCO AUTOMATIC TRANSMISSIONS CENTE	434 E BROADWAY	CSO118
AAMCO TRANSMISSIONS	434 E BROADWAY	CSO118
ALLIANT HEALTH SYSTEM	315 E BROADWAY	CSO118
AMERICAN CHIROPRACTIC	418 E BROADWAY	CSO118
AMERICAN RED CROSS LOUISVILLE AREA C	510 E CHESTNUT ST	CSO118
ASSOCIATED ORTHOPAEDICS PSC	210 E GRAY ST	CSO118
ASSOCIATES IN OBSTETRICS & GYN	210 E GRAY ST	CSO118
ASSOCIATES IN OBSTETRICS & GYNECOLOC	210 E GRAY ST	CSO118
AUTO & TRUCK ALIGNMENT SERVICE INC	633 S CAMPBELL ST	CSO118
BLOOD DONOR SITES	520 E CHESTNUT ST	CSO118
BLOOD SERVICES RIVER VALLEY REGION R	520 E CHESTNUT ST	CSO118
GENUINE PARTS CO	211 E COLLEGE ST	CSO118
JEWISH HOSPITAL	735 S 2ND ST	CSO118
JEWISH LUNG SCR	713 HENRY FIRPO	CSO118
KIDNEY CENTER	720 E BROADWAY	CSO118
KIDS KORNER	204 E JACOB ST	CSO118

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
LAB CORP	530 S JACKSON ST	CSO118
LIGHTSPEED PHOTOS	810 E BROADWAY	CSO118
LONG JOHN SILVER	805 E MADISON ST	CSO118
LONG JOHN SILVER'S SEAFOOD SHOPPE	400 E BROADWAY	CSO118
MANN CHEMICAL CORP	757 LOGAN ST	CSO118
MAY R G & SONS FUNERAL HOME INC	719 E CHESTNUT ST	CSO118
MCDONALDS RESTAURANT	231 E CHESTNUT ST	CSO118
MCDONALDS STORE	231 E CHESTNUT ST	CSO118
MEDICAL CENTER	235 ABRAHAM FLEXNER WAY	CSO118
MEDICAL CENTER	601 S FLOYD ST	CSO118
MEDICAL TOWERS SOUTH	234 E GRAY ST	CSO118
MEDLEY'S AUTO & TRUCK ALIGNMENT SERV	633 S CAMPBELL ST	CSO118
MEDLEYS AUTO TRUCK ALIGNMENT SERVIC	633 S CAMPBELL ST	CSO118
MICHAEL MURPHYS RESTAURANT	701 S 1ST ST	CSO118
NORTON HEALTHCA	210 E GRAY ST	CSO118
NORTON HEALTHCARE	231 E CHESTNUT ST	CSO118
NORTON HEALTHCARE	315 E BROADWAY	CSO118
NORTON HEALTHCARE KOSALR CHILDRENS	231 E CHESTNUT ST	CSO118
NORTON HEALTHCARE PAVILION	315 E BROADWAY	CSO118
NORTON HOSPITALS FOUNDATION	234 E GRAY ST	CSO118
NORTON MEDICAL PAVILLION	315 E BROADWAY	CSO118
NORTON METHODIST EVANGELICAL FOUNDA	234 E GRAY ST	CSO118
PEDIATRIC ENDOCRINOLOGY SPECIALIST P	234 E GRAY ST	CSO118
PEDIATRIC NEONA	213 E BROADWAY	CSO118
PEDIATRIC NEONATAL S	213 E BROADWAY	CSO118
RALLY'S HAMBURGERS	714 S 1ST ST	CSO118
U OF L INTERNAL MEDICINE GROUP	550 S JACKSON ST	CSO118
UNIV OF LOUISVILLE	627 S PRESTON ST	CSO118
UNIVERSITY OF LOUISVILLE HOSPITAL	530 S JACKSON ST	CSO118
ASSURANCE HOME & CONVALESCENT CARE	451 BAXTER AVE	CSO120
AMERICAN COMMERCIAL INCORPORATED P	1032 E CHESTNUT ST	CSO121
HOUSMAN AUTOMOTIVE	909 E MARKET ST	CSO121
KIMS ASIAN GRILL	813 E MARKET ST	CSO121
MACKEY THOMAS CHILD DEVELOPMENT & P	923 E MUHAMMAD ALI BLVD	CSO121
NIKKI'S HAIR SALON	359 S CLAY ST	CSO121
NUGENT AND ASSOCIATES PHOTOGRAPHY	107 S SHELBY ST	CSO121
QUIZNO'S	717 E LIBERTY ST	CSO121
CAFE 360	1582 BARDSTOWN RD	CSO127
CHEVRON STATION	2294 LEXINGTON RD	CSO127
HICAMAS GRILL	1538 BARDSTOWN RD	CSO127
HIGHLAND AUTOMOTIVE	2036 MIDLAND AVE	CSO127
IRENE'S SALON	1386 BARDSTOWN RD	CSO127
KALEIDOSCOPE HAIR SALON	1436 BARDSTOWN RD	CSO127
KT'S RESTAURANT & BAR	2300 LEXINGTON RD	CSO127
KY FRIED CHICKEN	1310 CHEROKEE RD	CSO127
LENTINIS ITALIAN RESTAURANT & SAIGON C	1543 BARDSTOWN RD	CSO127
UNIV OF LOUISVILLE	1432 CHEROKEE RD	CSO127
UPTOWN CAFE	1624 BARDSTOWN RD	CSO127
VALVOLINE INSTANT OIL CHANGE	1450 BARDSTOWN RD	CSO127
WALL STREET DEL	2549 GLENMARY AVE	CSO127
YALE CLEANERS AND LAUNDRY	2515 GRINSTEAD DR	CSO127
ZA'S PIZZA PUB	1573 BARDSTOWN RD	CSO127
ALAMEDA BAR & GRILL	1381 BARDSTOWN RD	CSO127
DENTALWORKS	2227 CHEROKEE PKWY	CSO127
KROGER CO #304	1412 WILLOW AVE	CSO127
KY FRIED CHICKEN	2021 BARINGER AVE	CSO127
LITTLE ITALY LENTINI	1543 BARDSTOWN RD	CSO127
MARKS FEED STORE BAR B Q & CATERING	1514 BARDSTOWN RD	CSO127
MARK'S FEED STORE BAR-B-Q & CATERING	1514 BARDSTOWN RD	CSO127
MARYANITA NURSERY SCHOOL	2468 GRINSTEAD DR	CSO127
NU YALE DRY CLEANERS	2515 GRINSTEAD DR	CSO127
OLMECAS MEXICAN RESTAURANT	1582 BARDSTOWN RD	CSO127
PIZZA GUY	1448 BARDSTOWN RD	CSO127
QDOBA MEXICAN GRILL	1500 BARDSTOWN RD	CSO127
REX UNDERGROUND BEAUTY SALON	2010 EDGELAND AVE	CSO127
SEVICHE A LATIN RESTAURANT	1538 BARDSTOWN RD	CSO127
HALLS CAFETERIA	1301 STORY AVE	CSO130
HALL'S CAFETERIA	1301 STORY AVE	CSO130
HALL'S CATERING	1301 STORY AVE	CSO130
MEDICAL CENTER LAUNDRY	1400 STORY AVE	CSO130
CAFE LOU LOU	1800 FRANKFORT AVE	CSO131
BLACK SHEEP SAL	119 S KEATS AVE	CSO132 167
BOURBONS BISTRO	2255 FRANKFORT AVE	CSO132 167
BROWNSBORO HILLS NURSING HOME	2141 SYCAMORE AVE	CSO132 167
CLIFTON'S PIZZA COMPANY	2230 FRANKFORT AVE	CSO132 167
CRACKER BARREL OLD COUNTRY STO	2477 N PETERSON CT	CSO132 167

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
CRESCENT HILL ANIMAL HOSPITAL PSC	2285 FRANKFORT AVE	CSO132 167
DECK VETERINARY CLINIC	2409 BROWNSBORO RD	CSO132 167
DJS BEAUTY SALON	2407 BROWNSBORO RD	CSO132 167
DOMINOS PIZZA	2400 BROWNSBORO RD	CSO132 167
EL RESTAURANT	2319 BROWNSBORO RD	CSO132 167
FAT JIMMY'S	2712 FRANKFORT AVE	CSO132 167
GREAT WALL CHINESE RESTAURANT	2206 BROWNSBORO RD	CSO132 167
HEADY ARCH L & SON FUNERAL DIRECTORS	2428 FRANKFORT AVE	CSO132 167
HESTON JERRY HAIRDRESSING	2708 FRANKFORT AVE	CSO132 167
HUTTSTER'S/RESTRNT	2900 BROWNSBORO RD	CSO132 167
JOY'S HAIR SALON	2019 BROWNSBORO RD	CSO132 167
KROGER	2200 BROWNSBORO RD	CSO132 167
L & N TRAINS & THINGS	2115 FRANKFORT AVE	CSO132 167
LABELLA DONNA BEAUTY SALON	1997 BROWNSBORO RD	CSO132 167
LEE'S FAMOUS RECIPE COUNTRY CHICKEN	2925 BROWNSBORO RD	CSO132 167
PERSIAN GRILL	2017 BROWNSBORO RD	CSO132 167
TUMBLEWEED SOUT	2505 LINDSAY AVE	CSO132 167
00986 MT HOLLY NURSING CTR	446 MOUNT HOLLY AVE	CSO132 167
ALLEN MAY STYHLIST & COLOURIST	2416 FRANKFORT AVE	CSO132 167
BABYLON ARABIAN RESTAURANT	1971 BROWNSBORO RD	CSO132 167
BAPTIST HOSPITA	312 N BIRCHWOOD AVE	CSO132 167
BARBARA LEE'S KITCHEN	2410 BROWNSBORO RD	CSO132 167
BEAVER BEVERLY DESIGN	2516 FRANKFORT AVE	CSO132 167
BEVERLY HEALTHCARE MOUNT HOLLY	446 MOUNT HOLLY AVE	CSO132 167
BLIMPIE SUBS AND SALADS	2020 BROWNSBORO RD	CSO132 167
CAFFE CLASSICO	2144 FRANKFORT AVE	CSO132 167
CRESCENT HILL BEAUTY SALON	2638 FRANKFORT AVE	CSO132 167
DIXIE DRY CLEANERS INC	2204 BROWNSBORO RD	CSO132 167
DOMINO'S PIZZA	2400 BROWNSBORO RD	CSO132 167
MCDONALD'S RESTAURANTS	2314 BROWNSBORO RD	CSO132 167
ODD SOCK LAUNDRY	225 N CLIFTON AVE	CSO132 167
ONE HOUR MARTINIZING	2331 BROWNSBORO RD	CSO132 167
PANERA BREAD CO	812 ROYER CT	CSO132 167
PATVS STEAK HOUSE	2437 BROWNSBORO RD	CSO132 167
PIZZA HUT	142 N BAYLY AVE	CSO132 167
PIZZA HUT	2407 BROWNSBORO RD	CSO132 167
PORCINI RESTAUR	2510 LINDSAY AVE	CSO132 167
PORCINI RESTAURANT	2730 FRANKFORT AVE	CSO132 167
RALLY'S HAMBURGERS	2011 BROWNSBORO RD	CSO132 167
RAY PARRELLAS ITALIAN CUISINE	2311 FRANKFORT AVE	CSO132 167
SAINT JOSEPHS CHILDRENS HOME	2823 FRANKFORT AVE	CSO132 167
SALON MERA	2315 BROWNSBORO RD	CSO132 167
SUBWAY SANDWICHES & SALADS	1979 BROWNSBORO RD	CSO132 167
UNIV OF LOUISVILLE	221 N CLIFTON AVE	CSO132 167
UNIV OF LOUISVILLE	227 MOUNT HOLLY AVE	CSO132 167
DEER PARK FAMILY DOCTORS	1603 STEVENS AVE	CSO137
V G REED & SONS INC	1500 ARLINGTON AVE	CSO140
DAIRY MART #847	1904 FRANKFORT AVE	CSO140
HAVE A NICE DAY CAFE	436 BAXTER AVE	CSO141
HAVE A NICE DAY CAFE LOUISVILLE INC	426 BAXTER AVE	CSO141
HAVE A NICE DAY CAFE LOUISVILLE INC	436 BAXTER AVE	CSO141
ICONS SALON LLC	612 BAXTER AVE	CSO141
SPINELLI'S PIZZERIA	614 BAXTER AVE	CSO141
ACME AUTO ELECTRIC INC	508 BAXTER AVE	CSO141
ENVIRO SYSTEMS	620 RUBEL AVE	CSO141
BROWN BAG DELI & PUB	2100 S PRESTON ST	CSO146
CAFE AT THE LOUISVILLE ANTIQUE MALL TH	900 GOSS AVE	CSO146
CHARLIE'S BAR & GRILL	800 ASH ST	CSO146
CHEVRON USA INC	929 MARY ST	CSO146
CHURCHILL DOWNS	1117 ASH ST	CSO146
DERBY DENTAL LABORATORY INC	1147 LOGAN ST	CSO146
DEREKS BAR & GRILL	1154 LOGAN ST	CSO146
EMBRY BOSSE FUNERAL HOME INC FAMILY	2723 PRESTON HWY	CSO146
FOUR STAR ALUMINUM	826 MELFORD AVE	CSO146
FOUR STAR ALUMINUM CO	826 MELFORD AVE	CSO146
GREAT WOK	2502 PRESTON HWY	CSO146
HICKORY HOUSE B	806 LYDIA ST	CSO146
HICKORY HOUSE B B Q	2307 S PRESTON ST	CSO146
HUELSMAN BAR & GRILL	1100 ASH ST	CSO146
J RS QUICK MART	701 CAMP ST	CSO146
LABCORP	704 PARKWAY DR	CSO146
LIFETIME PHOTOGRAPHY INC	808 CLARKS LN	CSO146
LUXUREE CLEANERS	2410 S PRESTON ST	CSO146
REDBUD'S HOME COOKING CAFE	983 GOSS AVE	CSO146
SALON 2407	2407 S SHELBY ST	CSO146
SHONEYS RESTAURANTS	811 EASTERN PKWY	CSO146

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
STARBUCKS COFFE	1059 E SAINT CATHERINE ST	CSO146
UNIV OF LOUISVILLE	1456 HOERTZ AVE	CSO146
ADVANCE BUSINESS MACHINES INC	1229 S SHELBY ST	CSO146
ANTIQUE MALL	900 GOSS AVE	CSO146
BAPTIST HOSPITA	908 CHARLES ST	CSO146
CAFETERIA & GYM	770 EASTERN PKWY	CSO146
DAIRY KASTLE	575 EASTERN PKWY	CSO146
DAIRY MART #256	2705 PRESTON HWY	CSO146
KFC RESTAURANT	2513 PRESTON HWY	CSO146
KFC RESTAURANT	800 READING RD	CSO146
KY FRIED CHICKEN	638 HARRISON AVE	CSO146
MARYANNE CECIL	867 FETTER AVE	CSO146
MEFFERT, LARRY J DMD/DNTST	822 EASTERN PKWY	CSO146
MO'S FOOD MART	1036 GOSS AVE	CSO146
MR GAFTI'S	2247 S PRESTON ST	CSO146
MR GATTIS	2247 S PRESTON ST	CSO146
MYERS, ALLAN L DR /DNTST	2404 S PRESTON ST	CSO146
PARROT BROCK CLEANERS	2707 PRESTON HWY	CSO146
PIZZA HUT	2508 PRESTON HWY	CSO146
PORTLAND PRINTING	1250 S SHELBY ST	CSO146
RALLY'S HAMBURGERS	2500 PRESTON HWY	CSO146
RUSSMAN & SON FUNERAL DIRECTORS	1041 GOSS AVE	CSO146
SMALLWORLD CHILD DEVELOPMENT CENTE	2337 ALEXANDER AVE	CSO146
INTERMEDIATE CARE	936 BARRET AVE	CSO147
KROGER CO #304	1229 EASTERN PKWY	CSO148
GE APPLIANCE	1901 MAPLEWOOD PL	CSO151
APRIA HEALTHCAR	1835 DEERWOOD AVE	CSO151
AUDUBON GROUP CHEROKEE ANIMAL CLINI	1601 EASTERN PKWY	CSO151
CHEROKEE ANIMAL HOSPITAL	1601 EASTERN PKWY	CSO151
LAB CORP	1955 DEER PARK AVE	CSO151
ARTS AND CRAFTS DENTAL	1160 BARDSTOWN RD	CSO152
BEARNOS PIZZA	1318 BARDSTOWN RD	CSO152
CITY CAFE INC	1250 BARDSTOWN RD	CSO152
DANE'S SALON	985 BARRET AVE	CSO152
DITTO'S GRILL	1114 BARDSTOWN RD	CSO152
GENTLE DENTAL	1221 BARDSTOWN RD	CSO152
HIGHLANDS FAMILY DENTISTRY	1250 BARDSTOWN RD	CSO152
LOVELY LADY HAIR STYLIST	911 BARRET AVE	CSO152
SUPERAMERICA	1101 BARDSTOWN RD	CSO152
WENDYS OLD FASHIONED HAMBURGERS	1108 BARDSTOWN RD	CSO152
LA PECHE CATERING	1147 BARDSTOWN RD	CSO152
BACCO SALON	1121 BARDSTOWN RD	CSO152
BEAUTY MARK SALON	1630 ELLWOOD AVE	CSO152
BRISTOL BAR & GRILLE	1321 BARDSTOWN RD	CSO152
CAFE MIMOSA	1216 BARDSTOWN RD	CSO152
LYNN'S PARADISE CAFE	984 BARRET AVE	CSO152
MCDONALD'S RESTAURANTS	1245 BARDSTOWN RD	CSO152
MODICA DAVID PHOTOGRAPHIC	1310 E BRECKINRIDGE ST	CSO152
PAPILON BAR & GRILL	1616 GRINSTEAD DR	CSO152
SALON BACCO	1121 BARDSTOWN RD	CSO152
WENDY'S OLD FASHIONED HAMBURGERS	1108 BARDSTOWN RD	CSO152
BAXTER STATION BAR & GRILL	1201 PAYNE ST	CSO153
OPTA FOOD INGRDNITS	1128 HULL ST	CSO153
TUMBLEWEED SOUTHWEST GRILL	1900 MELLWOOD AVE	CSO154
PETRUS RESTAURANT & NIGHTCLUB	116 E MAIN ST	CSO160
A WOMAN'S CHOICE RESOURCE CENTER	101 W MARKET ST	CSO161
SUBWAY SANDWICH SHOP	129 W MARKET ST	CSO161
BLISS SALON AND SPA	3743 LEXINGTON RD	CSO166
BOBBI & COMPANY SALON	104 CANNONS LN	CSO166
CHENOWETH ANIMAL HOSPITAL	3624 FRANKFORT AVE	CSO166
DIAMOND PUB & BILLIARDS	3814 FRANKFORT AVE	CSO166
EL TARASCO # 3	110 FAIRFAX AVE	CSO166
ELEVATION SALON	3900 SHELBYVILLE RD	CSO166
HAIRIES SALON	300 MACON AVE	CSO166
HEADS OR NAILS SALON INC	104 BAUER AVE	CSO166
HEUSTIS SERVICE CENTER	3330 FRANKFORT AVE	CSO166
HOLY SPIRIT DAY CARE	3308 RICHARD AVE	CSO166
MASONIC HOME VILLAGE APARTMENTS	3701 FRANKFORT AVE	CSO166
PEARSON FUNERAL HOMES	149 BRECKENRIDGE LN	CSO166
SKY BAR AT SAINTS	131 BRECKENRIDGE LN	CSO166
STARBUCKS CORPORATION	513 MORNINGSIDE DR	CSO166
TONY BOOMBOZZ PIZZERIA	3334 FRANKFORT AVE	CSO166
VALVOLINE INSTANT OIL CHANGE	3800 LEXINGTON RD	CSO166
AAMCO TRANSMISSIONS	126 BRECKENRIDGE LN	CSO166
ADMIRATIONS BEAUTY SALON	138 WILTSHIRE AVE	CSO166
ADRIO ORTHODONTICS	209 BRECKENRIDGE LN	CSO166

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ALL 4 NAILS	108 FAIRFAX AVE	CSO166
BAZO'S FRESH MEXICAN GRILL	323 WALLACE AVE	CSO166
BOONE'S CHEVRON #3	3320 FRANKFORT AVE	CSO166
BUFFALO WILD WINGS GRILL & BAR	3900 SHELBYVILLE RD	CSO166
CAROLINE'S STYLING SALON	3306 FRANKFORT AVE	CSO166
H T FOODMART	3420 FRANKFORT AVE	CSO166
HIGHLAND CLEANERS	3708 LEXINGTON RD	CSO166
KFC	4020 SHELBYVILLE RD	CSO166
LAB CORP	3526 WILLIS AVE	CSO166
LIL LADIES & LADS INC	3819 WILLIS AVE	CSO166
LOOKS HAIR & NAILS SALON	201 BRECKENRIDGE LN	CSO166
MAKING WAVES HAIR SALON	3410 FRANKFORT AVE	CSO166
MASONIC HOMES OF KENTUCKY CORPORATI	3701 FRANKFORT AVE	CSO166
MASONIC HOMES OF KENTUCKY-DEVE	3701 FRANKFORT AVE	CSO166
MEDICAL SPECIALI	205 MERIDIAN AVE	CSO166
NU YALE DRY CLEANERS	3782 LEXINGTON RD	CSO166
NU YALE SANITONE CLEANERS	3782 LEXINGTON RD	CSO166
PRUITTS CHEVRON	3795 LEXINGTON RD	CSO166
RATTERMAN BROTHERS FUNERAL HOME	3711 LEXINGTON RD	CSO166
RATTERMAN FAMILY FUNERAL HOMES	3711 LEXINGTON RD	CSO166
SAINT MATTHEWS HAIR STYLING & BARBER	3822 WILMINGTON AVE	CSO166
AUTO WHEEL & RIM SERVICE CO	900 S 7TH ST	CSO178
BEARNO'S PIZZA	611 W BRECKINRIDGE ST	CSO178
F & Y FOOD MART	3801 W MARKET ST	CSO189
FIVE STAR CLEANERS	3923 RIVER PARK DR	CSO189
GENTLE EXCELLENCE DENTAL	222 AMY AVE	CSO189
HARRIS AUTO REPAIR SHOP	3235 VERMONT AVE	CSO189
INDILS FAST FOOD RESTAURANT	3820 W MARKET ST	CSO189
KAREN AND CO HAIR SALON	526 S 18TH ST	CSO189
SHERYL'S KIDDIE KASTLE DAY CARE	205 N 38TH ST	CSO189
SPEEDWAY PETROLEUM INC	3320 W MARKET ST	CSO189
A U DIESEL ELECTRIC INC	1833 W MARKET ST	CSO189
AAA CHIROPRACTI	2610 W MUHAMMAD ALI BLVD	CSO189
APRICOT HOUSE CHILD CARE	4140 LARKWOOD AVE	CSO189
ARCADE BEAUTY SHOP	3923 BANK ST	CSO189
BAPTIST HOSPITA	333 CECIL AVE	CSO189
BIGFOOT FOOD ST	102 S 46TH ST	CSO189
DAD'S MUFFLER SHOP	3001 W MARKET ST	CSO189
DAIRY MART SOUTHEAST DIVISION	2728 W MARKET ST	CSO189
KFC	3831 W MARKET ST	CSO189
LIL RASCALS CHILDCARE	3902 WEWOKA AVE	CSO189
MOBY DICK SEAFOOD RESTAURANTS	2200 W MARKET ST	CSO189
RATTERMAN FAMILY FUNERAL HOMES	2114 W MARKET ST	CSO189
RATTERMAN J B & SONS FUNERAL HOME	2114 W MARKET ST	CSO189
ROWLAND BILL CLEANERS & LAUNDRY	3149 RIVER PARK DR	CSO189
A 1 TIRE & BATTERY	1637 W MARKET ST	CSO190
ADGILITY	1813 CROP ST	CSO190
JEWISH MEDICAL	1800 NORTHWESTERN PKWY	CSO190
KING'S ONE-HOUR CLEANERS	211 S 18TH ST	CSO190
PORTLAND PRINTING	1801 PORTLAND AVE	CSO190
CHAZ CONCRET	4121 ALGONQUIN PKWY	CSO191
CHAZ CONCRETE	4121 ALGONQUIN PKWY	CSO191
CHAZ CONCRETE CO LLC	4121 ALGONQUIN PKWY	CSO191
GIANT GRAPHICS /PRNTR	4110 ALGONQUIN PKWY	CSO191
HEIL TANK SERVI	3808 BELLS LN	CSO191
HEIL TANK SERVICE INC	3808 BELLS LN	CSO191
RAR TANK CLEANING & REPAIR	4107 BELLS LN	CSO191
RAR TANK CLEANING & REPAIR SPECIALIST	4107 BELLS LN	CSO191
LUXURY MOBILE OIL	940 S 6TH ST	CSO192
PURITAN MINI MART	1244 S 4TH ST	CSO195
RITE AID EXPRESS 1 HOUR PHOTO	409 W OAK ST	CSO195
JILLIAN'S ENTERTAINMENT	1387 S 4TH ST	CSO200
316 ORMSBY	316 W ORMSBY AVE	CSO202
121 MAIN PLACE HAIR STUDIO	2114 BARDSTOWN RD	CSO206
BELLEWOOD PRESBY HOMES	1722 BARDSTOWN RD	CSO206
C BAUER PHOTOGRAPHY	1704 BARDSTOWN RD	CSO206
CONN'S AUTO SERVICE	2251 BARDSTOWN RD	CSO206
DAY CARE AT SAINT PAUL UN METHODIST	2000 DOUGLASS BLVD	CSO206
DIAMANTE BAR & GRILL	2280 BARDSTOWN RD	CSO206
DIAMONDS RESTAURANT	2427 BARDSTOWN RD	CSO206
DRAGON GARDEN RESTAURANT	2120 BARDSTOWN RD	CSO206
FAT JIMMY'S	2208 BARDSTOWN RD	CSO206
FEDEX KINKO'S	2226 BARDSTOWN RD	CSO206
GE COMPANY	1729 CASSELBERRY RD	CSO206
GREAT ESCAPE	2433 BARDSTOWN RD	CSO206
HIGHLANDS ANIMAL CLINIC THE	2237 BARDSTOWN RD	CSO206

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
IMPELLIZZERI PIZZA	2306 BARDSTOWN RD	CSO206
J CLARK HAIR SALON	1949 BARDSTOWN RD	CSO206
KENTUCKY DENTAL ASSN	1940 PRINCETON DR	CSO206
K'S FOOD MART	1779 BARDSTOWN RD	CSO206
TONY BOOMBOZZ PIZZA	1914 BARDSTOWN RD	CSO206
TWIG & LEAF RESTAURANT	2122 BARDSTOWN RD	CSO206
WANDA'S BEAUTY BOUTIQUE	2310 DOROTHY AVE	CSO206
AMERICAN FAMILY ORTHODONTICS	1815 BARDSTOWN RD	CSO206
ASIATIQUE RESTAURANT	1767 BARDSTOWN RD	CSO206
CAFE METRO	1700 BARDSTOWN RD	CSO206
DENTAL WORKS	1815 BARDSTOWN RD	CSO206
KROGER	2440 BARDSTOWN RD	CSO206
KY FRIED CHICKEN	1902 RICHMOND DR	CSO206
KY FRIED CHICKEN	2218 WOODBOURNE AVE	CSO206
MR TRANSMISSION	107 SAINT FRANCIS CT	CSO206
PATIENT FIRST IMMEDIATE CARE LLC	2450 BARDSTOWN RD	CSO206
PIZZA MAGIA	1765 BARDSTOWN RD	CSO206
SAPPORO JAPANESE GRILL AND SUSHI	1706 BARDSTOWN RD	CSO206
UNIV OF LOUISVILLE	1913 ALFRESCO PL	CSO206
LAB CORP	2112 EASTERN PKWY	CSO209
LAB CORP 11111	2078 SHERWOOD AVE	CSO209
PLACE TO GO HAIR STYLING THE	1607 BARDSTOWN RD	CSO209
BOSSE FUNERAL HOME INC	1355 ELLISON AVE	DTC
EMERALD SPA BY STEEPLTON	927 E BROADWAY	DTC
HEADY ARCH L & SON FUNERAL DIRECTORS	1201 E OAK ST	DTC
AMERICAN CHIROP	1023 GRINSTEAD CT	DTC
AVISTA LABORATORIES, INC	2306 MEADOW RD	DTC
LONGINO'S RESTAURANT	4041 PRESTON HWY	DTC
ABORTION HELP EMW WOMENS SURGICAL	138 W MARKET ST	DTOR
BACK STAGE CAFE	133 W LIBERTY ST	DTOR
BLANTON HOUSE BEAUTY SALON	850 W MUHAMMAD ALI BLVD	DTOR
DENTAL CENTER THE	225 ABRAHAM FLEXNER WAY	DTOR
DENTAL IMPLANT CENTER OF LOUISVILLE	225 ABRAHAM FLEXNER WAY	DTOR
HOME OF INNOCEN	850 W MUHAMMAD ALI BLVD	DTOR
IMPLANT CENTER DENTAL	225 ABRAHAM FLEXNER WAY	DTOR
JEWISH HOSPITAL	100 E LIBERTY ST	DTOR
JEWISH HOSPITAL	200 ABRAHAM FLEXNER WAY	DTOR
JEWISH HOSPITAL	217 E CHESTNUT ST	DTOR
KELL BROTHERS OIL CO INC	207 N CAMPBELL ST	DTOR
OLD SPAGHETTI FACTORY THE	235 W MARKET ST	DTOR
SERVICE PLUS CHEVRON #6	132 E JEFFERSON ST	DTOR
TAYLOR JAMES S MEMORIAL HOME	1015 MAGAZINE ST	DTOR
WALL STREET DELI	225 ABRAHAM FLEXNER WAY	DTOR
WALL STREET DELI	526 ARMORY PL	DTOR
ADVANCE READY MIX CONCRETE INC	161 N SHELBY ST	DTOR
ALLIANT HEALTH SYSTEM	200 E CHESTNUT ST	DTOR
ASSOCIATES IN GENERAL SURGERY PSC	201 ABRAHAM FLEXNER WAY	DTOR
BABCOCK CHRIS DMD MD JEWISH HOSP OU	225 ABRAHAM FLEXNER WAY	DTOR
BAKER, WILLIAM T MD /PHYS	100 E LIBERTY ST	DTOR
BINGHAM CHILD GUIDANCE CENTER	200 E CHESTNUT ST	DTOR
BRISTOL CAFE	100 E JEFFERSON ST	DTOR
JEWISH HOSPITAL	222 S 1ST ST	DTOR
JEWISH HOSPITAL HEALTH CENTER MEADE	200 ABRAHAM FLEXNER WAY	DTOR
KINDRED HOSPITAL LOUISVILLE AT JEWISH	200 ABRAHAM FLEXNER WAY	DTOR
M B OIL COMPANY INC	207 N CAMPBELL ST	DTOR
M B OIL INC	207 N CAMPBELL ST	DTOR
MANHATTAN DELI	400 S 8TH ST	DTOR
MB OIL COMPANY	207 N CAMPBELL ST	DTOR
MEDICAL CENTER	225 ABRAHAM FLEXNER WAY	DTOR
MEDICAL CENTER	420 CLAVER CT	DTOR
MIDAS AUTO SERVICE EXPERTS	430 S 1ST ST	DTOR
MINI VERSITY CHILD DEVELOPMENT CENTER	306 S ROY WILKINS AVE	DTOR
NORTON HEALTHCARE	200 E CHESTNUT ST	DTOR
NORTON HEALTHCARE NORTON HOSPITAL	200 E CHESTNUT ST	DTOR
NORTON HEALTHCARE PHYSICIAN FINDER	200 E CHESTNUT ST	DTOR
NORTON HOSPITAL	200 E CHESTNUT ST	DTOR
PREMIER LAB	1015 MAGAZINE ST	DTOR
A TOUCH OF CLASS /BTY SALON	2300 W OAK ST	MDS (CSO 211)
ATLAS METALS	3228 VIRGINIA AVE	MDS (CSO 211)
BLESSING'S HAIR & NAIL SALON	1910 S 7TH ST	MDS (CSO 211)
BUCKS RESTAURANT	425 W ORMSBY AVE	MDS (CSO 211)
BURGER KING	2700 CRITTENDEN DR	MDS (CSO 211)
BUSTER'S TRANSMISSION SERVICE	1223 S 7TH ST	MDS (CSO 211)
CASA DE ORA FOO	3701 W MAGNOLIA AVE	MDS (CSO 211)
CHINA INN	1925 S 4TH ST	MDS (CSO 211)
CHINESE CHEF	2619 S 4TH ST	MDS (CSO 211)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
CHURCHILL DOWNS	1455 S 8TH ST	MDS (CSO 211)
CITY CAFE	1907 S 4TH ST	MDS (CSO 211)
COIT CARPET & DRAPERY CLEANERS	2730 CRITTENDEN DR	MDS (CSO 211)
COIT DRAPERY AND CARPET CLEANERS	2730 CRITTENDEN DR	MDS (CSO 211)
COMMUNITY COORDINATED CHILD CARE	1215 S 3RD ST	MDS (CSO 211)
CRACKER BARREL OLD COUNTRY STORE	2701 CRITTENDEN DR	MDS (CSO 211)
DADS MUFFLER SHOP	3332 TAYLOR BLVD	MDS (CSO 211)
DENNY'S RESTAURANT	434 EASTERN PKWY	MDS (CSO 211)
DERBY CAFE	704 CENTRAL AVE	MDS (CSO 211)
EL SHADDAI CHRISTIAN CHILD CARE	1230 S 3RD ST	MDS (CSO 211)
ETHEL'S BEAUTY SALON	3271 TAYLOR BLVD	MDS (CSO 211)
FILLI & FOAL CHILD CARE	422 HEYWOOD AVE	MDS (CSO 211)
HAGAN AUTOMOTIVE & TIRE	801 S 8TH ST	MDS (CSO 211)
HENRY VOGT MACHINE COMPANY	1000 W ORMSBY AVE	MDS (CSO 211)
HOUSE OF STYLE BEAUTY SALON	3337 GREENWOOD AVE	MDS (CSO 211)
HUNT, LARRY K DR/DNTST	2928 S 4TH ST	MDS (CSO 211)
JACK'S FAST FOOD	1785 W OAK ST	MDS (CSO 211)
JAMAAME RESTAURANT	416 W OAK ST	MDS (CSO 211)
JUJUS CAFE	2932 S 4TH ST	MDS (CSO 211)
KFC	3052 WILSON AVE	MDS (CSO 211)
LEE'S HOMEADE CAKES & PIES	3314 W KENTUCKY ST	MDS (CSO 211)
LEGENDS SALON	1118 S 3RD ST	MDS (CSO 211)
LIGGONS QUALITY CLEANERS	1500 CATALPA ST	MDS (CSO 211)
LOUISVILLE WATE	1809 S 3RD ST	MDS (CSO 211)
MASTERSON'S	1830 S 3RD ST	MDS (CSO 211)
MODERN HAIR & NAIL	2620 S 4TH ST	MDS (CSO 211)
PETTIT ENVIRONMENTAL	340 BYRNE AVE	MDS (CSO 211)
SEVENTH & HILL	1481 S 7TH ST	MDS (CSO 211)
SHAWN'S SALON	849 S 37TH ST	MDS (CSO 211)
SMURFIT-STONE R	750 S 11TH ST	MDS (CSO 211)
SMURFIT-STONE RECYCLING CO	750 S 11TH ST	MDS (CSO 211)
SOLAE LLC	2441 S FLOYD ST	MDS (CSO 211)
SONIC DRIVE IN	632 WINKLER AVE	MDS (CSO 211)
SPEEDWAY PETROLEUM INC	1418 DIXIE HWY	MDS (CSO 211)
SPEEDWAY PETROLEUM INC	3291 TAYLOR BLVD	MDS (CSO 211)
SUBWAY	1442 DIXIE HWY	MDS (CSO 211)
TACO BELL	1817 S BROOK ST	MDS (CSO 211)
TAILGATERS SPORTS BAR & GRILL	2787 S FLOYD ST	MDS (CSO 211)
THE LAUNDRY CONNECTION	1907 S 4TH ST	MDS (CSO 211)
THIRD AVENUE CAFE	1164 S 3RD ST	MDS (CSO 211)
TOOT'S BAR & GRILL	3283 TAYLOR BLVD	MDS (CSO 211)
UNIVERSAL LINEN	1317 S 6TH ST	MDS (CSO 211)
UNIVERSAL LINEN	1455 S 3RD ST	MDS (CSO 211)
UNIVERSAL LINEN SERVICE	1803 COMMERCE RD	MDS (CSO 211)
UNIVERSAL LINEN SERVICES	1803 COMMERCE RD	MDS (CSO 211)
UNSELD CHILD CARE & DEVELOPMENT CEN	2700 DUMESNIL ST	MDS (CSO 211)
WHITE FUNERAL HOME	2727 S 3RD ST	MDS (CSO 211)
WHITE O D FUNERAL DIRECTORS	2727 S 3RD ST	MDS (CSO 211)
ZEO CHEM	1450 S 10TH ST	MDS (CSO 211)
ZEOCHEM	1600 W HILL ST	MDS (CSO 211)
32ND & GARLAND AUTO SERVICE CENTER	910 S 32ND ST	MDS (CSO 211)
3RD STREET AUTO	3904 S 3RD ST	MDS (CSO 211)
4TH AND CENTRAL FOOD MART	3004 S 4TH ST	MDS (CSO 211)
7TH & HILL FAMILY DENTAL CENTER	1504 S 7TH ST	MDS (CSO 211)
A P FOODMART	2631 S 3RD ST	MDS (CSO 211)
A PLACE FOR US CHILDREN DEVELOPMENT	1015 S 8TH ST	MDS (CSO 211)
A TASTE OF CHINA	1167 S 4TH ST	MDS (CSO 211)
A TIME TO GROW CHILD CARE	1757 W ORMSBY AVE	MDS (CSO 211)
ABBY'S PRINTING & GRAPHICS	800 CAWTHON ST	MDS (CSO 211)
ALCAN ALUMINUM	1315 S 6TH ST	MDS (CSO 211)
ALCAN ALUMINUM	1430 S 13TH ST	MDS (CSO 211)
ALLCAN ALLUMINUM	1430 S 13TH ST	MDS (CSO 211)
ALLIED DRUM SERVICE INC	401 COLORADO AVE	MDS (CSO 211)
ALTRO STEEL CORPORATION	310 BOXLEY AVE	MDS (CSO 211)
AMCO INC	2708 S 3RD ST	MDS (CSO 211)
AMIN'S FAMILY PRACTICE ASSOCIA	1505 S 7TH ST	MDS (CSO 211)
BAPTIST LONG RUN ASSOCIATION	2722 CRITTENDEN DR	MDS (CSO 211)
BARBOUR BROTHERS CLEANERS	3008 WILSON AVE	MDS (CSO 211)
BEARNO'S PIZZA U OF L	1923 S 4TH ST	MDS (CSO 211)
BIGFOOT FOOD STORES	1630 ARTHUR ST	MDS (CSO 211)
CASA DE ORO FOODS	3701 W MAGNOLIA AVE	MDS (CSO 211)
DAD'S MUFFLER SHOP	3332 TAYLOR BLVD	MDS (CSO 211)
DAIRY QUEEN RESTAURANTS ALGONQUIN F	611 WINKLER AVE	MDS (CSO 211)
FAMILY DENTAL CENTER	1504 S 7TH ST	MDS (CSO 211)
FREEDOM COMMUNICATIONS	1340 W ORMSBY AVE	MDS (CSO 211)
KIDDIELAND DAY CARE CENTER	1152 DIXIE HWY	MDS (CSO 211)



**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
KINGS FAST FOOD CHICKEN	1302 DIXIE HWY	MDS (CSO 211)
KROGER	3165 S 2ND ST	MDS (CSO 211)
LIL KINGS & QUEENS DEVELOPMENT KINGDO	3218 DUMESNIL ST	MDS (CSO 211)
LIL KINGS & QUEENS DEVELOPMENT KINGD	3216 DUMESNIL ST	MDS (CSO 211)
LOUISVILLE PRIMARY CARE CENTER PSC	720 W HILL ST	MDS (CSO 211)
MARGARET'S HAIR CARE	1132 DIXIE HWY	MDS (CSO 211)
MASTERSONS RESTAURANT	1830 S 3RD ST	MDS (CSO 211)
MCDONALD	844 S 34TH ST	MDS (CSO 211)
MCDONALD'S	301 E WARNOCK ST	MDS (CSO 211)
MCDONALD'S RESTAURANTS	301 E WARNOCK ST	MDS (CSO 211)
MCKEEHAN S MUFFLERS & BRAKES	2830 S 3RD ST	MDS (CSO 211)
MOBY DICK SEAFOOD RESTAURANTS	2700 S 3RD ST	MDS (CSO 211)
MR Z'S KITCHEN	869 S 3RD ST	MDS (CSO 211)
OLD LOUISVILLE DENTAL CENTER DNTST	1126 S 3RD ST	MDS (CSO 211)
OLD LOUISVILLE DENTURE CENTER	1126 S 3RD ST	MDS (CSO 211)
PAPA JOHNS INTERNATIONAL	3132 WHITMAN WAY	MDS (CSO 211)
PAPA JOHN'S PIZZA	2236 S FLOYD ST	MDS (CSO 211)
PARK DUVALLE COMMUNITY HEALTH CLINIC	3015 WILSON AVE	MDS (CSO 211)
PARKWAY MEDICAL	2810 S 3RD ST	MDS (CSO 211)
PIZZA MAGIA	423 E WARNOCK ST	MDS (CSO 211)
PORTER PAINTS	801 S 3RD ST	MDS (CSO 211)
QUALITY DRY CLEANERS	1312 DIXIE HWY	MDS (CSO 211)
QUEENIE'S PIZZA	2622 S 4TH ST	MDS (CSO 211)
QUIZNOS	3173 S 2ND ST	MDS (CSO 211)
RATTERMAN FAMILY FUNERAL HOMES	2815 S 4TH ST	MDS (CSO 211)
REYNOLDS METALS	1225 W BURNETT AVE	MDS (CSO 211)
REYNOLDS METALS COMPANY	1225 W BURNETT AVE	MDS (CSO 211)
RUMPKE INC	1101 W OAK ST	MDS (CSO 211)
RUMPKE OF KENTUCKY	1101 W OAK ST	MDS (CSO 211)
RUMPKE OF KENTUCKY WASTE REMOVAL &	1101 W OAK ST	MDS (CSO 211)
RUMPKE OF KY WASTE MANAGEMENT	1821 COMMERCE RD	MDS (CSO 211)
SAINT GOBAIN ADVANCED MATERIALS CORP	1600 W LEE ST	MDS (CSO 211)
SAINT GOBAIN QUARTZ USA	1600 W LEE ST	MDS (CSO 211)
SAM MEYERS CLEANERS AND SHIRT LAUND	1201 S 3RD ST	MDS (CSO 211)
SANTA FE GRILL	3000 S 3RD ST	MDS (CSO 211)
SERVICE PRINTIN	700 LOCUST LN	MDS (CSO 211)
SPEEDY MART	2210 ARTHUR ST	MDS (CSO 211)
SPEEDY MART	2704 CRITTENDEN DR	MDS (CSO 211)
SPEEDY MART	401 WINKLER AVE	MDS (CSO 211)
SUBWAY SANDWICHES & SALADS	216 W BROADWAY	MDS (CSO 211)
SUD CHEMIE INC	1600 W HILL ST	MDS (CSO 211)
SUD-CHEMIE INC	607 INDUSTRY RD	MDS (CSO 211)
SUPERAMERICA	3030 TAYLOR BLVD	MDS (CSO 211)
UNIV OF LOUISVILLE	1712 S 3RD ST	MDS (CSO 211)
UNIV OF LOUISVILLE	1910 S 3RD ST	MDS (CSO 211)
UNIV OF LOUISVILLE	2000 UNITY PL	MDS (CSO 211)
UNIV OF LOUISVILLE	2022 UNITY PL	MDS (CSO 211)
UNIV OF LOUISVILLE	401 W CARDINAL BLVD	MDS (CSO 211)
UNIV OF LOUISVILLE	4103 GRAND AVE	MDS (CSO 211)
ADVANTAGE CARE MEDICAL SERVICE	3905 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
ATD GRAPHICS	4535 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
AUBURNDALE CHIROPRACTIC CENTER	7439 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
AUTO BODY OF LOUISVILLE INC	8300 FERN VALLEY PASS	Northern Ditch & SW Sanitary Service Area (CSO 015)
AVIATION SOLUTIONS	1177 STANDIFORD CT	Northern Ditch & SW Sanitary Service Area (CSO 015)
BAXTER HEALTHCARE CORPORATION	4612 PLANE TREE DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
BECKY'S KOMLETE HAIR CARE	5458 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BENEKE WIRE	5540 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015)
BETTER WAY FOOD MART INC STORE 4	4001 CANE RUN RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BF SOUTH WENDY'S	2800 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BIG RED BOTTLING CO	6207 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
BLUEGRASS KITCHEN CATERING	4735 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BLUEGRASS ORTHO	4301 FLUHR DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
BOB EVANS FARMS RESTAURANTS	4620 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
BOB'S AUTO SERVICE	5005 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BRIGHT BEGINNINGS CHILD DEVELOPMENT	5051 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BRIGHT BEGINNINGS II INFANT CARE CENTE	5034 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
BUILDING A RAINBOW CHILDCARE CENTER	5011 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
CAPTAIN DS SEAFOOD RESTAURANT	3937 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
CARITAS JEFFERSON MEDICAL	1900 BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015)
CAROL LA D'S HAIR DESIGNS	4012 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015)
CHERIE'S BEAUTY SALON	5027 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
CHERYLS HAIR STUDIO	4309 NAOMI DR	Northern Ditch & SW Sanitary Service Area (CSO 015)
CHINA CASTLE	7420 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
CHINA EXPRESS	4930 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
CINTAS	3103 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
CINTAS CORPORA	3103 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to GSO#</b>
CONCRETE CORING & CUTTING OF LOUISVII	471 ROBERTS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CONCRETE CORING AND	471 ROBERTS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CRACKER BARREL OLD COUNTRY STO	2321 DEVERON DR	Northern Ditch & SW Sanitary Service Area (CSO 015
CREATIVE CONCEPTS HAIR SALON	839 PALATKA RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CRUMS LANE ANIMAL HOSPITAL DR J SWIGE	2115 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
DADDY O'S FISH AND WEDGES	4908 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DE VILL'S GRILLE & CATERING	4900 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DENTAL SERVICES INC	5014 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
DINO FOOD MART	5014 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
DTS BAR & GRILL	4652 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
EL TARASCO	5425 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
EVERGREEN FUNERAL HOME & CEMETERY	4623 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
FABRICATED METALS CORP	6300 KENJOY DR	Northern Ditch & SW Sanitary Service Area (CSO 015
FAMILY-A-HAIR SALON	2816 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
FAT J'S EAT SHOPPE	4325 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
FAZOLI'S	6011 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
FIRST STOP	4903 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
FIRST STOP FOOD MART	5600 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
FIRST STOP#2	3700 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
FIVE STAR FOOD MART	2720 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
FOUR KMING'S CAFE INC	4642 JENNINGS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
FRISCH'S BIG BOY RESTAURANTS	6510 SIGNATURE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
GARDNER'S DRY CLEANERS	2121 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
GE APPLIANCE	4000 BUECHEL BANK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
HACKERS SPORTS BAR & GRILL	2806 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
HAIR V /BTY SALON	4211 HILLVIEW AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
HEAVENLY HAIR SALON	2720 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
HOSTESS CAKE CO	4563 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
INDILS FAST FOOD RESTAURANT	4901 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFFERSON MEDICAL ASSOCIATES	1900 BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
JEFFY LUBE	6508 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
JIM DANDY FOOD MART	4902 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
JO-MITRAS HAIR SALON	5040 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KEENANS FUNERAL HOME	4724 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
KEN TOWER'S AUTO CA	6919 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
KEN TOWERYS AUTO CENTERS SOUTHSIDE	6919 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
KOREANA RESTAURANT II	5009 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
KRISPY-KREME DOUGHNUT CO	3920 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LA MEXICANA	6201 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
LAB CORP	1231 DURRETT LN	Northern Ditch & SW Sanitary Service Area (CSO 015
LEE ROY'S SPORTS BAR & GRILL	5000 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LG&E	1505 PAULA CT	Northern Ditch & SW Sanitary Service Area (CSO 015
LICKETY SPLIT FOOD AND GAS MART	5440 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
QUALITY ALUMINUM PRODUCTS INC	5559 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
SENEBA RESTAURANT	1215 GILMORE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
SHERWIN WILLIAMS CO	3865 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SHERWIN WILLIAMS CO	4702C POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SHERWIN-WILLIAMS CO-SHERWORKS	4702 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SHONEYS RESTAURANTS	6511 SIGNATURE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SOUTHSIDE CHRISTIAN CHILD CARE	7149 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SPECTATORS SPORTS BAR & GRILL	5530 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SQUARE D COMPANY	8001 CRITTENDEN DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SWIFTY SERVICE STATION	3611 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SWIFTY SERVICE STATION	4243 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
TEXAS ROADHOUSE	4406 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
THE LAUNDRY CONNECTION	4944 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
TOWERYS KEN AUTO CARE SUPER CENTER	6919 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
UNITEDDEFENSE	7415 YORK RIVER RD	Northern Ditch & SW Sanitary Service Area (CSO 015
UPS AIR DISTRICT	911 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
UPS UNITED PARCEL SERVICE	8001 ASHBOTTOM RD	Northern Ditch & SW Sanitary Service Area (CSO 015
VA HEALTHCARE CENTER SHIVELY	3934 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
VALVOLINE INSTANT OIL CHANGE	3912 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
VINCENTS QUALITY AUTO CARE	1357 GILMORE LN	Northern Ditch & SW Sanitary Service Area (CSO 015
WAFFLE HOUSE	2809 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
WYNN STARR FOODS OF KENTUCKY I	4820 ALLMOND AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
WYNN STARR FOODS OF KENTUCKY INC	4820 ALLMOND AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
A & A CONCRETE SAWING & DRILLING INC	1452 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
A & W BOTTLING CO	6207 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015
A BRIGHTER DAY HOME HEALTH CARE	5422 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
A PLUS PROFESSIONAL PET GROOMING	5017 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
A V C DENTAL	5036 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
A1 ALUMINUM	3279 CHINQUAPIN LN	Northern Ditch & SW Sanitary Service Area (CSO 015
A-1 ALUMINUM INC	4405 KILN CT	Northern Ditch & SW Sanitary Service Area (CSO 015
ABLE QUALITY PRINTING	4550 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ACCURRITE MACHINE & MANUFACTURING IN	4421 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ACTION MUFFLER CENTER	4914 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
ACTION TRANSMISSIONS	3215 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
A-CUT ABOVE PRINT SHOP	5433 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ADL DENTAL LABORATORY OF KENTUCKY IN	4411 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ADVANCED ENGINE EXCHANGE	1006 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
ADVANCED GRINDING & MACHINE INC	4644 ILLINOIS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
ADVANTAGE CARE MEDICAL SERVICES	3905 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
AFFORDABLE TIRE COMPANY	4950 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AHLHAUS ALUMINUM CO	4505 ZETA CT	Northern Ditch & SW Sanitary Service Area (CSO 015
AI AND BUD'S FRAME & BODY REPAIR AUTO	442 DOWNES TER	Northern Ditch & SW Sanitary Service Area (CSO 015
ALADDIN GROCERY STORE	2323 ROCKFORD LN	Northern Ditch & SW Sanitary Service Area (CSO 015
ALCOA	4301 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ALCOA ALUMINUM AND VINYL SIDING	8201 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
ALCOA EXTRUDED	4301 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ALVIN'S AUTO SERVICE INC	4011 CANE RUN RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AMERICAN CHIROP	5102 CRAFTY DR	Northern Ditch & SW Sanitary Service Area (CSO 015
AMERICAN CHIROPRACTIC	3101 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ANIMALS METRO ANIMAL SERVICES	3705 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ANNIE'S PIZZA INC	4007 CANE RUN RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ANOTHER LEVEL BEAUTY SALON	4925 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
APEX DIV OF COOPER INDUSTRIES INC	4233 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
APOLLO OIL LLC	1508 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
APPLEBEE'S NEIGHBORHOOD GRILL & BAR	4717 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
ARBY'S	4322 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
ART'S TUNE & LUBE OF LOUISVILLE	3305 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AUBURNDALE PET CENTER	5460 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
AUTOZONE	3940 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
AVIATION TECHNOLOGY INC	1141 STANDIFORD AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
B & B HAIR SALON	4309 NAOMI DR	Northern Ditch & SW Sanitary Service Area (CSO 015
BABYFACE FUN HOUSE CHILDCARE	3817 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
BARNES AUTO SERVICE	3730 BISHOP LN	Northern Ditch & SW Sanitary Service Area (CSO 015
BEHA CATERING	4209 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
BEHAR CAFE	5600 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
BENEKE WIRE CO	5540 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
BIGFOOT FOOD MART	4100 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
BIGFOOT FOOD STORES	3001 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
BIGFOOT FOOD STORES	4301 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
BURGER KING	3930 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
BURGER KING	5603 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
BURGER KING RESTAURANT	5611 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
BURGER KING TRAINING	5611 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CAFE THUY VAN	5600 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
CAPTAIN D'S SEAFOOD RESTAURANT	7131 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
CAPTAIN D'S SEAFOOD RESTAURANT	3937 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
CAPTAIN D'S SEAFOOD RESTAURANT	7131 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS HEALTH SERVICES	1900 BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS HEALTH SERVICES	4445 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS HEALTH SERVICES	4500 CHURCHMAN AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS JEFFERSON MEDICAL	1900 BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS OCCUPATIONAL HEALTH CENTER	401 MACLEAN AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CARITAS PHYSICIANS GROUP	1900 BLUEGRASS AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
CINTAS CORPORATION AIRLINE UNIFORMS	3103 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
CRUMS LANE PARTNERS LTD	2009 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
DAIRY MART 1003	4319 SANDERS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
DAIRY MART 1003	5125 QUAIL CT	Northern Ditch & SW Sanitary Service Area (CSO 015
DOMINO'S PIZZA	1844 APPLETON LN	Northern Ditch & SW Sanitary Service Area (CSO 015
DOMINO'S PIZZA	3900 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
G E SUPPLY	5580 SHEPHERDSVILLE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
GIBSON, TERRY L /INS	6414 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
HOOPS GRILL & SPORTS BAR	6733 STRAWBERRY LN	Northern Ditch & SW Sanitary Service Area (CSO 015
INDI'S RESTAURA	5001 RURAL WAY	Northern Ditch & SW Sanitary Service Area (CSO 015
KFC	5462 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KIDS AT PLAY DE	4949 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KIDS AT PLAY DEVELOPMENT CENTER	4949 MANSLICK RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KROGER	3917 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KROGER	5533 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
KROGER CO #304	4319 PLANTUS PL	Northern Ditch & SW Sanitary Service Area (CSO 015
KY FRIED CHICKEN	5002 GARDEN GREEN WAY	Northern Ditch & SW Sanitary Service Area (CSO 015
LITTLE ANGELS PALACE CHILDCARE	3201 RALPH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
LITTLE CAESARS PIZZA	5622 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
LONG JOHN SILVER'S SEAFOOD SHOPPE	5049 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE BRAKE & MUFFLER	3510 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE BRAKE & MUFFLER	4600 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE DENTAL CENTER	5010 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
LOUISVILLE DENTAL CENTER LABORATORY	5010 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
M D ONE STOP AUTO SHOP	4500 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
MAGIC SPARKLE CAR WASH	5321 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
MCDONALD'S RESTAURANTS	3005 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
MCDONALD'S RESTAURANTS	4622 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MCDONALD'S RESTAURANTS	5600 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MCDONALD'S RESTAURANTS	7426 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
MEDLEY'S AUTO CARE	3955 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
METRO AUTO REPAIR SHOP	3215 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015
METRO DENTAL LAB	1512 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
MICHAELS AUTO	833 ULRICH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
MICHEL TIRES PLUS	6108 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MICROBAC LABORATORIES INC	3323 GILMORE INDUSTRIAL BLVD	Northern Ditch & SW Sanitary Service Area (CSO 015
MIDAS AUTO SYSTEMS EXPERTS	4516 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MIDAS AUTO SYSTEMS EXPERTS	5601 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MIKE PROTT TRANSMISSION CENTER	1400 HUGH AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
MOBY DICK SEAFOOD RESTAURANTS	3802 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MOBY DICK SEAFOOD RESTAURANTS	4845 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
MORE THAN HAIR BTY SALON	8307 NATIONAL TPKE	Northern Ditch & SW Sanitary Service Area (CSO 015
MORGAN TIRE & AUTO INC	6108 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
MR GATTI'S	1836 CARL CT	Northern Ditch & SW Sanitary Service Area (CSO 015
MR MUFFLER #2	4915 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
NALLY'S CLEANERS	5029 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
NATURAL CURL BEAUTY SHOP	7441 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
NEWBURG HAIR STYLING CENTER	1160 W INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
NEWBURG HEALTH CLINIC	4810 EXETER AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
NU YALE DRY CLEANERS	3983 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
NU YALE DRY CLEANERS	5737 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
NU YALE SANITONE CLEANERS	5737 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
O'CHARLEY'S	4404 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
OKOLONA MEDICAL CENTER	6500 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
OLD LOUISVILLE STYLE CHILI PARLOR & FIS	4544 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
OLDHAM CHEMICALS CO	4340 SANITA CT	Northern Ditch & SW Sanitary Service Area (CSO 015
OUTBACK STEAKHOUSE	6520 SIGNATURE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
PAPA JOHN'S PIZ	4403 BRADSHAW PL	Northern Ditch & SW Sanitary Service Area (CSO 015
PARADISE TOMATO KITCHENS INC	1600 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015
PARKRIDGE CAR WASH	5619 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
PENN STATION EAST COAST SUBS	4000 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
PEP BOYS AUTOMOTIVE SUPERCENTERS	5607 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
PEPPER SHAKER CHILI & BAR B Q	4912 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
PEPPER SHAKERS FOOD	4918 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
PINWHEEL PHOTOGRAPHY	4009 HILLVIEW AVE	Northern Ditch & SW Sanitary Service Area (CSO 015
PIZZA HUT	3820 7TH STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
PIZZA HUT	5366 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
PIZZA MAGIA	6921 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
POPEYE'S CHICKEN & BISCUITS	5003 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
POPLAR VILLAGE CAR WASH	4910 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
PORTER PAINTS	4432 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
QVIK QUALITY PHOTO LAB	7417 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
RALLY'S	5506 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
RALLY'S HAMBURGERS	5201 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
RALLY'S HAMBURGERS	5506 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
RA-NEAH'S HAIR & NAIL GALLERY	5010 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
RATTERMAN FAMILY FUNERAL HOMES	7330 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
RATTERMAN JE & SONS FUNERAL HOME	7330 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
REYNOLDS METALS COMPANY	4301 PRODUCE RD	Northern Ditch & SW Sanitary Service Area (CSO 015
RISING STAR DAYCARE	5100 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
RITE AID EXPRESS 1 HOUR PHOTO	4721 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
RYANS FAMILY STEAKHOUSE	4711 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
RYAN'S FAMILY STEAKHOUSE	4711 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
S & S TIRE	5203 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SAM'S CAR WASH	4419 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SAM'S CLEANERS	4010 E INDIAN TRL	Northern Ditch & SW Sanitary Service Area (CSO 015
SIR OIL EXPRESS	4104 CHEVIOT DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SMALL WONDERS CHILD CARE	5506 JEANINE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SOUPY'S RESTAURANT	4590 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SPEEDWAY PETROLEUM INC	4417 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SPEEDWAY PETROLEUM INC	4565 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SUBWAY	4835 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SUBWAY SANDWICHES & SALADS	5512 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SUPERAMERICA	3915 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SUPERAMERICA	4720 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
SUPERAMERICA	6821 SOUTHSIDE DR	Northern Ditch & SW Sanitary Service Area (CSO 015
SUPERAMERICA	7400 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015
SUPERAMERICA	755 HUNTINGTON PARK DR	Northern Ditch & SW Sanitary Service Area (CSO 015
TACO BELL	4643 DIXIE HWY	Northern Ditch & SW Sanitary Service Area (CSO 015
TACO BELL	5414 NEW CUT RD	Northern Ditch & SW Sanitary Service Area (CSO 015
THORNTON OIL CORP 96	4516 POPLAR LEVEL RD	Northern Ditch & SW Sanitary Service Area (CSO 015
THORNTON OIL CORP 21	2700 FERN VALLEY RD	Northern Ditch & SW Sanitary Service Area (CSO 015

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
UNIV OF LOUISVILLE	1519 CRUMS LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
UNIV OF LOUISVILLE	3644 ELDERWOOD WAY	Northern Ditch & SW Sanitary Service Area (CSO 015)
UPS/UNITED PARC	911 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
UPS/UNITED PARCEL SERVICE CO AIRLINES	911 GRADE LN	Northern Ditch & SW Sanitary Service Area (CSO 015)
VALVOLINE INSTANT OIL CHANGE	7401 3RD STREET RD	Northern Ditch & SW Sanitary Service Area (CSO 015)
WENDYS OLD FASHIONED HAMBURGERS	5101 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
WENDY'S OLD FASHIONED HAMBURGERS	5101 PRESTON HWY	Northern Ditch & SW Sanitary Service Area (CSO 015)
C & T TRANSMISSION CENTER PLUS AUTO S	3950 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
C & T TRANSMISSION CENTER PLUS AUTO S	3950 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
CARBY CAR WASH	2917 SENECA PARK RD	Middle Fork Downstream of Breckenridge (CSO 020)
CHENOWETH LANE PET CLINIC	156 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
CHEVRON TOM ENGLE	4217 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
CHOPPING BLOCK DAY SPA AND SALON THE	127 S SHERRIN AVE	Middle Fork Downstream of Breckenridge (CSO 020)
CORNERSTONE CHILD DEVELOPMENT CENT	211 BROWNS LN	Middle Fork Downstream of Breckenridge (CSO 020)
COTTAGE SALON	155 THIERMAN LN	Middle Fork Downstream of Breckenridge (CSO 020)
DUNN BRIGHT SALON & DAY SPA	3634 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
FEDEX KINKO'S	106 SEARS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
GE APPLIANCE	2645 TAYLORSVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
HOFMANN, JAMES L DR/DNTST	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
HOWARD, GREGORY S DR/DNTST	291 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
JIFFY LUBE	4180 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
JIM PORTERS GOOD TIME EMPORIUM	2345 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
KAHUNA CLEANERS	119 SAINT MATTHEWS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
KEN TOWERY'S AU	218 MARSHALL DR	Middle Fork Downstream of Breckenridge (CSO 020)
KINGSLEY'S MEAT	2110 PAYNE ST	Middle Fork Downstream of Breckenridge (CSO 020)
LAB CORP	121 MCARTHUR DR	Middle Fork Downstream of Breckenridge (CSO 020)
PHOTOGRAPHY LLC DBA YONO PHOTOGRA	4001 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SAINT MATTHEWS ANIMAL CLINIC	111 FAIRFAX AVE	Middle Fork Downstream of Breckenridge (CSO 020)
SALON 152	152 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
SALON 602	4121 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SEDATS HAIR FASHION & NAILS INC	130 SEARS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
SERVICE PLUS CHEVRON #5	4217 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SPRING ST BAR & GRILL	300 S SPRING ST	Middle Fork Downstream of Breckenridge (CSO 020)
TEXAS ROADHOUSE	6460 DUTCHMANS PKWY	Middle Fork Downstream of Breckenridge (CSO 020)
WISDOM DENTAL CERAMICS	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
A & K DETAILING	4121 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
A CHOICE DENTAL CARE PLLC DMD	111 FAIRFAX AVE	Middle Fork Downstream of Breckenridge (CSO 020)
ACURA AT OXMOOR BODY SHOP	4311 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
AFTER SCHOOL CARE	510 BRECKENRIDGE LN	Middle Fork Downstream of Breckenridge (CSO 020)
ALL FOR YOU HAIR & NAIL SALON HAIR SALC	4113 OECHSLI AVE	Middle Fork Downstream of Breckenridge (CSO 020)
ARBY'S	4170 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
ASIAN NAILS & TAN	4155 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
AUGUST MOON CHINESE RESTAURANT	2269 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
AZALEA RESTAURANT	3612 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
BAPTIST HOSPITA	2120 PAYNE ST	Middle Fork Downstream of Breckenridge (CSO 020)
BEAUTY MARKS PERMANENT MAKEUP	4113 OECHSLI AVE	Middle Fork Downstream of Breckenridge (CSO 020)
BEEF O BRADY'S	106 SEARS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
BIGFOOT FOOD STORES	4300 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
BLINCOE GLENN R DR DNTST	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
BLOOD SERVICES RIVER VALLEY REGION R	291 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
BURGER KING	4030 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
CAFE FRAICHE	3642 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
CAFETERIA	510 BRECKENRIDGE LN	Middle Fork Downstream of Breckenridge (CSO 020)
CASA GRANDE	161 THIERMAN LN	Middle Fork Downstream of Breckenridge (CSO 020)
HARVEY BROWNE PRESCHOOL	311 BROWNS LN	Middle Fork Downstream of Breckenridge (CSO 020)
JIM PORTER'S GOOD TIME EMPORIUM	2345 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
KROGER CATERING & BANQUET HALL IN	4174 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
KROGER CATERING & BANQUET HALL IN SA	4174 WESTPORT RD	Middle Fork Downstream of Breckenridge (CSO 020)
LAB CORP	161 SAINT MATTHEWS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
LAB CORP	3700 SAINT GERMAINE CT	Middle Fork Downstream of Breckenridge (CSO 020)
LAB CORP	3914 STAEBLER AVE	Middle Fork Downstream of Breckenridge (CSO 020)
LONG JOHN SILVER'S SEAFOOD SHOPPE	4214 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
MARTINIZING ONE HOUR CLEANERS	290 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
MCDONALDS RESTAURANTS	998 BRECKENRIDGE LN	Middle Fork Downstream of Breckenridge (CSO 020)
MEDICAL SPECALI	3801 PLYMOUTH RD	Middle Fork Downstream of Breckenridge (CSO 020)
MEENA SALON FOR HAIR & NAILS	112 BROWNS LN	Middle Fork Downstream of Breckenridge (CSO 020)
MEYERS SAM CLEANERS AND SHIRT LAUND	130 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
MEYERS SAM CLEANERS AND SHIRT LAUND	3626 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
MICHEL TIRES PL	116 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
MICHEL TIRES PLUS	116 CHENOWETH LN	Middle Fork Downstream of Breckenridge (CSO 020)
MIDAS AUTO SYSTEMS EXPERTS	4024 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
O'CHARLEY'S	962 BRECKENRIDGE LN	Middle Fork Downstream of Breckenridge (CSO 020)
OFF THE GRILL	121 SAINT MATTHEWS AVE	Middle Fork Downstream of Breckenridge (CSO 020)
ONE HOUR MARTINIZING	290 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
ORIENTAL HOUSE RESTAURANT	4302 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
OWENS MEDICAL CENTER	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
PANERA BREAD COMPANY 826	6221 DUTCHMANS LN	Middle Fork Downstream of Breckenridge (CSO 020)
PAPA MURPHY'S TAKE & BAKE PIZZA	291 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
PIZZA HUT	4211 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
PIZZA MAGIA	4005 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
RICK'S HAIR	3642 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
RIVIERA BEAUTY SALON	114 S SHERRIN AVE	Middle Fork Downstream of Breckenridge (CSO 020)
SABO A CHARLES DMD & ASSOCIATES	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SABO, A CHARLES DMD/DNTST	4122 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
SAINT MATTHEWS DENTAL CARE GROUP	219 BRECKENRIDGE LN	Middle Fork Downstream of Breckenridge (CSO 020)
SAINT MATTHEWS IMPORT SERVICE INC	280 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
SAM MEYERS CLEANERS AND SHIRT LAUND	3626 BROWNSBORO RD	Middle Fork Downstream of Breckenridge (CSO 020)
SPEEDY MART	2338 LEXINGTON RD	Middle Fork Downstream of Breckenridge (CSO 020)
SUBWAY SANDWICHES	291 N HUBBARDS LN	Middle Fork Downstream of Breckenridge (CSO 020)
VALVOLINE INSTANT OIL CHANGE	4213 SHELBYVILLE RD	Middle Fork Downstream of Breckenridge (CSO 020)
A & S DRAIN CLEANING AND REPAIR	4402 BELRAD DR	Southeast Diversion (CSO 015 or South Fork CSOs)
AIR PRODU & CHEM INC	3313 DOGWOOD DR	Southeast Diversion (CSO 015 or South Fork CSOs)
ALLEGRA PRINT & IMAGING CENTER	8912 STONE GREEN WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
AMERICAN EXPRES	2213 GERALD CT	Southeast Diversion (CSO 015 or South Fork CSOs)
BASHFORD EAST HEALTH CARE	3535 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BEVERLY HEALTHCARE	3116 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BEVERLY HEALTHCARE HILLCREEK	3116 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BRECKENRIDGE ANIMAL HOSPITAL	3451 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BRICKYARD SPORTS BAR AND GRILL	4300 FEGENBUSH LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BRIGHT START CHILD CARE & LEARNING CE	5925 SIX MILE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BRODERICK DAVE PHOTOGRAPHERS	3103 SUDBURY CT	Southeast Diversion (CSO 015 or South Fork CSOs)
BROWN, AMY DMD	8921 STONE GREEN WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
BUCHEL CHEVRON	3700 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BUECHEL DAY CARE	2119 OLD SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CAFE AT DERBY CITY ANTIQUE MALL	3819 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CAPTAIN DS SEAFOOD RESTAURANT	2960 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
CARE A LOT CHILD CARE	4701 FEGENBUSH LN	Southeast Diversion (CSO 015 or South Fork CSOs)
CHESAPEAKES RESTAURANT AT THE MARR	1903 EMBASSY SQUARE BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
CICIS PIZZA	3093 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
CINDY'S SALON OF THE TRINITY	2206 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
CORNER DELI FOOD	3912 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CREATIVE RESTAURANTS INC	3703 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DAHLEM ANIMAL HOSPITAL	3035 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
DAIRY FARMERS OF AMERICA	3941 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DAVINIA'S HAIR SALON	2202 BUECHEL AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
DAZZLE SALON & SPA	2911 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
DERBY CHEMICAL	2147 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DERBY CHEMICAL INC	2147 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DINO # 3 FOODMART	3325 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
DREW'S PIZZA	2918 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
DUNKIN DONUTS	3726 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
EMBRY & OCONNOR DMD	3044 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
FAZOLI'S	3083 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
FIREHOUSE BAR B Q	3065 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
FOUR SEASONS BEAUTY SALON	3929 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
GATTILAND	9010 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
GE APPLIANCE	4225 SAINT THOMAS AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
GE COMPANY	121 ALPHA AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
GE COMPANY	3012 PAMELA WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
GE COMPANY APPL	4407 CORAM WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
GREAT ESCAPE	4128 HANDLEY AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
HARPER'S DENNIS CHEVRON SERVICE CEN	4219 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
HARPER'S HAROLD CHEVRON SERVICE CEN	2925 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HARPERS SERVICE CENTER	3018 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HIKES LANE FAMILY DENTAL CENTER PSC	2921 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HIKES POINT CHILD CARE LLC	3046 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HIKES POINT DENTAL CARE	3701 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
HUNSINGER LANE COIN LAUNDRY	3044 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HURSTBOURNE CARE	2200 STONY BROOK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
HURSTBOURNE CARE CENTRE AT STONY B	2200 STONY BROOK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
IMPELLIZZERI'S	2200 STONY BROOK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
INDUSTRIAL BELTING & TRANSMISSION INC	4061 MCCOLLUM CT	Southeast Diversion (CSO 015 or South Fork CSOs)
JERSEY MIKE'S STONYBROOK	9156 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
JOCKS SPORTS BAR & GRILL	3423 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
JOHN E'S RESTAURANT & LOUNGE	3708 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
JOHNSONS ANIMAL CLINIC	3838 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
JOYCE'S BEAUTY SALON	3909 BUECHEL BANK RD	Southeast Diversion (CSO 015 or South Fork CSOs)
JOYCE'S HAIR DESIGN	3834 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
JUMBO BUFFET	2731 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
KEN TOWERY'S AU	4090 CYPRESS COVE DR	Southeast Diversion (CSO 015 or South Fork CSOs)
KINDERCARE LEARNING CENTERS	3804 KLONDIKE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KLONDIKE MANOR HEALTH CARE	3802 KLONDIKE LN	Southeast Diversion (CSO 015 or South Fork CSOs)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
KLONDIKE MANOR HEALTH CARE CENTER	3802 KLONDIKE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
LOVING TRAIN RESTURANT & LOUNGE	3952 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MASONIC HOME VI	3708 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MASONIC HOMES O	3816 CHATHAM RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MOBY DICK BASHFORD MANOR SEAFOOD R	3613 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
PICCADILLY CAFETERIA	2131 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
RED SUN CHINESE RESTAURANT	3437 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
SCHLOTZSKY'S DE	4001 WOODGATE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
SHALIMAR INDIAN RESTAURANT	1820 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
SHIELD ENVIRONM	8013 CLOUDCROFT LN	Southeast Diversion (CSO 015 or South Fork CSOs)
SHOGUN JAPANESE STEAK HOUSE	9024 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SHONEYS RESTAURANT	1890 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
SMOKEY BONES BARBEQUE & GRILL	2525 HURSTBOURNE GEM LN	Southeast Diversion (CSO 015 or South Fork CSOs)
SOUTHSIDE CHRISTIAN CHILD CARE	3620 KLONDIKE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
STEAK N SHAKE	2717 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
STONY BROOK DENTAL CARE	9200 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
STONY BROOK FAMILY DENTAL	9000 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TARGET PHOTO LAB T 1479	3600 MALL RD	Southeast Diversion (CSO 015 or South Fork CSOs)
THE HAR DESIGN SCHOOL	4160 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TOWERYS KEN AUTO CARE SUPER CENTER	3421 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
VALVOLINE INSTANT OIL CHANGE	3604 BUECHEL BYP	Southeast Diversion (CSO 015 or South Fork CSOs)
YALE KENTUCKIANA INC	4092 MCCOLLUM CT	Southeast Diversion (CSO 015 or South Fork CSOs)
84 LUMBER	3214 ORCHARD MANOR CIR	Southeast Diversion (CSO 015 or South Fork CSOs)
84 LUMBER CO	4100 PROGRESS BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
84 LUMBER COMPANY, L.P.	4305 NEWPORT RD	Southeast Diversion (CSO 015 or South Fork CSOs)
A STEP A HEAD HAIR DESIGNS	3415 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
ABIDING SENIOR CARE	3240 OFFICE POINTE PL	Southeast Diversion (CSO 015 or South Fork CSOs)
ACCURATE COATING & CHEMICAL COMPAN	3715 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
ADVANCED IDEA MECHANICS	3113 COMMANDER DR	Southeast Diversion (CSO 015 or South Fork CSOs)
ADVANCED MEDICAL INSTITUTE	2303 HURSTBOURNE VILLAGE DR	Southeast Diversion (CSO 015 or South Fork CSOs)
ADVANTAGE PLASTICS & ENGINEERING INC	5001 CROWN MANOR PL	Southeast Diversion (CSO 015 or South Fork CSOs)
AFFORDABLE SENIOR CARE	4229 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
AMERICAN BRAKE CENTERS INC	3435 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
AMERICAN FAMILY ORTHODONTICS	4229 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
AMERICAN FAMILY PEDIATRIC DENTISTRY	3101 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
ANNIE'S PIZZA III	4306 FEGENBUSH LN	Southeast Diversion (CSO 015 or South Fork CSOs)
APPLEBEE'S NEIGHBORHOOD GRILL & BAR	1905 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
ARBY'S	3615 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
AUTOZONE	2231 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
AUTOZONE	2350 STONY BROOK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
BACHMAN CHEVROLET OLDSMOBILE SERV	9650 BLUEGRASS PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
BAPTIST HOSPITAL EAST HOME HEALTH AG	3101 BRECKINRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BEAUTIFUL PEOPLE HAIR DESIGNS	3006 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BILL'S BODY SHOP	2104 REYNOLDS LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BLIMPIES SUBS & CATERING	3380 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BORDEN, INC.-CA	3020 BOAIRES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
BORDERS DENTAL LABORATORY	2221 BUECHEL AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
BUECHEL DAY CARE INC	4200 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BUFFALO WILD WINGS GRILL & BAR	9134 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
BURGER KING	9120 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
C HAIR DESIGN & SPA	9200 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CAFE JOKER INC	3912 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
CAPTAIN D'S SEAFOOD RESTAURANT	2960 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
DAIRY MART SOUTHEAST	3927 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
DRY CLEAN AMERICA	3360 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
EVANS CHIROPRACTIC PSC	3071 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
HURSTBOURNE DENTAL CARE	8921 STONE GREEN WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
HURSTBOURNE FAMILY CARE	2304 HURSTBOURNE VILLAGE DR	Southeast Diversion (CSO 015 or South Fork CSOs)
KAHUNA CLEANERS	2911 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
KIDS & FUN INC PRE SCHOOL & CHILD CARE	105 BUECHEL TER	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER	3039 BRECKINRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER	3616 BUECHEL BYP	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER	9080 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER CO #304	3204 DEWDROP CT	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER CO #304	3806 STONE RIVER CT	Southeast Diversion (CSO 015 or South Fork CSOs)
KROGER CO #304	8716 CHELMER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	2308 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	403 DONARD PARK AVE	Southeast Diversion (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	4601 ROXANN BLVD	Southeast Diversion (CSO 015 or South Fork CSOs)
LAB CORP	3110 CHURCH WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
LAB CORP	3219 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
LAB CORP	3706 KLONDIKE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
LAB CORP	3937 STONYRUN DR	Southeast Diversion (CSO 015 or South Fork CSOs)
LAB CORP	4194 NORBROOK DR	Southeast Diversion (CSO 015 or South Fork CSOs)
LITTLE ROCKIN ROBINS PRESCHOOL	4014 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
LONG JOHN SILVER'S SEAFOOD SHOPPE	3348 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
LONGHORN STEAKHOUSE	2535 HURSTBOURNE GEM LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MARTINIZING ONE HOUR CLEANERS	2723 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
MARY BEAUTY SALON	4113 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MCALISTER'S DELI J-TOWN	2721 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
MCDONALD'S RESTAURANTS	2961 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MCDONALD'S RESTAURANTS	4306 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MCDONALD'S-STONY BROOK	8600 CITADEL WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
MEDLEYS AUTO & TRUCK ALIGNMENT SERV	3913 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MEDLEY'S AUTO & TRUCK ALIGNMENT SERV	3913 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MEYERS SAM CLEANERS AND SHIRT LAUND	3400 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
MICHEL TIRES PLUS	4515 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MOMMA LEAH'S KIDDIE CARE	3439 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MONGOLIAN GRILL	9148 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MORGAN TIRE & AUTO INC	2217 LIVERPOOL LN	Southeast Diversion (CSO 015 or South Fork CSOs)
MR GAFTI'S	9010 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
MR TRANSMISSION	3014 HUNSINGER LN	Southeast Diversion (CSO 015 or South Fork CSOs)
NATIONAL EXPRESS CAR WASH	4401 FEGENBUSH LN	Southeast Diversion (CSO 015 or South Fork CSOs)
NATURAL LIGHT PHOTOGRAPHY	3010 PAMELA WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
NU YALE SANITONE CLEANERS	3600 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
O'CHARLEY'S	1901 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
OFF THE HEEZIE HAIR SALON	4826 SEBREE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
OLAN MILLS STUDIO	4500 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
OLYMCO MUFFLER & BRAKE CENTERS	2300 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
ONE HOUR MARTINIZING	2723 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
OWEN FUNERAL HO	3037 BOAIRES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
PENN STATION EAST COAST SUBS	2001 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
PERIODONTAL CARE & IMPLANT CENTER	3409 STONY SPRING CIR	Southeast Diversion (CSO 015 or South Fork CSOs)
PIZZA HUT	9160 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
PJ'S /BTY SALON	4229 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
PORTRAIT STUDIO	2020 BASHFORD MANOR LN	Southeast Diversion (CSO 015 or South Fork CSOs)
PRESTIGE CAR WASH	2216 HIKES LN	Southeast Diversion (CSO 015 or South Fork CSOs)
QUIZNO'S	2112 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
QUIZNOS SUB #3201	3099 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
RATTERMAN & SONS	3800 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
RATTERMAN FAMILY FUNERAL HOMES	3800 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
REGAL AUTO WASH	2190 S HURSTBOURNE PKWY	Southeast Diversion (CSO 015 or South Fork CSOs)
S & S TRANSMISSIONS	4163 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SALON 804	3715 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SALON SERVICE GROUP	3808 SHEPHERDSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SAM MEYERS CLEANERS AND SHIRT LAUND	3400 BASHFORD AVENUE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
SPEEDY MART	4213 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
STARBUCKS COFFEE	9036 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
SUPERAMERICA	2965 BRECKENRIDGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
SUPERAMERICA	4527 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TACO BELL	3425 BARDSTOWN RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TACO BELL	9092 TAYLORSVILLE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
TUMBLEWEED SOUTHWEST GRILL	8609 CITADEL WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
UNIV OF LOUISVILLE	3202 GLENSTONE CT	Southeast Diversion (CSO 015 or South Fork CSOs)
UNIV OF LOUISVILLE	3504 LODGE LN	Southeast Diversion (CSO 015 or South Fork CSOs)
UNIV OF LOUISVILLE	8306 LACEVINE RD	Southeast Diversion (CSO 015 or South Fork CSOs)
VALVOLINE INSTANT OIL CHANGE	8601 CITADEL WAY	Southeast Diversion (CSO 015 or South Fork CSOs)
WENDYS OLD FASHIONED HAMBURGERS	3606 BUECHEL BYP	Southeast Diversion (CSO 015 or South Fork CSOs)
BEARNO'S PIZZA	2900 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
COLONEL QUICK DRY CLEANING & ALTERAT	3333 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
DAIRY QUEEN RESTAURANTS	2208 GOLDSMITH LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
DEWITT PHOTOGRAPHY	2210 GOLDSMITH LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
DOOLEYS BAGELS & DELI	980 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
DOOLEY'S BAGELS & DELI	980 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GE APPLIANCES	252 BRECKINRIDGE SQ	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GE COMPANY	2911 ABIGAIL DR	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GENERAL ELEC APPLI	201 TRAFALGAR SQ	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
HIGHLAND FUNERAL HOME	3331 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
HIGHLANDS FUNERAL HOME	3331 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
HOLIDAY INN SOUTHEAST BANQUET & CATE	3255 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
LE RELAIS RESTAURANT	2817 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
SENECA ANIMAL HOSPITAL	2706 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
STEAK N SHAKE	3232 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
TEXAS ROADHOUSE	8040 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
WINSTONS RESTAURANT AT SULLIVAN UNIV	3101 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
GE CAPITAL FLEET SERVICES	6060 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
84 LUMBER	2812 MONTROSE AVE	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
A NEW TREATMENT CENTER	6420 DUTCHMANS PKWY	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
BAPTIST HOSPITAL EAST HOME HEALTH AG	8420 DUTCHMANS PKWY	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
CAFE J DELI & CATERING AT THE JEWISH CC	3600 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
EVANS MONUMENT COMPANY	3204 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
JEWISH HOSPITAL FRAZIER INST	3600 DUTCHMANS LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)



**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
KINGSLAYS MEAT SEAFOOD & CATERING	2701 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
KROGER CO #304	3338 BON AIR AVE	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	2617 GARDINER LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	274 BRECKINRIDGE SQ	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
MCDONALD'S RESTAURANTS	3340 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
MIDAS AUTO SYSTEMS EXPERTS	3325 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
MR GAFTI'S	3319 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
MR GATTIS	3319 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
MUSA'S HAIR SALON	3010 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
NU YALE DRY CLEANERS	3010 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
NU YALE SANITONE CLEANERS	3010 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
POPEYE'S CHICKEN & BISCUITS	3317 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
PRICE, DENNIS R DR/DNTST	2811 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
QDOBA MEXICAN GRILL	970 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
RAFFERTY'S OF LOUISVILLE	988 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
RALLY'S HAMBURGERS	3290 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
RITE AID EXPRESS 1 HOUR PHOTO	3012 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
SPEEDY MART	2911 BARDSTOWN RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
SUPERAMERICA	2720 TAYLORSVILLE RD	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
WENDYS OLD FASHIONED HAMBURGERS	978 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
WENDY'S OLD FASHIONED HAMBURGERS	978 BRECKENRIDGE LN	Goldsmith Lane Trunk (CSO 015 or South Fork CSOs)
ABBY GLEN DESIGNS	6500 GLENRIDGE PARK PL	ORFM (CSO 211)
ADMI AUTOMOTIVE DEALER MANAGEMENT I	159 SAINT MATTHEWS AVE	ORFM (CSO 211)
BABCOCK CHRIS DMD MD	9488 BROWNSBORO RD	ORFM (CSO 211)
BOB EVANS FARMS RESTAURANTS	10761 FISCHER PARK DR	ORFM (CSO 211)
BROWNSBORO FAMILY DENTISTRY	4882 BROWNSBORO RD	ORFM (CSO 211)
BROWNSBORO PARK PEDIATRICS PSC	6002 BROWNSBORO PARK BLVD	ORFM (CSO 211)
BROWNSBORO PARK RETIREMENT COMMU	2960 GOOSE CREEK RD	ORFM (CSO 211)
BROWNSBORO PEDIATRICS	4884 BROWNSBORO RD	ORFM (CSO 211)
CAMELOT HEALTHC	7414 FALLS RIDGE CT	ORFM (CSO 211)
CHICK-FIL-A	10501 WESTPORT RD	ORFM (CSO 211)
CHICK-FIL-A	3945 NAPANEE RD	ORFM (CSO 211)
DENTAL HEALTH CENTER	2323 LIME KILN LN	ORFM (CSO 211)
DOOLEY'S BAGELS & DELI	2226 HOLIDAY MANOR CTR	ORFM (CSO 211)
EAST LOUISVILLE ANIMAL HOSPITAL	4158 WESTPORT RD	ORFM (CSO 211)
EAST LOUISVILLE DERMATOLOGY PSC	4912 US HIGHWAY 42	ORFM (CSO 211)
EAST LOUISVILLE PEDIATRICS PSC OFFICE	4171 WESTPORT RD	ORFM (CSO 211)
FRIDAY'S	2311 LIME KILN LN	ORFM (CSO 211)
GE COMPANY	3711 TRAIL RIDGE RD	ORFM (CSO 211)
GE COMPANY	3712 FALLEN TIMBER DR	ORFM (CSO 211)
GOOSE CREEK ANIMAL CLINIC	9406 BLOSSOM LN	ORFM (CSO 211)
HOLIDAY CLEANERS & SHIRT LAUNDRY	3301 BARBOUR LN	ORFM (CSO 211)
HOLIDAY MANOR BP SERVICE STATION	4944 US HIGHWAY 42	ORFM (CSO 211)
HUNGRY PELICAN THE	2929 GOOSE CREEK RD	ORFM (CSO 211)
INCH BY INCH HAIR SALON	4854 BROWNSBORO CTR	ORFM (CSO 211)
JERSEY MIKE'S SUBS	2415 LIME KILN LN	ORFM (CSO 211)
JERSEY MIKES SUBS & SALADS	10519 FISCHER PARK DR	ORFM (CSO 211)
KAHUNA 225 CLEANERS	3554 SPRINGHURST BLVD	ORFM (CSO 211)
KINDER CARE LEARNING CENTERS	2013 HERR LN	ORFM (CSO 211)
KINGSLAY'S MEAT SEAFOOD	4919 BROWNSBORO RD	ORFM (CSO 211)
KROGER	2219 HOLIDAY MANOR CTR	ORFM (CSO 211)
LA PECHE CAFE	2231 HOLIDAY MANOR CTR	ORFM (CSO 211)
LA PECHE CATERING	2231 HOLIDAY MANOR CTR	ORFM (CSO 211)
LA REE BEAUTY SALON	2226 HOLIDAY MANOR CTR	ORFM (CSO 211)
SCHLOTZSKY'S DELI	10531 FISCHER PARK DR	ORFM (CSO 211)
SERVICE PLUS CHEVRON #4	4900 BROWNSBORO RD	ORFM (CSO 211)
SHERWOOD'S CARWASH	9504 BLOSSOM LN	ORFM (CSO 211)
SPEEDWAY PETROLEUM INC	4150 WESTPORT RD	ORFM (CSO 211)
SPRINGHURST FAMILY DENTISTRY	9480 BROWNSBORO RD	ORFM (CSO 211)
SPRINGHURST MEDICAL CENTER	3800 SPRINGHURST BLVD	ORFM (CSO 211)
SPRINGHURST PEDIATRICS PLLC	10210 WESTPORT RD	ORFM (CSO 211)
STARBUCKS COFFE	7022 WOODDED MEADOW RD	ORFM (CSO 211)
STARBUCKS COFFEE	3521 SPRINGHURST COMMONS DR	ORFM (CSO 211)
STARBUCKS COFFEE	4001 SUMMIT PLAZA DR	ORFM (CSO 211)
STEAK N SHAKE AT SPRINGHURST TOWNE	10721 FISCHER PARK DR	ORFM (CSO 211)
SWIFTY SERVICE STATION	4946 US HIGHWAY 42	ORFM (CSO 211)
TOKYO JAPANESE RESTAURANT	2415 LIME KILN LN	ORFM (CSO 211)
VALE PHOTOGRAPHY	3919 BURNING BUSH RD	ORFM (CSO 211)
WENDYS OLD FASHIONED HAMBURGERS	10741 FISCHER PARK DR	ORFM (CSO 211)
WESTPORT ANIMAL HOSPITAL	4167 WESTPORT RD	ORFM (CSO 211)
WICKS PIZZA GOOSE CREEK	2927 GOOSE CREEK RD	ORFM (CSO 211)
211 CLOVER LANE RESTAURANT	211 CLOVER LN	ORFM (CSO 211)
AMERICAN CHIROPRACTIC PROSPECT	4713 FOX DEN CT	ORFM (CSO 211)
AMERICAN FAMILY ORTHODONTICS	10500 FISCHER PARK DR	ORFM (CSO 211)
AMERICAN FAMILY PEDIATRIC DENTISTRY	10500 FISCHER PARK DR	ORFM (CSO 211)
AMERICAN FAMILY PEDIATRLCS DENTISTRY	10500 FISCHER PARK DR	ORFM (CSO 211)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
AVISH GARDENS	9422 BROWNSBORO RD	ORFM (CSO 211)
BAPTIST HOME EA	3001 N HURSTBOURNE PKWY	ORFM (CSO 211)
BAPTIST HOME EAST	3001 N HURSTBOURNE PKWY	ORFM (CSO 211)
BAPTIST HOSPITA	357 RIDGEWAY AVE	ORFM (CSO 211)
BARBOUR LANE ANIMAL HOSPITAL	3303 BARBOUR LN	ORFM (CSO 211)
BEARNO'S PIZZA	2226 HOLIDAY MANOR CTR	ORFM (CSO 211)
BEAUTY FIRST STORE & SALON	4141 TOWNE CENTER DR	ORFM (CSO 211)
DAIRY QUEEN	4902 BROWNSBORO RD	ORFM (CSO 211)
DOMINOS PIZZA	9409 WESTPORT RD	ORFM (CSO 211)
DOMINO'S PIZZA	9409 WESTPORT RD	ORFM (CSO 211)
EVERGREEN CHRISTIAN COUNSELING MAR	9900 BROWNSBORO RD	ORFM (CSO 211)
HEAR IN AMERICA	5100 US HIGHWAY 42	ORFM (CSO 211)
HIGHLAND CLEANERS	4007 BROWNSBORO RD	ORFM (CSO 211)
HIGHLAND CLEANERS	4966 US HIGHWAY 42	ORFM (CSO 211)
HOLIDAY MANOR SALON AND SPA	2226 HOLIDAY MANOR CTR	ORFM (CSO 211)
JEWISH HOSPITAL	2800 WAREHAM RD	ORFM (CSO 211)
JEWISH HOSPITAL	410 TRINITY HILLS LN	ORFM (CSO 211)
JEWISH HOSPITAL	6651 NORTHRIDGE CIR	ORFM (CSO 211)
KFC	4910 US HIGHWAY 42	ORFM (CSO 211)
KFC	9487 WESTPORT RD	ORFM (CSO 211)
KFC OFFICE	1800 RUDY LN	ORFM (CSO 211)
KINGSLEYS MEAT SEAFOOD & CATERING	4919 BROWNSBORO RD	ORFM (CSO 211)
KROGER	9440 BROWNSBORO RD	ORFM (CSO 211)
KROGER COMPANY	8907 DUXBURY RD	ORFM (CSO 211)
KY FRIED CHICKEN	2516 GLEN EAGLE DR	ORFM (CSO 211)
KY FRIED CHICKEN	3225 TRAIL RIDGE RD	ORFM (CSO 211)
KY FRIED CHICKEN	3907 ASHRIDGE DR	ORFM (CSO 211)
KY FRIED CHICKEN	5210 MOCCASIN TRL	ORFM (CSO 211)
KY FRIED CHICKEN	6905 FALLEN LEAF CIR	ORFM (CSO 211)
KY FRIED CHICKEN	7804 ALBRECHT CIR	ORFM (CSO 211)
MARK IV HAIRSTYLES	9419 WESTPORT RD	ORFM (CSO 211)
MARTINI ITALIAN BISTRO	4021 SUMMIT PLAZA DR	ORFM (CSO 211)
MARTINIZING DRY CLEANING	9449 WESTPORT RD	ORFM (CSO 211)
MAX & ERMA'S RESTAURANTS	3921 SUMMIT PLAZA DR	ORFM (CSO 211)
MCALISTER DELI GLENVIEW POINTE	2400 LIME KILN LN	ORFM (CSO 211)
MCDONALD'S	9254 WESTPORT RD	ORFM (CSO 211)
MCDONALD'S RESTAURANTS	287 N HUBBARDS LN	ORFM (CSO 211)
MCDONALD'S RESTAURANTS	4940 BROWNSBORO RD	ORFM (CSO 211)
MEYERS SAM CLEANERS AND SHIRT LAUND	2212 HOLIDAY MANOR CTR	ORFM (CSO 211)
NORTON HEALTHCA	511 INDIAN RIDGE RD	ORFM (CSO 211)
NU YALE DRY CLEANERS	9452 BROWNSBORO RD	ORFM (CSO 211)
NU YALE SANITONE CLEANERS	9452 BROWNSBORO RD	ORFM (CSO 211)
O'CHARLEY'S	10641 FISCHER PARK DR	ORFM (CSO 211)
OLAN MILLS STUDIO	4100 TOWNE CENTER DR	ORFM (CSO 211)
ON THE BORDER MEXICAN GRILL & CANTINA	10601 FISCHER PARK DR	ORFM (CSO 211)
ONE HOUR MOTOPHOTO AND PORTRAIT ST	9454 BROWNSBORO RD	ORFM (CSO 211)
OUTBACK STEAKHOUSE	9498 BROWNSBORO RD	ORFM (CSO 211)
PANERA BREAD	10451 CHAMPION FARMS DR	ORFM (CSO 211)
PIPPIN CAR WASH	9504 BLOSSOM LN	ORFM (CSO 211)
PIZZA HUT	3610 SPRINGHURST BLVD	ORFM (CSO 211)
PIZZA MAGIA	2415 LIME KILN LN	ORFM (CSO 211)
PIZZA MAGIA	4006 ELFIN AVE	ORFM (CSO 211)
PLAINVIEW CLEANERS	2415 LIME KILN LN	ORFM (CSO 211)
PREMIER LAB COR	9200 BLOSSOM LN	ORFM (CSO 211)
QDOBA MEXICAN GRILL	4059 SUMMIT PLAZA DR	ORFM (CSO 211)
QUIZNOS	4045 SUMMIT PLAZA DR	ORFM (CSO 211)
RAFFERTY'S OF LOUISVILLE	3601 SPRINGHURST BLVD	ORFM (CSO 211)
RITE AID EXPRESS 1 HOUR PHOTO	9459 WESTPORT RD	ORFM (CSO 211)
RITE AID EXPRESS I HOURER PHOTO	9459 WESTPORT RD	ORFM (CSO 211)
SAINT MATTHEWS IMPORT SERVICE INC	4164 WESTPORT RD	ORFM (CSO 211)
SALON DE COIFFURE	211 CLOVER LN	ORFM (CSO 211)
SALON ESSENTIALS	4156 WESTPORT RD	ORFM (CSO 211)
SAM MEYERS CLEANERS AND SHIRT LAUND	2212 HOLIDAY MANOR CTR	ORFM (CSO 211)
SOUPY'S RESTAURANT	9493 WESTPORT RD	ORFM (CSO 211)
SPEEDY MART	10490 WESTPORT RD	ORFM (CSO 211)
STARBUCKS COFFEE INC	4942 US HIGHWAY 42	ORFM (CSO 211)
SUBWAY SANDWICH SHOP	4945 BROWNSBORO RD	ORFM (CSO 211)
SUBWAY SANDWICHES	10512 FISCHER PARK DR	ORFM (CSO 211)
UNIV OF LOUISVILLE	7806 OLD ORCHARD CIR	ORFM (CSO 211)
VALVOLINE INSTANT OIL CHANGE	4935 BROWNSBORO RD	ORFM (CSO 211)
WENDYS OLD FASHIONED HAMBURGERS	4955 BROWNSBORO RD	ORFM (CSO 211)
WENDYS OLD FASHIONED HAMBURGERS	9489 WESTPORT RD	ORFM (CSO 211)
WENDY'S OLD FASHIONED HAMBURGERS	10741 FISCHER PARK DR	ORFM (CSO 211)
WENDY'S OLD FASHIONED HAMBURGERS	4955 BROWNSBORO RD	ORFM (CSO 211)
WENDY'S OLD FASHIONED HAMBURGERS	9489 WESTPORT RD	ORFM (CSO 211)
DU PONT DE NEMOURS E I & CO LOUISVILLE	4242 CAMP GROUND RD	Rubbertown FM (None)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
E I DUPONT	4200 CAMP GROUND RD	Rubbertown FM (None)
ECKART	4101 CAMP GROUND RD	Rubbertown FM (None)
ECKART ALUMINUM	4101 CAMP GROUND RD	Rubbertown FM (None)
ZEON CHEMICALS	4100 BELLS LN	Rubbertown FM (None)
DUPONT DOW ELASTOMERS LLC	4242 CAMP GROUND RD	Rubbertown FM (None)
DUPONT FLUOROPRODUCT	4200 CAMP GROUND RD	Rubbertown FM (None)
DUPONT FLUOROPRODUCTS	4200 CAMP GROUND RD	Rubbertown FM (None)
OXY VINYL	4200 BELLS LN	Rubbertown FM (None)
POLYONE CORPORATION	4200 BELLS LN	Rubbertown FM (None)
ROHM & HAAS CO	4300 CAMP GROUND RD	Rubbertown FM (None)
ROHM AND HAAS COMPANY CHEMCLS	4300 CAMP GROUND RD	Rubbertown FM (None)
ZEON CHEMICALS LP	4100 BELLS LN	Rubbertown FM (None)
KINDER CARE LEARNING CENTERS	730 ZORN AVE	Muddy Fork (CSO 154)
THOROUGH BRED DRY CLEANERS	3017 RIVER RD	Muddy Fork (CSO 154)
V A MEDICAL CTR	800 ZORN AVE	Muddy Fork (CSO 154)
VA HEALTHCARE C	800 ZORN AVE	Muddy Fork (CSO 154)
VA MEDICAL CENTER AND OUTPATIENT CLIN	800 ZORN AVE	Muddy Fork (CSO 154)
BEAUTY FIRST ST	2400 MELLWOOD AVE	Muddy Fork (CSO 154)
KROGER CO #304	725 N HITE AVE	Muddy Fork (CSO 154)
MCALISTER DELI	2839 COLEEN CT	Muddy Fork (CSO 154)
UNIV OF LOUISVILLE	2506 RIVERMONT CT	Muddy Fork (CSO 154)
VA MEDICAL CENTER AND OUTPATIENT SER	800 ZORN AVE	Muddy Fork (CSO 154)
A G EDWARDS & SONS INC	101 BULLITT LN	Middle Fork Upstream of Breckenridge (various)
ALL CHILDREN PEDIATRICS	400 BLANKENBAKER PKWY	Middle Fork Upstream of Breckenridge (various)
ALLEY CAT CAFE & CATERING	11804 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ALMOST FAMILY	100 MALLARD CREEK RD	Middle Fork Upstream of Breckenridge (various)
AMERICAN EXPRESS	1508 CANARY PL	Middle Fork Upstream of Breckenridge (various)
AMERICAN EXPRESS	806 STONE CREEK PKWY	Middle Fork Upstream of Breckenridge (various)
ARENSMAN BOONE & MCOMBER PEDIATRIC	916 DUPONT RD	Middle Fork Upstream of Breckenridge (various)
AUTOZONE	11710 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BAPTIST URGENT	1720 BRIDGEVIEW LN	Middle Fork Upstream of Breckenridge (various)
BELLEWOOD PRESBYTERIAN HOME	1600 CARING WAY	Middle Fork Upstream of Breckenridge (various)
BELLEWOOD PRESBYTERIAN HOME FOR CH	11103 PARK RD	Middle Fork Upstream of Breckenridge (various)
BLACK SHEEP SALON	808 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS ORTHOPAEDIC	3920 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS SHELL	1400 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
BOB EVANS FARMS RESTAURANTS	9797 BLAIRWOOD RD	Middle Fork Upstream of Breckenridge (various)
BOWTIE EXPRESS CAR WASH	9710 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
BP OIL	4555 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
BRANDON'S BAR-B-QUE & CATERING	9246 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
BRAVADA SALON	1223 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
BRESLIN FAMILY DENTISTRY	9800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BREWER R JUDSON MD OFFICE	4003 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BROOKSIDE SALON	200 BROOKSIDE DR	Middle Fork Upstream of Breckenridge (various)
BUCKHEAD MOUNTAIN GRILL	10430 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BUNDLE EXPRESS INDUSTRIAL LAUNDRY SE	8003 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
BURTON, E RAMSEY JR DMD/DNTST	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
CALL NAILS	9800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
CAMELOT COIN LAUNDRY	1309 HERR LN	Middle Fork Upstream of Breckenridge (various)
CAMELOT FAMILY DENTAL CENTER	7420 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
CAPTAIN DS SEAFOOD RESTAURANT	1303 CLEAR SPRINGS TRCE	Middle Fork Upstream of Breckenridge (various)
CARDINAL VETERINARY LABORATORY INC	1101 HERR LN	Middle Fork Upstream of Breckenridge (various)
CAROUSEL LAUNDRY	9303 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
CHARLES HEITZMAN BAKERY & DELI	9426 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
CHEVRON OXMOOR AUTO CARE	7515 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
CHICK-FIL-A	800 FENLEY AVE	Middle Fork Upstream of Breckenridge (various)
CHILIS GRILL & BAR	421 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
CHINA CITY BUFFET	9228 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
CHINA TOWN	4000 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
CMJ RESTAURANT	10207 LEDBURY WAY	Middle Fork Upstream of Breckenridge (various)
COLUMBIA SUBURBAN HOSPITAL	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
CORNER CAFE CARRY OUT	9307 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
CRACKER BARREL OLD COUNTRY STORE	2000 WARRINGTON WAY	Middle Fork Upstream of Breckenridge (various)
CREATIVE RESTAU	8803 SPRINGSBURY PL	Middle Fork Upstream of Breckenridge (various)
CROCKETT VETERINARY HOSPITAL	10008 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
DENNY'S RESTAURANT	4030 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
DENTAL PRACTICE TRANSITION	920 DUPONT RD	Middle Fork Upstream of Breckenridge (various)
DENTAL SOLUTIONS NOW	802 STONE CREEK PKWY	Middle Fork Upstream of Breckenridge (various)
DIXIE DRY CLEANERS INC	10308 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
DOMINOS PIZZA	8054 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
DOOLEY'S BAGELS & DELI	216 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
DUNKIN DONUTS	3911 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
DUPONT CHEVRON	1001 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
ELEMENTS SALON	11605 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ERIKA'S GERMAN RESTAURANT	9301 HURSTBOURNE PARK BLVD	Middle Fork Upstream of Breckenridge (various)
EVERGREEN ANIMAL HOSPITAL	11618 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
FAZOLI'S	337 WHITTINGTON PKWY	Middle Fork Upstream of Breckenridge (various)
FEDEX KINKO'S	1235 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
FIREHOUSE BBQ	808 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
FIVE STAR FOOD MART #854	4548 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
FOREST GREEN FAMILY DENTISTRY	10031 FOREST GREEN BLVD	Middle Fork Upstream of Breckenridge (various)
FRIDAY'S	9990 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
FRIENDS HAIR SALON	11421 MAIN ST	Middle Fork Upstream of Breckenridge (various)
FRIENDS SALON INC	11421 MAIN ST	Middle Fork Upstream of Breckenridge (various)
FRISCH'S BIG BOY RESTAURANTS	4800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
FRITZ'S	164 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
GARRETT'S RESTAURANT	9601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
GATTILAND	1108 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
GE APPLIANCE	307 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
GE COMPANY	305 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
GE COMPANY	307 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
GE COMPANY	504 TOWER DR	Middle Fork Upstream of Breckenridge (various)
GE COMPANY	8403 NOTTINGHAM PKWY	Middle Fork Upstream of Breckenridge (various)
GE COMPANY	850 WASHBURN AVE	Middle Fork Upstream of Breckenridge (various)
GENEX SERVICES	10503 TIMBERWOOD CIR	Middle Fork Upstream of Breckenridge (various)
GOLDEN CORRAL RESTAURANT	4032 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
GOODYEAR AUTO SERVICE CENTERS	4909 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
GOODYEAR CERTIFIED AUTO SERVICE CEN	12344 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
GREAT STEAK & POTATO CO	221 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
HARPER'S RESTAURANT	871 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
HEADY ARCH L & SON FUNERAL DIRECTORS	4109 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
HEUSTIS AUTO SUPPLY	717 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
HEUSTIS AUTO SUPPLY INC	11804 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
HIGHLAND CLEANERS	11800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
HIGHLAND CLEANERS	205 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
HIKES POINT FUNERAL HOME	4109 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
HOOTERS	4120 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
HOT LOCKS FULL SERVICE SALON	4004 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
HUNGRY PELICAN THE	4107 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
HURSTBOURNE BP	1323 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
IMMEDIATE CARE CENTER	10284 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
IMMEDIATE CARE CENTERS	10284 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
IMPELLIZZERIS TONY ITALIAN RESTAURANT	108 VIEUX CARRE DR	Middle Fork Upstream of Breckenridge (various)
J ALEXANDER'S RESTAURANT	102 OXMOOR CT	Middle Fork Upstream of Breckenridge (various)
J RS SPA & SALON	1115 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
JERSEY MIKE'S SUBS & SALADS	10286 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
JEWISH HOSPITAL	114 EXECUTIVE PARK	Middle Fork Upstream of Breckenridge (various)
JONES, MELVIN T DR/DNTST	8013 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
KEN TOWERY AUTO CARE	7511 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
KEN TOWERY'S AUTO C	7511 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
KFC	10202 SPRINGSIDE PL	Middle Fork Upstream of Breckenridge (various)
KFC	12206 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
KINDERCARE LEARNING CENTERS	1100 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
KINDERCARE LEARNING CENTERS	1110 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
KINDERCARE LEARNING CENTERS	8016 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
KINGFISH RESTAU	7400 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
KINGFISH RESTAURANT	7400 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
LA PETITE ACADEMY	10501 TIMBERWOOD CIR	Middle Fork Upstream of Breckenridge (various)
LAB CORP	1313 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
LABCORP	7819 ROYALTY AVE	Middle Fork Upstream of Breckenridge (various)
LYNDON ANIMAL CLINIC	1000 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
MAGIC SPARKLE CAR WASH	3901 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
MOBY DICK SEAFOOD	4848 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PEDIATRIC & NEONATAL SPECIALISTS	3991 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
PEDIATRIC DENTAL GROUP OF LOUISVILLE	5005 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PERIODONTAL ASSOCIATES PSC DMD	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
PICCADILLY CAFETERIA	133 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
SALON 600	600 EXECUTIVE PARK	Middle Fork Upstream of Breckenridge (various)
SALON 600	9932 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
SAVANNAHS BAR & GRILL	11800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SBARRO PIZZA	5000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SCANDAL'S HAIR & NAILS	4014 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
SERVICE PLUS CHEVRON #7	1335 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
SESAME CHINESE RESTAURANT	9409 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SHALOM BEAUTY SALON	9900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SHERWIN WILLIAMS CO	8005 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SHERWIN WILLIAMS CO	9210 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
SHIM HANNAH CLEANERS	8730 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
SKYLINE CHILI	3928 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
SONIC DRIVE IN	612 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
SOUTHSIDE CHRISTIAN CHILD CARE	8700 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
SQUARE D COMPANY	101 BULLITT LN	Middle Fork Upstream of Breckenridge (various)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to GSO#</b>
SQUARE D COMPANY	8300 DOVECREST CT	Middle Fork Upstream of Breckenridge (various)
STAR CHEMICALS	8027 1/2 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
STARBUCKS COFFEE	101 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
STARBUCKS CORPORATION	101 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
SUBURBAN CLEANERS	9613 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
SUPERAMERICA	12102 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SUPERAMERICA	1415 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
TEN BROECK HEALTHCARE	1405 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
TEN BROECK HOSPITALS	1405 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
THE HAIR SALON	10420 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
THORNTON OIL CORP	10101 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
TONY ROMAS FAMOUS FOR RIBS	150 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
TOWERYS KEN AUTO CARE SUPER CENTER	11811 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
TOWERYS KEN AUTO CARE SUPER CENTER	7511 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
TOWNE HOUSE BEAUTY SALON	2931 RICHLAND AVE	Middle Fork Upstream of Breckenridge (various)
TUMBLEWEED SOUT	2824 YORKSHIRE BLVD	Middle Fork Upstream of Breckenridge (various)
UNIV OF LOUISVILLE	1002 GARDEN CREEK CIR	Middle Fork Upstream of Breckenridge (various)
UNIVERSITY OF L	508 BRIGHTWOOD PL	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE	11813 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
W W COUSINS RESTAURANT	900 DUPONT RD	Middle Fork Upstream of Breckenridge (various)
WALL STREET DELI	3920 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
WESTPORT MEDICAL	8700 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
WESTPORT PRIMARY CARE	2500 HERMITAGE WAY	Middle Fork Upstream of Breckenridge (various)
WESTPORT PRIMARY CARE CENTER	2500 HERMITAGE WAY	Middle Fork Upstream of Breckenridge (various)
WESTPORT RD DENTAL CENTER	8730 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
WISDOM GENE DENTAL LABORATORY	4119 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
STARBUCKS COFFEE	4400 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
1 MD LOUISVILLE PLLC	901 DUPONT RD	Middle Fork Upstream of Breckenridge (various)
1ST CHOICE MEDICAL CENTER	1834 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
4020807 ST MATTHEWS CARRIERS	4600 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
A PLUS NAILS	119 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
A T C HEALTHCARE SERVICES INC	9820 TIVERTON WAY	Middle Fork Upstream of Breckenridge (various)
ABSOLUTELY NAILS II	11901 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ACADEMY OF DENTAL ASSISTING	400 BLANKENBAKER PKWY	Middle Fork Upstream of Breckenridge (various)
ACADEMY OF LOUISVILLE VETERINARIANS	1000 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
ACADEMY OF LOUISVILLE VETERINARIANS	8706 BAYBERRY PL	Middle Fork Upstream of Breckenridge (various)
ADVANCED EYE CA	4433 CORDOVA RD	Middle Fork Upstream of Breckenridge (various)
ADVANCED EYE CARE	4001 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
ADVANCED IMAGING CON	1302 CLEAR SPRINGS TRCE	Middle Fork Upstream of Breckenridge (various)
ADVANCED IMAGING CONCEPTS	1302 CLEAR SPRINGS TRCE	Middle Fork Upstream of Breckenridge (various)
ADVANCED REHABILITATION SPECIALISTS	1406 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
ADVENTIST PRE SCHOOL & CHILD CARE	125 N WATTERSON TRL	Middle Fork Upstream of Breckenridge (various)
AFFINITY HAIR AND NAIL SALON INC	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
AKZO NOBEL	804 FOXGATE RD	Middle Fork Upstream of Breckenridge (various)
ALACRITY HEALTHCARE	4006 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
ALL PRO NAILS	1255 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
ALMOST FAMILY	1000 GARDEN POINTE PL	Middle Fork Upstream of Breckenridge (various)
ALMOST FAMILY	521 LEYTON AVE	Middle Fork Upstream of Breckenridge (various)
ALMOST FAMILY	9510 ORMSBY STATION RD	Middle Fork Upstream of Breckenridge (various)
ALMOST FAMILY I	100 MALLARD CREEK RD	Middle Fork Upstream of Breckenridge (various)
AMERICAN FAMILY ORTHODONTICS	9505 WILLIAMSBURG PLZ	Middle Fork Upstream of Breckenridge (various)
ANIMAL HEALTH CENTERS OF AMERICA PLL	11612 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
APPLEBEE'S NEIGHBORHOOD GRILL & BAR	5000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
APPLEBEE'S NEIGHBORHOOD GRILL & BAR	9921 ORMSBY STATION RD	Middle Fork Upstream of Breckenridge (various)
ASSOCIATED VETERINARY SPECIALISTS	1000 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
ASSOCIATES IN FAMILY PRACTICE	9242 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
ASSOCIATES IN GENERAL DENTISTRY PSC	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
ATLAS PRINTING	9983 VIEUX CARRE DR	Middle Fork Upstream of Breckenridge (various)
AUTO DIAGNOSTIC & REPAIR CENTER	11501 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BAPTIST DENTAL GROUP	4001 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST EAST DIAGNOSTIC IMAGING CENTE	12010 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BAPTIST HEALTHCARE SYSTEM	4007 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HEALTHCARE SYSTEM SUPPORT S	4007 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOME EA	1301 CLEAR SPRINGS TRCE	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOMES FOR CHILDREN INC BUSINE	10200 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITA	4007 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITA	425 S HUBBARDS LN	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITA	501 TOWER DR	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST PATIEN	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST OUTPATIENT PHYS	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST PHYSICIAN REFER	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST REHABILITATION P	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST HOSPITAL EAST SLEEP DISORDER	4000 KRESGE WAY	Middle Fork Upstream of Breckenridge (various)
BAPTIST URGENT CARE	12010 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BEARNOS PIZZA WESTPORT RD	9222 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
BEAUTY FIRST STORE & SALON	4500 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
BEAUTY FIRST STORE & SALON	4600 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BEAUTY FIRST STORE & SALON	849 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
BEAUTY GALLERY OF LOUISVILLE	4012 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
BEAUTY WAREHOUSE OFFICE	4500 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
BEEF O BRADYS FAMILY SPORTS PUB	241 BLANKENBAKER PKWY	Middle Fork Upstream of Breckenridge (various)
BEHA'S CLEANERS	7907 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
BELMONT VILLAGE SENIOR LIVING COMMUN	4600 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
BIGFOOT FOOD ST	8145 COPPERCREEK DR	Middle Fork Upstream of Breckenridge (various)
BIGFOOT FOOD STORES	1200 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
BIGFOOT FOOD STORES	9401 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
BIGFOOT FOOD STORES	9619 WHIPPS MILL RD	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS FAMILY HEALTH	9750 ORMSBY STATION RD	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS MUFFLER & BRAKE INC	103 N MADISON AVE	Middle Fork Upstream of Breckenridge (various)
BLUEGRASS ORTHOPAEDIC GROUP	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
BONEFISH GRILL	213 S HAMPTON RD	Middle Fork Upstream of Breckenridge (various)
BONEFISH GRILL	657 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
CAFETERIA	4600 LYNNBROOK DR	Middle Fork Upstream of Breckenridge (various)
CAMELOT HEALTHCARE	1101 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
CARRABBA'S ITALIAN GRILL	617 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
CASWELL'S SALON	8029 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
CYSTIC FIBROSIS FOUNDATION KENTUCKY	1230 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
DAIRY QUEEN	11806 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
DAIRY QUEEN	4026 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
DEGEORGE VICTOR S	8013 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
DOMINO'S PIZZA	11517 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
DOMINO'S PIZZA	8054 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
DOMINO'S PIZZA	9208 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
DUPONT DENTAL	3932 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
DUPONT DENTAL OFFICE	3932 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
DUPONT DENTAL OFFICES	3932 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
DUPONT MEDICAL ASSOCIATES	3991 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
ELIAS JAMES R DMD ;FAMILY DENTISTRY	9900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
FRITZ, JOHN F MD/DNTST	7902 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
HEADY ARCH L & SON FUNERAL DIRECTORS	7410 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
HEADY WILLHITE BALLARD FUNERAL HOME	11507 MAIN ST	Middle Fork Upstream of Breckenridge (various)
HURSTBOURNE FAMILY DENTAL OFFICE	8013 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
JEWISH HOSPITAL MEDICAL CENTER EAST	3920 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
JEWISH MED CENT	9405 MILL BROOK RD	Middle Fork Upstream of Breckenridge (various)
KFC	3905 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
KIDS TIME CHILD CARE	4800 LYNNBROOK DR	Middle Fork Upstream of Breckenridge (various)
KIDS WAREHOUSE	1300 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
KIM'S CLEANERS	221 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
KINGFISH RESTAURANTS BANQUETS	7400 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
KROGER	9236 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
KROGER	9812 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
KROGER L-272 KIOSK	9236 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	217 FAIRMEADE RD	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	4308 BOWLING BLVD	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	709 MALLARD CREEK RD	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	7806 CAMELOT CT	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	8019 WOOD CREEK CT	Middle Fork Upstream of Breckenridge (various)
KY FRIED CHICKEN	921 WILLOW SPRINGS DR	Middle Fork Upstream of Breckenridge (various)
LAB CORP	1715 JEFFERSON AVE	Middle Fork Upstream of Breckenridge (various)
LAB CORP	1822 CIMMARON TRL	Middle Fork Upstream of Breckenridge (various)
LAB CORP	1907 BALFOUR DR	Middle Fork Upstream of Breckenridge (various)
LIMESTONE RESTAURANT	10001 FOREST GREEN BLVD	Middle Fork Upstream of Breckenridge (various)
LITTLE LAMBS' ACADEMY	1403 BROWNS LN	Middle Fork Upstream of Breckenridge (various)
LITTLE STARS CHILD DEVELOPMENT CENTE	2930 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
LOGAN'S ROADHOUSE	5055 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
LONE STAR STEAKHOUSE	10123 HEADLEY HILL RD	Middle Fork Upstream of Breckenridge (various)
LONE STAR STEAKHOUSE & SALOON	340 WHITTINGTON PKWY	Middle Fork Upstream of Breckenridge (various)
LONG RUN AUTO CARE INC	12344 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
LOS AZTECAS MEXICAN RESTAURANT NO 1	1107 HERR LN	Middle Fork Upstream of Breckenridge (various)
LYNDON BP TIRE & MUFFLER STORE	800 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
LYNDON CROSSING	8301 DONCASTER WAY	Middle Fork Upstream of Breckenridge (various)
LYNDON FAMILY DENTAL CENTER	7902 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
LYNDON FAMILY MEDICINE PSC	8013 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
LYNDON NURSING CENTER	1101 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
LYNN'S PARADISE CAFE	5000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
M & K FOOD SERVICE	4801 SHERBURN LN	Middle Fork Upstream of Breckenridge (various)
MANCHU WOK	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MARK'S FEED STO	415 DORSEY LN	Middle Fork Upstream of Breckenridge (various)
MARK'S FEED STORE	11422 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MARTINI ITALIAN	1911 MEADOWGATE LN	Middle Fork Upstream of Breckenridge (various)
MARTINIZING ONE HOUR CLEANERS	119 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
MARX LABORATORIES INC	1100 AMBRIDGE DR	Middle Fork Upstream of Breckenridge (various)
MARY T'S HAIRSTYLIST	8712 BAYBERRY PL	Middle Fork Upstream of Breckenridge (various)
MARYHURST	1015 DORSEY LN	Middle Fork Upstream of Breckenridge (various)
MARYHURST INC.	1015 DORSEY LN	Middle Fork Upstream of Breckenridge (various)
MARY'S HAIR SALON	2933 RICHLAND AVE	Middle Fork Upstream of Breckenridge (various)
MASALA GRILL	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MAX & ERMAS RESTAURANTS	290 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
MCALISTER'S DELL NORTH HURSTBOURNE	10041 FOREST GREEN BLVD	Middle Fork Upstream of Breckenridge (various)
MCALLISTER DONALD T MD OFC	4130 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
MCDONALD'S	9900 ORMSBY STATION RD	Middle Fork Upstream of Breckenridge (various)
MCDONALDS CORP #6874	2507 HERMITAGE WAY	Middle Fork Upstream of Breckenridge (various)
MCDONALDS RESTAURANT	9901 ORMSBY STATION RD	Middle Fork Upstream of Breckenridge (various)
MCDONALDS RESTAURANTS	5027 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MCDONALD'S RESTAURANTS	10219 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
MCDONALD'S RESTAURANTS	1100 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
MEDICAL CENTER EAST	3920 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
MEDLEY'S AUTO CARE	4601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MEYERS SAM CLEANERS AND SHIRT LAUND	4039 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
MICHELE SALON	5005 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MIDAS AUTO SERVICE EXPERTS	4047 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
MIDDLETOWN BEAUTY SALON	206 OLD HARRRODS CREEK RD	Middle Fork Upstream of Breckenridge (various)
MIDDLETOWN CHRISTIAN PRE-SCHOOL	500 N WATTERSON TRL	Middle Fork Upstream of Breckenridge (various)
MIKE'S VILLAGE CLEANERS	11802 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MOBY DICK SEAFOOD RESTAURANTS	12012 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
MORGANS PHOTOGRAPHY	2958 RICHLAND AVE	Middle Fork Upstream of Breckenridge (various)
MR GAFTI'S	1108 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
MR GATTIS	1108 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
NAPA RIVER GRILL	3938 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
NEW ATTITUDE HAIR SALON	9810 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
NORTON HEALTHCA	4313 WINGATE RD	Middle Fork Upstream of Breckenridge (various)
NORTON HEALTHCARE	10284 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NORTON HEALTHCARE	1102 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
NORTON HEALTHCARE	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NORTON IMMEDIATE CARE CENTERS	10284 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NORTON IMMEDIATE CARE CENTERS	1102 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
NORTON IMMEDIATE CARE CENTERS AFTER	10284 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NORTON REHABILITATION SERVICES	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NORTON SCOTT A DMD ,MSD	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
NORTON SUBURBAN HOSPITAL	4001 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NSS ENVIRONMENTAL INC	8003 VINE CREST AVE	Middle Fork Upstream of Breckenridge (various)
NU YALE DRY CLEANERS	10478 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NU YALE DRY CLEANERS	162 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
NU YALE DRY CLEANERS	3942 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NU YALE DRY CLEANERS	9400 HURSTBOURNE PARK BLVD	Middle Fork Upstream of Breckenridge (various)
NU YALE SANITONE CLEANERS	10478 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
NU YALE SANITONE CLEANERS	162 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
NU YALE SANITONE CLEANERS	3942 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
NUNNALLY & WATSON PSC DENTIST	3935 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
OLYMO MUFFLER & BRAKE CENTERS	8014 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ONE HOUR MARTINIZING	119 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
OUTBACK STEAKHOUSE	4621 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
OXMOOR CHEVRON AUTO CARE	7515 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PANERA BREAD COMPANY 823	5000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PANERA BREAD COMPANY 824	601 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
PEDIATRIC NEONATAL S	3991 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
PENN STATION EAST COAST SUBS	4800 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PENNZOIL 10 MINUTE OIL CHANGE CENTER	613 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
PENNZOIL CAR WASH #1	613 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
PEP BOYS AUTOMOTIVE SUPERCENTERS	1001 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
PIZZA MAGIA	10503 TIMBERWOOD CIR	Middle Fork Upstream of Breckenridge (various)
PIZZA MAGIA	214 S LYNDON LN	Middle Fork Upstream of Breckenridge (various)
PLAINVIEW CLEANERS	10039 FOREST GREEN BLVD	Middle Fork Upstream of Breckenridge (various)
PLAINVIEW CLEANERS	1261 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
PLANTATION DENTAL CENTER	8700 BAYBERRY PL	Middle Fork Upstream of Breckenridge (various)
PORTER PAINTS	117 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
PORTER PAINTS	2931 RICHLAND AVE	Middle Fork Upstream of Breckenridge (various)
PREMIER LAB COR	143 TANGLEWOOD TRL	Middle Fork Upstream of Breckenridge (various)
PREMIER LAB COR	8419 EASTON COMMONS DR	Middle Fork Upstream of Breckenridge (various)
PREMIER LAB CORP	7410 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
PREMIER LAB CORPORATION	7410 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
PREMIER LAB SERVICES	7410 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
PRESTIGE CAR WASH	11610 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
PROVIDENCE CHILDCARE & PRESCHOOL	138 N EVERGREEN RD	Middle Fork Upstream of Breckenridge (various)
PURE BLISS HAIR AND NAIL SALON	106 N MADISON AVE	Middle Fork Upstream of Breckenridge (various)
QDOBA MEXICAN GRILL	100 DAVENTRY LN	Middle Fork Upstream of Breckenridge (various)
QUIZOS	201 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
QUIZNO'S SUBS #	431 WHITEHEATH LN	Middle Fork Upstream of Breckenridge (various)
QUIZNO'S SUBS #7189	11803 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
RALLY'S HAMBURGERS	2949 BRECKENRIDGE LN	Middle Fork Upstream of Breckenridge (various)
RITE AID EXPRESS 1 HOUR PHOTO	4000 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
RITE AID EXPRESS 1 HOUR PHOTO	4000 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
ROD'S AUTOMOTIVE SVC	7917 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
ROLLING HILLS COIN LAUNDRY	9220 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
ROMANO'S MACARONI GRILL	401 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
ROMA'S TONY FAMOUS FOR RIBS	150 N HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
SALON DELONJAY	12113 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SALON MICHELE	5005 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SAM MEYERS CLEANERS AND SHIRT LAUND	4039 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
SAM MEYERS CLEANERS AND SHIRT LAUND	512 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
SKYLINE CHILI	9980 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
SPEEDWAY SUPERAMERICA	4547 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
SPEEDY MART	7401 NEW LAGRANGE RD	Middle Fork Upstream of Breckenridge (various)
SPEEDY MART	8015 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
STARBUCKS COFFEE	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
STARBUCKS COFFEE COMPANY	243 BLANKENBAKER PKWY	Middle Fork Upstream of Breckenridge (various)
STARBUCKS CORPORATION	9993 WILLOW BROOK CIR	Middle Fork Upstream of Breckenridge (various)
STORED VALUE SY	101 BULLITT LN	Middle Fork Upstream of Breckenridge (various)
SUBURBAN MEDICAL PLAZA II	3991 DUTCHMANS LN	Middle Fork Upstream of Breckenridge (various)
SUBWAY	5000 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SUBWAY	8709 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
SUBWAY SANDWICH SHOP CAMELOT	1202 LYNDON LN	Middle Fork Upstream of Breckenridge (various)
SUBWAY SANDWICHES & SALADS	3951 1/2 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
SUBWAY SANDWICHES & SALADS	8709 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
SUBWAY SANDWICHES AND PARTY SUBS	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
SUPERAMERICA	9416 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
TACO BELL	3950 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
TACO BELL	4910 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
THORNTON OIL CORP	914 BRIXTON RD	Middle Fork Upstream of Breckenridge (various)
TUMBLEWEED SOUTHWEST GRILL	7900 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
TUMBLEWEED SOUTHWEST GRILLE	10000 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
TUMBLEWEED SOUTHWEST MESQUITE GRILL	10000 LINN STATION RD	Middle Fork Upstream of Breckenridge (various)
UNITED GRAPHICS	10501 MCMEEKIN LN	Middle Fork Upstream of Breckenridge (various)
UNIV OF LOUISVILLE	4108 WATERFORD CIR	Middle Fork Upstream of Breckenridge (various)
UNIV OF LOUISVILLE	8120 LAKE TER	Middle Fork Upstream of Breckenridge (various)
UNIV OF LOUISVILLE	8301 VERMISSA CT	Middle Fork Upstream of Breckenridge (various)
UNIV OF LOUISVILLE	9411 DORAL CT	Middle Fork Upstream of Breckenridge (various)
VA MEDICAL CENTER AND OUTPATIENT SER	4010 DUPONT CIR	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE	3920 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
VALVOLINE INSTANT OIL CHANGE	8701 WESTPORT RD	Middle Fork Upstream of Breckenridge (various)
WAFFLE HOUSE	4029 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
WENDYS OLD FASHIONED HAMBURGERS	1600 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
WENDYS OLD FASHIONED HAMBURGERS	4041 TAYLORSVILLE RD	Middle Fork Upstream of Breckenridge (various)
WENDYS OLD FASHIONED HAMBURGERS	7601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
WENDY'S OLD FASHIONED HAMBURGERS	1600 S HURSTBOURNE PKWY	Middle Fork Upstream of Breckenridge (various)
WENDY'S OLD FASHIONED HAMBURGERS	7601 SHELBYVILLE RD	Middle Fork Upstream of Breckenridge (various)
AMERICAN BRAKE CENTERS	3 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
AUTO BODY PANELS	4531 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
AUTO INJURY CHIROPRACTIC	1939 GOLDSMITH LN	Nightingale PS (CSO 015 or South Fork CSOs)
BOB EVANS FARMS RESTAURANTS	4000 GARDINER POINT DR	Nightingale PS (CSO 015 or South Fork CSOs)
CARDINAL VETERINARY LABORATORIES	4210 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARDINAL VETERINARY LABORATORY	4210 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CASPIAN GRILLE	4218 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
CATHERINE LAND DMD PLLC	1007 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
CLASSIC AUTO DETAIL	1717 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
COLLINS, PAULA L DMD/DNTST	1534 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CONSOLIDATED TIRE & AUTOMOTIVE CENTE	4202 1/2 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CONSOLIDATED TIRE & AUTOMOTIVE CENTE	4202 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
DENTAL IMPLANT INSTITUTE	1169 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
FIVE STAR FOOD MART #5611	3333 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
FRISCH'S BIG BOY	1710 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
FROLIO'S PIZZA	3799 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
GE CAPITAL	1941 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
GE COMPANY	4350 ROBARDS LN	Nightingale PS (CSO 015 or South Fork CSOs)
GOODYEAR AUTO SERVICE CENTERS	3006 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
HIRSCH DENTAL CERAMICS	1169 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
HOLY FAMILY CHILD DEVELOPMENT CENTER	3940 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
HOWARD'S BILL CLEANERS	1000 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
JIM HANNAH'S CLEANERS & SHIRT LAUNDRY	2904 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
JO JO'S RESTAURANT	2902 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)
KFC	1441 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
KINDERCARE LEARNING CENTERS	2990 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
KRISPY-KREME DOUGHNUT CO	3000 BARDSTOWN RD	Nightingale PS (CSO 015 or South Fork CSOs)



**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
KY FRIED CHICKEN	1441 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
LEE'S KOREAN RESTAURANT	1941 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
LEGENDS SALON	3118 SUNNY LN	Nightingale PS (CSO 015 or South Fork CSOs)
LOUISVILLE ZOO	1100 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
NAZARETH HOME	2000 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
PARKWAY MEDICAL	1155 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
PEDIATRIC ACUTE CARE	3793 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
SAINT JOSEPH HOME FOR THE AGED	15 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
SHERWIN WILLIAMS CO	1232 GARDINER LN	Nightingale PS (CSO 015 or South Fork CSOs)
SISTERS OF CHARITY	1990 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
SISTERS OF CHARITY OF NAZARETH	1990 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
SODEXHO LOUISVILLE ZOO	1100 TREVILIAN WAY	Nightingale PS (CSO 015 or South Fork CSOs)
TARGET PHOTO LA	2510 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
YALE KENTUCKIAN	3201 LEITH LN	Nightingale PS (CSO 015 or South Fork CSOs)
A & D MASONRY	1440 LINCOLN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
ABATEMENT AND ENVIRONMENTAL SERVICE	1441 HUGH AVE	Nightingale PS (CSO 015 or South Fork CSOs)
ABRAMS ANIMAL HOSPITAL	4210 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
AETNA/ U S HEALT	102 SPRING CREEK CT	Nightingale PS (CSO 015 or South Fork CSOs)
ANIMAL EMERGENCY CENTER	3321 RED ROOF INN PL	Nightingale PS (CSO 015 or South Fork CSOs)
APRIA HEALTHCARE	1805 TAYLOR AVE	Nightingale PS (CSO 015 or South Fork CSOs)
ASSUMPTION HIGH SCHOOL	2170 TYLER LN	Nightingale PS (CSO 015 or South Fork CSOs)
AUDUBON COUNTRY CLUB	3265 ROBIN RD	Nightingale PS (CSO 015 or South Fork CSOs)
AUDUBON CHEVRON	3030 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
AUDUBON CHEVRON SERVICE CENTER	3030 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CAFE MONTAGU	1930 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
CAFETERIA	3926 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARITAS PEACE ACADEMY	2020 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARITAS PEACE CENTER	2020 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARITAS PHYSICIAN GROUP	2120 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
CARITAS PRACTICE	2120 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
DAIRY QUEEN	3221 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
FAULKNER HINTON & ASSOCIATES	3 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
JIM'S AUTO REPAIR	4121 PRESTON HWY	Nightingale PS (CSO 015 or South Fork CSOs)
KROGER	4009 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
KROGER CO #304	4175 SHERMAN AVE	Nightingale PS (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	1900 COLONEL SANDERS LN	Nightingale PS (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	1930 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	1961 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
KY FRIED CHICKEN	3003 PIEDMONT DR	Nightingale PS (CSO 015 or South Fork CSOs)
LAB CORP	1900 BASHFORD MANOR LN	Nightingale PS (CSO 015 or South Fork CSOs)
LAB CORP ADMINISTRATIVE OFFICES	4500 CONAEM DR	Nightingale PS (CSO 015 or South Fork CSOs)
LOLITA'S TACOS	4222 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
LOUISVILLE JUNIOR ACADEMY	2988 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
MCDONALDS RESTAURANT	3100 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
MEDICAL ARTS HAIR SALON	1169 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
MEDICAL DENTAL BUSINESS CONSULTANTS	1930 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
MEFFERT, JAMES E DMD/DNTST	1169 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
MEYER HERMAN & SON INC FUNRL DIR	1338 ELLISON AVE	Nightingale PS (CSO 015 or South Fork CSOs)
NATIONAL HEALTH LABORATORIES	4500 CONAEM DR	Nightingale PS (CSO 015 or South Fork CSOs)
NORTON AUDUBON HOSPITAL	1 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
NORTON REHABILITATION SERVICES	1 AUDUBON PLAZA DR	Nightingale PS (CSO 015 or South Fork CSOs)
PAPA JOHN'S PIZ	2121 GLADSTONE AVE	Nightingale PS (CSO 015 or South Fork CSOs)
PARKWAY MEDICAL CENTER	1155 EASTERN PKWY	Nightingale PS (CSO 015 or South Fork CSOs)
PROFESSIONAL BEAUTY SALON	2150 LANCASHIRE AVE	Nightingale PS (CSO 015 or South Fork CSOs)
SPEEDY MART	1900 BASHFORD MANOR LN	Nightingale PS (CSO 015 or South Fork CSOs)
SPEEDY MART	3130 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
SPEEDY MART	3301 NEWBURG RD	Nightingale PS (CSO 015 or South Fork CSOs)
SUBWAY SANDWICH SHOP	4214 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
SUPERAMERICA	4239 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
SUPERAMERICA	4308 BISHOP LN	Nightingale PS (CSO 015 or South Fork CSOs)
WENDY'S OLD FASHIONED HAMBURGERS	4029 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
WENDY'S OLD FASHIONED HAMBURGERS	4029 POPLAR LEVEL RD	Nightingale PS (CSO 015 or South Fork CSOs)
ANTHONY RAY'S FOR HAIR BY SALON	8107 LAGRANGE RD	
AUTOMOTIVE SPECIALTY WAREHOUSE	7673 NATIONAL TPKE	
B LINE FOOD MART NUMBER 2	3507 W BROADWAY	
BUFFALO WILD WINGS GRILL & BAR	3584 SPRINGHURST COMMONS DR	
BULLITT DENTAL PSC	4230 PRESTON HWY	
BURTON, E RAMSEY JR DMD/DNTST	7103 COVERED COVE WAY	
CAFE' EMILIE RESTAURANT	3939 SHELBYVILLE RD	
CAPTAINS QUARTERS RESTAURANT	5700 CAPTAIN QUARTERS RD	
CENTRAL STATE HOSPITAL	10510 LAGRANGE RD	
CHEDDAR'S CASUAL CAFE	10403 WESTPORT RD	
CHEVRON HOP SHOP	3345 FERN VALLEY RD	
CLASSIE EXPRESS LUB	715 S JACKSON ST	
COLONNADE CAFETERIA	4555 S 4TH ST	
COOMER ROBERT B JR DMD ORTHDNTST	3900 DUPONT SQ S	

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
CRAZY TRAIN BAR & GRILL	4002 BARDSTOWN RD	
CUTTING BOARD CAFE & CATERING	2905 GOOSE CREEK RD	
DEAN LAVENSON PHOTOGRAPHY	414 BAXTER AVE	
DOUBLE DRAGON BUFFET RESTRNT	233 WHITTINGTON PKWY	
FABRICATED METALS	6334 KENJOY DR	
FAT JIMMY'S	9901 LAGRANGE RD	
FIVE STAR FOOD MART	10306 US HIGHWAY 42	
FREEBIRD CHEMICAL INC	7803 NATIONAL TPKE	
G E APPLIANCE C	6705 REST WAY	
GE APPLIANCE	201 W MAIN ST	
GE COMPANY	1213 LYNDON LN	
GE COMPANY	555 BRECKENRIDGE LN	
HARDEE'S RESTAURANT	3359 FERN VALLEY RD	
HARDING RESTAUR	2100 STONY BROOK DR	
HARROD'S RESTAURANT	7507 RIVER RD	
HESCO PARTS CORP	10 STATION PARK	
IRISH HILL FOODS	1231 LEXINGTON RD	
J HARROD'S RESTAURANT	7507 RIVER RD	
JARFIS BISTO	501 W MAIN ST	
JARFIS BISTRO	501 W MAIN ST	
JARFIS CATERING AT THE KENTUCKY CENT	501 W MAIN ST	
JUICY'S SMOKEHOUSE BAR B QUE	7626 LAGRANGE RD	
KINGFISH RESTAURANT	3021 RIVER RD	
KY FRIED CHICKEN	11109 BROOKSTONE CT	
LA PETITE ACADEMY	9505 US HIGHWAY 42	
LUCAS AUTO REPAIR	2802 7TH STREET RD	
PICNICATERERS BBQ & CATERING	514 W MUHAMMAD ALI BLVD	
QUALITY ALUMINUM PRODUCTS INC	7871 NATIONAL TPKE	
RIVER METALS RECYCLING	2045 RIVER RD	
RIVER METALS RECYCLING LLC	2255 UPPER RIVER RD	
SIMPLICITY SALON	3924 DUPONT SQ S	
SMOKETOWN BBQ AND GRILL	1200 E MAIN ST	
SOAP OPERA COIN LAUNDRY	9901 LAGRANGE RD	
SONIC DRIVE IN	3640 SPRINGHURST BLVD	
SPRINGHURST ANIMAL HOSPITAL	9909 BROWNSBORO RD	
STANDARD OIL CO INC	4401 BELLS LN	
STAR CHEMICALS CO INC	8002 VINE CREST AVE	
STATEN'S VINCE BBQ	9219 US HIGHWAY 42	
SWIFTY SERVICE STATION	5389 NEW CUT RD	
TACO BELL	10541 FISCHER PARK DR	
TEN BROECK HEALTHCARE	8521 LAGRANGE RD	
TEN BROECK HOSPITAL	8521 LAGRANGE RD	
THOROUGHbred DRY CLEANERS	10000 BROWNSBORO RD	
TUMBLEWEED SOUTHWEST GRILL	1201 RIVER RD	
TUMBLEWEED SOUTHWEST GRILL	3550 SPRINGHURST COMMONS DR	
UNDERWOOD & LEE DENTAL CLINIC	1800 BLUEGRASS AVE	
UNIV OF LOUISVILLE	124 STEVENSON AVE	
UNIVERSAL LINEN SERVICE	1721 S 7TH ST	
VALE PHOTOGRAPHY	9557 US HIGHWAY 42	
A & C-TEBCO SHEET METAL	988 SWAN ST	
A PLUS PROFESSIONAL POWER WASHING	6409 DUROC AVE	
ABSOLUTELY DELIGHTFUL CATERING	4555 S 4TH ST	
ACME AUTO ELECTRIC INC	530 BAXTER AVE	
ACME AUTO ELECTRIC INC SERVICE DEPT	530 BAXTER AVE	
ADVANCED ORTHOPAEDIC PHYSICAL THER	2220 GREENE WAY	
ALLIED ALUMINUM PRODUCTS INC	1410 W MARKET ST	
ALLIED READY MIX	1561 E WASHINGTON ST	
ALL-STAR WASTE DISPOSAL & TRUCKING	7303 NATIONAL TPKE	
ALMOST FAMILY	2529 SIX MILE LN	
AMERICAN CONCRETE PUMPING	1561 E WASHINGTON ST	
AMERICAN CONCRETE PUMPING CENTRAL	1561 E WASHINGTON ST	
AMERICAN FAMILY ORTHODONTICS	10412 SHELBYVILLE RD	
AMERICAN FAMILY SHELBYVILLE	10412 SHELBYVILLE RD	
ARBYS ROAST BEEF RESTAURANT	3349 FERN VALLEY RD	
ARBYS ROAST BEEF RESTAURANT	9905 LAGRANGE RD	
ARBYS ROAST BEEF RESTAURANT	3349 FERN VALLEY RD	
ARBY'S ROAST BEEF RESTAURANT	9905 LAGRANGE RD	
ARNOLD'S BOATS AND MOTORS INC	2035 RIVER RD	
ASHLAND CHEMICAL CO	4185 ALGONQUIN PKWY	
ASHLAND INC	3410 WOODSIDE RD	
BANFIELD THE PET HOSPITAL	10314 WESTPORT RD	
BAPTIST HOSPITA	5 WINIFREDE LN	
BAPTIST URGENT CARE	10000 BROWNSBORO RD	
BEARNO'S PIZZA BY THE BRIDGE	131 W MAIN ST	
BEEFOBRADY'S FAMILY SPORTS PUB	10000 BROWNSBORO RD	
BELL, KENNETH A DR/DNTST	8002 WATTERSON TRL	

**APPENDIX 4B  
INVENTORY OF NDD IN MFWTP SERVICE AREA**

<b>Users Name (Dialogic Coverage)</b>	<b>Address</b>	<b>Tributary to CSO#</b>
BEN THANH FOOD WAREHOUSE	803 S 12TH ST	
BIG O TIRES JEFFERSON COUNTY STORES	8101 SHEPHERDSVILLE RD	
BIGFOOT FOOD STORES LLC	6517 PRESTON HWY	
BLUEGRASS PRESCHOOL & CHILD CARE	9901 LAGRANGE RD	
CHEVRON USA PRODUCTS COMPANY	4401 BELLS LN	
DAIRY QUEEN	5516 NATIONAL TPKE	
DAIRY QUEEN	9517 US HIGHWAY 42	
DAIRY QUEEN RESTAURANTS	5516 NATIONAL TPKE	
DOMINOS PIZZA	9551 US HIGHWAY 42	
DOMINO'S PIZZA	9551 US HIGHWAY 42	
G L I FOOD SERVICES	726 W MUHAMMAD ALI BLVD	
GAB BUSINESS SERVICES INC REGIONAL OF	9601 ORMSBY STATION RD	
INDI'S FAST FOOD RESTAURANT	3353 FERN VALLEY RD	
JIMS RESTAURANT	1500 BERRY BLVD	
JUCYS SMOKEHOUSE BAR B Q	7626 LAGRANGE RD	
KROGER	279 N HUBBARDS LN	
KROGER CO #304	2900 SPRINGDALE RD	
KY FRIED CHICKEN	2504 ANCHOR WAY	
MARK'S FEED STO	1313 GLENBROOK RD	
MARTINIZING ONE HOUR CLEANERS	2818 CRUMS LN	
MAX & ERMAS RESTAURANTS	6051 TIMBER RIDGE DR	
MAX & ERMA'S RESTAURANTS	6051 TIMBER RIDGE DR	
MCDONALD'S RESTAURANTS	5905 TIMBER RIDGE DR	
MCDONALD'S RESTAURANTS	9314 WESTPORT RD	
MEADOWS HEALTHCARE SYSTEMS SOUTH	2527 SIX MILE LN	
MEDICAL CENTER	624 S FLOYD ST	
METRO DENTAL GROUP	301 E MAIN ST	
MGM PHOTOGRAPHY	140 N 4TH ST	
MILLER OIL COMPANY INC	4504 BELLS LN	
MORTENSON FAMILY DENTAL	9217 US HIGHWAY 42	
NU YALE DRY CLEANERS	2311 S PRESTON ST	
NU YALE DRY CLEANERS	2908 BROWNSBORO RD	
NU YALE SANITONE CLEANERS	2311 S PRESTON ST	
NU YALE SANITONE CLEANERS	2908 BROWNSBORO RD	
ONE HOUR MARTINIZING	2818 CRUMS LN	
OPTA FOOD INGRDNTS	9207 LAGRANGE RD	
OPTA FOOD INGREDIENTS	1401 LOCUST ST	
PACIFIC CLEANER	8113 LAGRANGE RD	
PACIFIC CLEANERS	8113 LAGRANGE RD	
PANDA CHINA CHINESE RESTAURANT	9543 US HIGHWAY 42	
PAPA JOHNS PIZZA	401 E MAIN ST	
PAPA JOHN'S PIZZA	401 E MAIN ST	
PARKLAND DENTAL CENTER	1220 S 28TH ST	
PARKLAND LAUNDRY	1250 CATALPA CT	
PARKRIDGE CARWASH III	9907 LAGRANGE RD	
PIZZA GUY	8109 LAGRANGE RD	
PIZZA HUT	4933 OLD BROWNSBORO RD	
PIZZA MAGIA	10000 BROWNSBORO RD	
PORTER PAINTS	945 S 13TH ST	
PREMIER	7007 BRIDGE POINTE BLVD	
PROSPECT ANIMAL CLINIC	9217 US HIGHWAY 42	
PROSPECT DENTAL CARE	6007 TIMBER RIDGE DR PROSPETT	
PROSPECT FISH MARKET & RESTAURANT	9521 US HIGHWAY 42	
QUIZNO'S SUBS	6021 TIMBER RIDGE DR	
RALLY'S	3825 SHELBYVILLE RD	
RITE AID EXPRESS 1 HOUR PHOTO	3804 BROWNSBORO RD	
SOUPY'S	3019 BRECKENRIDGE LN	
SPEEDY MART	400 MOUNT HOLLY AVE	
SPEEDY MART	4740 CHAMBERLAIN LN	
STARBUCKS COFFEE	5915 TIMBER RIDGE DR	
SUBWAY SANDWICH	5506 TIMBER RIDGE DR	
SUBWAY SANDWICH	7116 WINDHAM PKWY	
SUBWAY SANDWICHES	9207 US HIGHWAY 42	
SUBWAY SANDWICHES & SALADS	3939 DUTCHMANS LN	
SUBWAY SANWICHES & PARTY SUBS	9901 LAGRANGE RD	
SUPERB CLEANERS	9549 US HIGHWAY 42	
TEN BROECK HOSPITALS	8521 LAGRANGE RD	
TUMBLEWEED SOUTHWEST GRILL	3602 BARDSTOWN RD	
ZEON CHEMICALS, L. P.	4111 BELLS LN	

#### **APPENDIX 4C SUMMARY OF MSD LTCP IU-CSO PROJECT**

MSD began a project to determine the relationship between permitted non-domestic dischargers to the CSS AND CSOs that predates EPA's Guidance for Nine Minimum Controls. Since the guidance was released, MSD has developed a Geographic Information System (GIS) which can assist in characterization of CSO/SIU relationships and the CSS. Information technology tools that proved beneficial in investigating this NMC include the following:

- Creation of sewer network of the MSD collection system
- Incorporation of upstream and downstream GIS sewer tracing tools
- Creation of GIS polygon data describing CSO areas and sanitary sewer service areas that discharge into the CSS
- Incorporation of stream monitoring, pretreatment and CSO location point cover
- Relational database compatibility using key fields integrated with water quality database information
- Incorporation of surface water coverage

Permitted industries discharging to or upstream of CSOs located in both the Beargrass Creek and Ohio River CSO areas were grouped and sewer traces performed using the GIS. This allows graphical illustration of permitted industries relative to receiving CSOs/streams. Refer to Figures 4C-1 and 4C-2 for a graphical representation of the two CSO areas including the number of non-domestic dischargers (SIUs and GPDs) discharging to each CSO. Refer to Figure 4C-3 for a graphical representation of facilities located within the CSS that have been issued a HMPC spill plan under the HMO. Refer to Figure 4C-4 for a list of the permitted non-domestic dischargers discharging to the Beargrass Creek CSO Area and to Figure 4C-5 for a list of the permitted non-domestic dischargers discharging to the Ohio River CSO Area.

MSD uses a Laboratory Information Management System (LIMS) application called LabWorks Process Scheduler to confirm that locations have been scheduled and sampled. Data collected at permitted industries is being compared to data collected from monitoring locations in MSD sewers, as well as at CSO locations. A decision tree was developed to determine Pollutants of Concern (POC). Refer to Figure 4C-6 for a copy of the POC decision tree and list of assumptions used for the decision tree analysis. Refer to Figure 4C-7 for an example POC matrix and to Figure 4C-8 for the preliminary results of the dry weather analysis for the Beargrass Creek CSO Area.

The POC analysis illustrates worst case water quality effects of pollutants since it was conducted using dry weather sampling data. To date, MSD has conducted several rounds of dry weather sampling within the Beargrass Creek CSO area and the first round within the Ohio River CSO area. The POC analysis based on dry weather sampling has been completed for the Beargrass Creek CSO area. However, DOW has recently completed its triennial review of water quality standards, which has resulted in a revision of some of the standards used in the POC analysis of the Beargrass Creek CSO area. In addition, MSD now has the capability to reach much lower detection limits for lead, selenium and cadmium which will provide a more accurate POC analysis. Therefore, additional dry weather sampling in both CSO areas has been scheduled. This sampling requires at least 7 days of continuous dry weather prior to sampling to yield valid results. After the sampling has been conducted, MSD will reevaluate POCs from permitted facilities discharging to both CSO areas.



The decision tree methodology presented in Figure 4C-6 is very conservative and the results from this approach need to be further tested against conditions that may exist during an overflow. Conservatism is built into the process by using the wasteload allocation based water quality standards which were computed at 7Q10 flow conditions. Further, the lowest standard (typically chronic criterion) was employed in selecting the lowest possible water quality concentration. Neither of these conditions would exist during a wet weather overflow event. This is not to say that the analysis is not justified. MSD proposes to use this analysis to determine if any waste stream in the CSS is at 100% of the dry weather-based water quality standards. As noted in the decision tree, additional measures would be considered if the dry weather trunk sewer concentrations were at or above the critical dry weather water quality standards. This condition would protect the stream under the most extreme dry weather overflow scenario.

MSD proposes to additionally verify the impacts of an overflow on the environment at the initiation of a CSO event. In this analysis, the acute water quality criteria will be used in the POC analysis. Mathematical modeling will be used to predict the conditions under which an overflow may occur. A reasonable assumption will be made for the background concentration in the upstream flow, based on actual data if possible. The allowable concentration in the outfall will be compared to the trunk sewer concentration at a condition when the CSS is impacted by stormwater, but has not yet overflowed. Actual data will be collected under conservative conditions (pre-overflow, 7-day antecedent dry conditions, weekday, normal working hours sampling). If the concentrations in the CSS under the pre-overflow condition are at 100% of the allowable criteria, the pollutant will be considered a POC and further evaluation will be conducted to identify if the source can be controlled or regulated. MSD has purposely chosen a conservative approach by analyzing trunk sewer samples prior to an overflow event, recognizing that when the CSO actually discharges, the additional stormwater that triggers the discharge will result in more dilution.

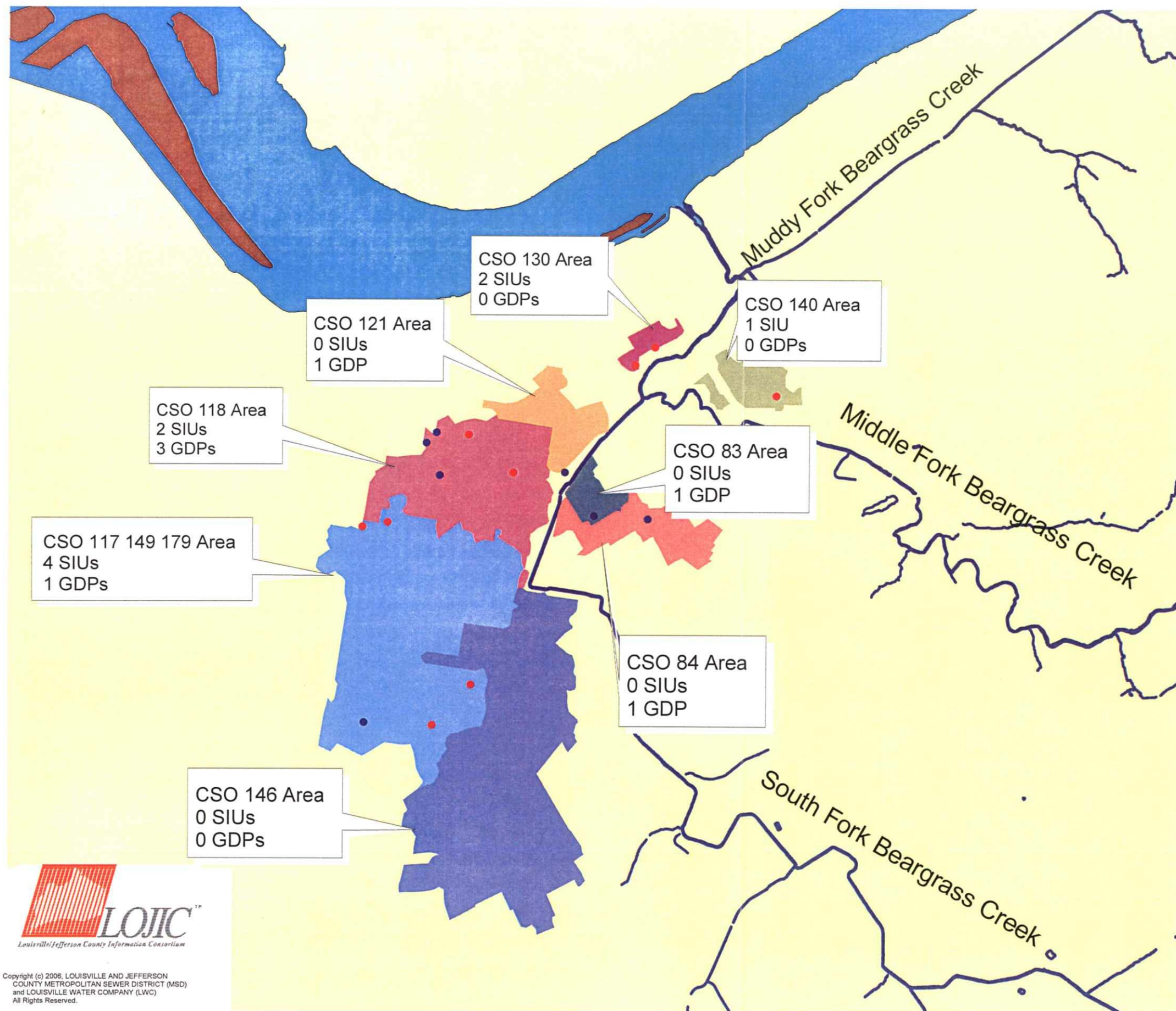
While all of the initial analysis is focused on identifying whether any pollutants of concern exist for specific CSO discharges, follow-up investigations for any identified POCs will first consider the currently regulated industrial community. If the currently regulated industrial community is not found to be the source of the POC, MSD will consider logical classes of non-domestic dischargers that may be contributing the POCs.

With the identification of POCs and potential sources, MSD must consider if modifications to the current pretreatment program are feasible or of practical value for CSO control, in accordance with EPA guidance. MSD is interested in developing rational, practical and cost-effective enhancements to the pretreatment program that will have measurable benefit to the environment.

FIGURE 4C-1  
BEARGRASS CREEK CSO AREAS  
WITH PERMITTED NON-DOMESTIC  
DISCHARGERS



- SIU
- GDP



Not to Scale  
This document was developed in color.  
Reproduction in black & white may not  
represent the data as intended.

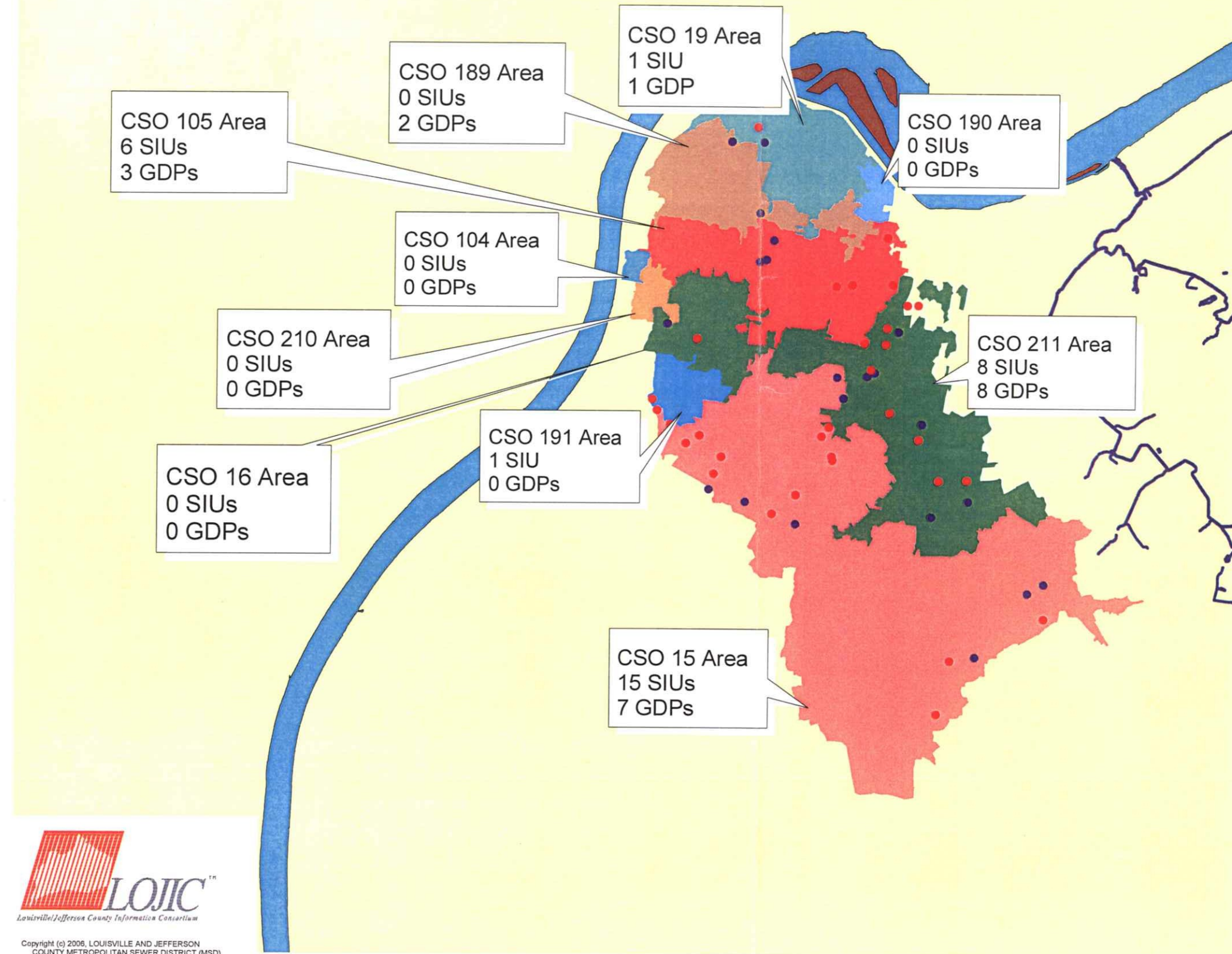


K:\data\RMS\Patrick\  
9 Minimum Controls Submittal  
June 3 2006\Shapefiles\  
9 minimum controls.apr



Copyright (c) 2006, LOUISVILLE AND JEFFERSON  
COUNTY METROPOLITAN SEWER DISTRICT (MSD)  
and LOUISVILLE WATER COMPANY (LWC)  
All Rights Reserved.

FIGURE 4C-2  
OHIO RIVER CSO AREAS  
WITH PERMITTED NON-DOMESTIC  
DISCHARGERS



- SIU
- GDP

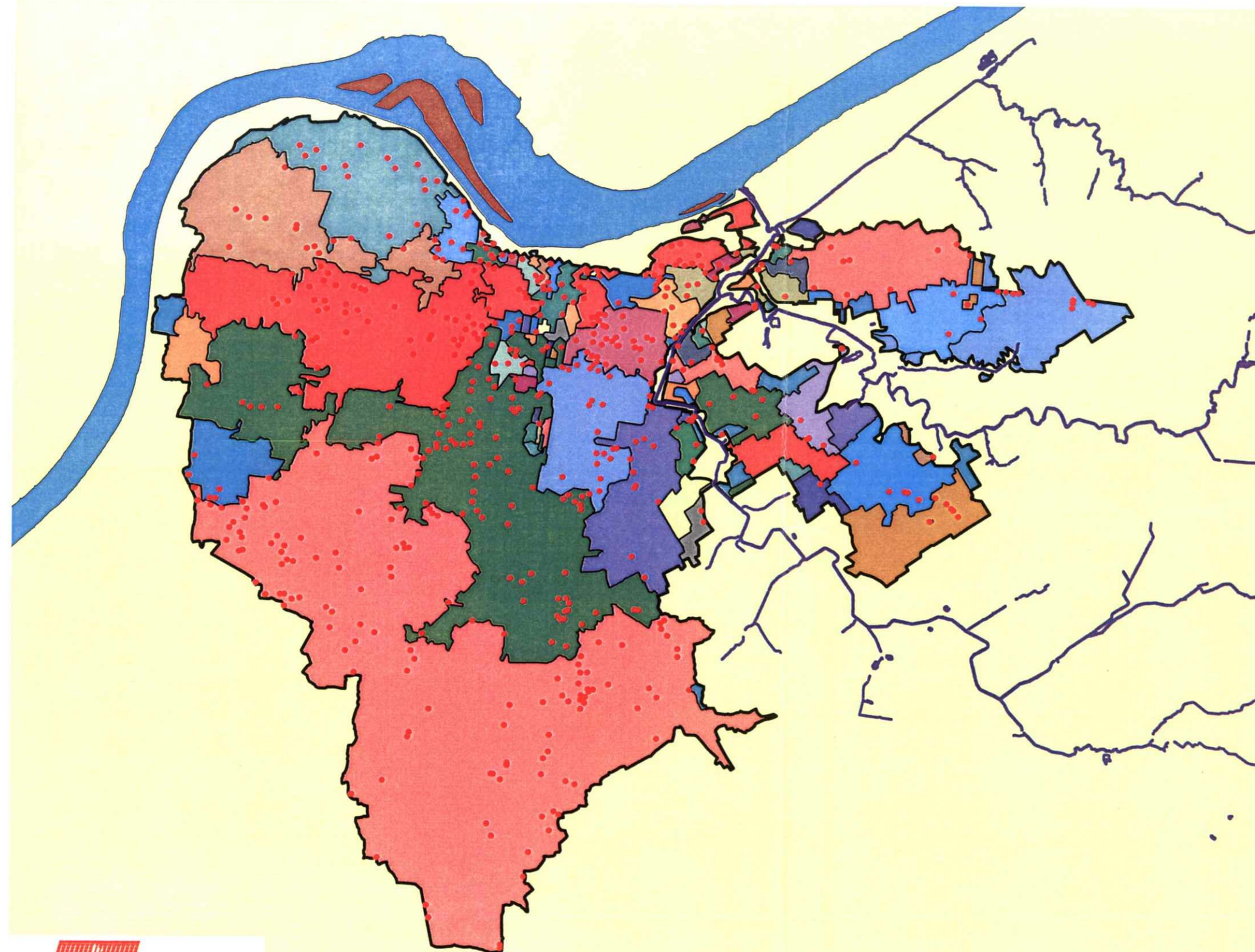
Not to Scale  
This document was developed in color.  
Reproduction in black & white may not  
represent the data as intended.



Copyright (c) 2006, LOUISVILLE AND JEFFERSON  
COUNTY METROPOLITAN SEWER DISTRICT (MSD)  
and LOUISVILLE WATER COMPANY (LWC)  
All Rights Reserved.

K:\data\RMS\Patrick\  
9 Minimum Controls Submittal  
June 3 2006\Shapefiles\  
9 minimum controls.apr

FIGURE 4C-3  
HMPC PLANS IN CSO AREAS



Not to Scale  
This document was developed in color.  
Reproduction in black & white may not  
represent the data as intended.



Copyright (c) 2006, LOUISVILLE AND JEFFERSON  
COUNTY METROPOLITAN SEWER DISTRICT (MSD)  
and LOUISVILLE WATER COMPANY (LWC)  
All Rights Reserved.



K:\data\RMS\Patrick\  
9 Minimum Controls Submittal  
June 3 2006\Shapefiles\  
9 minimum controls.apr



## PERMITTED NON-DOMESTIC DISCHARGERS TO THE BEARGRASS CREEK CSO AREA

Group	Company
Group 1 (CSO 118)	Kosair Children's Hospital
Group 1 (CSO 118)	Multi Metals Division Loc 3
Group 1 (CSO 118)	Norton Alliant Pavilion Loc 1
Group 1 (CSO 118)	Norton Alliant Pavilion Loc 2
Group 1 (CSO 118)	U of L Medical Center Loc 1
Group 1 (CSO 118)	U of L Medical Center Loc 2
Group 1 (CSO 118)	U of L Medical Center Loc 3
Group 1 (CSO 118)	U of L Medical Center Loc 4
Group 1 (CSO 118)	U of L Medical Center Loc 5
Group 1 (CSO 118)	U of L Medical Center Loc 6
Group 2 (CSOs 117 149 179)	Cissell Manufacturing Co (2)
Group 2 (CSOs 117 149 179)	Forth Technologies Bergman
Group 2 (CSOs 117 149 179)	Puritan Cleaners Inc
Group 2 (CSOs 117 149 179)	The Barbee Co., Inc.
Group 3 (CSO 130)*	Medical Center Laundry
Group 3 (CSO 130)*	Swift & Company Loc 2
Group 4 (Middle Fork SSO)	Baptist Healthcare System East
Group 4 (Middle Fork SSO)	Norton Healthcare Suburban
Group 4 (Middle Fork SSO)	NSS Environmental Inc. Loc 1
Group 5 (South Fork SSO)	Inland Paperboard Old Shep
Group 5 (South Fork SSO)	Ivy Hill Corporation
Group 5 (South Fork SSO)	Weyerhaeuser Company
Group 6 (CSO 140)	D D Williamson & Company
Group 8 (CSO 121)	Kent Feeds Inc
Group 9 (CSO 083)	Kindred Hospital Loc 1
Group 9 (CSO 083)	Kindred Hospital Loc 2
Group 11 (CSO 084)**	National Products Inc (no permit needed)

\*Group 3 not sampled due to inaccessibility (depth and no way to measure flows) of location which made it too dangerous to personnel to sample.

\*\* Groups 7 and 11 did not have permitted industries so were not sampled

## PERMITTED NON-DOMESTIC DISCHARGERS TO THE OHIO RIVER CSO AREA

Group	Company
Group 1 (CSO 190)	Aero Products Packaging LLC
Group 1 (CSO 190)	Industrial Power Service Co
Group 2 (CSO 19)	Engelhard Corp Harshaw Chem
Group 2 (CSO 19)	Norfolk Southern Railway Co
Group 3 (CSO 189)	Engelhard Corp Harshaw Chem
Group 3 (CSO 189)	National Tobacco Company
Group 3 (CSO 189)	Norfolk Southern Railway Co
Group 4 (CSO 105)	Applied Surface Technology Inc
Group 4 (CSO 105)	Brown-Forman Lou Prod Loc 1
Group 4 (CSO 105)	Brown-Forman Lou Prod Loc 2
Group 4 (CSO 105)	Brown-Forman Lou Prod Loc 3
Group 4 (CSO 105)	G & K Services Inc. 1200 Maple
Group 4 (CSO 105)	Greyhound Lines Inc
Group 4 (CSO 105)	Heaven Hill Bernheim Distillery
Group 4 (CSO 105)	Jewish Hospital Loc 3
Group 4 (CSO 105)	Louisville Tin and Stove
Group 4 (CSO 105)	National Linen East Plant Loc1
Group 4 (CSO 105)	National Linen West Plant
Group 4 (CSO 105)	PPG Porter Paints Plant1 Loc 1
Group 4 (CSO 105)	PPG Porter Paints Plant1 Loc 2
Group 4 (CSO 105)	PPG Porter Paints Plant1 Loc 3
Group 4 (CSO 105)	PPG Porter Paints Plant2 Loc 2
Group 4 (CSO 105)	Republic Industries Inc
Group 4 (CSO 105)	Sypris Technologies Loc 1
Group 4 (CSO 105)	Sypris Technologies Loc 2
Group 4 (CSO 105)	Sypris Technologies Loc 3
Group 4 (CSO 105)	Sypris Technologies Loc 5
Group 4 (CSO 105)	Tower Scholl Awards Inc
Group 6 (CSO 16)	Applied Surface Technology Inc
Group 6 (CSO 16)	Brown-Forman Lou Prod Loc 1
Group 6 (CSO 16)	Brown-Forman Lou Prod Loc 2
Group 6 (CSO 16)	Brown-Forman Lou Prod Loc 3
Group 6 (CSO 16)	Engelhard Corp Harshaw Chem
Group 6 (CSO 16)	Heaven Hill Bernheim Distillery
Group 6 (CSO 16)	Industrial Power Service Co
Group 6 (CSO 16)	Jewish Hospital Loc 3
Group 6 (CSO 16)	Louisville Tin and Stove
Group 6 (CSO 16)	National Linen East Plant Loc1
Group 6 (CSO 16)	National Linen West Plant
Group 6 (CSO 16)	National Tobacco Company
Group 6 (CSO 16)	Norfolk Southern Railway Co
Group 6 (CSO 16)	PPG Porter Paints Plant1 Loc 1
Group 6 (CSO 16)	PPG Porter Paints Plant2 Loc 2
Group 6 (CSO 16)	Sypris Technologies Loc 1
Group 6 (CSO 16)	Sypris Technologies Loc 2
Group 6 (CSO 16)	Sypris Technologies Loc 3
Group 9 (CSO 15)	Advanced Filtration Tech

## PERMITTED NON-DOMESTIC DISCHARGERS TO THE OHIO RIVER CSO AREA

Group 9 (CSO 15)	Affordable Waste Mgmt Loc 2
Group 9 (CSO 15)	Akzo Nobel Resins Loc 1
Group 9 (CSO 15)	Akzo Nobel Resins Loc 3
Group 9 (CSO 15)	Allwaste Container Services
Group 9 (CSO 15)	AST Acme Loc 1
Group 9 (CSO 15)	BAE Systems Loc 4
Group 9 (CSO 15)	BAE Systems Loc 4
Group 9 (CSO 15)	Baptist Healthcare System East
Group 9 (CSO 15)	Bashford Manor Corporation
Group 9 (CSO 15)	Beneke Specialty Aluminum Loc1
Group 9 (CSO 15)	Beneke Specialty Aluminum Loc2
Group 9 (CSO 15)	Bio Additives LLC Loc 1
Group 9 (CSO 15)	Bio Additives LLC Loc 3
Group 9 (CSO 15)	Bluegrass Cooperage Co Loc 1
Group 9 (CSO 15)	Bluegrass Cooperage Co Loc 2
Group 9 (CSO 15)	Box USA Group Inc
Group 9 (CSO 15)	BP Products North America
Group 9 (CSO 15)	Brown-Forman Early Times Loc 1
Group 9 (CSO 15)	Brown-Forman Early Times Loc 2
Group 9 (CSO 15)	Caritas Peace Center
Group 9 (CSO 15)	Chi-Chi Restaurant Bashford
Group 9 (CSO 15)	Coca Cola Enterprises Loc 1
Group 9 (CSO 15)	Corhart Refractories Loc 1
Group 9 (CSO 15)	Corhart Refractories Loc 4
Group 9 (CSO 15)	Dant Clayton Loc 1
Group 9 (CSO 15)	Dant Clayton Loc 2
Group 9 (CSO 15)	Dawn Food Products Loc 1
Group 9 (CSO 15)	Dawn Food Products Loc 2
Group 9 (CSO 15)	Dawn Food Products Loc 3
Group 9 (CSO 15)	Dean Milk
Group 9 (CSO 15)	Executive Inn Hotel East Loc 1
Group 9 (CSO 15)	Executive Inn Hotel East Loc 2
Group 9 (CSO 15)	Executive West Hotel
Group 9 (CSO 15)	Fabricated Metals Corp Loc 1
Group 9 (CSO 15)	Fabricated Metals Corp Loc 2
Group 9 (CSO 15)	Fabricated Metals Utility
Group 9 (CSO 15)	FBO AvCenter
Group 9 (CSO 15)	Federal Express Loc 1
Group 9 (CSO 15)	Federal Express Loc 2
Group 9 (CSO 15)	Florida Distillers Company
Group 9 (CSO 15)	Focus Too Packaging
Group 9 (CSO 15)	Ford Motor-Assembly Plnt Loc 1
Group 9 (CSO 15)	Ford Motor-Assembly Plnt Loc 2
Group 9 (CSO 15)	Ford Motor-Assembly Plnt Loc 3
Group 9 (CSO 15)	Gateway Press Inc
Group 9 (CSO 15)	Golden Foods Loc 1
Group 9 (CSO 15)	Golden Foods Loc 2
Group 9 (CSO 15)	Golden Foods Loc 3
Group 9 (CSO 15)	Golden Foods Loc 4
Group 9 (CSO 15)	Golden Foods Loc 5

## PERMITTED NON-DOMESTIC DISCHARGERS TO THE OHIO RIVER CSO AREA

Group 9 (CSO 15)	Golden Foods Loc 6
Group 9 (CSO 15)	Ivy Hill Corporation
Group 9 (CSO 15)	Kelly Fabricators
Group 9 (CSO 15)	Kentuckiana Tank Wash Inc Loc1
Group 9 (CSO 15)	Kentuckiana Tank Wash Inc Loc2
Group 9 (CSO 15)	Kentucky Fair & Expo Center
Group 9 (CSO 15)	KY Air National Guard Loc 1
Group 9 (CSO 15)	KY Air National Guard Loc 2
Group 9 (CSO 15)	LG&E Co Auburndale Serv Center
Group 9 (CSO 15)	Lou. Zoological Garden Loc 1
Group 9 (CSO 15)	Lou. Zoological Garden Loc 2
Group 9 (CSO 15)	Lou. Zoological Garden Loc 3
Group 9 (CSO 15)	Lou. Zoological Garden Loc 4
Group 9 (CSO 15)	Lou. Zoological Garden Loc 5
Group 9 (CSO 15)	Lou. Zoological Garden Loc 6
Group 9 (CSO 15)	Lou. Zoological Garden Loc 7
Group 9 (CSO 15)	Lou. Zoological Garden Loc10
Group 9 (CSO 15)	Lou. Zoological Garden Loc11
Group 9 (CSO 15)	Lou. Zoological Garden Loc12
Group 9 (CSO 15)	Lou. Zoological Garden Loc13
Group 9 (CSO 15)	Louisville Ladder Corp Loc 1
Group 9 (CSO 15)	Louisville Ladder Corp Loc 2
Group 9 (CSO 15)	Mothers Cookie Company
Group 9 (CSO 15)	Norton Healthcare Suburban
Group 9 (CSO 15)	NSS Environmental Inc. Loc 1
Group 9 (CSO 15)	Paradise Tomato Kitchens
Group 9 (CSO 15)	Precision Elamex Allmond Plant
Group 9 (CSO 15)	RAA Lou Internatnl Airport (1)
Group 9 (CSO 15)	RAA Lou Internatnl Airport (2)
Group 9 (CSO 15)	RAA Lou Internatnl Airport (4)
Group 9 (CSO 15)	RC-Canada Dry Bottling Co
Group 9 (CSO 15)	Reynolds Metals Plant 15 Loc 1
Group 9 (CSO 15)	Reynolds Metals Plant 15 Loc 2
Group 9 (CSO 15)	Stauble Machine & Tool Co
Group 9 (CSO 15)	Stone Container Corporation
Group 9 (CSO 15)	Strong Hold Products
Group 9 (CSO 15)	Sud-Chemie South Plant Loc 1
Group 9 (CSO 15)	Sud-Chemie South Plant Loc 2
Group 9 (CSO 15)	The Burruss Co Gamble Brothers
Group 9 (CSO 15)	United Parcel Service Loc 1
Group 9 (CSO 15)	United Parcel Service Loc 2
Group 9 (CSO 15)	United Parcel Service Loc 4
Group 9 (CSO 15)	United Parcel Service Loc 5
Group 9 (CSO 15)	United States Postal Service
Group 9 (CSO 15)	US Liquids Parallel Prod Loc 1
Group 9 (CSO 15)	US Liquids Parallel Prod Loc 2
Group 9 (CSO 15)	WireCrafters Inc
Group 9 (CSO 15)	Wynn Starr Foods of Ky Loc 2
Group 10 (CSO 211)	Allied Drum Service Inc
Group 10 (CSO 211)	Bigfoot #75 - Johnson Oil Co

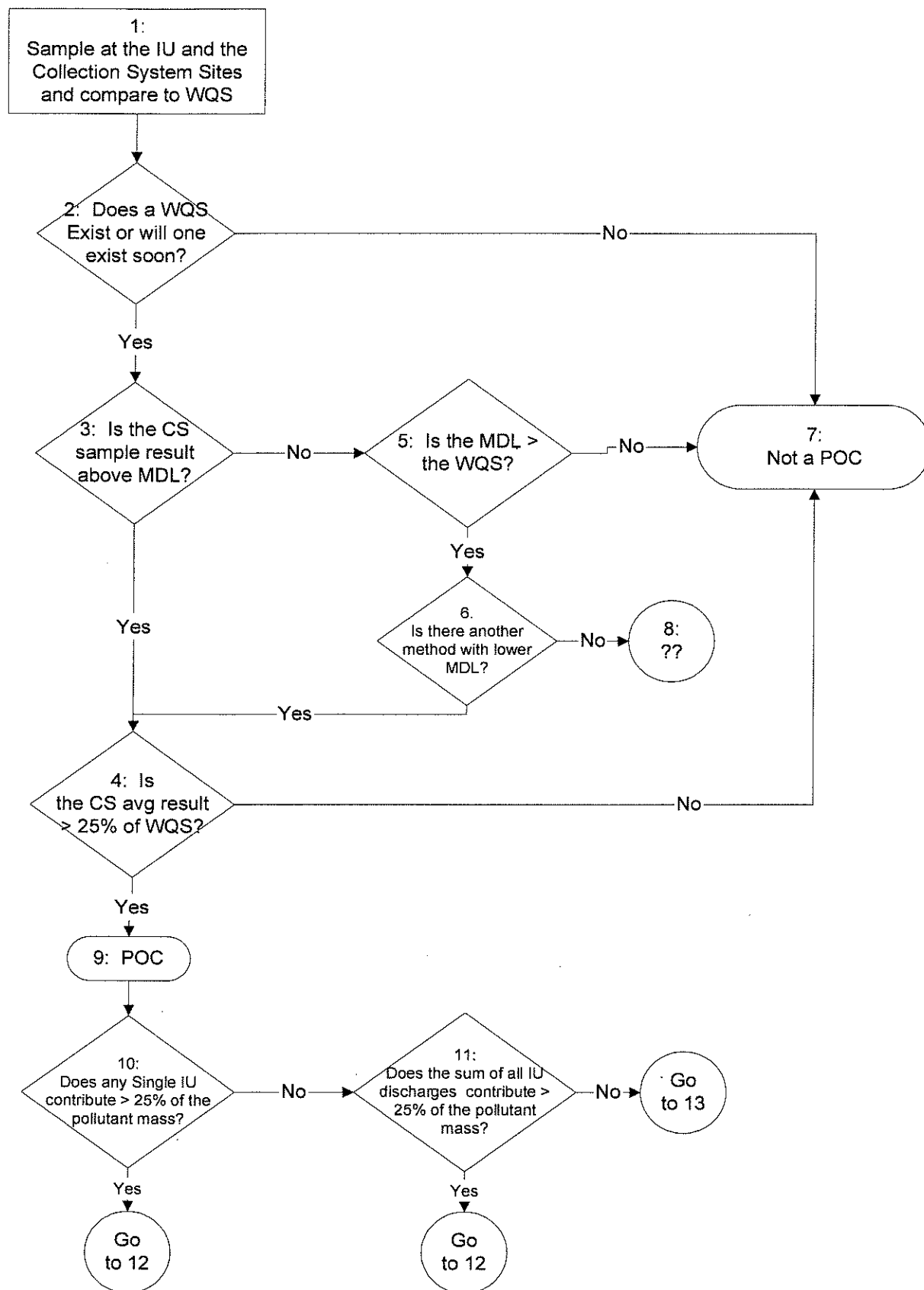
**PERMITTED NON-DOMESTIC DISCHARGERS TO THE OHIO RIVER CSO AREA**

Group 10 (CSO 211)	Brown-Forman Lou Prod Loc 1
Group 10 (CSO 211)	Brown-Forman Lou Prod Loc 2
Group 10 (CSO 211)	Brown-Forman Lou Prod Loc 3
Group 10 (CSO 211)	Casa de Oro Foods Loc 2
Group 10 (CSO 211)	Casa de Oro Foods Loc 3
Group 10 (CSO 211)	Central Station, LLC Loc 1
Group 10 (CSO 211)	Central Station, LLC Loc 2
Group 10 (CSO 211)	Chevron USA Dist Center
Group 10 (CSO 211)	Earthgrains Company Loc 1
Group 10 (CSO 211)	Fourth Ave. Corp.
Group 10 (CSO 211)	Greyhound Lines Inc
Group 10 (CSO 211)	Grubb & Ellis Mgmt Serv
Group 10 (CSO 211)	Heaven Hill Bernheim Distillery
Group 10 (CSO 211)	Hesco Parts Corporation
Group 10 (CSO 211)	Industrial Power Service Co
Group 10 (CSO 211)	Jewish Hospital Loc 1
Group 10 (CSO 211)	Jewish Hospital Loc 2
Group 10 (CSO 211)	Jewish Hospital Loc 3
Group 10 (CSO 211)	Jewish Hospital Loc 4
Group 10 (CSO 211)	Kentucky Fair & Expo Center
Group 10 (CSO 211)	Kentucky Trailer Loc 1
Group 10 (CSO 211)	Kentucky Trailer Loc 2
Group 10 (CSO 211)	Kentucky Trailer Loc 3
Group 10 (CSO 211)	Kentucky Trailer Loc 4
Group 10 (CSO 211)	National Linen East Plant Loc1
Group 10 (CSO 211)	National Linen East Plant Loc2
Group 10 (CSO 211)	National Linen West Plant
Group 10 (CSO 211)	National Tobacco Company
Group 10 (CSO 211)	New World Pasta Co Lou. Loc 1
Group 10 (CSO 211)	New World Pasta Co Lou. Loc 2
Group 10 (CSO 211)	Norfolk Southern Railway Co
Group 10 (CSO 211)	Norton Hospital Loc 1
Group 10 (CSO 211)	Norton Hospital Loc 2
Group 10 (CSO 211)	PPG Porter Paints Plant2 Loc 1
Group 10 (CSO 211)	PPG Porter Paints Plant2 Loc 2
Group 10 (CSO 211)	Reynolds Metals Co Plant #1
Group 10 (CSO 211)	Solae LLC
Group 10 (CSO 211)	Southern Graphic Systems
Group 10 (CSO 211)	Standard Foods Incorporated
Group 10 (CSO 211)	Sud-Chemie West Plant Loc 1
Group 10 (CSO 211)	Sud-Chemie West Plant Loc 2
Group 10 (CSO 211)	Sud-Chemie West Plant Loc 3
Group 10 (CSO 211)	TARC Union Station Loc 2
Group 10 (CSO 211)	TARC Union Station Loc 3
Group 10 (CSO 211)	The Courier Journal Co Loc 1
Group 10 (CSO 211)	The Courier Journal Co Loc 2
Group 10 (CSO 211)	The Courier Journal Co Loc 3
Group 10 (CSO 211)	U of L Belknap Campus Loc 10
Group 10 (CSO 211)	U of L Belknap Campus Loc 11
Group 10 (CSO 211)	U of L Belknap Campus Loc 2

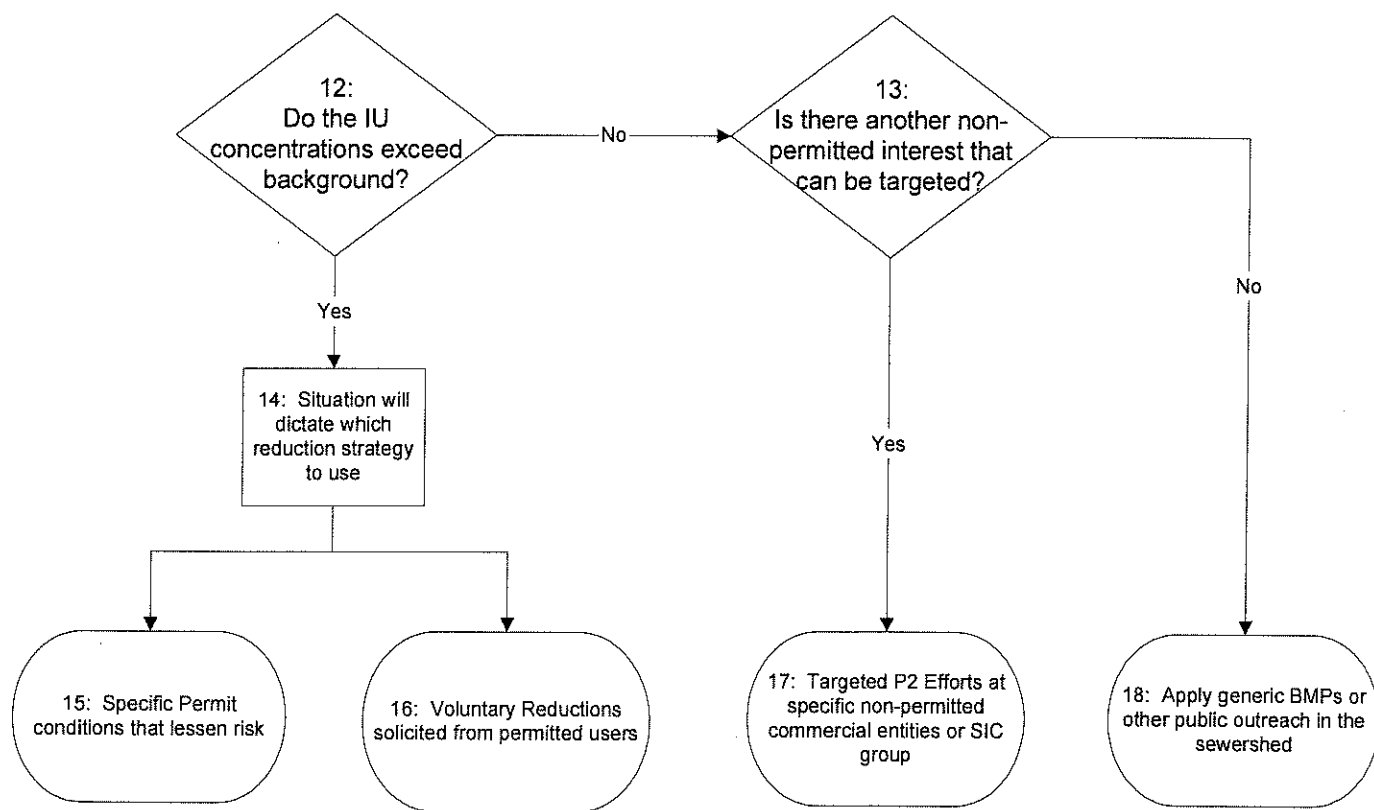
**PERMITTED NON-DOMESTIC DISCHARGERS TO THE OHIO RIVER CSO AREA**

Group 10 (CSO 211)	U of L Belknap Campus Loc 3
Group 10 (CSO 211)	U of L Belknap Campus Loc 5
Group 10 (CSO 211)	U of L Belknap Campus Loc 6
Group 10 (CSO 211)	U of L Belknap Campus Loc 8
Group 10 (CSO 211)	U of L Belknap Campus Loc 9
Group 10 (CSO 211)	U of L H.S.C. Loc 4
Group 10 (CSO 211)	Universal Linen Service
Group 10 (CSO 211)	Universal Uniforms Inc Loc 3
Group 10 (CSO 211)	Universal Uniforms Loc 4
Group 10 (CSO 211)	UofL HealthScienceCampus Loc 8
Group 10 (CSO 211)	Whayne Supply Company Loc 1
Group 10 (CSO 211)	Whayne Supply Company Loc 2
Group 10 (CSO 211)	Whayne Supply Company Loc 3

# Industrial Impacts to Sewer Overflows: Flowchart for determining Pollutant of Concern



# Industrial Impacts to Sewer Overflows: Flowchart for determining Pollutant of Concern





List of Assumptions for CSO/SIU project

1. When the project began in 2002, we were mostly focused on the Beargrass system. The CSO areas are small enough to do a simultaneous sampling of the collection system and the industries. In 2005, we expanded our scope to include the Ohio River CSOs, many of which have catchment areas much too large to do a simultaneous sampling event. We decided to do more of a "paper exercise" of doing dry weather sampling of the CSS and comparing the data to historical data from the potential industrial sources.
2. In 2002, there was a set of water quality standards for several pollutants. In 2005, Daymond Talley recognized that some of the water quality standards had changed, and he updated them. Changes based on Division of Water 2004 Triennial Review of Water Quality Standards.
3. Self explanatory
4. Is the CSS average result >70% of the WQS (70% = Reasonable Potential)? To determine whether a POTW discharge has a reasonable potential to cause or contribute to an instream excursion above a numeric water quality criteria for a pollutant of concern, the Division of Water performs a Waste Load Allocation (WLA) to determine a threshold concentration for a pollutant of concern. When comparison of the POTW discharge data against the WLA reveals that a pollutant is present in the range of 70% - 90% of the WLA for a POC, then monthly monitor & report requirement will be imposed for a one (1) year period.
5. Is the MDL > WQS? At times, the MDL of the sample is not low enough to determine if the water quality Standards have been met.
6. On some metals methods, our most common way of analyzing pollutants has too high a detection limit to determine compliance, but another method may be available. For example, the detection limit for cadmium using the ICP method is 0.007 mg/l. The detection limit for cadmium using the Graphite Furnace method is 0.0002 mg/l.
7. If a pollutant satisfies the answer No to questions 2, 4, 5, or 6 then it is not a pollutant of concern.
8. It is possible that there would not be an analytical method low enough to determine if a pollutant is in compliance with a water quality standard. If this is the case, the parameter cannot be considered a POC until science catches up.
9. If the answer is yes to question 4, it is a Pollutant of Concern (POC). All POCs must be studied to determine if there is something the Pretreatment Program and/or the CSO program could do to reduce this pollutant or prevent it from getting to surface water.
10. If a POC has a major percentage of its mass coming from a particular industrial source, it might lead to a specific reduction strategy with one industry. The number 25% is arbitrary but conservative.
11. If there is not one source that is a major percentage on its own, but the sum of all permitted industrial sources is significant, then it might lead to a specific reduction strategy with a group of industries.
12. If an industrial source accounts for a large percentage of the mass of a particular pollutant, first it must be determined if the concentration of that pollutant is something that the industry is adding to the waste stream. The incoming city water has low concentrations of several pollutants. MSD conducted a tap water sampling project with students from J-Town high school in February, 2005. Samples were collected, by the

- students... and used as residential collection system background data for copper and lead. If an IU data exceeds background concentrations, a control mechanism is appropriate.
13. If IU is not a contributor of the Pollutant of Concern then IWD will look at other options (Dialogic Business) to determine other potential non-domestic sources that can be studied as contributors to the Pollutant of Concern.
  14. Reduction strategy based on outcome of IU sample results from facility incoming city water concentrations vs residential background concentrations.

**BEARGRASS CREEK POC DETERMINATION**

Industrial Impacts to Sewer Overflows:  
 Flowchart for determining Pollutant of Concern  
 GROUP 1  
 CSO 118

Analyte	Q2	Q3	Q4	Q5	Q6	POC	Box 8	Q10	Q11
Aluminum	N					N			
Ammonia	N					N			
Antimony	Y	Y	N	N		N			
Arsenic	Y	N		N		N			
Barium	N					N			
Beryllium	N					N			
BOD5	N					N			
Cadmium	Y	Y	Y			Y		Y	Y
Calcium	N					N			
COD	N					N			
Chloride	Y	Y	N			N			
Chromium	Y	Y	N			N			
Cobalt	N					N			
Fecal Colifrm	N					N			
Copper	Y	Y	Y			Y		N	N
pH	Y	Y	N			N			
Iron	Y	Y	Y			Y		N	N
Lead	Y	Y	Y			Y		N	N
Magnesium	N					N			
Manganese	N					N			
Mercury	Y	Y	Y			Y		N	N
Molybdenum	N					N			
Nickel	Y	Y	N			N			
Nitrate	N					N			
Nitrite	N					N			
Ortho Phosphorous	N					N			
Potassium	N					N			
Selenium	Y	Y	Y			Y		N	N
Silver	Y	Y	Y			Y		N	N
Sodium	N					N			
Temperature	N					N			
Thallium	Y	Y	N			N			
Titanium	N					N			
Total Hardness	N					N			
Total Phosphorous	N					N			
TSS	N					N			
Vanadium	N					N			
Zinc	Y	Y	N			N			

## Beargrass Creek IU - CSO Project Pollutants of Concern (POC) Preliminary Dry Weather Results

FIGURE 4C-8

Groups	POC based on CS Avg Result > 70% WQS	POC based on Single IU > 50%* of Pollutant Mass	POC based on Sum of All IUs > 50%* of Pollutant Mass	IUs Contributing to POC	Comments
<b>Group 1</b>	Cadmium, Copper, Iron, Lead, Mercury, Selenium, Silver	N/A	N/A	No IU impacting POC	
<b>Group 2</b>	Cadmium, Lead, Copper, Iron, Mercury	Copper, Iron, Mercury	Copper, Iron, Mercury	Forth Technologies Puritan Cleaners	mercury & Iron are not permit requirement
<b>Group 4</b>	Cadmium, Copper, Lead, Selenium	N/A	N/A	No IU's impacting POC	
<b>Group 5</b>	Cadmium, Copper, Iron, Lead, Mercury	Copper	Copper	Inland Paperboard & Packing, Ivy Hill, Corp, Willamette Industries, Inc.	IU are printed paper and corrugated material producers. Inland out of business in 2005, Ivy Hill and Willamette are GDP
<b>Group 6</b>	Cadmium, Copper, Iron, Lead, Mercury	Iron, Mercury	N/A	No IU's impacting POC	
<b>Group 8</b>	Cadmium, Copper, Lead, Mercury, Selenium	Cadmium, Copper, Mercury, Selenium	N/A	Kent Foods	Livestock & animal feed probably not a true contributor of POCs
<b>Group 9</b>	Cadmium, Copper, Lead, Mercury	N/A	N/A	No IU's impacting POC	

**Results based on data taken in 2003 from dry weather sampling**

**Recommendations**

For Cadmium, Lead, Mercury, Selenium need to use a lower minimum detection limit

Regarding Copper need to also consider Lou Water Company as a significant contributor

In 3rd or 4th Qtr 2006 need to do another round of Dry weather sampling since Division of Water changed WQS in 2004.

In 3rd or 4th Qtr 2006 may want to collect at least one wet weather sample for Beargrass Creek CSO's

\* Being recalculated based on 50%



MSD

November 22, 2004

Leanne Monsour  
General Electric Consumer Products Appliance Park  
4000 Buechel Bank Rd  
Louisville, KY 40225

Wet Weather Pollution Prevention Survey for SIU Permit #2850

Dear Ms Monsour:

MSD is responsible for ensuring that the stormwater that flows into our local streams during and after a rainstorm remains unpolluted by materials washing off from commercial and industrial sites such as your facility. MSD is also required to minimize the impacts of Combined Sewer Overflows (CSOs) on our local streams. One step MSD is taking to do this is to encourage commercial and industrial facilities to incorporate Pollution Prevention (P2) into their operational routines and to reduce water use and wastewater discharges during wet weather.

P2 may be defined as any activity that reduces the generation of contaminants or waste so that the need for disposal or discharge is also reduced. Source reduction and waste minimization through materials substitution, better housekeeping, more efficient use of raw materials, and the practice of reuse or recycling of raw materials, byproducts or wastes are all considered to be methods for pollution prevention. Water conservation and wet weather discharge reduction are also important aspects of P2 for combined sewer systems. Combined sewer capacity can be used to store combined sewage and contaminated stormwater during rainstorms so that the wastewater can be treated later.

As our first step in developing a Wet Weather Pollution Prevention program for commercial and industrial sites, we need the information on the enclosed survey submitted by all Significant Industrial Users.

If you have any questions or comments regarding MSD's development of a local wet weather pollution prevention program please contact Sue Green at 502-540-6955 or by email at [green@msdlouky.org](mailto:green@msdlouky.org). Please submit the completed survey to Ms. Green using the enclosed envelope by November 22, 2004.

Thank you for your cooperation.

Sincerely,

Lisa A. Gaus  
Permit and Compliance Supervisor

LAG/shg

C:\WINDOWS\TEMP\stormwaterP2 for SIU sites survey.doc

cc: KDOW  
IWIS/Permit File #2850



WET WEATHER POLLUTION PREVENTION SURVEY

Permit #2850

General Electric Consumer Products Appliance Park
4000 Buechel Bank Rd
Louisville, KY 40225

Completed by Sandra A. Kmiec (print name) Title Leader - EHS Date 12/17/04

I Certify that the following information is true and correct to the best of my knowledge.

Signed [Signature]

Please Circle your response:

- Y (N) Does your facility discharge non-contact cooling water to the sewer?
Y (N) Does your facility discharge "batches" of process wastewater to the sewer?
Y (N) Is your facility capable of storing process wastewater generated during wet weather?
(Y) N Do you have a "KPDES" permit from the Kentucky Division of Water for discharge of stormwater runoff through a pipe or ditch into a stream?
Y (N) Does your permit also include discharge of process or sanitary wastewater?
(Y) N Does your facility have a Stormwater Pollution Prevention Plan (SWPPP)?
(Y) N Has your facility implemented Stormwater Best Management Practices (BMP)?
(Y) N Would you attend a local training seminar on Stormwater Pollution Prevention?
Y (N) Do you think that the Hazardous Materials spill plan (HMPC) application should be changed to include local requirements for stormwater pollution prevention?

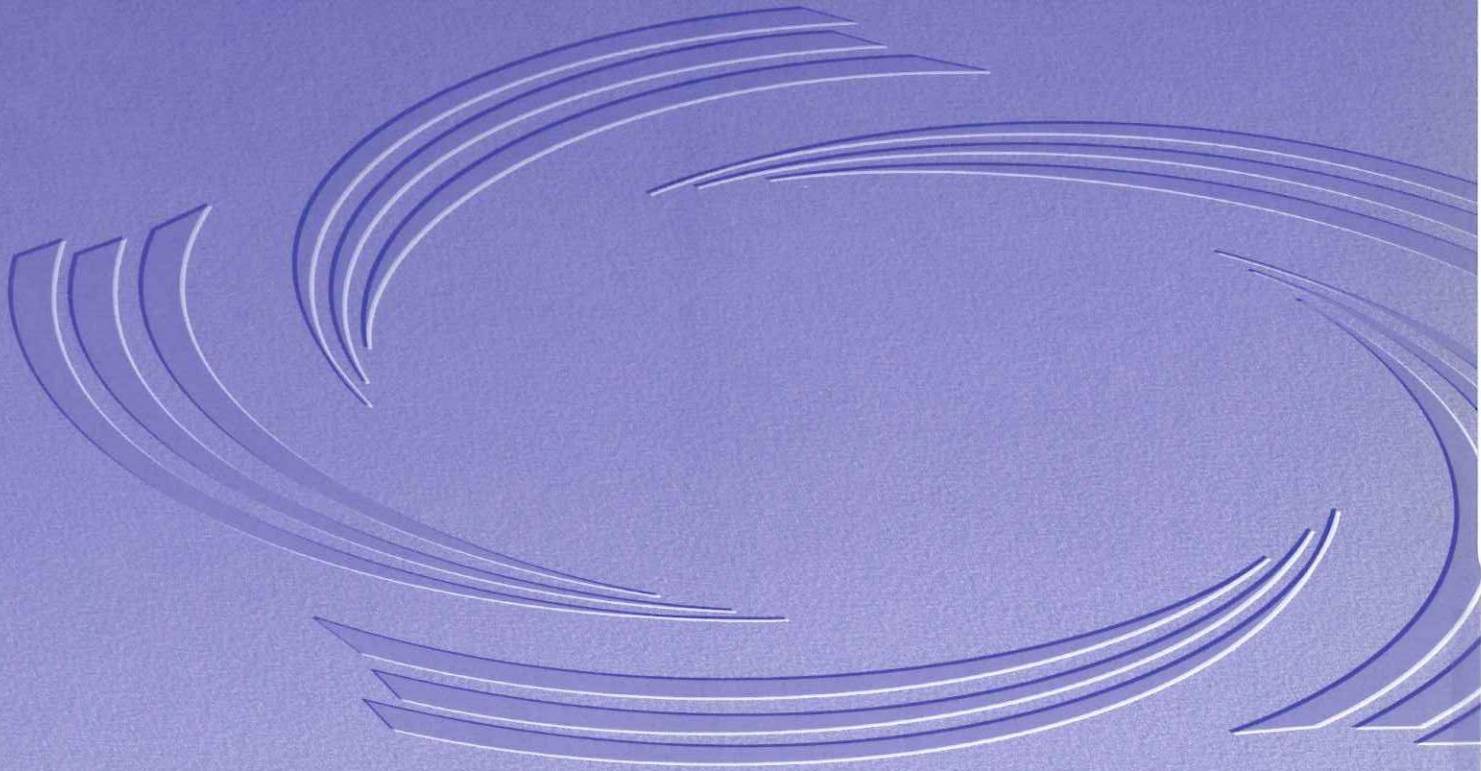
Please provide additional ideas and suggestions you have to help us at MSD meet our requirements to ensure that adequate stormwater protection is in place at our local commercial and industrial sites:

(continue on reverse or add sheets if needed) shg



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 5: NMC 4 – MAXIMIZATION OF FLOW TO THE POTW FOR TREATMENT**

### **5.1 INTRODUCTION**

The purpose of this control is to maximize flow to the treatment plant by making simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant. Maximizing flow to the treatment plant minimizes the magnitude, frequency, and duration of CSOs that flow untreated into either Beargrass Creek or the Ohio River.

### **5.2 PROGRAM OVERVIEW**

MSD has implemented numerous projects at the Morris Forman Wastewater Treatment Plant (MFWTP), and within the CSS, to maximize flow to the plant, as well as to enhance the plant's ability to treat increased wet weather flows. These projects were implemented as part of the LTCP; however, the initiation of these efforts began as NMC evaluations. Between the years of 1997 and 2004, over \$165 million in capital improvements were made at the MFWTP alone. As mentioned in Section 3 (NMC 2), control measures such as modifications to CSO dams and weirs, protection of the conveyance system and treatment plant capacity from creek inundation, reduction of inflows to the CSS, and installation of real time control (RTC) technology can also be applied to implementation of this NMC, because the maximization of storage in the collection system enhances storage and delivery of additional wet weather flows to the treatment plant.

### **5.3 SYSTEM CHARACTERIZATION**

In the CSS, flows during dry weather conditions are conveyed to the MFWTP to remove pollutants before discharging to the Ohio River. During wet weather conditions, when capacity of the CSS is exceeded, the excess flow – a mixture of sewage and stormwater runoff – is discharged to the South Fork Beargrass Creek, Middle Fork Beargrass Creek, and the Ohio River through permitted CSOs.

Characterization of the collection system shows that the CSS includes nearly 60 miles of interceptor pipe that is 5-foot or larger in diameter (refer to Figure 3-1 in Section 3 (NMC 2) for a tabular presentation of this data and Figure 3-2 for a graphic showing these large conveyance pipes). This same network that provides for additional storage within the collection system also provides the flexibility necessary to maximize flows to the MFWTP.

The critical pumping facilities within the CSS can be characterized into three categories:

- Flood pumping stations
- Combined sewer pump stations
- Combination sanitary / flood pump stations

The operation and maintenance programs for these pump stations are detailed in Section 2 (NMC 1) of this document.

### **5.4 CAPACITY OF CONVEYANCE SYSTEM**

MSD utilizes a hydraulic model to analyze flow conditions and design capacities in the combined sewer system. The hydraulic model is used to identify alternatives to maximize flow to the Morris Forman Water Treatment Plant.



There are three conveyance routes that deliver wastewater to the MFWTP:

- The MDS Interceptor downstream of CSO 211 (also referred to as the Main Diversion Structure), where two major interceptors – the Southern Outfall and the Ohio River Interceptor – converge;
- The Southwestern Branch Interceptor to MFWTP which conveys flows via the Southwestern Pump Station (SWPS); and
- The Rubbertown Force Main which conveys less than 10 mgd of industrial flow from an area south of the plant site. Since the area served by the Rubbertown Force Main is not part of the CSS, it was not included in the CSS hydraulic model. However, this industrial contribution is included in the evaluation of influent flows and loadings to the MFWTP.

The maximum carrying capacities of the MDS Interceptor (350 mgd) and Southwestern Branch Interceptor (103 mgd) were calculated under surcharged conditions using the CSS hydraulic model. The non-surcharged, full pipe, capacities for the MDS Interceptor and Southwestern Branch Interceptor are 250 mgd and 74 mgd, respectively. MSD installed an inflatable dam at the MDS to provide the additional hydraulic head needed for the interceptor to flow at 350 mgd, thus maximizing the carrying capacity to the MFWTP.

This analysis also indicates that the carrying capacity from these two interceptors exceed the peak hydraulic capacity of the MFWTP. Therefore, the actual flow conveyed through these interceptors is limited to the capacity of the MFWTP less the flow from the Rubbertown Force Main. A summary of the minimum, average, and peak day flows at the MFWTP for the period between January 1, 2003 and July 31, 2006 is presented in Table 5-1.

**TABLE 5-1  
MINIMUM, AVERAGE, AND PEAK DAY FLOWS AT THE MFWTP**

Month	2003			2004			2005			2006		
	(Min)	(Ave)	(Peak Day)	(Min)	(Ave)	(Peak Day)	(Min)	(Ave)	(Peak Day)	(Min)	(Ave)	(Peak Day)
January	65.5	97.2	164.2	75.3	113.3	191.1	73.5	149.8	227.4	89.5	142.9	237.2
February	86.4	118.4	215.0	80.8	119.0	222.8	94.2	127.3	173.7	82.9	114.3	204.7
March	69.1	87.5	160.0	84.5	124.6	202.9	83.4	113.5	217.5	78.8	118.4	189.8
April	72.1	110.2	167.0	93.7	134.7	193.7	85.4	113.1	199.3	102.9	150.7	222.8
May	72.9	107.6	183.8	67.5	132.6	209.4	80.5	108.2	178.9	82.6	112.9	196.6
June	70.0	108.8	209.5	77.3	110.3	152.3	63.2	92.0	149.5	86.1	113.9	186.2
July	79.9	99.8	169.7	79.7	116.7	168.0	71.7	95.7	163	81.7	110.4	184.6
August	85.2	114.0	209.1	72.4	97.6	173.7	75.3	97.6	194.2			
September	81.1	114.8	228.1	72.4	85.1	112.3	76.5	97.5	148.4			
October	80.1	95.4	178.0	60.8	98.2	146.4	67.2	80.5	145.8			
November	70.0	102.6	198.5	94.5	140.1	198.7	69.3	97.8	214			
December	76.3	101.7	211.1	89.1	136.6	233.6	82.8	104.2	179.2			

## 5.5 STORAGE TO ENSURE MAXIMIZATION OF FLOW

Any opportunity to provide additional storage within the system serves to maximize the flow that reaches the treatment plant. As discussed in Section 3 (NMC 2) of this report, MSD has identified 82.3 million gallons of in-system storage, due to the vast network of large diameter interceptors in the CSS. This available storage volume will be utilized by using a Real Time

Control system, which monitors and controls critical regulators in the CSS. The first phase of the RTC system was operational in April 2006. During its first 16 weeks in operation, the system reduced the volume of overflows by 200 million gallons. The second phase is under design and scheduled to be operational by December 2008. Future phases will be included in the Long Term Control Plan.

### **5.5.1 Wheeler Basin**

The Wheeler Avenue area is in a shallow "bowl" at an elevation 2 to 3 feet below the surrounding ground and is drained by a combined sewer to the Mill Creek Trunk Interceptor (MCTI). The MCTI, located in Taylor Boulevard, receives the entire flow from the Wheeler Avenue area. The MCTI is a very large sewer, 12-feet 8-inches wide by 19-feet tall. Flow from the MCTI is conveyed to the Southwestern Outfall, followed by the Southwestern Pump Station (SWPS) and ultimately to the MFWTP. During very large storms, the Mill Creek Trunk would surcharge into a nearby low lying area. On August 8, 1992, the area was flooded by a major storm event (3.84" of rain in 2.5 hours, an approximate 100-year storm). Following this flooding, MSD conducted a major study of the causes and potential solutions for the flooding problems that resulted in the implementation of the Wheeler Avenue CSO/Flood Control Project. The objective of the Wheeler Avenue CSO/Flood Control Project was twofold:

- Reduce the CSO volume that occurs at the Southwestern Pump Station, and
- Reduce the occurrence of neighborhood flooding.

The project involved constructing a 553,000-gallon CSO basin inside a 4,900,000 gallon flood control basin. Additionally, 1.1 million gallons of storage was utilized in the 78-inch combined sewer.

The flow into the basin is regulated by a manually controlled gate that is left partially open. During larger storm events, the system hydraulics naturally divert flow into the basins. For example, during a rainfall event in 2005, MSD observed that the concrete basin filled completely and 2.55 million gallons were diverted to the earthen basin. At the present, the storage basin "floats" on the system and the volumes captured are not recorded. Observations of combined sewage capture in the basin is anecdotal only, and no measured data is available to document how often it is used, or how much flow is captured. Overflow volumes at the Southwestern Pump Station are not metered, so the impacts on overflows cannot be quantified at this time. As part of the second phase of the Real Time Control project, MSD is designing monitoring and control equipment to optimize control and capture information on the use of this basin. This equipment will also allow MSD to quantify the CSO reduction.

## **5.6 PUMP STATION OPERATION**

### **5.6.1 Review and Adjustment of USACE Pump Stations**

MSD has the responsibility for the operation and maintenance of an extensive flood protection system that was developed by the USACE in the 1950s. A significant portion of this flood protection system, 9 flood pump stations and 162 flood control gates, are associated with MSD's CSS. Refer to Exhibit 67 of the 308 submittal for the Corps of Engineers Flood Protection System Operation Manual which defines the operating procedures for each of these facilities.



During elevated river stages, the flood protection system and the CSS operate in an integrated manner. When the USACE developed the flood protection system, their focus was to protect the community from flood damage. The minimization of overflows from the CSS was not a priority. Through the development of MSD's CSO Abatement Program, specific opportunities for procedural modifications can be made to reduce overflows from the CSS and still maintain the integrity of the level of flood protection provided by the system. MSD led the first effort to revise the procedures at the three critical combination sanitary and flood protection pump stations. These modifications were discussed, submitted and implemented in 2003. Refer to Exhibit 45 of the 308 submittal for documentation of these changes.

#### **5.6.1.1 4<sup>th</sup> Street Flood Pump Station**

The 4th Street Flood Pump Station (FPS), located on the southeast corner of 4th and Main Streets, was constructed by the USACE in the 1950s as part of Louisville's flood control system and also functions as a sanitary pumping facility during non-flood conditions. During non-flood conditions, the flow in the 4th Street Relief Sewer is diverted into the pump station and pumped into the Ohio River Interceptor (ORI – 84" circular sewer).

The 4th Street Relief Sewer is a 7'-6" semi-elliptical sewer that was built in the late 1920s to relieve overloaded sewers along 4th Street, Muhammad Ali Boulevard, Chestnut Street, and Broadway. The relief sewer was designed to relieve all flows in the overloaded sewers, not just excess flows. Therefore, sanitary flow is present in the relief sewer at all times.

The 4th Street FPS contains a sanitary wetwell, a flood wetwell, and six pumps (three sanitary pumps and three flood pumps). The sanitary pumps can also be used as flood pumps. There are two 35 HP sanitary pumps rated at 4,000 gpm at 25 feet of head and one 60 HP sanitary pump rated at 5,900 gpm at 35.7 feet of head. The sanitary pumps discharge into a common header which leads to either the Ohio River Interceptor or the flood pump discharge chamber. The station also has three 350 HP stormwater pumps for a total station capacity of 95,400 GPM.

Under normal Ohio River pool conditions (below 17.7 UG), the 4<sup>th</sup> Street FPS is in sanitary lift mode and the sanitary pumps are in operation and all the FCGs are set so that all dry weather flow remains within the CSS at all times and no overflows to the river can occur. During wet weather events, overflows occur at both CSOs 22 and 23 when the water level in the CSS exceeds the dam elevations.

- CSO 22 is on the 4<sup>th</sup> Street Relief Sewer and has an overflow elevation of 425.33.
- CSO 23 is on the ORI and has an overflow elevation of 443.5.

Under the plant idle mode of operation (17.7 UG to 28.8 UG), all pumping at the station is stopped and all flow from the CSS is diverted to the river as required by the USACOE Operations and Maintenance Manual for the Flood Protection Works (Exhibit 67 of the 308 response letter). This station goes into plant idle mode between a 1-2 year flood event.

Under the flood pumping mode of operation (above 28.8 UG), the FPS is in full operation (using both the sanitary and flood pumps) and all flow from the 4<sup>th</sup> Street Relief Sewer, both during dry and wet weather conditions, is pumped to the Ohio River. Any overflow from the ORI is also pumped to the river. This station goes into flood pumping mode between a 5-10 year flood event.

The overflow dam on the 4<sup>th</sup> Street Relief Sewer (CSO 22) was raised 2 feet in August 1994 by MSD crews. This modification raised the dam to its current elevation of 425.33 (17.7 Upper

Gauge). By raising the dam 2 feet it reduced the frequency and duration that the PS would enter the plant idle mode of operation and thereby eliminated overflows that would have occurred at the lower dam elevation. Based on river elevation data from 2003 to 2005, the annual reduction of CSOs resulting from this modification is estimated at 13.7 MG/YR.

#### **5.6.1.2 34<sup>th</sup> Street Flood Pump Station**

The 34th Street Flood Pump Station (FPS); which is located just south of the levee on 34th Street, was constructed by the USACE in the 1950s as part of Louisville's flood control system and also functions as a wastewater pumping facility during non-flood conditions. The station conveys flow from the northern portion of the City to the Ohio River Interceptor or to the lower pool of the Ohio River, depending on flow and river elevation.

A diversion dam on the 138" sewer flowing north on 34th Street diverts low flows through a 24" sewer into the pump station. The pump station discharges to the 36" 38th Street Branch Interceptor which conveys the flow to the Ohio River Interceptor at 38th Street and Herman Street. The diversion dam is designated as CSO 19. Excess flow tops the dam and is discharged through the sewer to the lower pool of the Ohio River. When the river stage exceeds elevation 421.83 (48.54 LG) on the lower pool, the pump station is shut down and backwater and sewage is allowed to pond in the sewer system. All flow is discharged to the river.

The pump station contains two sanitary pumps rated at 4,250 gpm each at 31.5 feet of head and four storm pumps rated at 15,600 gpm each at 34 feet of head. The sanitary pumps can also be used for flood pumping.

Under normal river pool conditions (below 48.54 LG), the 34<sup>th</sup> Street FPS is in sanitary lift mode and the sanitary pumps are in operation to return flow to the CSS and all the FCGs are set so that flow during dry conditions remains within the CSS at all times. During wet weather events, overflows occur at CSO 19 when the water level in the CSS exceeds the CSO 19 dam elevation (421.83 or 48.5 LG).

Under the plant idle mode of operation (48.54 LG to 61.54 LG), there are no pumps at the station in operation. The level of the river has topped the dam at CSO 19 and all flow from the CSS can discharge to the river under both dry and wet weather conditions, as required by the USACE Operations and Maintenance Manual for the Flood Protection Works (Exhibit 67 of the 308 response letter). The station goes into plant idle mode for between a 1-2 year flood event.

Under the flood pumping mode of operation (above 61.54 LG), the station's flood pumps are in operation and all flow from the CSS, both during dry and wet weather conditions, is pumped to the Ohio River. The station goes into flood pumping mode for between a 5-10 year flood event.

The operating procedures for this pump station were modified in 2002 so that the sanitary pumps remain in operation until the Ohio River reaches the top of the overflow dam for CSO 19 (48.33 Lower Gauge). Based on river elevation data from 2003 to 2005, the annual reduction of CSOs resulting from this modification is estimated at 30.2 MG/YR

#### **5.6.1.3 Robert J. Starkey (formerly Buchanan) Pumping Plant**

The Starkey Pumping Plant is both a sanitary sewer lift station and a flood pumping station. It is operated as a sanitary sewage lift station during normal river stage periods (below 15.6 on the Upper Gauge). The Starkey Pumping Plant is the first lift station on the upper river that goes into flood pumping mode at upper river gauge 15.6 and is in flood pumping mode at an average



of three times per year. During normal river stages, the flow into the station is pumped into the Ohio River Interceptor and transported to the MFWTP. When flood pumping mode is activated at the station, gates are closed in the outfall piping to prevent the Ohio River from backing up into the sewer system, and therefore prevent flooding. During extreme conditions, excess water that cannot be conveyed to MFWTP is pumped to the Ohio River. Before the major upgrade, the operations at the Starkey Pumping Plant were optimized through the rehabilitation of the pumps and adjustment of operating level to ensure longer maximum capacity pumping.

The Starkey Pumping Plant project consisted of upgrading the existing pump station capacity from 125 mgd to 140 mgd. The upgraded Starkey Pumping Plant included a new wet well adjacent to the old wet well, four new variable speed submersible pumps capable of handling 35 mgd each, two channel monsters with hydraulic motors for screening, a new electrical substation, new instrumentation and control, including provisions for telemetry; and new HVAC which includes at least six air changes per hour in the pump station building and at least twelve air changes per hour in the wetwell. This improvement reduced the AAOV by 70 MG/YR.

The revised operating levels and rehabilitated pumps increased retention of wet weather flows by conveying more flow to the ORI during wet weather periods. This results in a decrease of 485 MG/yr from the CSOs within the Beargrass Creek basin, an increase of 9.5 MG/yr from the CSOs within the Ohio River Interceptor and a system-wide decrease of 475.5 MG/yr. When combined with the improvements of increasing the pump station capacity, the total AAOV at the Starkey Pumping Plant decreased 545.5 MG/yr.

### **5.6.2 Southwestern Pump Station**

The Southwestern Pump Station (SWPS) receives its flow from the Southwestern Outfall. The incoming flow goes into the two wet wells and is pumped by four pumps into the Southwestern Branch Interceptor to the MFWTP. Only 3 pumps can run at any one time, due to capacity limitations in the Southwestern Branch Interceptor. In the past, when the water level in the Southwestern Outfall reached the crest level of the diversion dam (elevation 400.0) located in the outlet, an overflow occurred. This overflow was directed towards the Ohio River through the Sluice Gate Chamber (SGC) at CSO 15, which prevented high river waters from flowing back into the sewer system. The SGC contains three isolation gates. These gates have recently been put in operation in the RTC system, storing flow in the interceptor and increasing the amount of flow eventually pumped by the SWPS. Formerly those gates were normally open except when emergency river flooding procedures were in effect (i.e., when the Ohio River elevation reaches 400.0). They continue to be re-opened if the river reaches an elevation of 417.0, pending review of the flood protection guidelines of USACE .

As noted previously, only three of the 4 pumps at SWPS can be run at a time, based on the capacity of the downstream piping system. During wet weather, all three pumps run if sufficient capacity exists to allow delivery of the maximum flow available from the Main Diversion Structure (MDS) and still receive 100 MGD from SWPS. Flow from the Southern Outfall (that flows through MDS) generally has higher pollutant concentrations than flow from the Southwestern Outfall, so if wet weather conditions dictate that an overflow will occur, flow is taken from MDS up to its full delivery ability. Since the Southern Outfall wastewater is generally more dilute, an overflow at SWPS discharges less pollutant load that would be expected if the overflow happened at CSO 211 at the MDS.



### **5.6.2.1 Operational Modifications**

The east and west influent gates at SWPS have recently been equipped with new electric actuators designed for modulating service. The purpose of this modification is to control the water levels in the screen chamber and wet well areas of the station regardless of the depth of flow in the Southwestern Outfall. The ability to throttle the flow through the gates to control downstream levels in the screen chamber and wet well has a positive impact on the operating conditions at the station and improves the performance of the screening and pumping equipment.

The intent of the modifications was to contain the flow within the existing screen channels and to maintain the total dynamic head on the pumps as close as possible to design conditions. According to the climber screen specifications, shop drawings and manufacturer's O&M manual, the units are designed for a capacity of 70 mgd each with a downstream water depth of 6.5 feet and a maximum headloss of 12 inches based on a 40% plugged screen. This results in a design maximum upstream water depth of 7.5 feet which corresponds to elevation 400.00. The top of the screen channel is elevation 404.25. All flow will be contained in the channels provided that the influent gates are pinched down adequately to negate any excess depth of flow in the Southwestern Outfall. Through level monitoring and PLC programming, the positions of the east and west influent gates will automatically modulate as the water depth in the outfall sewer varies to ensure that the level upstream of the screens does not exceed elevation 400.00. The water level downstream of the screens is essentially the wet well level. The maximum wet well level will be elevation 399.00 using the 12 inch headloss through the screens.

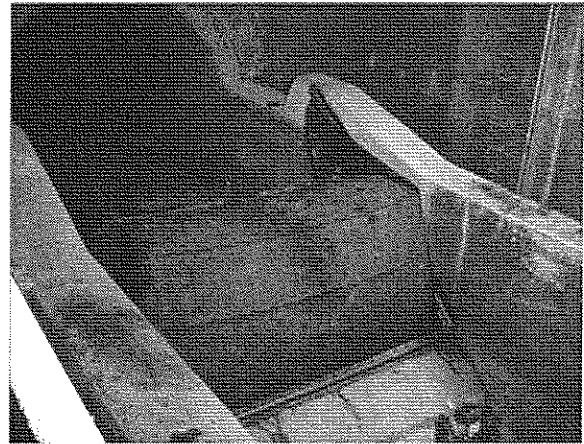
### **5.6.2.3 Wet Weather Operations**

MSD has modified the SOP for this station to take advantage of the inline storage capacity within the Southwestern Outfall (SWO). When the Ohio River stage remains below 400 feet, the gates at the Sluice Gate Chamber will remain closed. The operator will monitor the Southwestern Pump Station when wet weather is forecast. This is to ensure that the screens remain in service and the water level in the Southwestern Outfall is below 410 feet (instead of the previous elevation of 400 feet). If the water level elevation in the Southwestern Outfall increases to 410 feet and is rising quickly, the operator opens the Sluice Gate Chamber gates to prevent flooding. When the water level in the Southwestern Outfall returns to levels below elevation 410 feet, the Sluice Gate Chamber gates are closed and the screening systems are placed in "Manual – Continuous" run mode. The operator monitors the screens to ensure that they remain in service. This modification takes advantage of storage within the Southwestern Outfall from elevation 400 to 410 feet that previously would have resulted in an overflow. When storage occurs up to elevation 410 in the SWO, a maximum of 10 MG can be retained during a wet weather event. Based upon hydraulic computer model simulations, this will result in an average annual reduction in overflows of approximately 421 MG. Beginning in April 2006, these gates have been incorporated into the RTC system. As shown in Table 3-5, the control level has since been increased to an elevation of 413 feet, which will further increase the overflow reductions at this location.

## **5.7 FLOW MANAGEMENT ENHANCEMENT**

The MFWTP can treat up to 350 mgd of combined sewage flow. As stated previously, flow is received at the plant from three sources. Flow received at MFWTP from these sources varies depending upon system flow conditions. Refer to Figure 5-2 for a diagram depicting operation of the Main Diversion Structure during these various conditions.

The Main Diversion Structure (MDS) receives wastewater from both the Ohio River Interceptor (ORI) and the Southern Outfall. The Southern Outfall is 15'-6" high and 15'2" wide. It enters the MDS from the east. The estimated flow capacity of the Southern Outfall is 766 mgd. The Southern Outfall extends through the MDS to the Ohio River. The ORI is an 8-foot diameter sewer with a capacity of 155 mgd. It enters the MDS from the north, and crosses beneath the Southern Outfall within the MDS. The MDS Interceptor starts at the MDS and extends to MFWTP. The diameter of this semi-elliptical pipe flowing to the plant is 11 feet, and has an estimated full-flow capacity of 265 mgd.



*Inflatable dam at CSO 211*

An inflatable dam located at CSO 211 is programmed, through a PLC, to maintain a crest elevation of 422 feet. This elevation creates the surcharge necessary within the MDS to deliver 350 mgd to the plant from the MDS Interceptor.

There are three sluice or stop gates within the MSD. Each gate has a specific/individual use for flow control.

- The Timber Gate (ORI Stop Gate) controls flow from the ORI upstream of the MDS. It is controlled locally through a motorized actuator.
- The Sluice Gate #2 (Southern Outfall Gate) controls flow from the Southern Outfall to the MDS Interceptor. It is locally controlled through a motorized actuator.
- The Sluice Gate #1 (Main Diversion Gate) is used to control flow from the MDS to MFWTP. The gate is normally positioned at 40% open during dry weather. The gate can be controlled from the MFWTP computer room or locally at the gate.

The following descriptions summarize the MDS flow controls to MFWTP during a variety of flow conditions.

### **5.7.1 Dry Weather Flow (Normal Conditions)**

The dry weather flow scenario at the MDS is as follows:

- Southern Outfall Sluice Gate (Gate #2) - Completely Open
- Timber Gate (ORI Stop Gate) - Completely Open
- Sluice Gate #1 (MFWTP Flow Control Gate) - 40% Open (wastewater flows underneath gate unimpeded during dry weather)
- The inflatable dam is controlled automatically, maintaining a crest elevation of 422 feet blocking all flow to the Ohio River
- All dry weather flows from the MDS Interceptor are diverted to MFWTP.

### **5.7.2 Wet Weather Flow (Heavy Rain or Flood Conditions)**

During wet weather conditions at the Main Diversion Structure, Sluice Gate #1 (Main Diversion Gate) is used to control flow to the MFWTP and even limit the flow to the plant when necessary. Flows that come from the Rubbertown Force Main are not metered. Flows conveyed through the Rubbertown Force Main are delivered directly to MFWTP, downstream of CSO 211.



Therefore, this flow of 8 to 10 MGD receives treatment at MFWTP and cannot be diverted to a CSO.

The maximum allowable plant flow must be first calculated in order to utilize this flow control strategy. The maximum flow that can be accepted and treated by the MFWTP is dependent upon the number of process units in service at the plant and their corresponding capacities. Refer to Section 5.7.2 for an explanation of maximum allowable plant flow.

When the water level rises to 422 feet or greater in the Southern Outfall, the inflatable dam starts to deflate in order to allow excess flows to overflow CSO 211 and not overload the MFWTP. Flow from the Main Diversion Structure that is unable to be accepted at MFWTP will then be diverted to the Ohio River via CSO 211 during wet weather or flood conditions.

## **5.8 ENSURE OPTIMIZED WTP OPERATION**

The Morris Forman Wastewater Treatment Plant (MFWTP) provides treatment for the portion of the MSD system that includes all of the combined sewers. The amount of flow accepted into the MFWTP during wet weather events is calculated by the plant's operation staff based on the number of treatment units in service at the time of the wet weather event and certain critical operating conditions.

As part of MSD's wet weather abatement program and in cooperation with the Kentucky Division of Water, MSD committed to increasing the amount of flow accepted at MFWTP with a peak flow of up to 350 mgd under optimal operating conditions. In order to accommodate hydraulic peaks of up to 350 mgd, a number of construction projects were implemented.

### **5.8.1 Stress Testing**

In 2002, a series of wet weather stress tests were conducted to determine the capacity of the primary sedimentation basins and the secondary clarifiers, and to ascertain the extent of mixing in the chlorine contacts basins under high flow conditions. The primary sedimentation basins can hydraulically accept 100 mgd of flow in each tank, but did not perform well initially when the blanket depths were 8 feet. The test was conducted again with blanket depths of 3 feet and the performance improved significantly.

The secondary clarifiers were tested at flow rates up to 10 mgd per clarifier with good removal at that rate for a relatively short time (30 minutes). However, the 10 mgd rate also included the RAS flow, so that needs to be taken into account when determining the maximum flow the plant is willing to accept in the secondary system. The RAS flow is typically 25% to 30% of influent flow, so the effective pass-through flow was slightly more than 7 mgd.

This stress testing identified upset limits for the primary sedimentation basins and secondary clarifiers. The testing documented that process upset limits (loss of treatment effectiveness) are based on both hydraulic loading rate and sludge blanket levels. Operating guidelines have been established to typically maintain sludge blankets below the point that would impact unit capacity. Sludge blanket level is one of the key operating parameters that impact downstream processes, so blankets cannot be drawn down too far (even in anticipation of a wet weather event) or other processes are put at risk. Refer to Item 5-1 in the NMC Supplemental Information binder for a description and results of these wet weather stress tests.

In 2004, additional wet weather stress testing was performed on the chlorination/dechlorination system at the MFWTP. The intent of the testing was to determine the ability of the system to effectively disinfect the effluent and successfully neutralize the chlorine residual as plant flows



were increased to 350 mgd. Refer to Item 5-2 in the NMC Supplemental Information binder, for additional information on this series of stress testing.

### **5.8.2 Wet Weather Optimization**

With the completion of the High Purity Oxygen Modifications and Secondary Clarifier Rehabilitation projects, the MFWTP has the capacity to consistently accept 140 mgd for short durations through the secondary system, if all treatment units are available and certain operating conditions exist. This requires increased operator attention to monitor secondary clarifiers for any deterioration in performance. The secondary capacity, along with the secondary diversion capacity of 210 mgd, will allow the MFWTP to accept peak flows up to 350 mgd during a wet weather event with all treatment units in service and optimal operating conditions in sedimentation basins and clarifiers.

Note that operational experience shows that maintaining maximum flows of approximately 325 mgd provides reasonable assurance that short-term peaks will not exceed 350 mgd. Loss of treatment efficiency has been observed if short-term flows peak above 350 mgd due to solids wash-out.

As shown in Table 5-2, the capacity of each treatment unit at the MFWTP is listed and the calculator determines the flow rate that can be accepted into the plant based on the treatment units on line at the time of the high flow event. The computer operators perform this calculation at 6:00 a.m., 2:00 p.m., and 10:00 p.m. on any day where storm flow is expected, and will limit the influent flow to the plant at the calculated level. The operations supervisor will be notified and the flow will be regulated accordingly. Each calculation sheet will be archived for future reference.

In the MFWTP Capacity Calculator Example Scenario shown below, the secondary flow to the treatment plant will be limited to 112 mgd and the overall plant flow will be limited to 310 mgd based on the capacity of the primary sedimentation basins.

The capacity calculator is used primarily to establish maximum flow rates that can be accepted for treatment during wet weather. The values are based on stress testing conducted in 2002. Previous capacity studies have been conducted in 1994 (hydraulics only), 1995 (primary sedimentation only), and 1996 (full treatment facility). These previous studies identified both hydraulic and treatment process bottlenecks that limited the peak wet weather capacity in 1996 to 225 mgd. Capital improvements have been made to correct the bottlenecks identified, leaving the primary sedimentation basins, the final clarifiers, and the Final Effluent Pump Station (FEPS) as the potentially limiting unit processes. A FEPS upgrade in 1999 provided adequate firm pumping capacity to remove it as a limiting unit process, assuming that at least 3 of the 4 pumps are available during peak flows. The primary sedimentation basins and final clarifiers remain the limiting unit processes, based on their size and configuration.

**TABLE 5-2  
MFWTP Capacity Calculator – Example Scenario**

Process Area	# of Units	Unit Size	Capacity per Unit (mgd)	# of Units Available	Current Capacity (mgd)
<b>New Headworks</b>					
a) Bar Screens	4	4-ft wide	45	4	180
b) Grit Systems (Pista)	4	24-ft dia x 10.5-ft SWD	45	4	180
<b>Old Headworks</b>					
a) Bar Screens	3	9-ft wide	75	2	150
b) Grit Systems (aerated)	3	18-ft x 65-ft x 13-FT SWD	75	2	150
<b>Total Headworks Capacity</b>					
a) Bar Screens					330
b) Grit Systems					330
<b>Primary Sedimentation Basins</b>					
a) DOB > 5 ft	4	70-ft x 275-ft x 14.5-ft SWD	70	2	140
b) DOB = 3 to 5 feet	4		80	1	80
c) DOB < 3 feet	4		90	1	90
<b>Total Primary Sedimentation</b>					
					310
<b>Secondary Treatment</b>					
a) Clarifiers (DOB < 3 feet)	20	105-ft dia X 14-ft SWD	7	16	112
b) Secondary Bypass	1		210	1	210
<b>Total Secondary Treatment</b>					
					322
<b>Chlorination/Dechlorination</b>					
a) Cl Residual = 0.3 mg/L	2	2.34 MG	137.5	0	0
b) Cl Residual = 0.5 mg/L	2		175	2	350
<b>Total Chlor/Dechlor</b>					
					350
FEPS	4		120	4	480

The optimal operating conditions during a wet weather event are significantly different from the optimal operating strategy during dry weather. Since the MFWTP is a high purity oxygen plant, the activated sludge tanks are much smaller than in a standard activated sludge plant. When the plant is carrying an ideal biomass level, there is about 800,000 – 1,200,000 pounds of solids under aeration. Over half of the solids are carried in the secondary clarifiers. If all systems are operating at peak capacity, approximately 300,000 pounds of solids per day can be removed from the activated sludge system. However, on an average day, an additional 200,000 pounds of suspended solids enters the plant, with approximately 40% removed in the primary sedimentation tanks. During a rain event the removal rate will be even less, due to the high flow rates. That only gives an opportunity to remove 180,000 pounds from the system with 24 hours notice.



Removing unusually large amounts of solids in a short duration may provide some short-term benefit during a high flow period, but will generally have a negative long-term effect, particularly if the plant flow remains high for several days. Several days of maximum secondary flow may wash out the biomass if it is kept at a very low level to accommodate a storm event. Since January 1, 2006, there has already been one day with the average flow for the day at 237 mgd and another at 223 mgd. Additionally, there have been 3 days this year where the peak flow has been in excess of 300 mgd. In April 2006, the average plant flow for the entire month was over 150 mgd.

Actual plant flows, secondary flows, and secondary bypass flows are submitted each month on the DOW-15 form along with the Discharge Monitoring Report for the MFWTP. Printouts of the DOW-15 forms for the past 2 years are included as Item 5-3 in the NMC Supplemental Information.

Use of the capacity calculator has proven valuable in the MFWTP efforts to maximize the treatment of wet weather flow peaks without compromising long-term treatment efficiency. Refer to Item 5-2 in the NMC Supplemental Information, MFWTP - Wet Weather Standard Operating Procedure, for additional information on the capacity calculator.

### **5.8.3 Planning for Capacity Needs during Maintenance Activities**

Major maintenance activities are typically scheduled when they will have the least impact on plant performance. Work on the Oxygen Generation Area (OGA) is performed during the cold weather months when the oxygen demand is lowest. At the end of 2005, an outage was needed to complete a maintenance project on the entire Battery B, including eight clarifiers. The work was scheduled for the week between Christmas Day and New Year's Day when plant flows and loads are historically at their lowest.

A plant impact request (PIR) is required for all significant maintenance work and it is discussed in the daily meeting with the operations staff each weekday morning. The PIR lists the requested date and time, the expected duration, the plant area(s) affected, and the resources needed. It requires approval from maintenance planning, the mechanical group, electrical/instrumentation, controls, and operations before the work can proceed. The work can only continue as planned if all environmental factors, such as river elevation or dry weather conditions, allow it.

### **5.8.4 SOPs and Training**

The MFWTP is currently divided into six process areas in order to qualify operators at the plant. Those areas are Preliminary/Primary, Secondary, Waste-Activated Sludge, Oxygen Generation, Dewatering, and Drying. An operator's classification depends on a demonstration that one or more of these areas has been mastered and the operator is able to perform the duties of the area unassisted.

Training in the individual areas comes from several sources. An operator will receive training from another operator who is already qualified in an area and will also receive training from the operations supervisors. There is also a full-time trainer assigned to the operations division who typically provides training in a group setting. This training tends to be in a classroom venue and includes the theory behind the process area.

In order to assist with all of the training efforts, a series of SOPs have been developed for the MFWTP that include all of the process areas and some sub-areas to the processes. The list of SOPs includes the following:

- Preliminary Treatment
- Primary Treatment

- Secondary Treatment
- Bio-roughing Towers
- Chlorination/Dechlorination
- Final Effluent Pump Station
- Sludge Thickening
- Digestion
- Dewatering
- Drying
- Oxygen Generation

In addition to these MSD generated SOPs, there are a number of SOPs for specific pieces of equipment that were provided by vendors when the equipment was installed.

### 5.9 COMPLIANCE SUMMARY

In 1996, the wet weather capacity of the MFWTP was rated at 225 mgd. Since that time, numerous modifications have been made to the plant to eliminate hydraulic and process bottlenecks. The plant can now accept flows up to 350 mgd during wet weather conditions assuming all units are in service and can operate at their maximum hydraulic capacity. A summary of these projects, including the capital cost and year completed, is presented in Table 5-3. A detailed description of these projects is included in Section 4 of the Interim Long Term Control Plan. MSD does not plan to construct any additional capacity-related projects at the MFWTP until they are defined by the LTCP.

**TABLE 5-3  
SUMMARY OF MFWTP CONSTRUCTION PROJECTS 1990-2005**

	Year Completed	Capital Cost (\$1,000)
<b>CSO 211 (Main Diversion Structure)</b>		
MDS Phase 1	2001	\$883
MDS Phase 2	2003	\$565
MDS Biofilter Media	2002	\$170
<b>SWPS</b>		
SWPS Modifications	2002	\$3,505
SWPS Gate Control	2002	\$265
SWPS Outfall Repair	2003	\$467
SWPS Minor Projects		\$907
<b>Headworks</b>		
New Headworks	2000	\$9,010
Grit System Rehab	2002	\$239
Bar Screen Rehab	2002	\$208
Grit conveyor replacement	2002	\$427
Headworks conveyor replacement	2001	\$383
Headworks Minor Projects		\$952
<b>Primary Sedimentation</b>		
Sed Basin Rehab	2003	\$213
Sed Basin Rail Refurb	2005	\$367
EPS Primary	1999	\$418



	<b>Year Completed</b>	<b>Capital Cost (\$1,000)</b>
Ferric /Ferrous Improvements	2002	\$179
Primary Minor Projects		\$496
<b>Bioroughing Towers</b>		
Bioroughing Construction	1993	\$13,200
Bioroughing Rebuild	2000	\$4,436
Bioroughing Odor Control	2001	\$3,498
Bioroughing Minor Projects		\$443
<b>Primary Effluent Flow Routing</b>		
Wet Weather Capacity Flow Mods	2001	\$1,507
<b>Aeration Basins</b>		
HPO Modifications	2003	\$9,289
<b>Secondary Clarifiers</b>		
Secondary Clarifier Mods	2003	\$2,883
Secondary Clarifier Metering	2003	\$950
WAS Pump Replacement	2003	\$578
Secondary Clarifier Minor Mods		\$238
<b>Disinfection</b>		
Chlorine Area Mods	2000	\$144
Sodium Hypo Mods	2000	\$187
Disinfection Minor Projects		\$58
<b>FEPS</b>		
FEPS Upgrade	1999	\$4,896
FEPS Minor Mods		\$472
	<b>Year Completed</b>	<b>Capital Cost (\$1,000)</b>
<b>Solids Handling Modifications</b>		
Fume Incinerator	1998	\$1,220
Back-up Fume Incinerator	2002	\$1,019
DAFT Odor Control	2002	\$1,025
Storage Tank Covers	1999	\$1,209
Solids Handling Minor Mods		\$1,786
<b>New Solids Handling</b>		
Alternative Solids Processing	2004	\$80,172
Solids Receiving and FM Separation	2005	\$5,680
DAFT Polymer	2005	\$115
DAFT Rebuild	2003	\$800
<b>General Plant Systems</b>		
Power System Phase 1	2000	\$1,897
I&C Improvements	2001	\$1,889
Process Control Migration	2000	\$669
Electrical Mods	1998	\$2,918
General Process Improvements	1999	\$377
General Plant Mods & Prof Svcs		\$25,448
<b>Total 1990 - 2005</b>		<b>\$188,657</b>

Over the years, MSD has performed field tests and evaluations to determine the ability of the MFWTP to operate acceptably at incremental increases of flow during wet weather. Refer to Items 5-1 and 5-2 of the NMC Supplemental Information. In addition to these documents, a Technical Memorandum entitled "Liquids Process Evaluation for the Morris Forman Treatment Plant" was prepared for MSD in July 2004. The purpose of this study was to evaluate the MFWTP primary and secondary process with respect to consistently achieving monthly and weekly permit limits for TSS and BOD during both dry weather and wet weather events. This information is used to evaluate the capacity of individual unit processes to identify available excess capacity. As presented in Table 5-4, MSD is currently operating the facility at flows in excess of the recommended design criteria, thus maximizing flow to the MFWTP. The analysis also shows that two unit processes (headworks and HPO activated sludge) have potential capacity to process additional flow if they are not constrained by the other unit processes. Utilization of this excess capacity will be evaluated in the Long Term Control Plan.

**TABLE 5-4**  
**Unit Process Capacity**  
**Evaluation**

Unit Process				Available Capacity			Stress	Excess Capacity	
Description	No.	Dimensions	Size	Design Criteria	Firm <sup>1</sup> (mgd)	Peak (mgd)	Test (mgd)	Firm (mgd)	Peak (mgd)
<b>Bar Screens</b>									
Old Headworks - Bar Screens	3	9'W, 3.2'SWD	29.0 SF	Vel: 3 fps	112	169	225		
New Headworks-Bar Screens	4	4'W, 6.4'SWD	25.7 SF	Vel: 3 fps	150	200	180		
Total					262	369	350 <sup>2</sup>	0	19 - 36 <sup>3</sup>
<b>Aerated Grit</b>									
Old Headworks - Aerated Grit	3	18' W, 65'L, 13'SWD	0.11 MG	Det: 2.9 min	113	169	225		
New Headworks - Aerated Grit	4	24' Dia, 10.5' SWD	0.04 MG	per manufacturer	150	200	180		
Total					263	369	350 <sup>2</sup>	0	19 - 36 <sup>3</sup>
Primary Sedimentation Basins	4	70'W, 275'L, 14.5 SWD	19250 SF	SOR: 3000 gpd/sf	173	231	350	0	0
Biological Roughing Towers	2	130' Dia, 22' H	13,267 SF	HL = 3.4 gpm/sf	65	130	140	0	0
<b>High Purity Oxygen Activated Sludge<sup>4</sup></b>									
Batteries A & B	4	2808 sf, 25' D	4.2 MG	HRT = 2 hr	100.8	134.4			
Battery C	1	2970 sf, 25' D	2.2 MG	HRT = 2 hr	17.6	17.6			
Total					118.4	152	140 <sup>5</sup>	0	12
Secondary Clarifiers <sup>4</sup>	20	105'Dia, 14'SWD	8655 SF	SOR: 1200 gpd/sf	132	138	140	0	0
Secondary Bypass							210	0	0
Disinfection	2		1.17 MG	Det: 15 min	112	225	350	0	0

Notes

- 1 Firm Capacity - One unit out of service
- 2 The maximum flow that can be tested through the plant is 350 mgd
- 3 The range is between the actual stress test flow (350 mgd) and sum of the individual units (405 mgd)
- 4 Secondary Clarifiers and HPO Activated Sludge Capacities Include 50% RAS
- 5 The maximum flow that can be tested through the HPO system is limited to the capacity of the secondary clarifiers

In addition to the improvements at the MFWTP, the Southwestern Pump Station has been expanded and an inflatable dam was added to CSO 211 to provide both in-line storage and additional head to push more flow to the plant from the Main Diversion Structure Interceptor. The net result of these modifications has been a significant increase in wet weather flows captured and treated, as shown in Table 5-5. As Figure 5-1 illustrates, the base flows received at the MFWTP have steadily declined over the past 9 years; however, average flows have increased. The incremental difference between base flow and average flows represents wet weather flows captured and treated. Figure 5-1 also demonstrates that the wet weather flow increment has been steadily increasing over the past 9 years. In addition, peak flows accepted at MFWTP have approached the 350 mgd limit for short periods of time during precipitation events. The peak daily flow has also increased over the past 7 years, as shown in Figure 5-2.

**TABLE 5-5**

**Wet Weather Capture and Pollutant Loading Reduction**

Year	Wet Weather Capture (MG/YR)	Pollutant Reduction (ton/yr)	
		BOD	TSS
1997	6,610	248	744
1998	8,909	334	1,003
1999	8,112	304	913
2000	7,574	284	853
2001	4,626	174	521
2002	6,272	235	706
2003	6,363	239	716
2004	11,790	442	1,327
2005	9,426	354	1,061

The pollutant loading reductions, shown in Table 5-5, are based on primary sedimentation removal rates of 30 percent for total suspended solids (TSS) and 10 percent for biological oxygen demand (BOD). Similarly, the pollutant reductions associated with CSOs have been reduced over the past 8 years, as shown in Figure 5-3.

**5.10 LISTING OF SUPPLEMENTAL INFORMATION**

- Item 5-1 MFWTP Wet Weather Stress Testing
- Item 5-2 MFWTP - Wet Weather Standard Operating Procedure
- Item 5-3 MFWTP DOW 15 Printouts

Figure 5-1  
Wet Weather Capture Trend

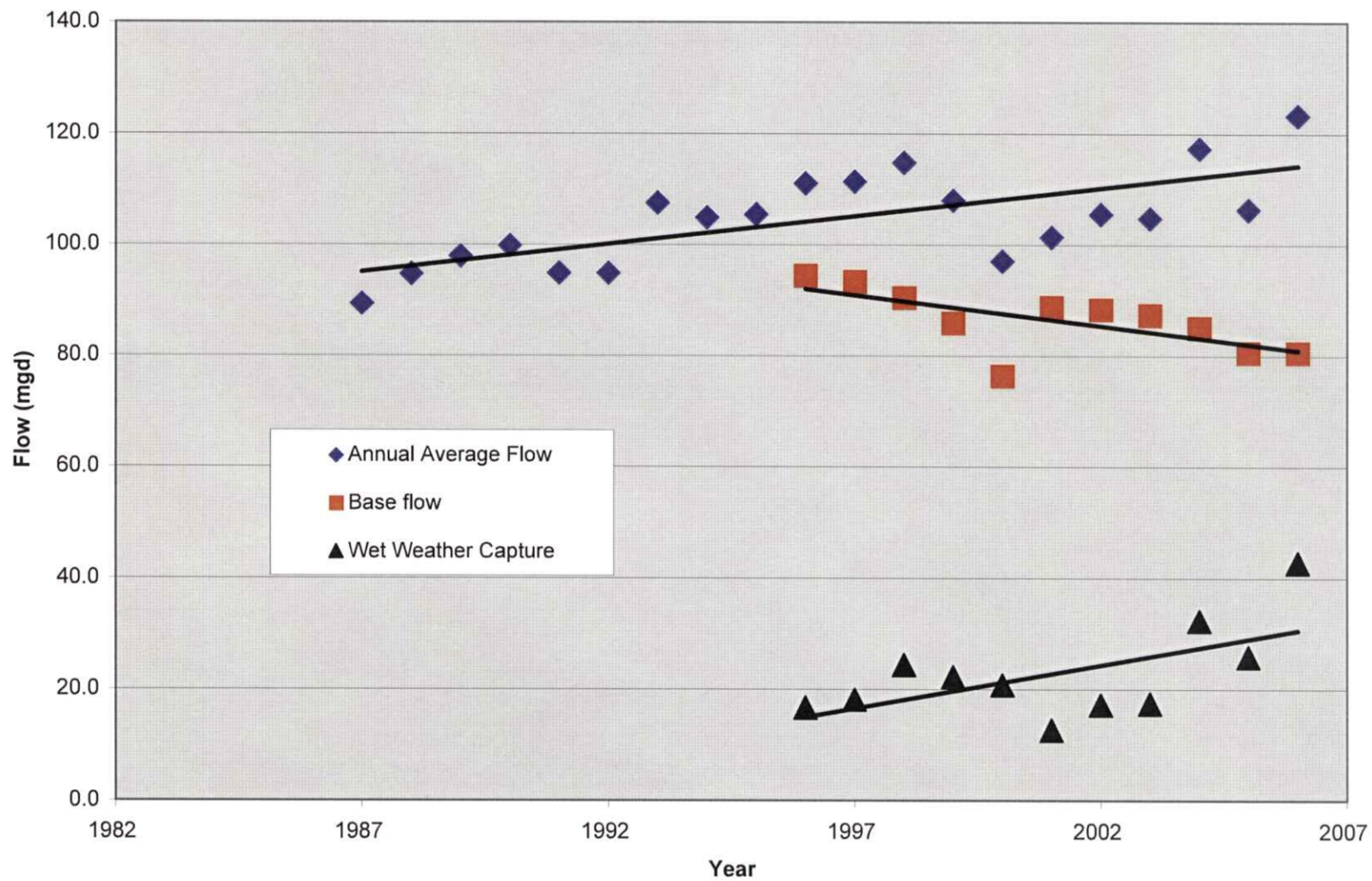




Figure 5-2  
Peak Day Flow Trend

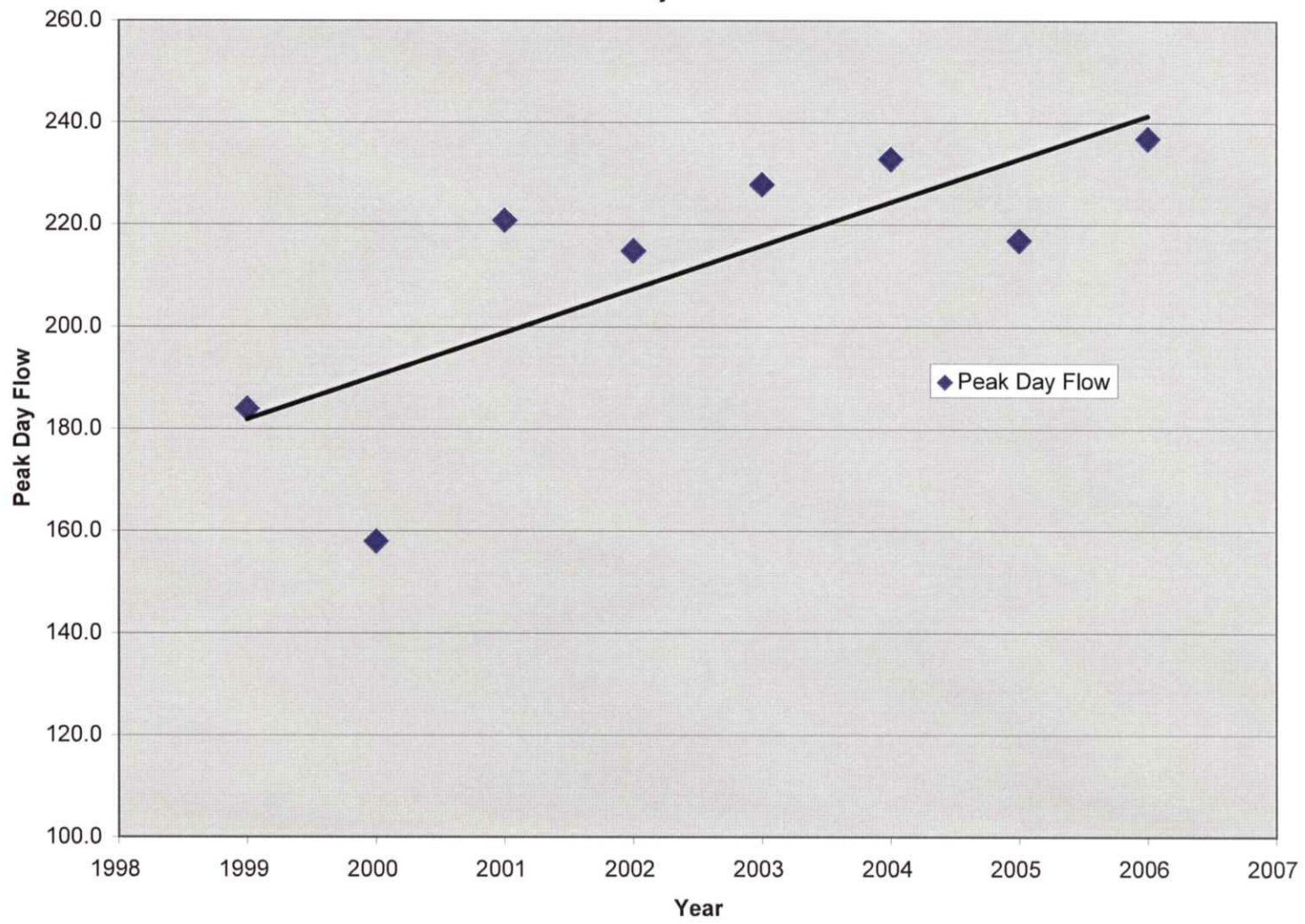


Figure 5-3  
Pollutant Reduction

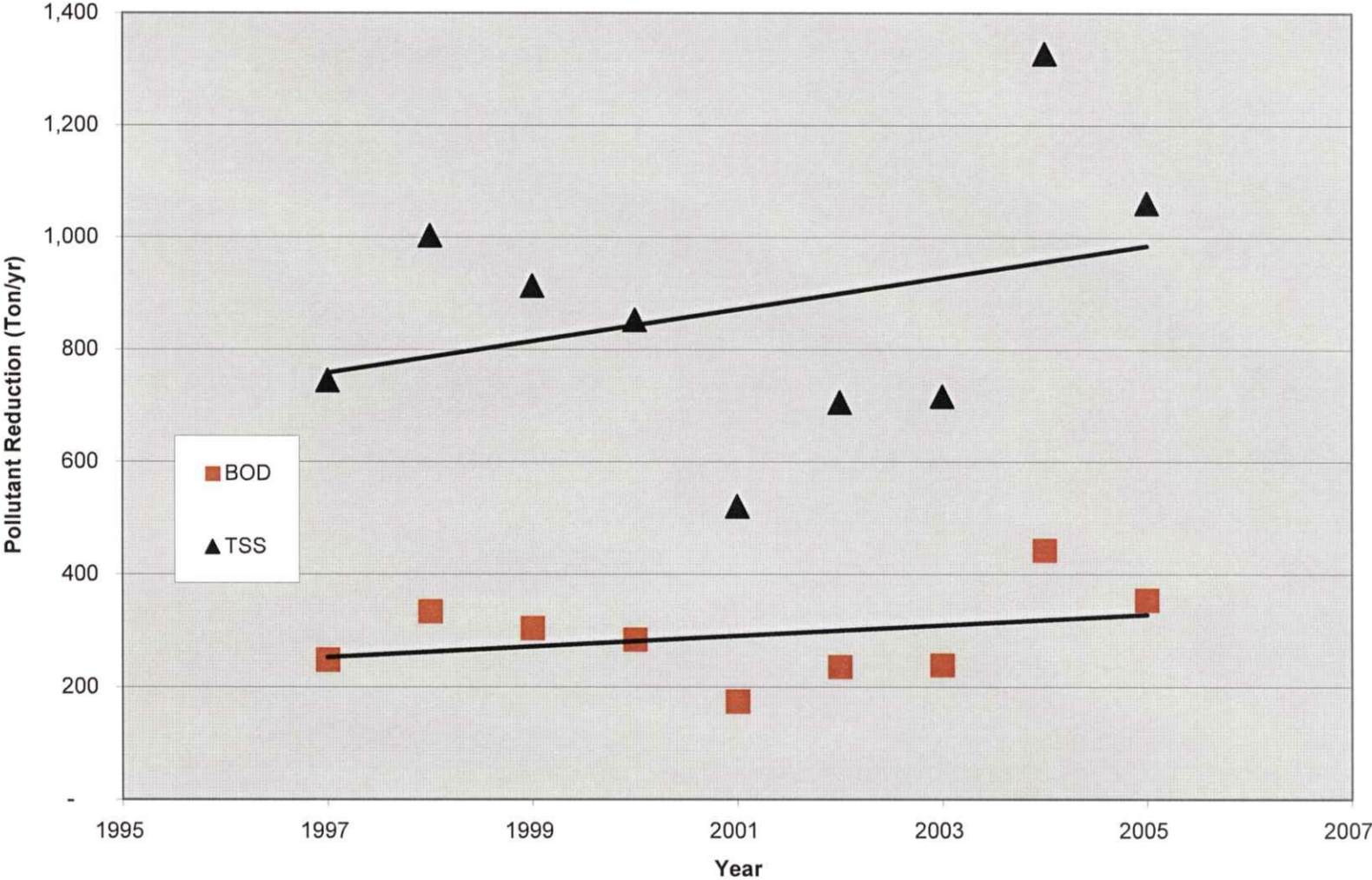
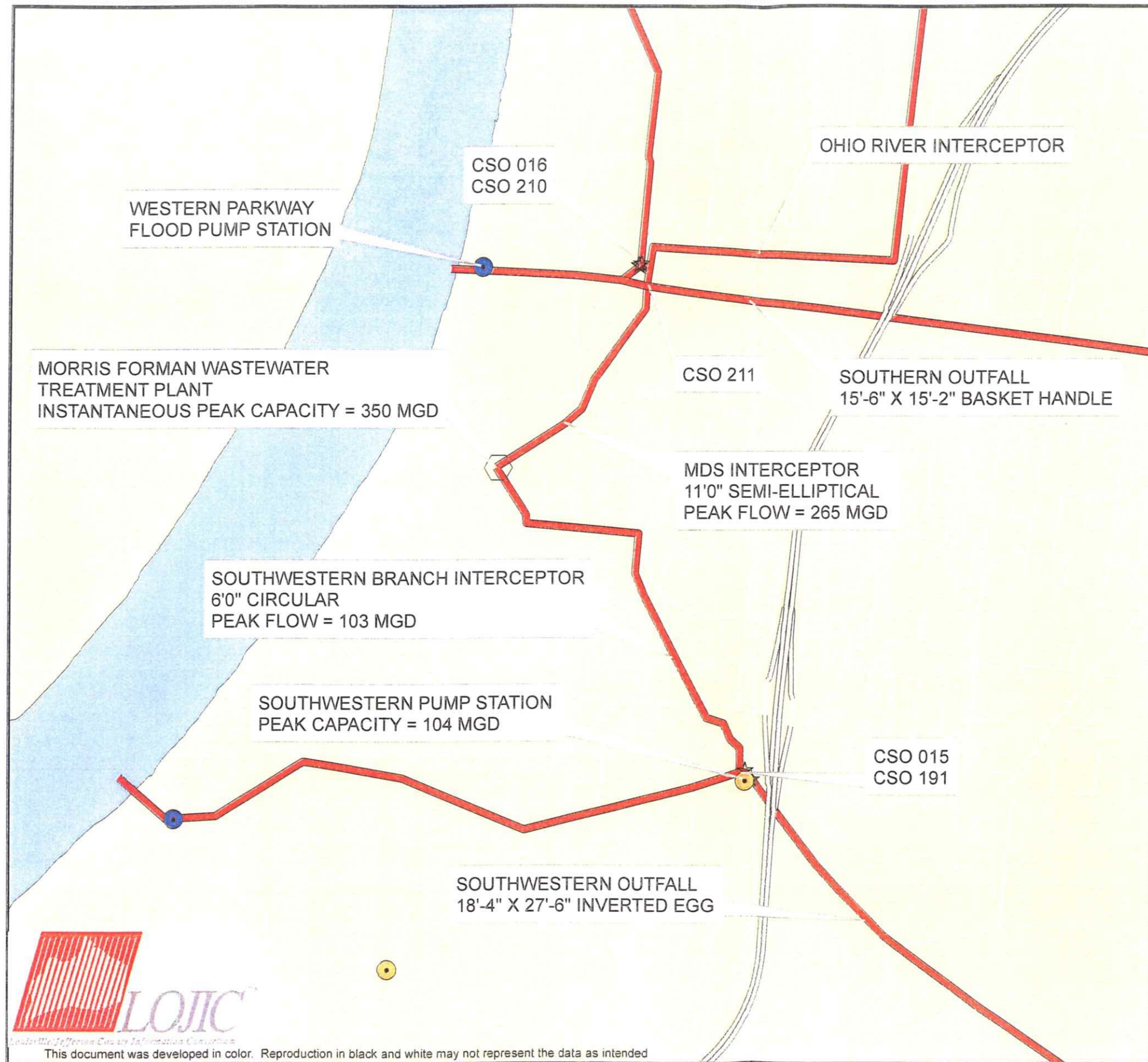


FIGURE 5-1  
PEAK CAPACITY OF MAJOR INTERCEPTORS  
UPSTREAM OF MFWTP



NOTE: THE FLOW RATES SHOWN ON THIS MAP ARE MODEL PREDICTED PEAK FLOW RATES DURING AN EXTREME RAINFALL EVENT.



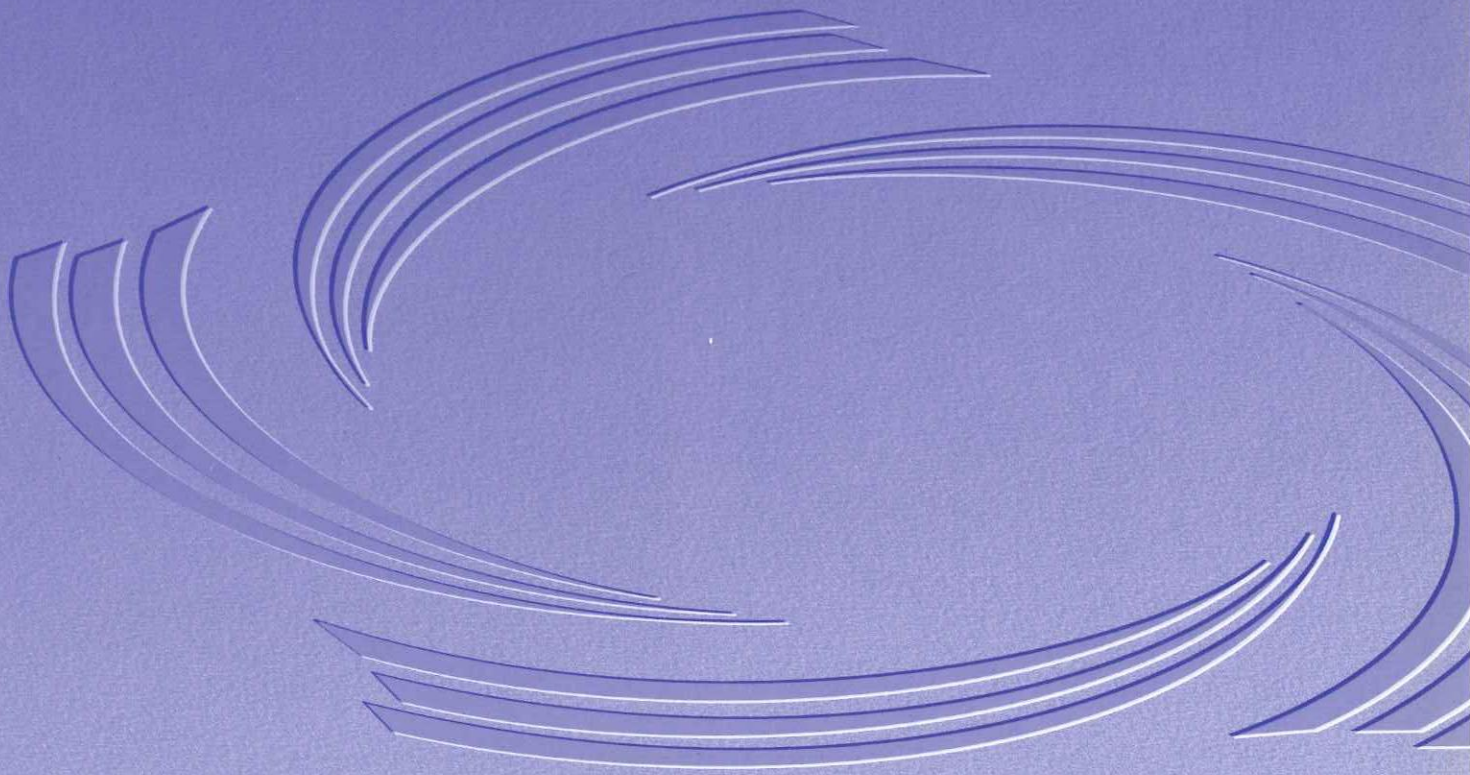
This document was developed in color. Reproduction in black and white may not represent the data as intended





**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 6: NMC 5 – ELIMINATION OF CSOs DURING DRY WEATHER**

### **6.1 INTRODUCTION**

The objective of the fifth minimum control is to ensure that overflows do not occur from the combined sewer system (CSS) during dry weather conditions by enabling existing facilities to perform as effectively as possible. Per EPA's Guidance for Nine Minimum Controls, the municipality should take measures to ensure that overflows do not occur from the CSS during dry weather flow conditions.

### **6.2 PROGRAM OVERVIEW**

MSD regularly inspects critical facilities within the CSS to verify system performance. If an unavoidable non-recurring dry weather CSO is discovered, it is immediately addressed. MSD also uses modeling to characterize and analyze system performance under a variety of conditions.

### **6.3 SYSTEM CHARACTERIZATION**

During the development stages of the CSO program, MSD conducted extensive field surveys of the CSS and developed a CSO inventory. Conditions that could cause recurring dry weather CSOs were permanently corrected. A description of these corrections can be found in the Combined Sewer Operational Plan (CSOP) reports dated 1993 to 1998. Refer to Exhibits 47-51 of the 308 Submittal for copies of these reports.

The Underground Sewer Inspection Program (USI) was initiated by MSD in the mid-1990's. This program involved walking through brick sewers within the CSS that are 30" or larger in order to visually inspect the pipes. The purpose of the program was to assess the condition of the sewers, identify water main leaks that could cause problems in the collection system, identify areas requiring a more detailed inspection, note any obvious abnormalities requiring repair and determine those areas with sediment buildup. Any of these situations, if left unaddressed, could lead to dry weather overflows.

Records of dry weather overflows for the last five years were assessed for the respective causes and to determine the required mitigation activities. A summary of these dry weather occurrences is given below. Refer to Figure 6-1 for detailed information.

- Ten (10) occurrences were due to flood conditions. These overflows are due to elevated river stage, and the USACE flood protection operating procedures regarding flood pumping at various river stages. MSD has been working with the USACE to modify these procedures, where possible, to minimize or eliminate these overflows. Per the terms of the Consent Decree, occurrences at these locations will be fully addressed in the Long Term Control Plan, scheduled for completion December 31, 2008.
- Three (3) occurrences were due to mechanical problems. One mechanical problem was at the Buchanan Street Pump Station, which has subsequently been replaced by the Robert J. Starkey Pumping Plant. The other two mechanical problems occurred with the bar screens at the Southwestern Pump Station, during start-up and initial operation of new screens installed at that location.
- Five (5) occurrences were due to obstructions at regulators No. 6 and No. 17.
- Twelve (12) occurrences were due to power outages (discussed in more detail in Section 6.5.9)

- One (1) occurrence due to a leak around the inflatable dam at the Sneed's Branch facility, which was related to start-up and initial operation of this facility.

#### **6.4 INITIAL PROGRAM ACTIVITIES**

Dry weather overflows (DWOs) have been eliminated at the following locations:

*CSO 051 at 11th Street:* Television inspection crews discovered sanitary connections into sewers downstream of CSO 051. The sanitary flow was discharging directly to the Ohio River. A pump station was constructed which returns flow to the sewer in Main Street.

*CSO 052 at 10th Street:* Three sanitary connections into the overflow conduit downstream of CSO 052 were discovered. These connections were redirected in November 1994 by installing a new sewer running south in 10th Street. Collected flows are discharged back into the 10th Street sewer upstream of the overflow diversion dam.

*CSO 125 at Grinstead Drive:* Unpredictable overflows were observed from time to time on the Grinstead Drive sewer. It was known that this sewer received slug discharges of unknown origin from the Louisville Water Company. The slug discharges on occasion resulted in occasional dry weather CSOs occurrences. A dam was constructed at this location. There have been no indications of overflows occurring at this CSO. Additionally, MSD met with Louisville Water Company officials to discuss potential sources of the slug discharges. The Louisville Water Company has modified their residuals conveyance facilities and made changes in their operation to eliminate these slug discharges to MSD's sewers.

*CSO 162 at Beals Branch:* Field inspections indicated that the transfer capacity between CSO 162 and the BGI appeared to be restricted. On occasion, the Beargrass Interceptor appeared to be surcharging back into the regulator chamber and overflowing at CSO 162. By controlling the transfer rate from CSO 166 to CSO 162 using a vortex valve, and sealing up the overflow outlet at CSO 162, dry weather discharges have been eliminated at this site.

*CSO 198 at 3rd Street and Ormsby Avenue:* A sanitary connection was observed discharging directly into the Central Relief Drain on June 26, 1995. Consequently, this flow discharged directly to the Ohio River. By June 30, 1995, this connection was removed and re-routed, eliminating this dry weather CSO.

*Southern Outfall:* During cleaning of the Southern Outfall overflow pipe, two sanitary connections were found downstream of the surge basin. The sanitary connections have been removed.

*Riverside Area Sewer Reconnection Project:* The Riverside Area is located within Louisville Metro, west of the Beargrass Creek Pump Station, inside the Ohio River floodwall. In 1997, MSD identified some properties in this area that were not addressed during an Urban Renewal project completed in the late 1970's to install a separate sanitary sewer. MSD initiated and completed a project to connect those properties to the separate sanitary sewer system.

#### **6.5 CURRENT PROGRAMMATIC INITIATIVES**

MSD has implemented programmatic initiatives that proactively prevent the occurrence of dry weather CSOs. These initiatives are outlined below.

##### **6.5.1 Routine CSS Inspections and Maintenance Activities**

MSD personnel perform routine inspection and maintenance activities at CSO locations. The purpose of these routine activities is to find and remove trash, debris or other material that has

accumulated in the solids and floatable facilities, siphons, regulators, rack bars, or other structures where dry weather overflows could potentially occur.

Proper and timely interceptor cleaning can maintain the maximum conveyance capability of sewers in the CSS. MSD performs interceptor flushing and vactoring activities to prevent dry weather CSOs. Specifically, MSD assesses the condition of large interceptors in the CSS and based on findings, schedules appropriate cleaning or other activities. Examples include the Northeast Sanitary Trunk Sewer which was assessed and cleaned as part of the capital project to upgrade the Buchanan Street Pump Station which was later renamed the Robert J. Starkey Pump Station and Central Relief Drain sewers which were assessed, cleaned and continue to be monitored for sediment accumulation.

Roots can inhibit flow, collect debris and reduce the capacity of sewer lines that may lead to dry weather CSOs. MSD has developed a root control program to proactively schedule appropriate inspection and maintenance activities.

Refer to Section 2 (NMC 1) for more information pertaining to these collection system activities.

#### **6.5.2 Combined Sewer System Modeling**

MSD has developed a mathematical model of the CSS. MSD reasoned that a well-constructed, calibrated sewer system model would provide a valuable tool that could be used to analyze system performance under a variety of conditions. One example is the ability to analyze collection system operation under dry weather conditions. The model is capable of identifying locations where the dry weather flows are approaching the top of the diversion dam or where a regulator setting may need adjustment, such that dry weather overflows can be prevented before they occur.

#### **6.5.3 Raising Dams**

As part of the assessment of the CSS which occurred in the late 1980's and early 1990's, MSD assessed the height of overflow dams at critical CSOs to determine if it was feasible to raise the level of overflow dams in an effort to increase the storage capacity of the CSS. Where feasible, MSD has raised the overflow dams to allow more flow to remain in the sewer; therefore, preventing the occurrence of dry weather CSOs. Refer to Section 3 (NMC 2) for additional information on these activities.

#### **6.5.4 Unusual Discharge Request Permit Constraints**

One type of control utilized by MSD is a category of the Wastewater Discharge Permit (WDP) called the Unusual Discharge Request (UDR) Permit. The permit is typically used for one time, infrequent discharges of wastewater into the CSS that are not already covered by a wastewater discharge permit. This process is used for both permitted and non-permitted dischargers. UDRs include constraints on the volume of discharges to the CSS, as well as how and when discharges may occur. Refer to Section 4 (NMC 3) for more information pertaining to these activities.

##### **6.5.4.1 UDRs in Combined Sewer System**

UDRs from facilities located in the CSS are scrutinized, and in some cases submittal of analytical testing of the wastewater is required. MSD utilizes the GIS system to locate CSOs that are downstream from UDR discharge points and determines the optimal discharge rate and volume requirements that allow the discharge to proceed without causing a dry weather overflow. Additional constraints may also be placed on UDR discharges so that negative



impacts to MSD facilities or the environment do not occur. Examples of such constraints include:

- Limiting the timeframe of the discharge;
- Limiting the time of day/night a discharge may occur;
- Requiring the discharge to cease for some amount of time after a rain event to allow the system to return to normal; and
- Requiring treatment, capture and re-testing prior to discharge.

If MSD deems that the discharge should be monitored, either MSD personnel will be assigned to perform the monitoring, or the requestor will be required to monitor and provide the results to MSD. In addition, MSD may elect to periodically inspect the discharge site to ensure that discharge constraints and requirements are being followed.

#### **6.5.4.2 UDRs with other Utilities**

MSD, in a joint effort with the local water utility, the Louisville Water Company (LWC), developed a Best Management Practices and Procedures (BMP&P) Program that addresses discharges from LWC activities. This program allows the LWC and MSD to work together to deliver highest quality water service and fire protection to the community while also preventing the occurrence of negative impacts to MSD facilities and overflows from the CSS. Both utilities reviewed their respective operational and maintenance activities during the development of the BMP&P. Implementation of the BMP&P involves continual communication between MSD and LWC during the planning and execution of water line/main repair, replacement and construction projects. This communication occurs at various levels of the organization. For example, engineers communicate in the early planning stages to develop site specific discharge constraints and field personnel communicate during the execution of the discharge to facilitate timely intervention if negative impacts are observed. A memorandum of understanding was developed in this joint effort between MSD and the LWC.

#### **6.5.5 Placing Requirements on New Users to the Combined Sewer System**

As previously mentioned in Section 4 (NMC 3) of this report, MSD utilizes the Industrial/Commercial Plumbing Plan Review (I/CPPR) program, to identify targeted non-domestic dischargers during the building permitting phase for required pretreatment thereby insuring the installation of required pretreatment and/or BMPs during the construction phase rather than after the facility is built. This program allows MSD to identify a facility as a non-domestic discharger to the CSS, assess potential wastestreams from these facilities, and refer them for a wastewater discharge permit, if needed. New facilities in the CSS identified during the plan review process are required to implement BMPs or other measures to prevent the occurrence of dry weather overflows. Once the facility is built, MSD inspects to verify that the approved plan was followed.

##### **6.5.5.1 Requiring Pretreatment on Food Service Establishments (FSEs)**

Food Service Establishments (FSEs) are a major group of non-domestic dischargers that receive scrutiny from MSD under the (I/CPPR) program. There are approximately 3000 FSEs in Louisville Metro. FSEs without proper pretreatment devices installed can discharge large amounts of grease to the sewer which in turn, can obstruct the sewer and cause an overflow. The I/CPPR program requires that new FSE facilities install a minimum 1000 gallon, double compartment, outdoor grease trap. Existing buildings in which the kitchen or greasy waste lines



are not segregated from the restroom lines are allowed to install fixture traps on individual grease bearing devices such as a three-compartment sink.

#### **6.5.5.2 Requiring Hold and Release Capability on New Industrial Users**

MSD may require new permitted non-domestic dischargers to the CSS to implement detention capabilities in order to implement hold and release strategies for entire process flows, as well as timing the release of particular batches of wastewater that have the potential to impact the CSS. These strategies would be initiated during and for designated periods of time following a rain event of a set magnitude. The magnitude of the rain event that triggers such strategies is based on modeling in the CSS. These strategies would be formalized as requirements in the facility's wastewater discharge permit and may include additional discharge constraints such as a maximum allowable discharge rate or volume, as well as reporting requirements such as documentation of discharge times and dates, and the total volume held/released.

#### **6.5.6 Fats, Oil and Grease (FOG) Program**

The major objective of the MSD FOG program is to prevent the occurrence of dry weather CSOs resulting from the unregulated introduction of fats, oils and grease into the CSS. The program concentrates on three areas; installation of pretreatment in new construction of establishments that generate grease, enforcement on facilities causing a grease blockage in the collection system and preventive maintenance in areas of the collection system in which pretreatment is not feasible. Refer to Section 4 (NMC 3) of this document, and Section 2 of the CMOM Self-Assessment for more information pertaining to these activities.

##### **6.5.6.1 Reconnaissance and Preventative Maintenance of Collection System Hot Spots**

Utilizing grease blockage service call data from Hansen, MSD has identified locations within the collection system, including the CSS that require periodic preventive maintenance (PM) activities such as flushing and/or vactoring to remove grease and debris. The targeted locations are ones in which the installation of pretreatment is not a feasible option and/or sewer configuration contributes to the buildup of grease. The objective of this combined CMOM and NMC initiative is to lessen the probability of dry weather CSOs due to grease blockages within the collection system, including the CSS. MSD will continue to monitor grease blockage service call data and will update the PM location list as needed. In addition, ongoing reconnaissance activities allow MSD to regularly adjust the PM schedule to optimize allocation of resources required to perform the PM activities.

##### **6.5.6.2 Enforcement Follow-Up Activities on Grease Blockage Incidents in Collection System, including the CSS**

As previously stated, FSEs cause grease blockages in the collection system, including the CSS. MSD investigates these types of incidents to determine the responsible party or parties that caused the grease blockage and conducts follow-up enforcement actions and requires proper pretreatment and/or BMPs to prevent future grease blockages and potential dry weather overflows.

The mechanism for this compliance review and follow-up is the MSD Hazardous Materials Ordinance (HMO). MSD utilizes personnel that respond to emergency incidents under the HMO also respond to grease blockages in the collection system, including the CSS. These blockages are treated as emergency incidents by MSD and as such, receive the same scrutiny under both the HMO and pretreatment program. Specifically, MSD is able to conduct a concurrent pretreatment compliance review at the same time as it reviews the incident under the HMO;

thereby addressing pretreatment related violations of the Wastewater/Stormwater Discharge Regulations (WDRs) which may have occurred. The introduction of grease into the sewer system in amounts that cause a blockage in the collection system, including the CSS, is a violation of MSD's WDRs. Therefore, facilities committing these types of violations are subject to escalating enforcement under the pretreatment program, as allowed by the WDRs.

#### **6.5.7 Backup Power at Critical Pump Stations**

The evaluation of dry weather CSOs contained in Figure 6-1 determined that in the past 5 years there have been 12 dry weather CSOs due to power outages. Of these, 9 were at the Buchanan Street Pump Station (now Robert J. Starkey Pumping Plant), and 1 was at the 34<sup>th</sup> Street Pump Station. In 2006, stationary stand-by generators were added to both these facilities as required by the Consent Decree. The remaining two power outages were at the Nightingale Pump Station. One of these failures was due to a general power outage in the area, and the other was due to a maintenance shut-down by Louisville Gas & Electric (LG&E). LG&E failed to notify MSD in advance of the maintenance shutdown, resulting in this overflow. Discussions have been held with LG&E to confirm the importance of coordinating maintenance shut downs that affect MSD facilities, to allow placement of a portable generator prior to the shutdown.

#### **6.6 REPORTING OF DRY WEATHER CSOS**

In the event that a dry weather CSO does occur, it will be reported to the Kentucky Environmental and Public Protection Cabinet Department for Environmental Protection - Division of Water (DOW) and EPA, per the provisions identified in MSD's Sewer Overflow Response Protocol (SORP).

In addition, customers may call the Customer Relations Call Center (CRCC) directly to report dry weather overflows from the CSS, or they may submit them online using the internet. In either case, a Customer Service Request (CSR) is logged into Hansen. The CSR is routed to the appropriate division to investigate and mitigate, if appropriate. In addition, work orders are initiated in Hansen, as needed to ensure that necessary repairs or clean up actions resulting from a dry weather CSO are performed.

Refer to MSD's SORP for more information pertaining to these activities.

#### **6.7 SUMMARY OF COMPLIANCE**

MSD has implemented measures, for which it has the authority to do so, to prevent overflows from the CSS during dry weather. In addition, MSD immediately corrects the cause of unavoidable, non-recurring dry weather CSOs, if they should occur.

An evaluation of dry weather CSOs for the past 5 years indicates that the causes of most of the 31 discharges have been corrected or are under development. Overflows due to power outages (12) and mechanical failures (3) have been addressed with capital project modifications. One overflow was attributed to start-up issues with a new storage facility. The remaining 5 overflows were attributed to obstructions, which were addressed through MSD's operation and maintenance programs. USACE flood protection rules caused 10 of the 31 overflows. MSD is working with the USACE to modify the flood protection operating procedures to minimize this type of discharge. Refer to Section 5 (NMC 4) of this report for additional information related to these USACE activities.

**FIGURE 6-1**  
**DRY WEATHER OVERFLOWS OCCURRING IN THE COMBINED SEWER SYSTEM**  
**JANUARY 1, 2001 THROUGH APRIL 30, 2006**

<u>Work Order</u>	<u>Date</u>	<u>ASSET ID NUMBER</u>	<u>ASSET DESCRIPTION</u>	<u>WORK ORDER ACTIVITY CODE</u>	<u>PROBLEM CODE</u>	<u>VOLUME (gallons)</u>	<u>CAUSE</u>	<u>CLEANUP ACTIVITIES</u>	<u>REPAIR ACTIVITIES</u>
183882	1/19/2001	MSD0308-FP	34TH STREET FLOOD PS	DISDW	POWER	4250	LG&E POWER OUTAGE.	NO CLEANUP REQUIRED.	LG&E RESTORED POWER.
183939	2/2/2001	CSO015	SOUTHWESTERN PUMP STATION	DISDW	CAP	113625000	HIGH RIVER ELEVATION PREVENTED OPERATION OF STATION.	NO CLEANUP REQUIRED.	STATION WAS PLACED BACK IN SERVICE ONCE RIVER ELEVATION RECEDED.
483280	5/25/2001	MSD0080-PS	SOUTHWESTERN	DISDW	MECH	35000000	MECHANICAL FAILURE OF BAR SCREEN & WET WELL GATE.	NO CLEANUP REQUIRED.	MSD MADE APPROPRIATE REPAIRS.
430749	10/27/2001	CSO015	SOUTHWESTERN PUMP STATION	DISDW	MECH	288000	WEST BAR SCREEN AND EAST GATE MALFUNCTION.	NO CLEANUP REQUIRED.	MSD REPAIRED BAR SCREEN AND GATE.
430774	6/3/2002	MSD0088-PS	BUCHANAN PS	DISDW	POWER	516000	L G & E POWER FAILURE.	NO CLEANUP REQUIRED.	A CAPITAL PROJECT HAS BEEN INITIATED TO INSTALL BACKUP POWER AT THIS PUMP STATION WITH AN EXPECTED COMPLETION DATE OF 2ND QUARTER 2006.
430781	6/3/2002	MSD0088-PS	BUCHANAN PS	DISDW	POWER	320000	LG&E POWER FAILURE.	NO CLEANUP REQUIRED.	A CAPITAL PROJECT HAS BEEN INITIATED WHICH WILL CORRECT THIS PROBLEM. EXPECTED COMPLETION - 2ND QUARTER 2006.

**FIGURE 6-1  
 DRY WEATHER OVERFLOWS OCCURRING IN THE COMBINED SEWER SYSTEM  
 JANUARY 1, 2001 THROUGH APRIL 30, 2006**

<u>Work Order</u>	<u>Date</u>	<u>ASSET ID NUMBER</u>	<u>ASSET DESCRIPTION</u>	<u>WORK ORDER ACTIVITY CODE</u>	<u>PROBLEM CODE</u>	<u>VOLUME (gallons)</u>	<u>CAUSE</u>	<u>CLEANUP ACTIVITIES</u>	<u>REPAIR ACTIVITIES</u>
430783	6/27/2002	MSD0088-PS	BUCHANAN PS	DISDW	POWER	9000000	LG&E POWER FAILURE.	NO CLEANUP REQUIRED.	A CAPITAL PROJECT HAS BEEN INITIATED TO INSTALL BACKUP POWER AT THIS PUMP STATION. EXPECTED COMPLETION DATE IN 2ND QUARTER 2006.
430886	8/21/2002	CSO186	SNEADS BRANCH RELIEF #5	DISDW	STRUC	100	LEAK AROUND INFLATABLE DAM.	MSD CLEANED THE AREA.	SNEAD'S BRANCH INLINE STORAGE PROJECT.
482987	5/11/2003	MSD0022-PS	NIGHTINGALE	DISDW	POWER	1312500	LG & E POWER FAILURE.	NO CLEANUP REQUIRED.	LG & E RESTORED POWER.
316982	10/16/2003	MSD0088-PS	BUCHANAN PS	DISDW	POWER	1900000	LG & E POWER FAILURE	NO CLEANUP NECESSARY	POWER RESTORED
319578	11/9/2003	MSD0088-PS	BUCHANAN PS	DISDW	POWER	5800000	DOWN LG&E POWER LINE	NO CLEANUP NECESSARY	LG&E POWER LINE REPAIRED
320465	11/24/2003	MSD0308-FP	34TH STREET FLOOD PS	DISDW	FLOOD		FLOOD PUMPING PER CORPS.OF ENGINEERS MANUAL	NO CLEANUP NECESSARY	STATION REMOVED FROM FLOOD PUMPING MODE ONCE RIVER RECEDED.
325334	1/4/2004	MSD0306-FP	17TH STREET FLOOD PS	DISDW	FLOOD	0	FLOODING	N/A	SURCHARGE TO COMBINE SEWER PER C.O.E INSTRUCTION
331786	2/9/2004	MSD0308-FP	34TH STREET FLOOD PS	DISDW	FLOOD	714000	STATION PLACED IN FLOOD PUMPING PER USACOE MANUAL.	NONE NEEDED.	STATION TAKEN OUT OF FLOOD PUMPING MODE ONCE RIVER RECEDED.
337050	3/8/2004	MSD0303-FP	4TH STREET FLOOD PS	DISDW	FLOOD	0	PUMPED DUE TO COE MANUAL	NO CLEANUP NEEDED	NO REPAIRS NECESSARY
342950	4/16/2004	MSD0303-FP	4TH STREET FLOOD PS	DISDW	FLOOD		STATION PLACED IN FLOOD PUMPING MODE PER USACOE MANUAL TO AVOID PROPERTY DAMAGE AND FLOODING.	NO CLEANUP NEEDED.	STATION REMOVED FROM FLOOD PUMPING MODE.

**FIGURE 6-1  
 DRY WEATHER OVERFLOWS OCCURRING IN THE COMBINED SEWER SYSTEM  
 JANUARY 1, 2001 THROUGH APRIL 30, 2006**

<u>Work Order</u>	<u>Date</u>	<u>ASSET ID NUMBER</u>	<u>ASSET DESCRIPTION</u>	<u>WORK ORDER ACTIVITY CODE</u>	<u>PROBLEM CODE</u>	<u>VOLUME (gallons)</u>	<u>CAUSE</u>	<u>CLEANUP ACTIVITIES</u>	<u>REPAIR ACTIVITIES</u>
342889	4/18/2004	MSD0308-FP	34TH STREET FLOOD PS	DISDW	FLOOD		STATION PLACED IN FLOOD PUMPING MODE PER USACOR MANUAL TO AVOID PROPERTY DAMAGE AND FLOODING	NO CLEANUP NEEDED.	STATION REMOVED FROM FLOOD PUMPING MODE.
347731	5/3/2004	MSD0088-PS	BUCHANAN PS	DISDW	POWER	11200000	POWER OUTAGE	NO CLEANUP NEEDED	RESTORED POWER
348679	5/10/2004	MSD0088-PS	BUCHANAN PS	DISDW	MECH	3000000	GATE NOT OPENING PROPERLY (STUCK)	NO CLEANUP NEEDED.	CONTRACTOR MADE REPAIRS
353689	5/29/2004	MSD0303-FP	4TH STREET FLOOD PS	DISDW	FLOOD	0	STATION PLACED IN FLOOD PUMPING MODE PER USACOR MANUAL	NONE NEEDED	STATION REMOVED FROM FLOOD PUMPING MODE.
353695	5/30/2004	MSD0308-FP	34TH STREET FLOOD PS	DISDW	FLOOD	0	STATION PLACED IN FLOOD PUMPING MODE PER USACOE MANUAL	NONE NEEDED	STATION REMOVED FROM FLOOD PUMPING MODE
373440	8/2/2004	CSO113	REGULATOR #6	DISDW	OBST	100	SOLIDS HAD INLET BLOCKED	NONE NEEDED	FLUSHED LINE
379933	9/20/2004	MSD0303-FP	4TH STREET FLOOD PS	DISDW	FLOOD	0	MSD INITIATED FLOOD PUMPING ACTIVITIES PER USACOE MANUAL TO AVOID FLOODING AND PROPERTY DAMAGE	CLEANUP NOT NECESSARY	REPAIRS NOT NECESSARY. STATION REMOVED FROM FLOOD PUMPING MODE PER USACOE MANUAL ONCE RIVER
380423	9/21/2004	MSD0308-FP	34TH STREET FLOOD PS	DISDW	FLOOD	0	STATION PLACED IN FLOOD PUMPING PER USACOE MANUAL TO AVOID FLOODING AND PROPERTY DAMAGE	NO CLEANUP NEEDED	NO REPAIRS NEEDED. STATION REMOVED FROM FLOOD PUMPING MODE PER USACOE MANUAL ONCE RIVER
415609	11/8/2004	CSO113	REGULATOR #6	DISDW	OBST	100	HEAVY DEBRIS ON SCREENS	CREEK INSPECTION #415350 - CLEANED SCREENS	SCREENS HAVE BEEN CLEANED
420445	12/7/2004	MSD0088-PS	BUCHANAN PS	DISDW	POWER	5160000	POWER OUTAGE	NO CLEANUP REQUIRED	MADE REPAIR LINE BACK IN SERVICE AT 16:15PM 12/07/04

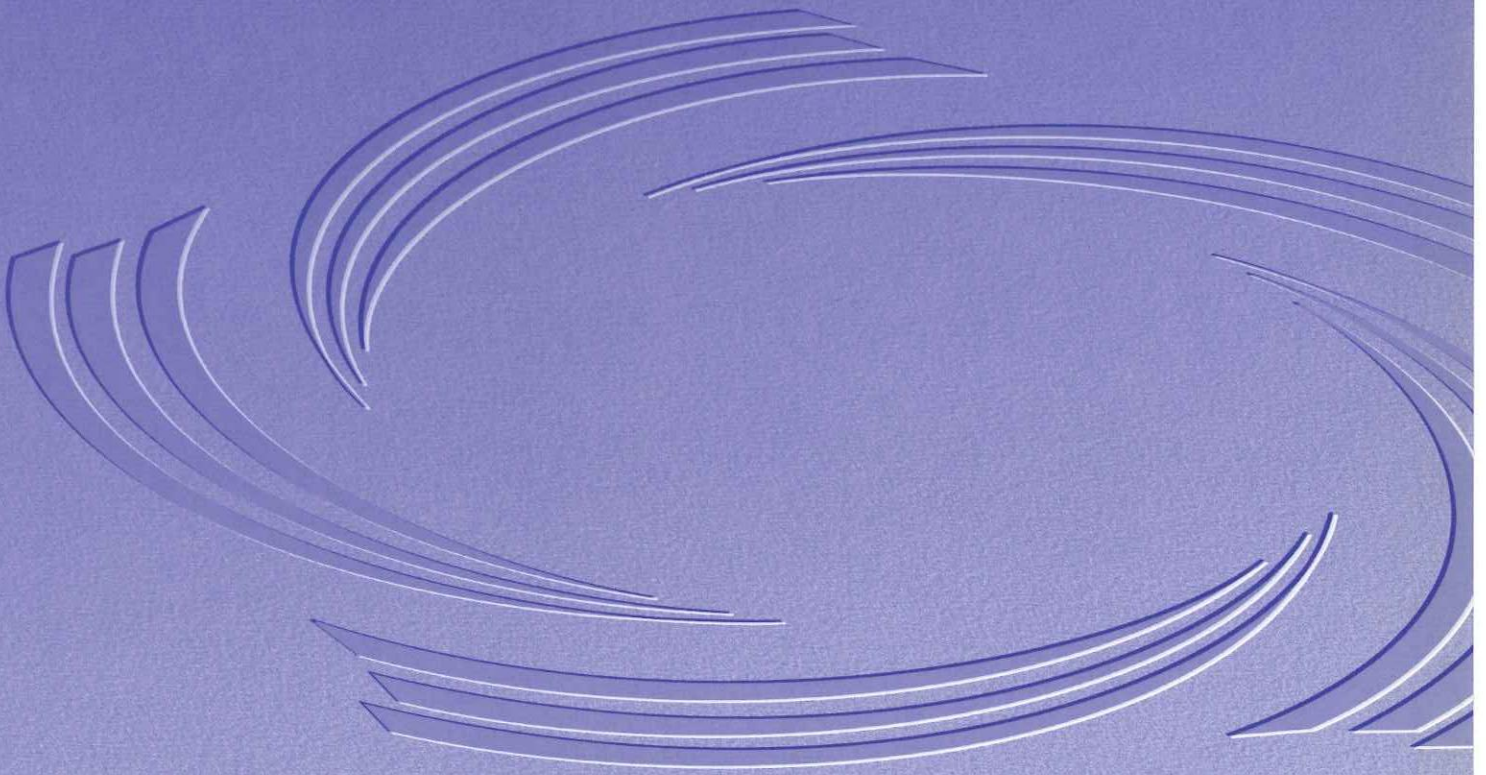
**FIGURE 6-1**  
**DRY WEATHER OVERFLOWS OCCURRING IN THE COMBINED SEWER SYSTEM**  
**JANUARY 1, 2001 THROUGH APRIL 30, 2006**

<u>Work Order</u>	<u>Date</u>	<u>ASSET ID NUMBER</u>	<u>ASSET DESCRIPTION</u>	<u>WORK ORDER ACTIVITY CODE</u>	<u>PROBLEM CODE</u>	<u>VOLUME (gallons)</u>	<u>CAUSE</u>	<u>CLEANUP ACTIVITIES</u>	<u>REPAIR ACTIVITIES</u>
423535	12/28/2004	MSD0088-PS	BUCHANAN PS	DISDW	POWER	2150000	POWER OUTAGE	NO CLEANUP REQUIRED	MADE REPAIR THE LINE IS BACK IN SERVICE
427868	1/29/2005	CSO020	BUCHANAN STREET PUMP STATION SEE 604-12.1/2	DISDW	POWER	87720000	LG & E POWER OUTAGE.	NO CLEANUP REQUIRED.	A PROJECT TO INSTALL BACKUP POWER IS IN PROGRESS WHICH WILL CORRECT THIS PROBLEM.
453302	5/6/2005	CSO113	REGULATOR #6	DISDW	OBST	200	UNKNOWN CAUSE.	MSD CLEANED THE AREA.	NO REPAIRS NEEDED.
506739	12/9/2005	CSO113	REGULATOR #6	DISDW	OBST	25	OBSTRUCTION IN THE DAM	WORK ORDER #506633, MSD FLUSHED THE AREA	WORK ORDER #506633, MSD FLUSHED THE AREA TO REMOVE THE OBSTRUCTION.
544423	4/5/2006	MSD0022-PS	NIGHTINGALE	DISDW	POWER	42437500	LG&E HAD TO CUT OFF POWER TO STATION TO MAKE STORM RELATED REPAIRS.	CLEANUP NOT FEASIBLE.	LGE RESTORED POWER. MSD IS ADDRESSING THIS ISSUE WITH LG&E.
544688	4/10/2006	CSO120	REGULATOR #17	DISDW	OBST	50	DEBRIS BLOCKAGE IN THE LINE	MSD CLEANED AND DISINFECTED THE AREA AROUND THE DISCHARGE SITE.	WORK ORDER #544472, MSD FLUSHED AND GOT OPEN



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



---

## **SECTION 7: NMC 6 - CONTROL OF SOLID & FLOATABLE MATERIALS IN COMBINED SEWER OVERFLOWS (CSOs)**

### **7.1 INTRODUCTION**

The objective of this control is to minimize the amount of solid and floatable (S&F) materials that are discharged to the water bodies through CSOs wet weather discharges. The EPA Guidance for Nine Minimum Controls provides examples of controls which includes baffles, static screens, and racks for in-line controls; nets and booms/skimmer vessels for end of pipe controls and trapped catch basins as source control measures. The function of these devices is "to reduce if not eliminate visible floatables and solids," and from receiving waters.

According to EPA Guidance for NMC:

*"CSOs: Guidance for Nine Minimum Controls" (EPA 832-B-95-007); EPA states in Section 1.6 that the NMC represent the "best available technology (BAT) economically achievable" or "best conventional pollutant control technology (BCT)" as determined on a "best professional judgment" (BPJ) basis. The NMC "do not require significant engineering studies or major construction, and can be implemented in a relatively short period (e.g. less than approximately two years)." EPA has also characterized this NMC as "measures that can reduce the prevalence and impacts of CSOs and that are not expected to require significant engineering studies or major construction."*

Section 7 (NMC 6) of the NMC guidance document specifically addresses solids and floatables (S&F) control. Though NMC 6 specifically addresses control of solids and floatables (S&F), NMCs 1, 2, 4, and 7 can all reduce S&F discharges, as discussed respectively in Sections 2 (Operation and Maintenance of sewer-system components), 3 (Maximizing Collection-System Storage), 5.1 (Maximizing Flow to the Treatment Plant), 8.1.1 (Pollution Prevention via street cleaning), and 8.1.2 (Pollution Prevention via public education and community outreach programs, such as anti-littering campaigns).

Finally, the NMC guidance document states that the NMC should be implemented and integrated into the LTCP, which, based on monitoring conducted on a preliminary basis under the NMC, should describe the effectiveness of the NMC in reducing CSO impacts on receiving waters (Section 1.8). With respect to S&F control, Section 7 (page 7-1) of the NMC guidance document specifically states, "the LTCP will need to address the effectiveness of the [NMC] and evaluate other methods (e.g., swirl concentrators and mechanically cleaned screens) for removing solids and floatables."

### **7.2 PROGRAM OVERVIEW**

The MSD CSO area is extremely diverse in terms of zoning, land use, tree cover, vegetation, and topography. In order to apply the most effective S&F controls, MSD evaluated the various sub-areas within the CSO area, and referenced EPA guidance for planning and implementation of S&F controls.

In addition to the individual CSO controls, MSD, in conjunction with Louisville Metro Government, has employed several effective system-wide source controls, as well as in-line and end-of-pipe controls, to minimize the volume of S&F that are discharged to the water bodies within the CSO area. These controls are described in more detail in Section 7.5 below. Comprehensive stream evaluations have shown that S&F have been effectively controlled within the CSO area to a



degree that is comparable to the littered condition of areas upstream of the Combined Sewer System (CSS).

S&F Control within the MSD CSS is comprised of the following technologies: Low Impact Development (LIDs) initiatives, catch basins, modified regulators, in-line controls and end-of-pipe controls. A summary table showing the S&F control technologies currently in place for each CSO sub basin is shown in Figure 7-1.

After the installation of S&F control technologies, MSD evaluates controls programmatically and on a "per device" basis. MSD will continue to inspect and evaluate S&F technologies and make modifications or changes to address problems created by installation of controls and that may improve capture. When significant modifications are made for enhancement of performance or there is a change of applied technology they will be documented and included in the annual reports as outlined in the consent decree. MSD uses these evaluations to make installed devices more effective, and refine the decision making process for future S&F projects.

The remainder of this section shows the comprehensive measures that MSD and Louisville Metro Government employed to reach compliance with EPA NMC Guidance for S&F control.

### **7.3 SYSTEM CHARACTERIZATION**

To ascertain the possible causes, magnitudes, and potential solutions for S&F issues, it is necessary to characterize the CSO sub-areas tributary to impacted water bodies. Relevant characteristics of a tributary area include size, population, land use, and imperviousness. The same characteristics are also relevant for non-CSO tributary areas due to the potential of inputs from sources other than CSOs; this will be addressed in the next section. In order to accomplish this characterization, MSD reviewed current Louisville and Jefferson County Information Consortium (LOJIC) information and aerial photography, performed water body inspections, and reviewed previously reported information.

#### **7.3.1 CSO Area Characteristics**

The CSO area has been broken down into three CSO regions; Beargrass Creek Region, Ohio River North Region, and Ohio River West Region. Relevant characteristics have been compiled for each of these regions and for each reach of stream within each region. Additionally, site visits and field inspections were performed to verify existing information and provide additional information related to potential S&F Control.

##### **7.3.1.1 The Beargrass Creek Region**

The Beargrass Creek Region is the 7,914-acre area served by the CSS discharging to Beargrass Creek. This area serves a population of approximately 211,400 and is characterized by mixed land uses with a high concentration of residential and commercial development. The area has an imperviousness of roughly 40 percent and a relatively high portion (8.5 percent) of tree cover. Experience with S&F controls previously deployed in this area has shown that the combined sewage contains a high concentration of organic material that has a tendency to mat and clog screen-type devices. The area includes 1400 acres of parkland encompassing several highly utilized Metro parks. Additionally, some contact recreational uses of the creek have been reported, although these uses are not supported by the park system.

Beargrass Creek is made up of three substantially different forks: South Fork, Middle Fork and Muddy Fork. Approximately 2.7 miles of the downstream portion of South Fork is channelized,

with vertical concrete walls and a keyed concrete bottom. Upstream of the channelized segment, South Fork extends about 3.3 miles through the CSO area. There are 45 CSOs permitted to discharge to South Fork within the 4,717 acre CSO sub-area tributary to it. Upstream of the CSO sub-area lays an additional 12,563 acre drainage area which is served by a separated sewer system. Field surveys just upstream of the limits of the CSO area indicate that floatables are present in South Fork upstream of the CSO area as well as within the CSO area. The surveys also found localized stream bank erosion which supports reports of sedimentation problems the extreme downstream reaches of the creek, near the confluence with the Ohio River.

Middle Fork and Muddy Fork are not channelized as extensively as South Fork. Middle Fork runs about 4.4 miles to the upstream reach of the CSO area and contains 8 permitted CSOs. The primary land use for this tributary area is residential. Middle Fork drainage basin includes 2,481 acres of CSO area and 13,583 acres of separately sewer area.

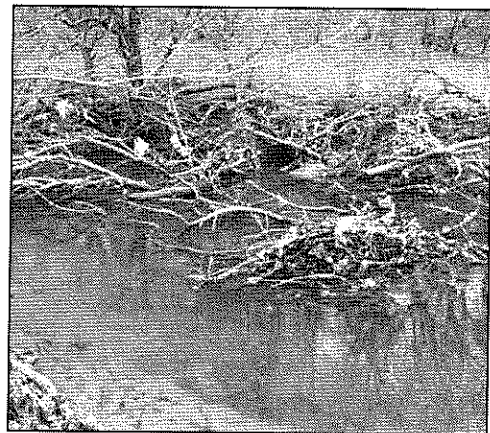
Muddy Fork runs about 0.1 miles through the CSO area and contains 3 permitted CSOs just upstream of the confluence with South Fork. The Muddy Fork drainage basin land use is categorized primarily as undeveloped and residential. The basin includes 716 acres of CSO area, and 4,916 acres of separately sewer area. The lack of development is reflected in Muddy Fork's much lower volume of floatables.

### **7.3.1.2 The Ohio River North Region**

The Ohio River North Region contains a majority of the downtown area, and therefore serves mostly commercial development. The total drainage area of 1,943 acres has a relatively high level imperviousness. This is a disadvantage to the area in that it may increase the volume and velocity of stormwater flows. On the other hand, tree cover in this region is limited which means less organic material is available to enter the system.

### **7.3.1.3 The Ohio River West Region**

The Ohio River West Region is the largest of the three CSO regions, representing a total of 11,051 acres. The Ohio River West Region contains a combination of industrial, commercial, and residential development. Imperviousness is moderate, averaging 43 percent, and tree cover is low, averaging 0.07 percent.



*Middle Fork of Beargrass Creek in the CSO area.*

### **7.3.2 Compilation and Evaluation of Sewershed Data**

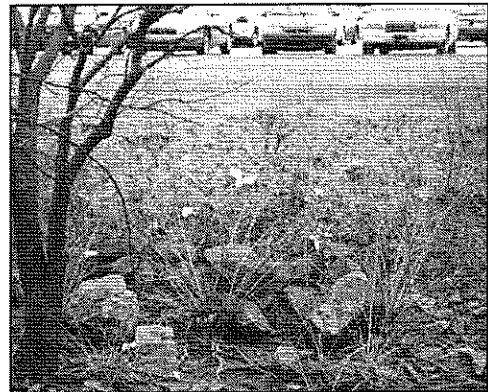
Figure 7-2 shows the database input screen that was developed for compiling the S&F information for each CSO and its corresponding area. Figure 7-3 shows the maps that were developed with information for each CSO sewershed, including zoning, aerial photographs, and land use. These maps help determine the characteristics of a sewershed and the appropriate control technologies to deploy.

Determining the characteristics of individual sewersheds is one of the first steps in developing appropriate S&F control options. For example, previous experience with screen-type S&F control technologies have indicated that they frequently become clogged with mats of organic material when deployed in certain locations. More specifically, these are areas that are

characterized by high tree cover and/or other sources of vegetative matter. Therefore, screen-type technologies are not as appropriate or effective when deployed in these locations. This example shows the importance of characteristic analysis when developing S&F control strategies.

### **7.3.3 Characteristics of Areas Upstream of CSO Area - Identification of Upstream Solids and Floatables**

In January 2005, a comprehensive field evaluation of the streams within the CSO area was performed to ascertain the volume of visible S&F, and to determine the volume of floatables entering the water bodies upstream of the CSO area. The comprehensive field evaluation was performed by walking the banks of the every reach of Beargrass Creek, documenting with pictures and notes regarding solids and floatable issues. The evaluation was detailed in a memo. This evaluation led to a determination that many of the floatables in Beargrass Creek enter upstream of the CSS as a result of stormwater issues and litter



*Middle Fork of Beargrass Creek at Oxmoor Mall  
(outside of CSO area).*

problems. This is evidenced by the observation that in many areas S&F are more visually apparent upstream of the CSO area than they are within the CSO area.

MSD is working through these issues as part of the Municipal Separate Storm Sewer Systems permit.

As noted in 7.3.1.1, the upper reaches of Beargrass Creek flow through separately sewered areas prior to reaching the CSO segments that make up the Beargrass Creek Region. S&F discharged to Beargrass Creek from these upstream areas represent one source of these pollutants to the stream.

Approximately 22 miles, or 78%, of South Fork and its tributary streams drain 12,563 acres upstream of the CSO area. Approximately 36 miles, or 89%, of Middle Fork and its tributary streams drain 13,583 acres upstream of the CSO area. These non-CSO areas are made up of primarily residential and undeveloped land, but there are concentrated areas of commercial usage along the downstream portions of these non-CSO areas. Field inspections immediately upstream of the limits of the combined area indicate that floatables are present in South Fork and Middle Fork upstream of the CSO area and this area may represent significant sources of S&F to the waterway.



*Middle Fork of Beargrass Creek in St. Matthews  
(outside of CSO area).*

Approximately 12 miles, or 99%, of Muddy Fork and its tributary streams drain 4,916 acres upstream of the CSO area. This non-CSO area is mostly residential and undeveloped land, and there is minimal commercial usage. Based on field reconnaissance, it does not appear that S&F from this upstream area represents a significant source to the waterway.

Figure 7-4 shows the commercial development in Jefferson County and its relation to the streams and Ohio River. Based on these observations, it is apparent that the control of S&F within the CSS would not eliminate the problem of littering and non-point sources that enter the creek upstream. Figures 7-5 (a-f) highlight stream bank litter situations at various locations inside and outside of the CSO area.

#### **7.3.4 CSO Solids and Floatables Screening and Ranking**

Building upon the evaluations conducted during the early and mid-90s, MSD developed a draft procedure to provide a severity ranking of the many CSO outfalls within the CSS to identify which areas to place first-priority focus CSO Long Term Control Plan efforts. This screening and ranking process was based upon the EPA Guidance Document "Combined Sewer Overflows Guidance for Screening and Ranking," EPA 832-B-95-004, dated August 1995 (hereafter EPA S&R Guidance). Under the direction of this document, CSOs were screened and prioritized based upon criteria identified as most likely to cause significant adverse impact on the environment and the community. Those CSOs identified as having the potential for greater impacts on streams and residents, received the highest overall ranking. Many criterion under a broad range of categories were used including the 2004 303 (d) List of Waters for Kentucky (Final Draft), USGS Streamflow Statistics for Kentucky, KPDES permit information, CSO Program modeling data, and USGS Stream data.

As part of the implementation of S&F controls, the CSO Screening and Ranking procedure was refocused on criterion that would impact S&F control. Three criteria are utilized in this procedure to rank the CSOs. These criteria include stream flow values; accessibility of the outfall/receiving stream by the public; and other important, subjective factors including impact to quality of life and areas of public interest. The screening and ranking consists of a process in which points can be assigned for the various attributes within each criterion. A discussion of the criteria is provided below. As the stakeholder and public involvement efforts increase during the development of the LTCP, the weightings may be adjusted and additional criteria will be added. Ratings will be assigned to each CSO relative to its contribution to the solution matrix.

In addition to the screening and ranking prioritization, the EPA CSO guidance was utilized to address the issue of CSOs with the highest number of overflows per year. Furthermore, the frequency of discharges for each CSO location not scheduled for RTC or a capital project were investigated, and six CSO Long Term Control Plan capital projects for solids and floatables were added based upon this analysis.

##### **7.3.4.1 Example Criterion - *Proportion of Receiving Stream Flow to CSO Flow***

This criterion assigns points to a CSO based on the relationship between the average annual stream flow rate and the average CSO flow rate. The greater the contribution of CSO discharge to the stream, the more likely the stream will sustain impacts.

Points may be assigned in the following way:

Description	Priority Points
CSO Contributes > 50%	50
CSO Contributes between 25% and 50%	30
CSO Contributes < 25%	10

The published USGS Streamflow Statistics for Kentucky was used in conjunction with MSD's stream gage network to develop average annual flow values for locations within Louisville Metro. MSD's monitoring network in the Beargrass Creek watershed consists of five locations with stream flow gage readings every 5 minutes.

**7.3.4.2 Example Criterion - Accessibility to an Impaired Water Body**

Since boating is a common recreational activity along the Ohio River within Louisville Metro, boaters' access to water bodies in which CSOs contribute were assessed. The points for this criterion are based on the likelihood of human contact with impaired water bodies. It has been determined that the area along the Ohio River upstream of the Second Street Bridge has an increased opportunity for human contact with impaired water bodies. This is an unintended consequence of the success of Louisville Metro's riverfront park and its attraction to the community. Areas between the Second Street Bridge and the Sherman Minton Bridge are less likely points of contact due to the treacherous terrain of the riverbed at this location and restricted access because of dangerous barge traffic. Other streams and improved channels within the CSO area have been determined to be unlikely points of contact, with the exception of streams in Cherokee Park.

The points were assigned in the following way:

Description	Priority Points
Likely Access	40
Unlikely Access	20
No Access	0

**7.3.4.4 Example Criterion - Quality of Life**

There are certain CSO "hot spots" or areas of current public interest within Louisville Metro. These include specific locations within the CSO area such as the streams in Cherokee Park, the Fischer's site, the Girl Scout Headquarters site, the Greenways around Letterle PS, and the River Metals site. Because of the public interest and the potential for human contact with the streams in these areas, CSOs near each of these hot spot locations were assigned seventy (70) points.

**7.3.4.5 Solids and Floatables Screening and Ranking Map**

A map was developed by MSD to determine high priority areas based upon the results of the S&F screening and ranking. Figure 7-6 depicts the CSO sewersheds and their corresponding screening and ranking score. The CSO sewersheds with higher scores (shown in red) represent the highest priorities based on the ranking exercise. Grayed or blacked out areas represent CSO areas that are eliminated, will be eliminated, or have minimal overflows (thus becoming a short-term candidate for elimination). The draft solids and floatables screening and ranking table is included in Supplemental Information item 7-1 of the June 3, 2006 NMC Compliance Report submittal.

## **7.4 SOURCES OF SOLIDS AND FLOATABLES**

### **7.4.1 Sources of Solids and Floatables**

Figure 7-7 (HydroQual, 1992) shows the sources of S&F, in order from the greatest amount of material deposited in the system (and removed) to the least amount of materials deposited (and removed). The volumes released into the system at the source and the volumes captured from the system prior to discharging into the stream decrease from left to right across this figure. It is notable that the largest source of floatables is pedestrian street litter.

S&F sources from the street include litter, automobile debris, roadway grit, and trash. The S&F source for direct to catch basin debris is primarily pedestrians. Solids and floatable materials that are flushed down the drain or toilets within a home, office, or industrial site will enter the combined sewer and may be discharged to the stream during an overflow. The final source for S&F in a stream or river is through direct littering to the water body, through depositing litter at the creek or by S&F material being carried by runoff to the creek.

As noted in Section 7 (page 7-13) of the "CSOs: Guidance for Nine Minimum Controls" (EPA 832-B-95-007); most solid and floatable materials are comprised of various forms of street litter. Although wastewater solids and floatables are less prevalent within combined sewer overflows, it is acknowledged that these sources are the most objectionable, and thus must be addressed.

## **7.5 SOLIDS AND FLOATABLES PROGRAM COMPONENTS**

### **7.5.1 Source Controls Applied in System**

#### **7.5.1.1 Street Sweeping**

Louisville Metro Government performs street sweeping on all streets within the CSO area. The central business district is scheduled to be swept at least one time per day; all streets outside of the central business district are scheduled to be swept quarterly. Approximately 4,000,000 lbs of litter, debris, and other forms of floatables are removed by street sweeping every year. Figure 7-8 shows the coverage area of the street sweeping operations in Louisville.

#### **7.5.1.2 Proper Disposal of Solid and Floatable Materials**

As detailed in Section 7.4.1, S&F originate from several sources. Louisville Metro offers litter collection and pick up as an effective means of source control. This is described in Section 8 (NMC 7).

Additionally, MSD is currently working with the Louisville Metro Health Department to develop a program to address sanitary items, their proper disposal, and public education. Prophylactics and various hygiene products could cause a health risk if human contact occurs. If an overflow occurs as a result of a rain event, materials that have been flushed can be discharged to the Ohio River or Beargrass Creek. This program will act as a supplement to CSOs with storm source controls in place.

### 7.5.1.3 Catch Basins

Studies in New York City (*HydroQual, 1993, 1994*) have shown that catch basins can be effective at retaining floatables and solids and preventing these materials from entering the sewer system. These studies have shown that certain catch basin characteristics influence their effectiveness at retaining the materials.

With respect to floatables, one important characteristic of a catch basin, is whether or not it is equipped with a "gas hood," as shown on Figure 7-9. Originally designed to prevent gases from escaping the sewers, gas hoods have been found to effectively prevent floatables from entering the sewers. The overall ability of a particular catch basin to retain floatables is a function of a number of factors including, the opening size of the grate, the presence of an open curb piece, the depth of the sump, the orientation of the outlet pipe relative to the inflow, as well as the presence of a gas hood. With respect to heavier solids, other studies (USEPA, 1977 [EPA 600/2-77-051]) have shown that catch basins can be effective at retaining this material if equipped with sumps of sufficient depth. Tests on cylindrical catch basins with a 4' diameter, a 4' sump depth, and a 1' outlet pipe were conducted with inflows of 900 gallons per minute. The water laden with graded sand did not exhibit solids "breakthrough" until the sump was approximately 55 percent full. This fill depth is equivalent to a clear depth of about 26" below the outlet pipe.

Approximately 60 percent of existing catch basins within MSD's CSS are hooded. This is summarized in Figure 7-10. According to the New York studies hooded catch basins capture roughly 80 to 90 of the S&F material.

MSD routinely cleans approximately 30,000 catch basins in the CSS per year. Catch basins are cleaned using a clamshell bucket and a Vactor truck, and are occasionally cleaned by hand. Cleaning is conducted in a manner that minimizes the possibility that accumulated leaves, litter, and sediment can enter the sewer system. Collected debris is sent to the local landfill. Additional maintenance and/or cleaning is performed as needed in between these scheduled cleanings.

### 7.5.2 In-Line Controls Applied in System

In-line controls are defined herein as sewer system controls that concentrate pollutants in the combined sewage retained in the system rather than in the combined sewage that overflows to the receiving waters. Typically, these controls must be placed near and upstream of system regulators so that concentrated pollutant streams can be diverted to the sewer system. A CD documenting the solids and floatables controls installed in the Combined Sewer System is presented in Figure 7-11.



*MSD cleans a catch basin with a clamshell bucket.*

#### 7.5.2.1 "Cyclone" Rotating Drum Screens

Ten sites within the CSS currently employ the use of Cyclone rotating horizontal drum screens mounted to the diversion dam. When the rain event begins and water levels in the system rise above the weir height, water enters the Cyclone through the drum's perforated wall or screen and simultaneously causes the drum to rotate as the water is deflected by vanes on the drum interior. This rotating motion discourages blinding of the drum perforations to keep floatable material on the "interceptor" side of the device. The floatable

solids are retained and conveyed to treatment when the water levels return to normal. The device requires no outside power source, but the 6 mm perforations are susceptible to clogging when subjected to high concentrations of leaves or other organic materials. If the water level rises above the drum; flow bypasses the drum, relieving the condition, and avoiding a potentially serious backwater condition. When this happens, any floatables that had been retained behind the cyclone are released with the CSO waters into the receiving stream. According to the United Kingdom Water Institute Research, Limited (UKWIR) "CSO Screen Efficiency (Proprietary Designs) 1997-2001" the efficiency /capture of the cyclone is 27%.

Design procedure for cyclones included the development of a design capture rate, an assessment of the impacts of the installed device on the hydraulic grade line and potential for basement backups, and an evaluation of the CSO diversion structure or regulator parameters for configuration of the cyclone for maximization of capture. MSD and the manufacturer worked together to develop the screen open area required to attain the design capture rate, and develop specifications for the device.

#### 7.5.2.2 "Wave Screen" Static Screens

Five CSO sites currently utilize wave screens mounted to the diversion dam. These are fixed screens whose surface follows a wave pattern designed to maximize screen surface area while minimizing clogging of the approximately 6 mm perforations. Each screen is mounted horizontally just below the crest of the diversion weir and extends from the diversion weir upstream to a point where a vertical plate extends upward to the same elevation as the diversion weir. During an overflow event, flow passes up through the screen, leaving solids on the underside of the screen. At the end of the event, the water between the top of the diversion weir and the screen "backwashes" through the screen to help floatable solids drop back into interceptor flow and on to the treatment plant. Initial performance evaluations of these units indicate that they may be susceptible to clogging with leaves and other organic matter. In the event that water overtops the crest of the diversion weir, flow will relieve itself without causing a backwater condition and without losing solids retained up to that point in time. However, S&F will become deposited on the top side of the screen requiring additional maintenance. According to UKWIR the efficiency /capture of the wave screen is 55%.



*Wave Screen installed in MSD CSO area.*



*CDS Unit installed in MSD CSO area.*

The general design procedure utilized for wave screen installation included the development of a design capture rate, an assessment of the impacts of the installed device on the hydraulic grade line and potential for basement backups, and an evaluation of the CSO diversion structure or regulator parameters for configuration of the screen for maximization of capture. MSD and the manufacturer worked together to develop the screen open area required to attain the design capture rate, and develop specifications for the device.



### 7.5.2.3 CDS Units

MSD currently applies Continuous Deflective Separation (CDS) technology at two locations within the CSS. One unit is located in the Beargrass Creek Region at CSO 108, and experiences high organic flow. The second unit is located in Downtown Louisville at CSO 050 (The Ohio River North Region) and receives flow with little organic content.

CSO 108 within the Beargrass Creek Region currently features twin off-line CDS (continuous deflective separation) units for treatment of S&F. CDS technology features the introduction of flow into a cylindrical vessel that has a static cylindrical interior screen. This interior screen has directional perforations that require the flow to turn backward against the prevailing current direction in order to exit the unit; this feature minimizes the susceptibility of the screen to clogging.

The CDS unit at CSO 108 has provided an opportunity to evaluate the technology in an area with high concentrations of organic flow from grass clippings, leaves, mulch, etc. Issues with screen blinding and washdown operations at the site have given MSD the opportunity to experiment with the unit. Adjustments or reconfigurations have been made to the unit's programming, screens openings, washdown system, ultrasonic level sensors, inlet nozzles, and pump configurations. MSD continues to work through issues at this CSO to successfully control S&F.

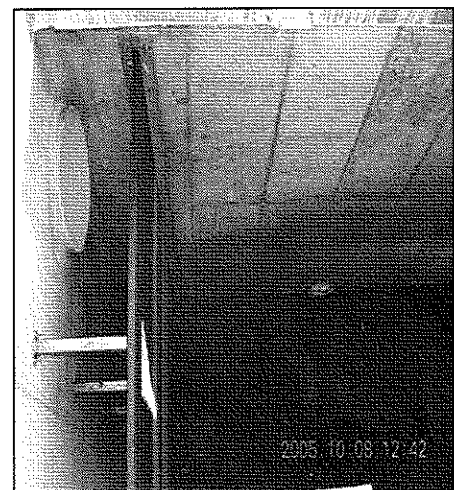
CSO 050 is within the Ohio River North Region of the CSS. This CSO contains a CDS unit with a single barrel and sump, in lieu of a pumped underflow. This CSO is located in the Central Business District of Louisville, and therefore contains few trees and organic materials. Due to fewer organics, the screens at this CDS unit are self cleaning, and experience less frequent blinding. Maintenance costs and resources to operate and maintain this CDS unit are more manageable than the unit at CSO 108. According to UKWIR the efficiency /capture of the CDS unit is 95%.

The existing CDS units within MSDs CSS are large-scale units. At CSO 108, there are two 8 foot diameter units with a total screening capacity of 34 CFS and at CSO 50 there is one 5 foot diameter unit with a capacity to handle the typical year peak rate of 21 CFS. These units were design to handle 85 – 90% of the average annual capacity of the CSO. The detailed design was coordinated CDS Technologies.

### 7.5.2.4 Baffled Vaults

Two locations in the CSS currently use baffled vaults for S&F control. These facilities were designed to treat flow passing over the existing diversion dam and thereby minimizing the discharge of S&F to the receiving water. The vault length and baffle were designed to allow floatables to rise with the waters yet be retained behind the baffle until after the event has subsided, at which time the S&F are returned via an underflow pipe to the interceptor for conveyance to the treatment plant.

Baffles do not have the small openings characteristic of screen-type controls. Therefore, they are not susceptible to the clogging and maintenance problems associated with those types of controls. Operation of the two recently



*Baffle System installed in MSD CSO area.*

installed units will help to determine any unexpected, locally-influenced, operational issues. According to HydroQual studies the efficiency /capture of the baffle vault is 94%.

The general design procedure for baffled vaults included an assessment of the site for placement of the vault, hydraulic calculations to size the vault and baffle to maximize solids and floatables capture, and an evaluation of head losses across the baffle to prevent upstream basement backups and flooding.

#### **7.5.2.5 Retrofit Baffles**

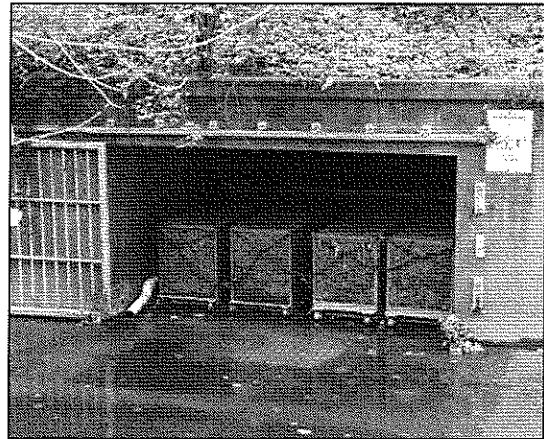
Underflow baffle facilities are designed to treat flow passing over the existing diversion dam, thereby minimizing the discharge of solids and floatables to the receiving water. The baffle is designed to allow floatables to rise with the waters yet be retained behind the baffle until after the event has subsided, at which time the solids and floatables are returned via an underflow pipe to the interceptor for conveyance to the treatment plant.

This technology has been used extensively within MSD's combined sewer system. Each installed underflow baffle was designed to site specific requirements and was unique to the configuration of the combined sewer system in the area of each CSO. Field investigations were conducted at each CSO to assess the applicability of an underflow baffle before detailed design was conducted.

The general design procedure for retrofit baffles included an assessment of the existing diversion structure configuration and parameters, applying peak flows for the typical year and design storms to ascertain capture percentages, and determining the head loss due to the baffle installation and the impact on the hydraulic grade line. Baffles were sized and configured to capture the 5-year event without impacting areas upstream or causing basement flooding.

#### **7.5.2.6 Retrofit Screens**

A retrofit screen is similar to a bar screen or trash rack, mounted on the dam. These screens were installed within the sewer upstream of the CSO and within the existing manhole structure. The screens are constructed of steel rods with a steel angle frame. Unlike the underflow baffles, these screens do not have a "self cleaning" mechanism. Therefore, captured solids and floatables will be removed by MSD as part of the CSO inspection and maintenance activities. Accumulated solids and floatables on the simple screen will affect the hydraulic capacity of the sewer as they will be subjected to screen blinding. To account for this, the design condition definition included an assumption that the screens were 100% blinded.



*Steel Cages installed on CSO in the Improved Channel Of Beargrass Creek.*

The general simple screen design process included an evaluation of the existing diversion dam and structure for potential placement of the screen, hydraulic calculations for the typical year and design storms to maximize screen height for the 5-year peak flow capture without impacting areas upstream with basement backups. The final consideration when implementing a screen was the access to the device for cleaning and maintenance. Screen retrofits were designed to allow MSD to remove floatables from the bars ack into the interceptor for treatment.

### **7.5.3 End-of-Pipe Controls**

#### **7.5.3.1 Cages**

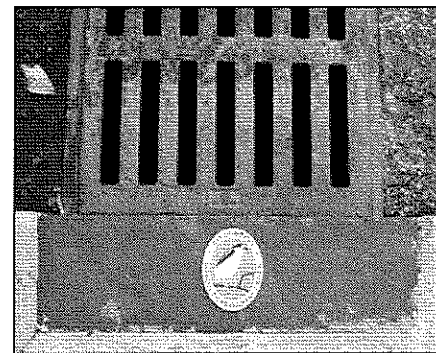
End-of-pipe (EOP) controls are defined herein as controls designed to remove floatable solids from CSOs at the point of discharge to the receiving water. Typically, EOP controls accumulate materials during wet-weather periods and must be cleaned periodically to maintain their effectiveness.

At three CSO outfalls, cages are used to capture floatables at the end of the pipe. These steel cages are essentially rigid, rectangular nets with 1/2" openings that filter the water as it is being discharged. During wet weather events, the cages fill with floatable solids that cannot pass through the openings. MSD periodically cleans the cages and disposes of the solids. These cages were developed to replace netting devices that proved to be cumbersome to handle and susceptible to tearing and spilling. According to UKWIR the efficiency /capture of similar devices (in-line netting) is 93%.

As stated above, the steel cages are an evolution and modification of the previously installed net bags from Fresh Creek Technologies (<http://www.freshcreek.com>). The net bags were removed and replaced because of maintenance issues. These CSOs are exposed to lengthy periods of being underwater while the Ohio River is in flood stage. The original net bag installations were designed by Fresh Creek Technologies. Their standard designs are based upon the limiting parameters of flow (Q) and velocity (V). These parameters are established through use of the hydraulic model for each CSO. As a rule of thumb, Fresh Creek recommends using 2 cubic feet of floatables per million gallons of CSO or Stormwater flow. Upon removal of the net bags, MSD maintenance personnel utilized the basic size of the net bags as a rule of thumb for sizing the steel cages. The steel cages were fabricated by MSDs in-house maintenance staff to function similar to the netting devices originally installed at the three CSO locations.

#### **7.5.4 Watershed Efforts**

MSD, through partnering efforts with Louisville Metro Government and other community organizations has provided opportunities for residents to take ownership of the watersheds. Programs have included public education on littering and personal impacts on the waters of Jefferson County. Through these efforts, S&F are most actively controlled at the source, thus allowing MSD to utilize its resources more efficiently.



*Marked Catch Basin in MSD CSO area.*

##### **7.5.4.1 Bus Shelter Clean Sweeps**

Bus Shelter Clean Sweeps are described in detail in Section 8 (NMC 7).

##### **7.5.4.2 Adopt a Highway**

Adopt-A-Highway/Green Mile programs are described in detail in Section 8 (NMC 7).

##### **7.5.4.3 Public Education and Outreach**

Public education and outreach is described in detail in Section 8 (NMC 7).

#### **7.5.4.4 Catch Basin Signage**

MSD has initiated a program to mark all catch basins within the Beargrass Creek watershed with a logo that reads "No Dumping: Drains to Beargrass Creek." These markings are part of an education program to inform the public that litter and debris have the potential to discharge to the creek when it's carelessly discarded on the ground or the pavement.

#### **7.6 SITE SCREENING FOR VIABLE S&F CONTROL TECHNOLOGIES**

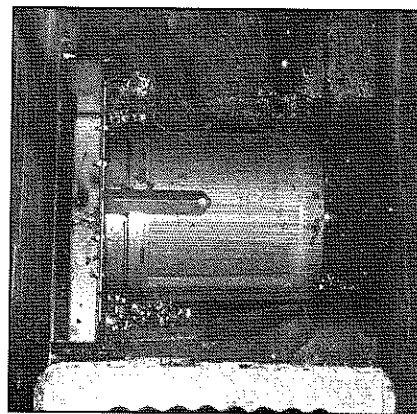
A *draft* screening progression was developed to document the appropriate application of S&F technologies in the CSS. This screening procedure is straightforward and applicable for the entire system. The process was utilized for the effort of installing S&F devices throughout the CSS. See Figure 7-12 for the screening process chart.

The first component of the process chart is to gather data and make site assessments for each CSO. If the CSO does not have an existing solids and floatables control, is not a component of an LTCP project that would eliminate overflows the diversion structure would be assessed for a baffle retrofit due to the simplicity and ease of maintenance of those devices. If a baffle could not be retrofit, a screen retrofit was evaluated. If these devices could not be installed at a CSO it was then designed with a more advanced mechanical device or maintenance intensive end-of-pipe screening. All CSOs are to be observed post installation for possible modifications to improve efficiency or prevent upstream impacts.

#### **7.7 PERFORMANCE ASSESSMENTS AND EFFECTIVENESS SUMMARY**

##### **7.7.1 NSF International/Environmental Technology Verification (ETV) Verification of the CDS Unit at CSO 108**

NSF partnering with ETV and EPA approved a generic verification protocol (Moffa & Associates, 2001) for vortex separation to be used to test and sample the CDS unit at CSO 108, in the Beargrass Creek Region. This protocol was established to achieve the goals of ETV to evaluate the performance of innovative and commercially available environmental technologies; provide objective information about technology performance to permit writers, buyers and users, among others; and facilitate "real world" implementation of promising technologies. Using this protocol, the wet weather sampling effort at CSO 108 took place over three years, and provided MSD the information to adjust parameters of the device, including programming and screen configuration, to best capture S&F at this site.

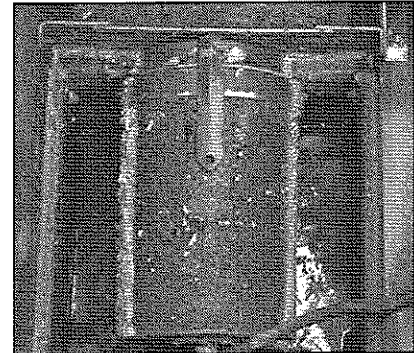


*Rotating Drum Screen in the Ohio River North Region.*

##### **7.7.2 Site Visit Evaluation Work of 2005**

During certain rain events in 2005, an assessment and evaluation of the performance of various CSOs with installed S&F control technologies were performed. The assessments focused on the overall performance, screening operation (if applicable), and "self-cleaning" characteristics of each S&F device installed. Observations were documented for each site.

Photographs and video were recorded during the operation of selected S&F devices. It was observed that screened technologies were more effective in the more urbanized areas of the CSS, where the presence of leaves and other organic material was minimal. The top photo on the right shows a Cyclone (6 mm screen opening) operating in the downtown area. Note that the metal of the screen is visible and clean, inferring that the self-cleaning mechanism has been effective.



*Rotating Drum Screen in the Beargrass  
Creek Region.*

The bottom photo was taken during a rain event at a Cyclone (6 mm screen opening) site in The Beargrass Creek Region of the MSD CSS. The photo shows that a dense organic material has adhered to the outside of the cyclone, preventing it from screening floatables and rotating to self-clean.

Utilizing the documented observations from the site evaluation work, MSD started a process to determine which technologies would be more effective at which CSO sites within the service area. MSD will utilize the information and observations gathered during the evaluation to make improvements to installed S&F controls, as well as refine the decision making process for future technology applications.

### **7.7.3 Summary Of Catch Basin Cleaning**

MSDs Infrastructure and Flood Protection division routinely cleans the trapped basins in the CSS. Amounts of material removed are documented as part of the HANSEN work order system. The total amount of materials removed from catch basins in MSD FY06 was 6,092 CY.

## **7.8 COMPLIANCE SUMMARY**

As depicted in Figure 7-1, every CSO sewershed has at least two forms of S&F control in place. Those CSOs ranked per EPA Screening & Ranking Guidance as being of highest priority have a minimum of three controls in place. However, MSD believes it will better meet the requirements of NMC 6 by applying source controls, installing in-line controls, coordination with the Health Department on proper disposal of items, installing other BMPs, expanding public education and cleaning initiatives, and other methods to effectively prevent S&F from reaching the receiving waters of Louisville Metro (based upon the screening and ranking criteria from the EPA guidance) by no later than September 30, 2006.

As detailed in the Interim CSO LTCP, MSD is continuing to implement its LTCP by completing construction of seventeen additional solids and floatables control devices by the end of 2008.

### **7.8.1 Solids and Floatables Summary**

Figure 7-1 and Figure 7-11 are a presentation of the controls that have been installed within the CSS to date. MSD will continue to evaluate and improve the controls in place in accordance with the results of site on-going site assessments. Figure 7-13 presents the controls in-place in a tabular format, listed by CSO number.



### **7.8.2 Summary of Estimate for Solids and Floatables Removal**

Figure 7-14 is a presentation of the controls in place at each CSO and the corresponding efficiencies and removal percentages for these controls. The estimated solids and floatables removal per CSO is 86%%.

### **7.9 LISTING OF SUPPLEMENTAL INFORMATION**

#### **Guidance Checklist**

Has the permittee:

1. Evaluated the following technologies for the control of solid and floatable materials in CSOs:
  - a. Screening materials using baffles, screens, and netting? – Section 7-6
  - b. Skimmer boats? N/A
  - c. Skimming from water body surface with booms at outfalls in confined areas?N/A
  - d. Source control, which may be addressed under the pollution prevention program for CSO outfalls? Section 7.5.1
2. Identified and addressed problems that may be created by the installation of the control technology? Section 7.5
3. Implemented the appropriate control technology, considered and provided justification that the technology, considered and provided justification that the technology is appropriate for the site conditions, and is conducting associated inspections and regular maintenance? Section 7.5, 7.6, and NMC Section 2

#### **NMC Guidance Documentation Requirements**

1. 1 Engineering evaluation of procedures or technologies considered for controlling solids and floatable. Section 7.5
2. Description of CSO controls in place for solids & floatable material. Figure 7-13
3. Cost estimate and implementation schedule for each of the control measures being implemented. Figure 7-1, Cost estimates available upon request.
4. Estimate of decrease in solids and floatable expected from the minimum control efforts. Figure 7-14
5. Documentation of any additional controls to be installed or implemented. To be included in the CSO LTCP Document






**FIGURE 7-1  
NUMBER OF S&F CONTROL  
CURRENTLY IN PLACE**

**LEGEND**




**MSD Facilities**

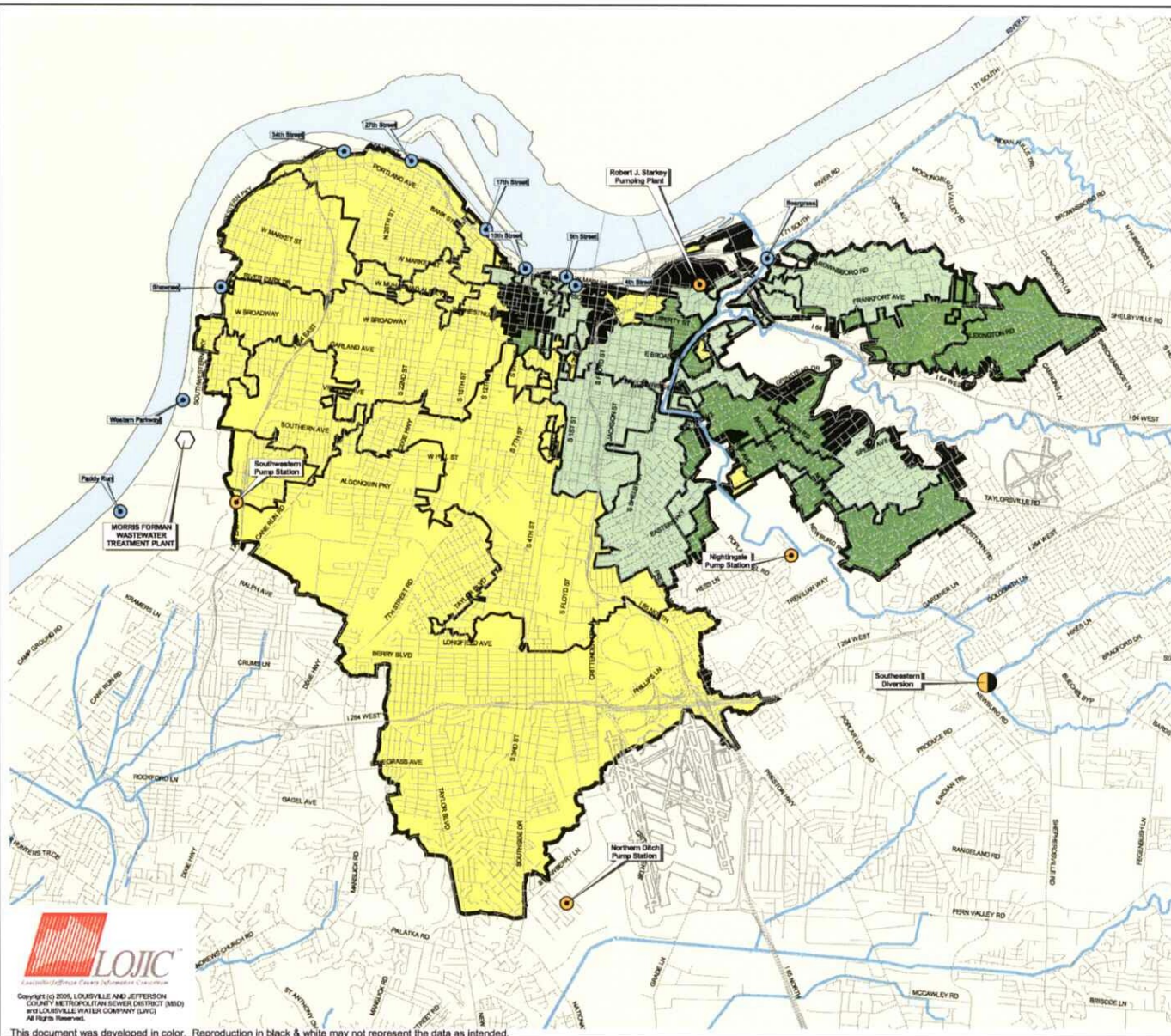
-  MFWTP
-  Sanitary Pump Stations
-  Southeastern Diversion
-  Flood Pump Stations
-  Roads
-  Creeks

**Number of S&F Control in Place**

-  0
-  1
-  2
-  3
-  4

**CSO Elimination**

-  Less than 4 overflows per year
-  Eliminated by 2008
-  Eliminated



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) and CINCINNATI WATER COMPANY (CWC). All Rights Reserved.

This document was developed in color. Reproduction in black & white may not represent the data as intended.



# FIGURE 7-2 CSO Update Form

CSO\_Table

## CSO Update Form

OBRIEN & GERE

Please Select the CSO Number to Modify

Equipment ID:

---

General Location:	<input type="text" value="34th &amp; Rudd"/>	Flapgate?:	<input type="text" value="No"/>	SF Status:	<input type="text" value="No"/>
Latitude:	<input type="text" value="38D16'36.6"/>	Watershed Size (Acres):	<input type="text" value="1192"/>	Recommended SF Technology:	<input type="text"/>
Longitude:	<input type="text" value="85D48'10.7"/>	Watershed % Impervious:	<input type="text" value="0"/>	LTCP Status:	<input type="text"/>
Receiving Stream:	<input type="text" value="SF BGC"/>	Watershed % Residential:	<input type="text" value="0"/>	Dry Weather Flow:	<input type="text" value="0"/>
1999 Avg. Number of Overflows per year:	<input type="text" value="62"/>	Watershed % Commercial:	<input type="text" value="0"/>	Flow Rate for 85% Capture:	<input type="text" value="85"/>
1999 AAOV(MG/YR):	<input type="text" value="182"/>	Watershed % Industrial:	<input type="text" value="0"/>	Overflow Pipe Size:	<input type="text" value="11'6"/>
2003 Avg. Number of Overflows per year:	<input type="text" value="95"/>	Watershed % Openspace:	<input type="text" value="0"/>	Overflow Pipe Shape:	<input type="text" value="circular"/>
2003 AAOV(MG/YR):	<input type="text" value="49"/>	Industrial Discharges?:	<input type="text" value="No"/>	Storm Required to Cause CSO:	<input type="text"/>
Type of CSO (Dam):	<input type="text" value="Dam"/>	% Domestic Overflow:	<input type="text" value="0"/>	Comments:	<input style="width: 100%; height: 30px;" type="text"/>
Dam Raised?:	<input type="text" value="No"/>	Accessibility Ranking:	<input type="text"/>		
CSO (Dam) Elevation:	<input type="text" value="421"/>				
CSO Eliminated?:	<input type="text" value="No"/>				

Record:  of 1

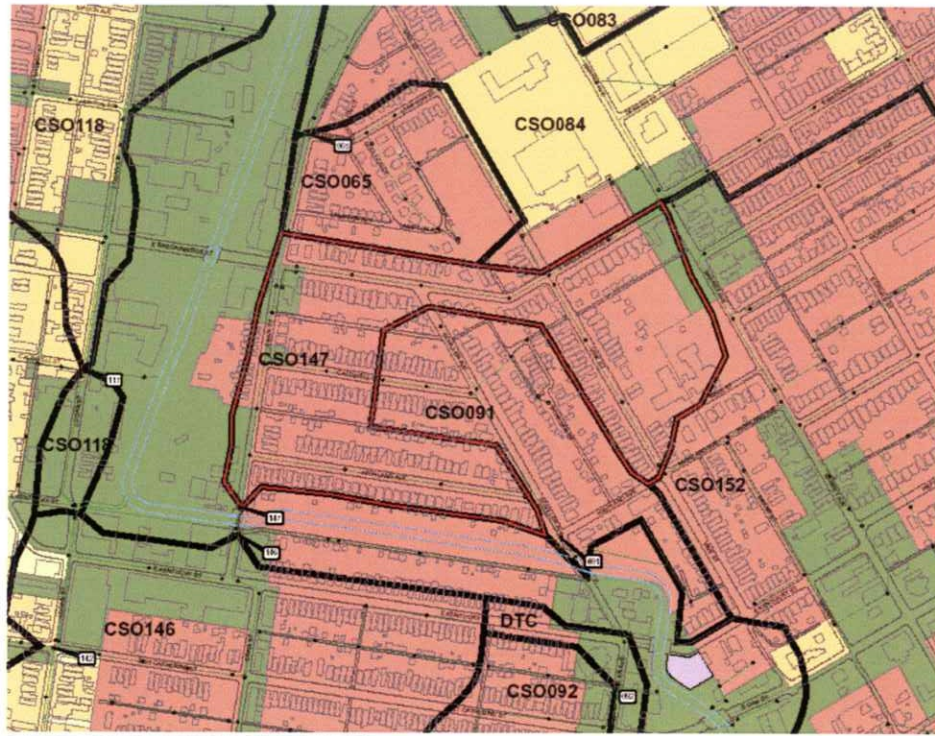


MSD

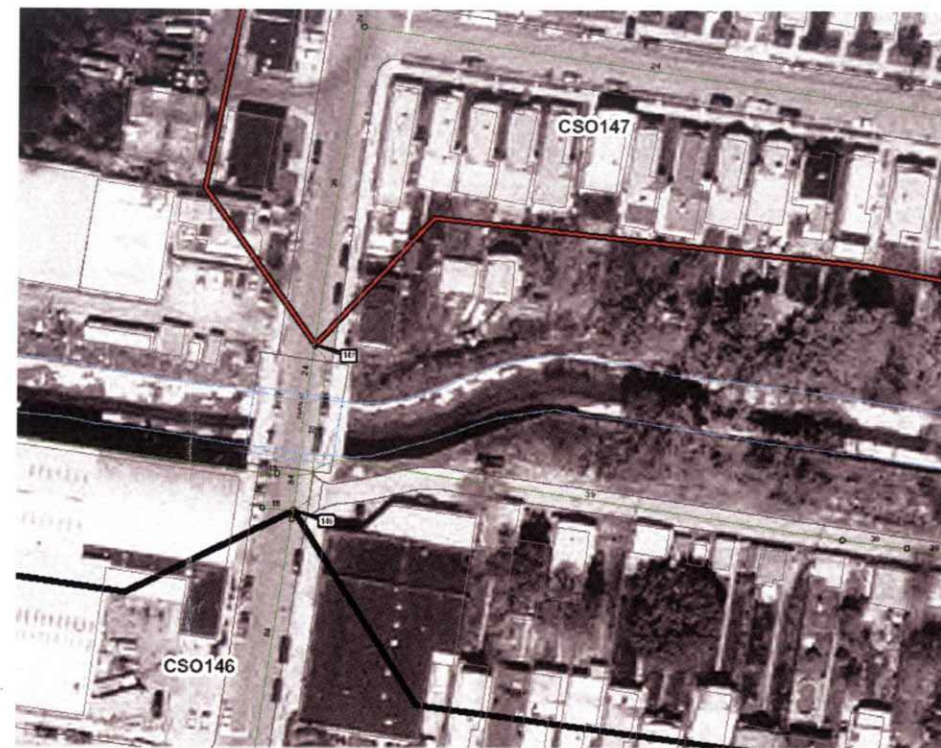
Louisville and Jefferson County  
Metropolitan Sewer District



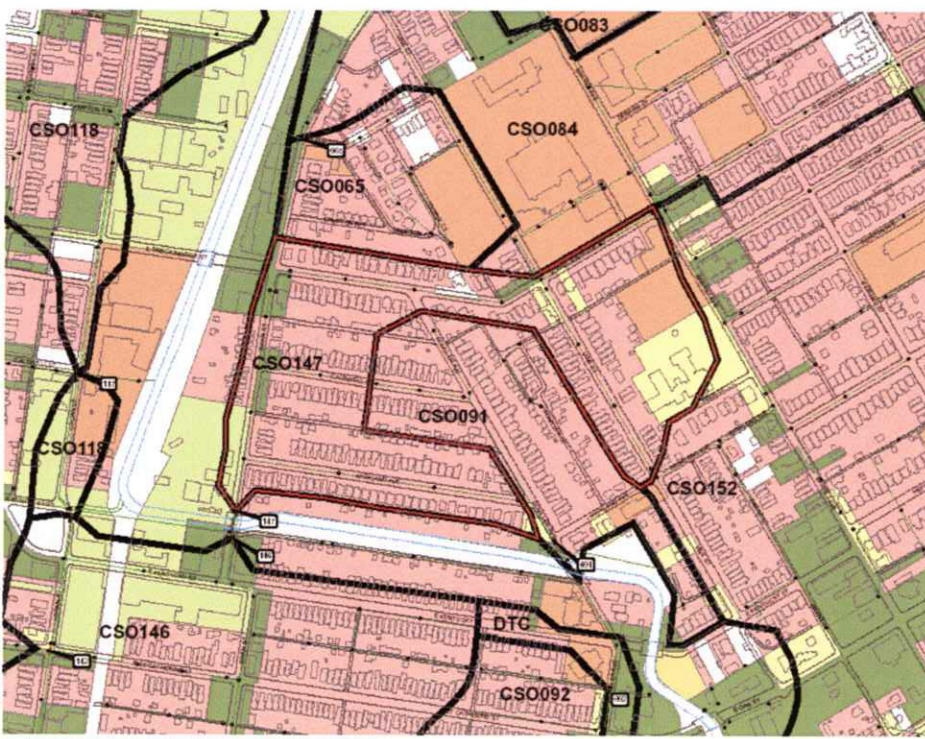
**FIGURE 7-3  
SAMPLE  
CSO ASSESSMENT  
LAND USE  
ZONING MAP  
AERIAL PHOTOGRAPHS**



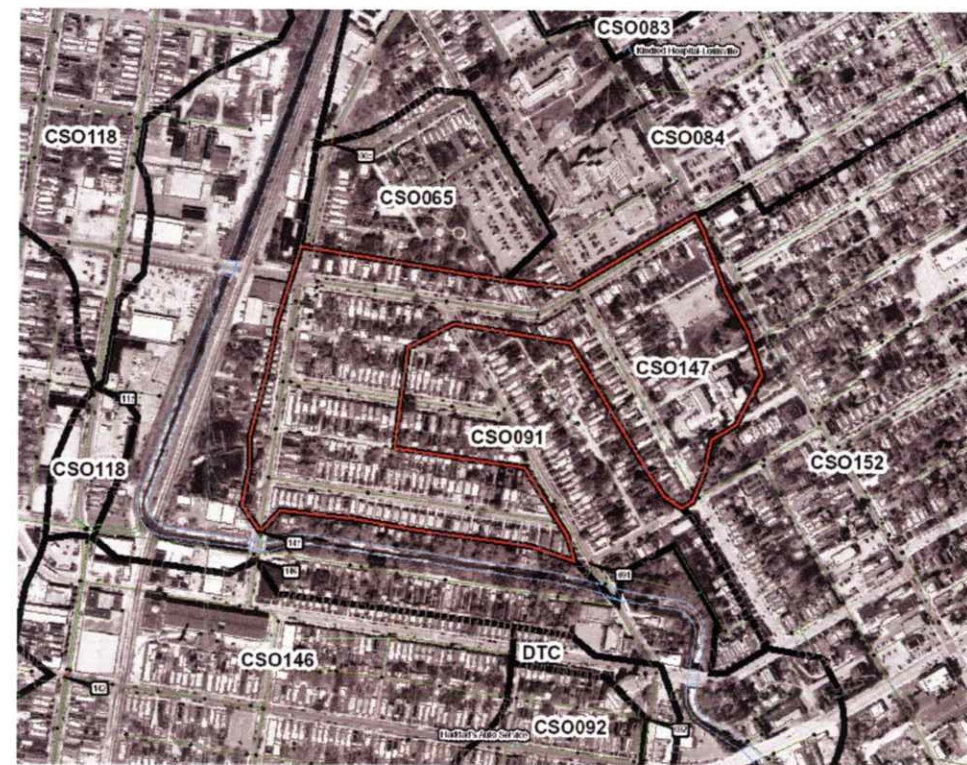
*Zoning Map of CSO Area*



*Aerial Map of the Area Surrounding the CSO Structure*



*Land Use Map of CSO Area*

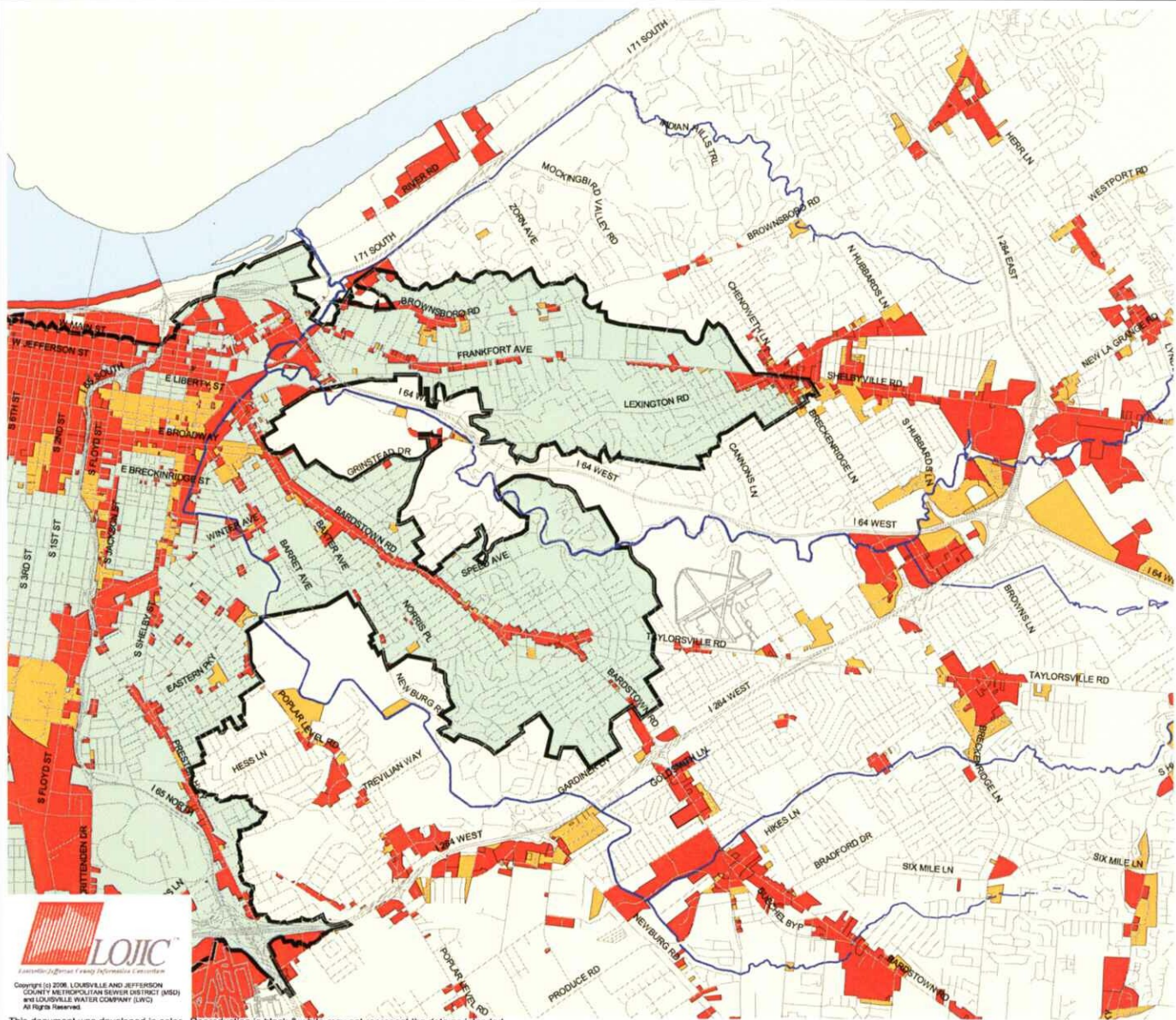


*Aerial Map of CSO Area*

**LEGEND**

- ! CSO LOCATIONS
- MANHOLES
- BUILDINGS
- HYDROLOGY
- ROADS
- SEWERS
- CSO AREAS
- METRO PARKS
- ZONING**
- COMMERCIAL-INDUSTRIAL
- INDUSTRIAL
- OFFICE
- RESIDENTIAL
- SPECIAL
- CSO\_147

**FIGURE 7-4  
COMMERCIAL DEVELOPMENT  
WITHIN JEFFERSON COUNTY**



**LEGEND**

- ☆ CSO Locations
- Roads
- ~ Creeks

**Zoning**

- COMMERCIAL-INDUSTRIAL
- OFFICE

▭ Combined Sewer Area



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) AND LOUISVILLE WATER COMPANY (LWC). All Rights Reserved.

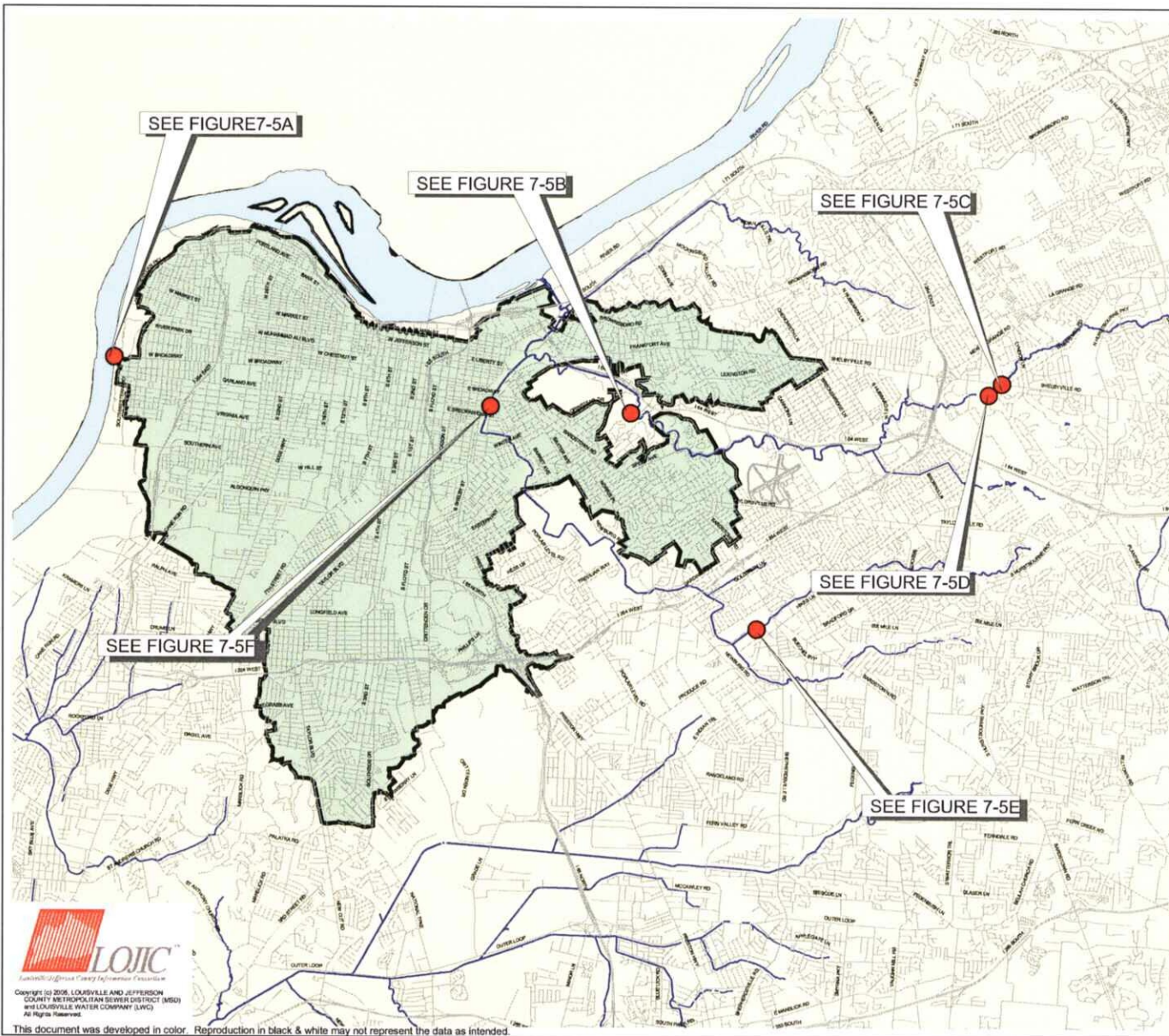
This document was developed in color. Reproduction in black & white may not represent the data as intended.



**FIGURE 7-5  
PHOTOGRAPHS OF SOLIDS  
AND FLOATABLES  
IN THE CSO SYSTEM  
AND UPSTREAM OF THE  
CSO AREA**

**LEGEND**

- Photo Sites
- Combined Sewer Area
- Roads
- Creeks



**LOJIC**  
Louisville and Jefferson County  
Copyright © 2008, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) and LOUISVILLE WATER COMPANY (LWC) All Rights Reserved.

This document was developed in color. Reproduction in black & white may not represent the data as intended.

**MSD**  
Louisville and Jefferson County  
Metropolitan Sewer District

**FIGURE 7 - 5a**  
**Ohio River at CSO 105**  
**Within CSO Area**



**FIGURE 7- 5b**  
**MIDDLE FORK OF BEARGRASS**  
**WITHIN CSO AREA**



**FIGURE 7- 5c  
MIDDLE FORK OF BEARGRASS  
CREEK UPSTREAM OF  
CSO AREA**



**FIGURE 7- 5d  
MIDDLE FORK OF BEARGRASS  
CREEK UPSTREAM OF  
CSO AREA (2)**



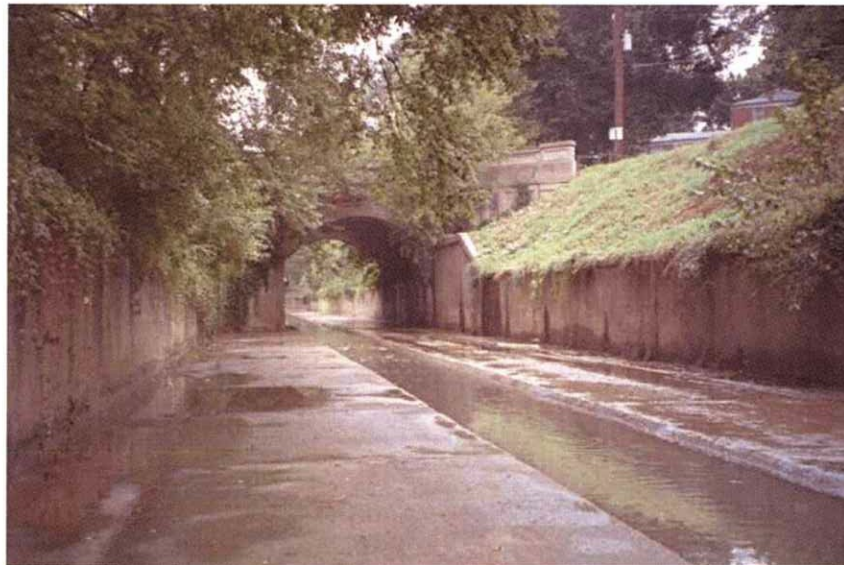
**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

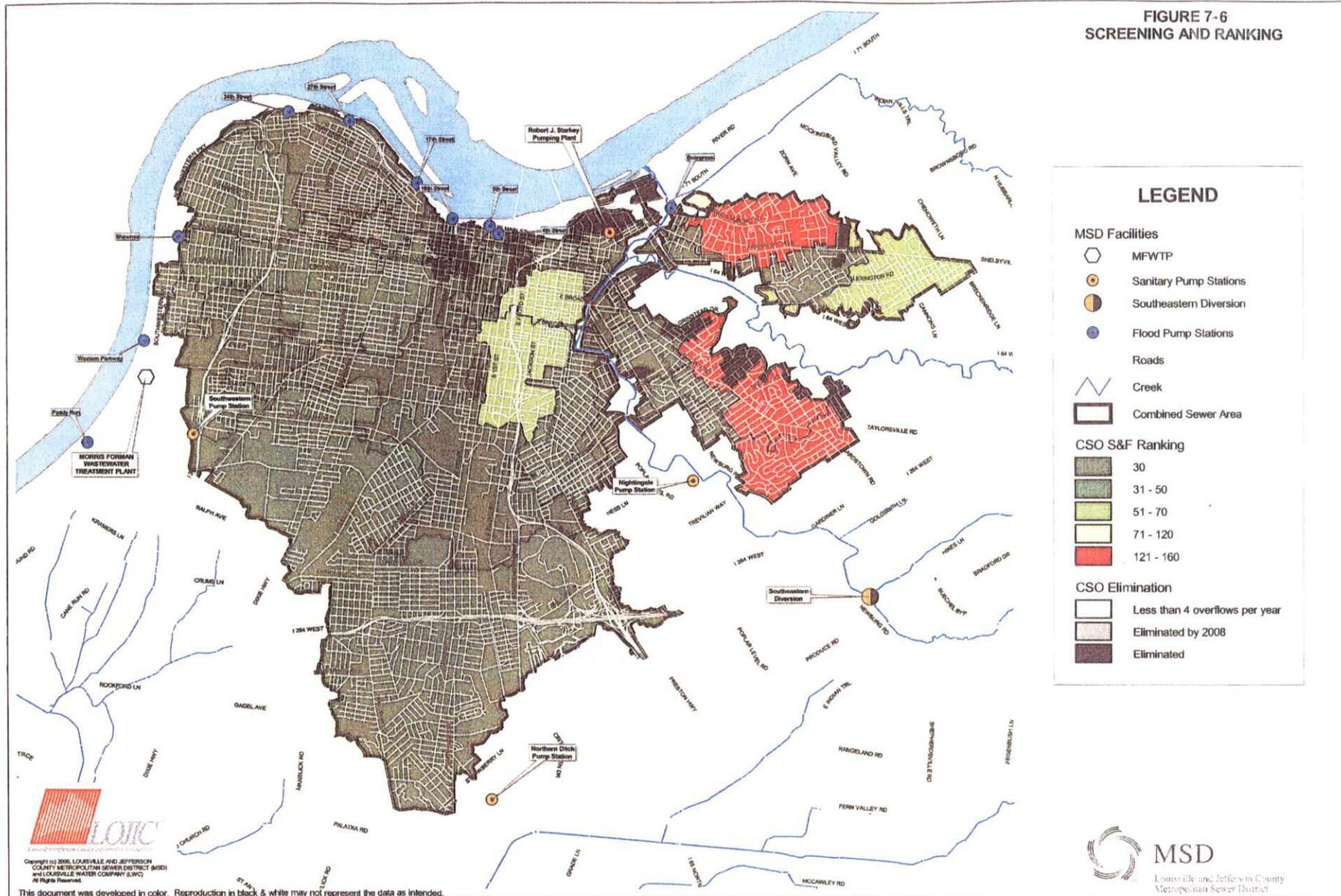
**FIGURE 7- 5e  
SOUTH FORK OF BEARGRASS  
CREEK UPSTREAM OF  
CSO AREA**



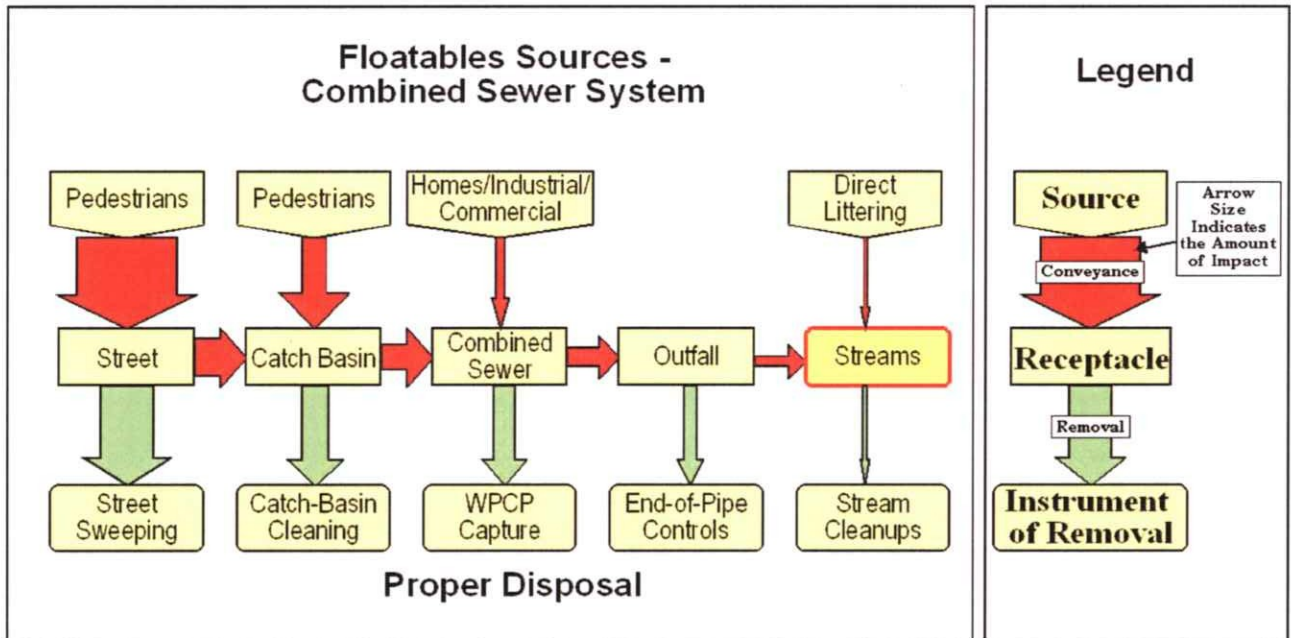
**FIGURE 7- 5 f  
IMPROVED CHANNEL OF  
BEARGRASS CREEK WITHIN  
CSO AREA**



**FIGURE 7-6  
SCREENING AND RANKING**

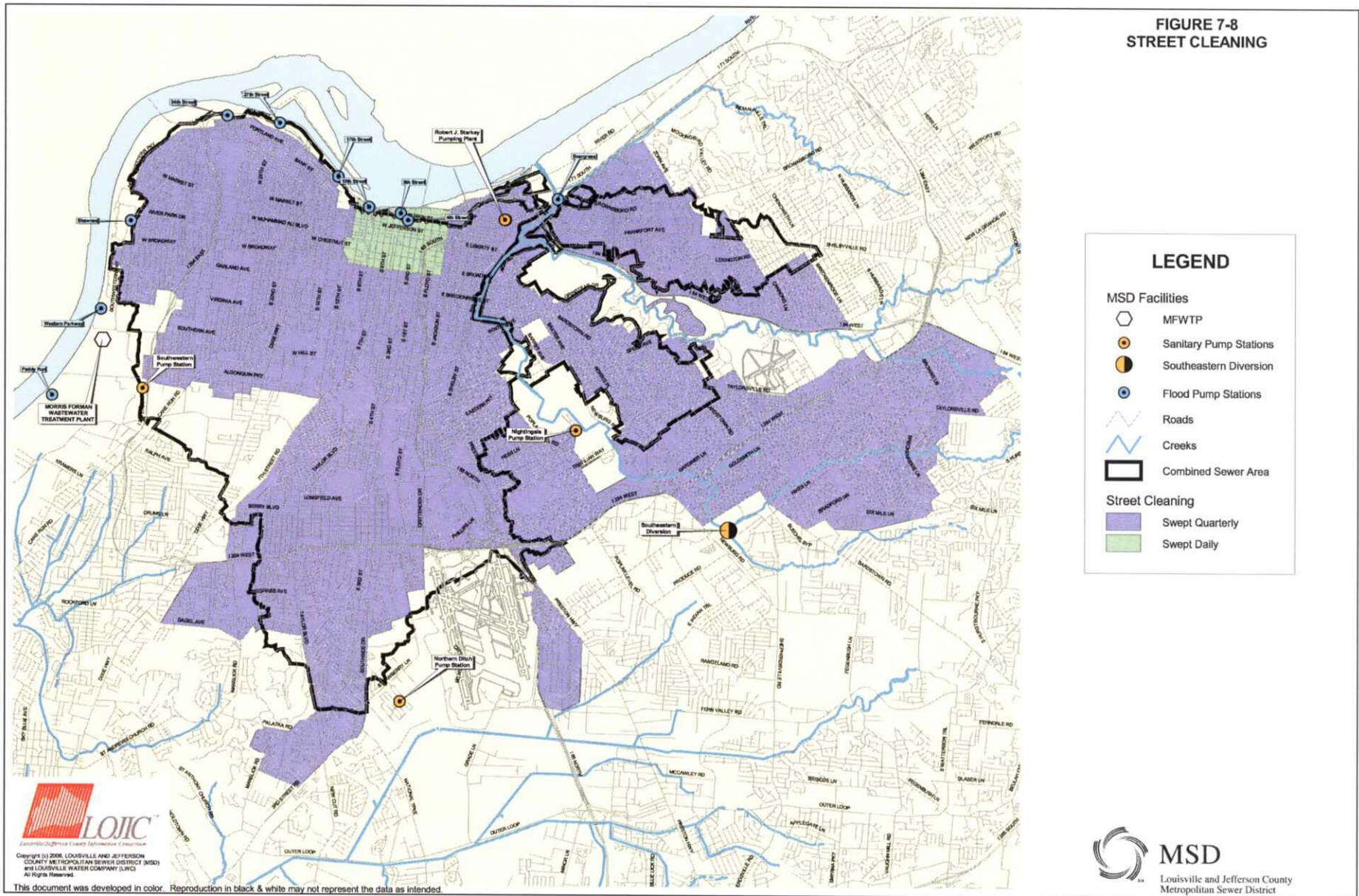


**FIGURE 7-7  
SOURCES OF SOLIDS AND FLOATABLES**





**FIGURE 7-8  
STREET CLEANING**



**LEGEND**

**MSD Facilities**

- MFWTP
- Sanitary Pump Stations
- Southeastern Diversion
- Flood Pump Stations
- Roads
- Creeks
- ▭ Combined Sewer Area

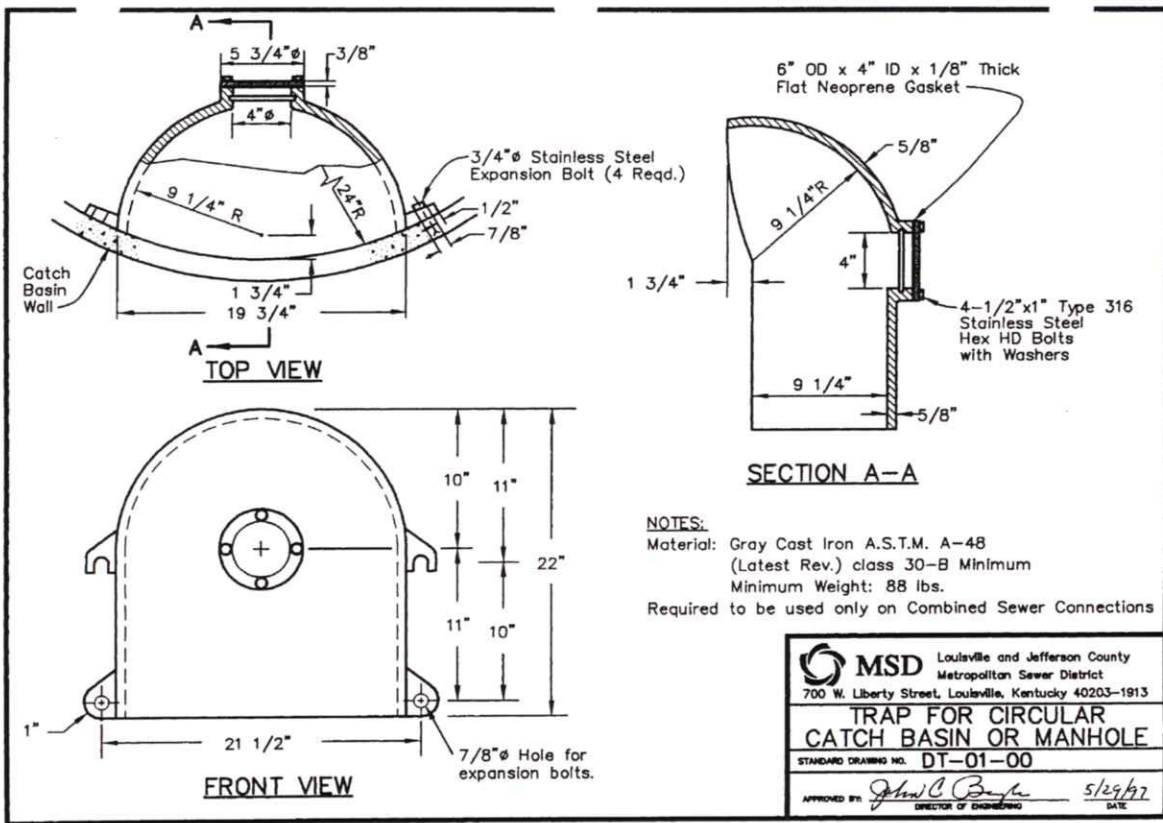
**Street Cleaning**

- Swept Quarterly
- Swept Daily

**LOIC**  
 Louisville and Jefferson County Metropolitan Sewer District  
 Copyright © 2008, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) and LOUISVILLE WATER COMPANY (LWC). All Rights Reserved.  
 This document was developed in color. Reproduction in black & white may not represent the data as intended.

**MSD**  
 Louisville and Jefferson County Metropolitan Sewer District

# FIGURE 7-9 GAS HOOD DIAGRAM



**FIGURE 7-9  
SCREENING AND RANKING**






**LEGEND**

**MSD Facilities**




-  MFWTP
-  Sanitary Pump Stations
-  Southeastern Diversion
-  Flood Pump Stations

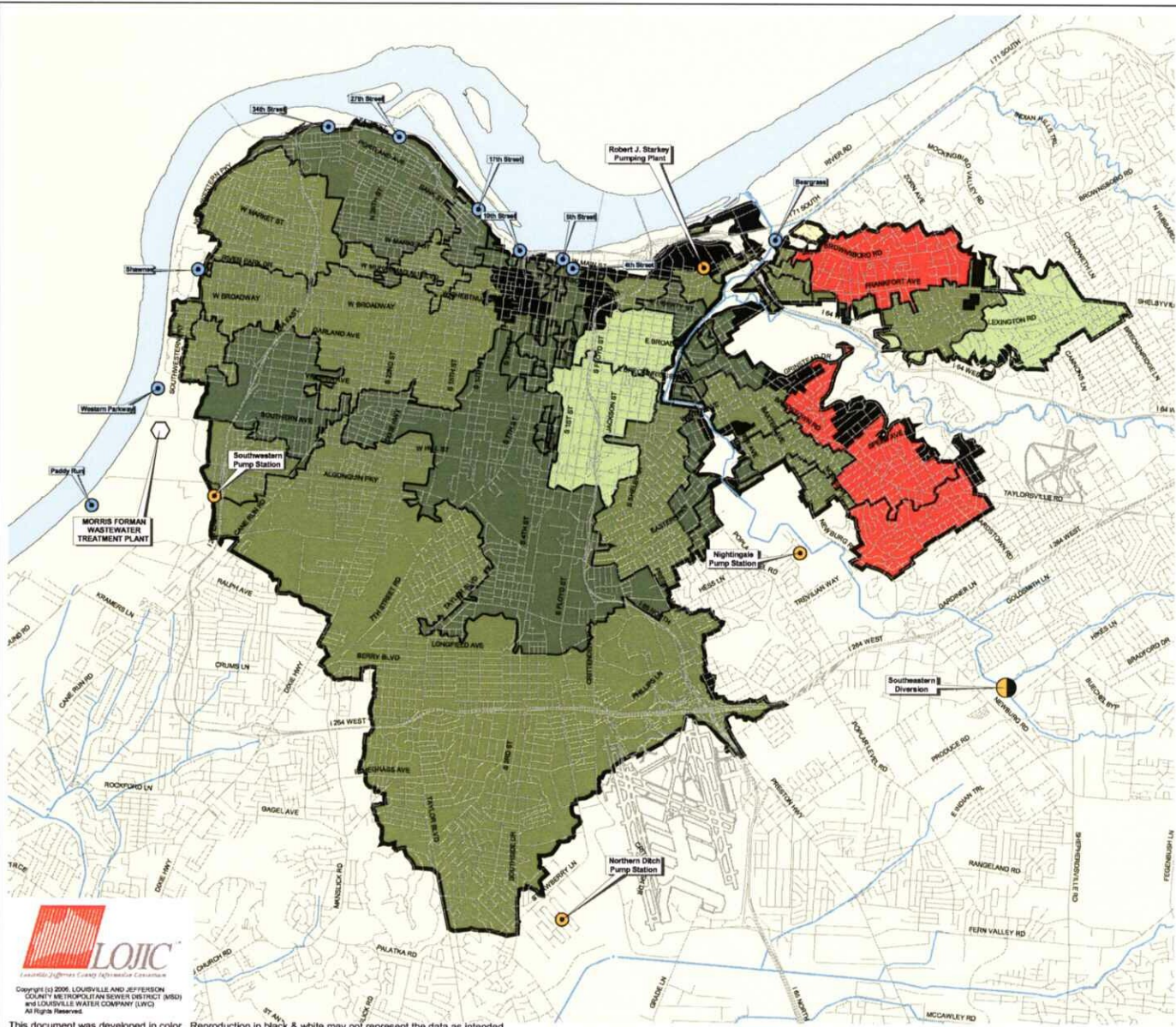
-  Roads
-  Creek
-  Combined Sewer Area

**CSO S&F Ranking**

-  30
-  31 - 50
-  51 - 70
-  71 - 120
-  121 - 160

**CSO Elimination**

-  Less than 4 overflows per year
-  Eliminated by 2008
-  Eliminated



Copyright (c) 2006, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD) and LOUISVILLE WATER COMPANY (LWC) All Rights Reserved.

This document was developed in color. Reproduction in black & white may not represent the data as intended.



**FIGURE 7-10  
TRAPPED CB DIVIDED BY CSO AREA**

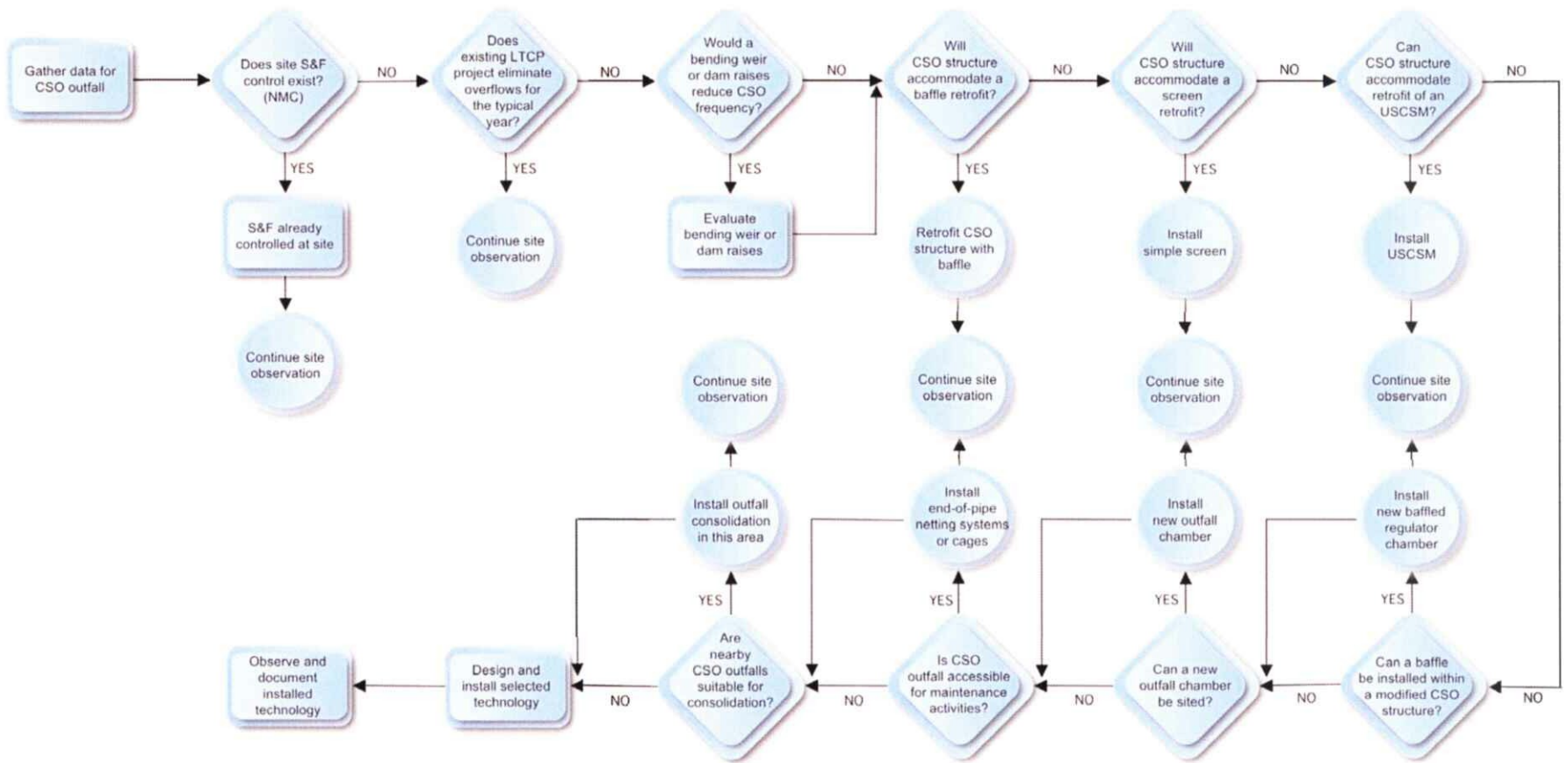
Page 1 of 2

CSO Area	# of Trapped CB in Area	Total # of CB in Area	# of CB not Trapped	% CB Trapped
CSO015	3544	6440	2896	55.03%
CSO019	617	974	357	63.35%
CSO020	52	73	21	71.23%
CSO022	114	204	90	55.88%
CSO026	7	21	14	33.33%
CSO027	9	23	14	39.13%
CSO028	5	10	5	50.00%
CSO030	28	90	62	31.11%
CSO031	5	7	2	71.43%
CSO032	6	12	6	50.00%
CSO033	2	3	1	66.67%
CSO034	7	13	6	53.85%
CSO036	24	31	7	77.42%
CSO038	11	21	10	52.38%
CSO050	32	53	21	60.38%
CSO051	8	15	7	53.33%
CSO052	9	13	4	69.23%
CSO053 150	21	97	76	21.65%
CSO054	6	18	12	33.33%
CSO055	5	28	23	17.86%
CSO056	21	42	21	50.00%
CSO058	89	190	101	46.84%
CSO065	2	7	5	28.57%
CSO080	12	17	5	70.59%
CSO083	24	41	17	58.54%
CSO084	94	123	29	76.42%
CSO086	7	7	0	100.00%
CSO087	7	8	1	87.50%
CSO088	14	25	11	56.00%
CSO091	5	11	6	45.45%
CSO092	8	12	4	66.67%
CSO093	19	23	4	82.61%
CSO104	44	64	20	68.75%
CSO105	1255	2238	983	56.08%
CSO106	2	7	5	28.57%
CSO108	304	476	172	63.87%
CSO109	81	87	6	93.10%
CSO110	61	66	5	92.42%
CSO111	74	120	46	61.67%
CSO113	49	70	21	70.00%
CSO117 149 179	683	842	159	81.12%
CSO118	338	451	113	74.94%
CSO120	12	12	0	100.00%
CSO121	92	143	51	64.34%
CSO123	12	16	4	75.00%
CSO125	201	305	104	65.90%
CSO126	25	28	3	89.29%
CSO127	115	197	82	58.38%
CSO130	30	32	2	93.75%
CSO131	24	33	9	72.73%
CSO132 167	341	558	217	61.11%
CSO137	35	39	4	89.74%

**FIGURE 7-10**  
**TRAPPED CB DIVIDED BY CSO AREA**

CSO Area	# of Trapped CB in Area	Total # of CB in Area	# of CB not Trapped	% CB Trapped
CSO140	22	59	37	37.29%
CSO141	20	22	2	90.91%
CSO144	9	13	4	69.23%
CSO146	606	850	244	71.29%
CSO147	14	31	17	45.16%
CSO148	18	30	12	60.00%
CSO151	137	270	133	50.74%
CSO152	147	216	69	68.06%
CSO153	21	40	19	52.50%
CSO154	31	32	1	96.88%
CSO155	2	10	8	20.00%
CSO161	3	4	1	75.00%
CSO166	233	445	212	52.36%
CSO172	5	13	8	38.46%
CSO178	59	81	22	72.84%
CSO181	17	31	14	54.84%
CSO189	792	1172	380	67.58%
CSO190	162	212	50	76.42%
CSO191	156	219	63	71.23%
CSO192	7	15	8	46.67%
CSO193	24	49	25	48.98%
CSO195	3	4	1	75.00%
CSO198	10	16	6	62.50%
CSO200	6	12	6	50.00%
CSO202	0	5	5	0.00%
CSO203	6	18	12	33.33%
CSO206	277	563	286	49.20%
CSO209	14	125	111	11.20%
CSO210	133	158	25	84.18%
Direct to Stream	62	150	88	41.33%
Direct to Ohio	217	722	505	30.06%
Main Diversion Structure	2096	3425	1329	61.20%
NOT IN CSO AREA	388	41179	40791	0.94%
<b>Total Percentage</b>	<b>11526</b>	<b>19151</b>		<b>60.18%</b>

**FIGURE 7-12  
SITE SCREENING FOR VIABLE  
S&F CONTROL TECHNOLOGIES**



**NOTES**

- 1 – Data to include: discharge statistics from modeling; characteristics of drainage area, outfall, and site; regulator and site; effluent characteristics wrt floatables
- 2 – Reduction of CSO occurrences is preferred to S&F control alone since all pollutants are reduced, not just S&F. If CSO frequency is reduced to an acceptable level, no additional control of S&F is required.
- 3 – Unpowered Self-Cleaning Screening Mechanism
- 4 – Note: Outfall consolidation may reduce number of CSOs and number of control facilities to maintain, and may also allow for cost-effective centralization of treatment for floatables, solids, and other parameters.

FIGURE 7-13  
NMC BY COST SITE  
Page 1 of 3

REGION	CSO	LOCATION	Street Sweeping	Street Sweeping	Catch Basins	In-System or EOP Control	Status
			Mechanical Sweeping QUARTERLY	Manual Sweeping DAILY (6x/wk)	Percentage Hooded Catch Basins	DEVICE	
1	018	NIGHTINGALE & SFBGC	YES	NO	Int. Relief	Baffle/Screen	
1	020	BUCHANAN & FRANKLIN	YES	NO	71%	Screen	
1	062	N OF BUCHANAN PS	YES	NO	Int. Relief	Screen	
1	065	LAMPTON & SWAN	YES	NO	29%	Baffle	ELIMINATED
1	080	LEXINGTON RD W OF PAYNE	YES	NO	71%	Baffle	ELIMINATED
1	081	LETTERLE @ BGC PS	YES	NO		Baffle	ELIMINATED
1	082	BGC @ OMFT	YES	NO	Int. Relief	Cyclone	
1	083	BRENT & BROADWAY	YES	NO	59%	Baffle Vault	
1	084	BRENT ST @ BGC	YES	NO	76%	Baffle	
1	086	PAYNE ST @ SPRING ST	YES	NO	100%	Screen	
1	087	FRANKFORT @ BLUEHORSE	YES	NO	88%	Baffle	
1	088	BROWNSBORO RD @ BGC	YES	NO	56%	Screen	
1	091	SCHILLER & HIGHLAND	YES	NO	45%	Baffle	
1	092	SCHILLER BTW KY & ST CATHERINE	YES	NO	67%	Screen	
1	093	SPRING ST N OF MELLWOOD	YES	NO	83%	Baffle	
1	097	BGC S OF EASTERN PKWY	YES	NO	Int. Relief	Baffle	
1	106	BACKYARD OF 1212 ROYAL	YES	NO	29%	Screen	
1	108	NEWBURG @ TREVILIAN	YES	NO	64%	CDS	
1	109	BEHIND O. L. O. P.	YES	NO	93%	Wave Screen	
1	110	BGC S OF EASTERN PKWY	YES	NO	92%	Cages	
1	111	BGC N OF EASTERN PKWY	YES	NO	62%	Baffle	
1	113	ELLISON & SCHILLER	YES	NO	70%	Wave Screen	
1	117	LOGAN & CALDWELL	YES	NO	81%	Baffle	
1	118	BROADWAY W OF BGC	YES	NO	75%	Baffle	
1	119	BGC N OF BROADWAY	YES	NO	Int. Relief	Cyclone	
1	120	E OF BGC & S OF BAXTER	YES	NO	100%	Baffle	
1	121	LEXINGTON RD W OF BGC	YES	NO	64%	Baffle Vault	
1	123	ON BGC OP SPRING VALLEY	YES	NO	75%	Baffle	ELIMINATED
1	125	GRINSTEAD @ I-64	YES	NO	66%	Wave Screen	
1	126	I-64 & SAUNDERS LN	YES	NO	89%	Cyclone	
1	127	LEXINGTON RD OP ETLEY	YES	NO	58%	Wave Screen	
1	130	S OF STORY OP WEBSTER	YES	NO	94%	Screen	
1	131	FRANKFORT AVE @ BGC	YES	NO	73%	Baffle	
1	132	BROWNSBORO & DRESCHER B	YES	NO	61%	Baffle	
1	137	CALVARY CEMETARY @ BGC	YES	NO	90%	Screen	
1	140	LOCUST SW OF SPRING	YES	NO	37%	Baffle	
1	141	BAXTER AVE & BGC	YES	NO	91%	Screen	
1	142	LOGAN & ST CATHERINE	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	144	S END OF VANCE & I-64	YES	NO	69%	Wave Screen	
1	145	POINT PUMP STATION	YES	NO			ELIMINATED
1	146	SWAN ST S OF BGC	YES	NO	71%	Baffle	
1	147	SWAN ST N OF BGC	YES	NO	45%	Baffle	
1	148	EASTERN PKWY E OF BGC	YES	NO	60%	Baffle	
1	149	KENTUCKY STREET & ST PAUL CT	YES	NO	81%	Baffle	
1	151	BGC & CASTLEWOOD DELL	YES	NO	51%	Cages	
1	152	BGC & RUFER AVENUE	YES	NO	68%	Cages	
1	153	LEXINGTON & COOPER	YES	NO	53%	Screen	
1	154	MELLWOOD AVE & EDWD POND BR	YES	NO	97%	Screen	
1	162	ON MFT S OF LEXINGTON	YES	NO			ELIMINATED
1	166	LEXINGTON RD & I-64	YES	NO	52%	Wave Screen	
1	167	BROWNSBORO & DRESCHER B	YES	NO	61%	Baffle	
1	172	ADAMS ST & I-64	YES	NO	38%	Screen	
1	174	GOSS AVE & BOYLE ST	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	179	KENTUCKY ST & ST PAUL CT	YES	NO	81%	Baffle	
1	180	ORMSBY & CLAY	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	182	BURNETT W OF SHELBY ST	YES	NO	Int. Relief	100% Capture at Inflatable Dam	

**FIGURE 7-13**  
**NMC BY COST SITE**  
Page 2 of 3

REGION	CSO	LOCATION	Street Sweeping	Street Sweeping	Catch Basins	In-System or EOP Control	Status
			Mechanical Sweeping QUARTERLY	Manual Sweeping DAILY (6x/wk)	Percentage Hooded Catch Basins	DEVICE	
1	183	ALEXANDER & KESWICK	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	184	FETTER & ALEXANDER	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	185	SHELBY & KESWICK	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	186	LOGAN & OAK	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	187	SHELBY & CAMP	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	188	SHELBY & CLAY	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	205	MORGAN & HOERTZ	YES	NO	Int. Relief	100% Capture at Inflatable Dam	
1	206	CHEROKEE RD & SPRING DR	YES	NO	49%	Baffle	
1	209	CHEROKEE PK @ PARK BD RD	YES	NO	11%		ELIMINATED
2	019	34th & RUDD	YES	NO	63%	Baffle	
2	022	FOURTH & MAIN	YES	YES	56%	Baffle	
2	023	FOURTH & MAIN	YES	NO	Int. Relief	NONE	
2	026	6th & BROADWAY	YES	YES	33%	Screen	
2	027	7th & BROADWAY	YES	YES	39%	Baffle	
2	028	6TH & YORK	YES	NO	50%	Cyclone	
2	029	8th & YORK	YES	NO	Int. Relief	Baffle	
2	030	9th & YORK	YES	YES	31%	Cyclone	
2	031	6th & BRECKINRIDGE	YES	NO	71%	Baffle	
2	032	4th & BRECKINRIDGE	YES	NO	50%	Screen	
2	033	ON YORK E OF 4th	YES	NO	67%	Baffle	
2	034	4th & YORK	YES	NO	54%	Cyclone	
2	035	2nd & BROADWAY	YES	NO	Int. Relief	Screen	
2	036	3rd & BROADWAY	YES	NO	77%	Baffle	
2	038	5th & BROADWAY	YES	NO	52%	Baffle	
2	049	PRESTON N OF JACKSON	YES	NO	Int. Relief	Baffle	
2	050	12th ST N OF MAIN	YES	NO	60%	CDS	
2	051	11th ST N OF MAIN	YES	YES	53%	Baffle	
2	052	10th ST N OF MAIN	YES	YES	69%	Baffle	
2	053	8th ST N OF MAIN	YES	YES	22%	Baffle	
2	054	7th ST N OF MAIN	YES	YES	33%	Baffle	
2	055	6th ST N OF MAIN	YES	YES	18%	Baffle	
2	056	5th ST N OF MAIN	YES	YES	50%	Baffle	
2	057	1st & MAIN	YES	YES	Int. Relief	Screen	
2	058	PRESTON & MAIN	YES	YES	47%	Baffle	
2	150	8th ST & COMMON PLACE	YES	NO	22%	Baffle	
2	155	ROWAN & 12th	YES	NO	20%	Screen	
2	156	WASHINGTON W OF 6th	YES	NO	Int. Relief	Screen	
2	159	INTERCEPTOR RELIEF	YES	NO	Int. Relief	Baffle	
2	160	1ST ST BTW MAIN & MARKET	YES	YES	Int. Relief	Baffle	
2	161	FIRST & MARKET	YES	YES	75%	Screen	
2	178	9th & YORK	YES	NO	73%	Baffle	
2	181	2nd & BROADWAY	YES	YES	55%	Baffle	
2	190	17th ST & NW PKWY	YES	NO	76%	Baffle	
2	192	6th & GARLAND	YES	NO	47%	Baffle	
2	193	6th & KENTUCKY	YES	NO	49%	Baffle	
2	194	OAK ST W OF 4th ST	YES	NO	Int. Relief	Screen	
2	195	4th & OAK	YES	NO	75%	Baffle	
2	196	3rd & OAK	YES	NO	Int. Relief	Baffle	
2	197	3rd ST S OF OAK ST	YES	NO	Int. Relief	Screen	
2	198	3rd & ORMSBY	YES	NO	63%	Baffle	
2	199	3rd ST N OF MAGNOLIA	YES	NO	Int. Relief	Screen	
2	200	3rd & MAGNOLIA	YES	NO	50%	Screen	
2	201	5th & KENTUCKY	YES	NO	Int. Relief	Screen	
2	202	ORMSBY W OF 3rd ST	YES	NO	0%	Screen	
2	203	4th & ORMSBY	YES	NO	33%	Baffle	
2	207	2ND & JEFFERSON	YES	NO	Int. Relief	Screen	



**FIGURE 7-13**  
**NMC BY COST SITE**  
 Page 3 of 3

			Street Sweeping	Street Sweeping	Catch Basins	In-System or EOP Control	Status
REGION	CSO	LOCATION	Mechanical Sweeping QUARTERLY	Manual Sweeping DAILY (6x/wk)	Percentage Hooded Catch Basins	DEVICE	
2	208	12th & JEFFERSON	YES	NO	Int. Relief	Screen	
3	015	BELLS LN & I-264	YES	NO	55%	PS Gate Baffle	
3	016	S OF 45th & WINNROSE	YES	NO	Int. Relief	Baffle	
3	104	SW PKWY & BROADWAY	YES	NO	69%	Screen	
3	105	BROADWAY @ SW PKWY	YES	NO	56%	NONE	
3	189	SHAWNEE PARK FLOOD PS	YES	NO	68%	Baffle	
3	191	SOUTHWESTERN PS	YES	NO	71%	Baffle	
3	210	S OF 45th & WINNROSE	YES	NO	84%	Baffle	
3	211	Main Diversion Structure	YES	NO	Int. Relief	NONE	

**FIGURE 7-14**  
**NMC PERCENTAGE BY CSO**

Page 1 of 3

REGION	CSO ID	TOTAL FLOATABLES LOADING	STREET SWEEPING	CATCH BASINS	HYDRAULIC CAPTURE	IN-SYSTEM DEVICES	END-OF-PIPE CONTROLS	TOTAL REMOVAL	STATUS
1	018	100%	6%	9%	0%	29%	0%	44%	
1	020	100%	6%	51%	25%	16%	0%	98%	
1	062	100%	6%	9%	0%	77%	0%	91%	
1	065	100%	6%	26%	0%	0%	0%	32%	ELIMINATED
1	080	100%	6%	51%	0%	0%	0%	57%	ELIMINATED
1	081	100%	6%	9%	85%	0%	0%	100%	ELIMINATED
1	082	100%	6%	9%	0%	85%	0%	100%	
1	083	100%	6%	44%	0%	22%	0%	71%	
1	084	100%	6%	54%	0%	8%	0%	68%	
1	086	100%	6%	68%	26%	0%	0%	100%	
1	087	100%	6%	61%	33%	0%	0%	100%	ELIMINATED
1	088	100%	6%	42%	52%	0%	0%	100%	
1	091	100%	6%	36%	34%	5%	0%	81%	
1	092	100%	6%	48%	42%	4%	0%	100%	
1	093	100%	6%	58%	36%	0%	0%	100%	
1	097	100%	6%	9%	21%	13%	0%	48%	
1	106	100%	6%	26%	31%	34%	0%	96%	
1	108	100%	6%	47%	0%	47%	0%	100%	
1	109	100%	6%	64%	0%	30%	0%	100%	
1	110	100%	6%	64%	0%	27%	0%	97%	
1	111	100%	6%	45%	0%	10%	0%	61%	
1	113	100%	6%	50%	0%	44%	0%	100%	
1	117	100%	6%	57%	0%	7%	0%	70%	
1	118	100%	6%	53%	0%	8%	0%	67%	
1	119	100%	6%	9%	0%	85%	0%	100%	
1	120	100%	6%	68%	0%	5%	0%	79%	
1	121	100%	6%	47%	0%	20%	0%	73%	
1	123	100%	6%	53%	0%	0%	0%	59%	ELIMINATED
1	125	100%	6%	48%	0%	46%	0%	100%	
1	126	100%	6%	62%	0%	32%	0%	100%	
1	127	100%	6%	44%	0%	51%	0%	100%	
1	130	100%	6%	64%	0%	6%	0%	76%	
1	131	100%	6%	52%	25%	4%	0%	86%	
1	132	100%	6%	45%	0%	10%	0%	61%	
1	137	100%	6%	62%	6%	24%	0%	97%	
1	140	100%	6%	31%	7%	11%	0%	55%	
1	141	100%	6%	63%	31%	0%	0%	100%	
1	142	100%	6%	9%	85%	0%	0%	100%	
1	144	100%	6%	50%	0%	44%	0%	100%	
1	145	100%	6%	9%	0%	0%	0%	15%	ELIMINATED
1	146	100%	6%	51%	3%	8%	0%	68%	
1	147	100%	6%	36%	15%	9%	0%	65%	
1	148	100%	6%	44%	16%	7%	0%	73%	
1	149	100%	6%	57%	10%	5%	0%	78%	
1	151	100%	6%	39%	0%	0%	55%	100%	
1	152	100%	6%	49%	0%	0%	45%	100%	
1	153	100%	6%	40%	0%	49%	0%	95%	
1	154	100%	6%	66%	6%	20%	0%	98%	
1	162	100%	6%	9%	0%	0%	0%	15%	ELIMINATED

FIGURE 7-14

NMC PERCENTAGE BY CSO

REGION	CSO ID	TOTAL FLOATABLES LOADING	STREET SWEEPING	CATCH BASINS	HYDRAULIC CAPTURE	IN-SYSTEM DEVICES	END-OF-PIPE CONTROLS	TOTAL REMOVAL	STATUS
1	166	100%	6%	40%	0%	54%	0%	100%	
1	167	100%	6%	45%	49%	0%	0%	100%	
1	172	100%	6%	32%	16%	42%	0%	95%	
1	174	100%	6%	9%	85%	0%	0%	100%	
1	179	100%	6%	57%	35%	0%	0%	98%	
1	180	100%	6%	9%	85%	0%	0%	100%	
1	182	100%	6%	9%	85%	0%	0%	100%	
1	183	100%	6%	9%	85%	0%	0%	100%	
1	184	100%	6%	9%	85%	0%	0%	100%	
1	185	100%	6%	9%	85%	0%	0%	100%	
1	186	100%	6%	9%	85%	0%	0%	100%	
1	187	100%	6%	9%	85%	0%	0%	100%	
1	188	100%	6%	9%	85%	0%	0%	100%	
1	205	100%	6%	9%	85%	0%	0%	100%	
1	206	100%	6%	38%	1%	11%	0%	56%	
1	209	100%	6%	16%	0%	0%	0%	21%	ELIMINATED
2	019	100%	6%	46%	4%	9%	0%	65%	
2	022	100%	79%	9%	0%	2%	0%	91%	
2	023	100%	6%	9%	0%	0%	0%	15%	
2	026	100%	79%	6%	15%	0%	0%	100%	
2	027	100%	79%	7%	14%	0%	0%	100%	
2	028	100%	6%	39%	0%	56%	0%	100%	
2	029	100%	6%	9%	49%	7%	0%	71%	
2	030	100%	79%	6%	0%	15%	0%	100%	
2	031	100%	6%	51%	43%	0%	0%	100%	
2	032	100%	6%	39%	56%	0%	0%	100%	
2	033	100%	6%	48%	41%	1%	0%	96%	
2	034	100%	6%	41%	0%	53%	0%	100%	
2	035	100%	6%	9%	85%	0%	0%	100%	
2	036	100%	6%	55%	26%	3%	0%	90%	
2	038	100%	6%	40%	53%	0%	0%	99%	
2	049	100%	6%	9%	0%	0%	0%	15%	
2	050	100%	6%	45%	0%	49%	0%	100%	
2	051	100%	79%	9%	4%	2%	0%	93%	
2	052	100%	79%	11%	2%	2%	0%	94%	
2	053	100%	79%	5%	2%	3%	0%	89%	
2	054	100%	79%	6%	0%	3%	0%	88%	
2	055	100%	79%	4%	0%	3%	0%	87%	
2	056	100%	79%	9%	0%	2%	0%	90%	
2	057	100%	79%	2%	19%	0%	0%	100%	
2	058	100%	79%	8%	0%	3%	0%	90%	
2	150	100%	6%	22%	0%	14%	0%	42%	
2	155	100%	6%	21%	34%	35%	0%	96%	
2	156	100%	6%	9%	85%	0%	0%	100%	
2	159	100%	6%	9%	0%	17%	0%	32%	
2	160	100%	79%	2%	3%	3%	0%	87%	
2	161	100%	79%	12%	2%	6%	0%	99%	
2	178	100%	6%	52%	33%	2%	0%	92%	
2	181	100%	79%	9%	8%	1%	0%	97%	

**FIGURE 7-14**  
**NMC PERCENTAGE BY CSO**

REGION	CSO ID	TOTAL FLOATABLES LOADING	STREET SWEEPING	CATCH BASINS	HYDRAULIC CAPTURE	IN-SYSTEM DEVICES	END-OF-PIPE CONTROLS	TOTAL REMOVAL	STATUS
2	190	100%	6%	54%	5%	7%	0%	72%	
2	192	100%	6%	37%	0%	12%	0%	54%	
2	193	100%	6%	38%	36%	4%	0%	84%	
2	194	100%	6%	9%	85%	0%	0%	100%	
2	195	100%	6%	53%	41%	0%	0%	100%	
2	196	100%	6%	9%	25%	12%	0%	52%	
2	197	100%	6%	9%	8%	70%	0%	92%	
2	198	100%	6%	46%	13%	7%	0%	72%	
2	199	100%	6%	9%	57%	26%	0%	97%	
2	200	100%	6%	39%	18%	34%	0%	96%	
2	201	100%	6%	9%	40%	41%	0%	95%	
2	202	100%	6%	9%	45%	36%	0%	96%	
2	203	100%	6%	29%	65%	0%	0%	100%	
2	207	100%	6%	9%	85%	0%	0%	100%	
2	208	100%	6%	9%	85%	0%	0%	100%	
3	015	100%	6%	42%	0%	31%	0%	78%	
3	016	100%	6%	9%	85%	0%	0%	100%	
3	104	100%	6%	50%	0%	40%	0%	96%	
3	105	100%	6%	42%	0%	0%	0%	48%	
3	189	100%	6%	49%	0%	9%	0%	64%	
3	191	100%	6%	51%	18%	5%	0%	80%	
3	210	100%	6%	59%	0%	7%	0%	72%	
3	211	100%	6%	9%	0%	0%	0%	15%	
<b>Average Capture/CSO</b>								<b>86%</b>	

**Floatables Removal Efficiencies for Various Controls**

<b>Floatables Removal Efficiency</b>	<b>Control</b>	<b>Reference</b>
90%	Mechanical Street Sweeping	HydroQual, 1995
75%	Manual Street Sweeping	HydroQual, 1995
75%	Rainfall (flushing off streets)	HydroQual, 1995
76%	Hooded Catch Basin	HydroQual, 1995
10%	Unhooded Catch Basin	HydroQual, 1995
20%	Baffle retrofit (min. of 10 locations)	HydroQual et.al, 1999
100%	Cyclone (Copa)	Copa product information
100%	Wave Screen (Copa)	Copa product information
100%	CDS (Copa)	Copa product information
90%	Cages (1.5" openings)	Basis: HydroQual, 2003* (NYC CSO sampling showing 10% of items > 1.5 inches min dimension)
90%	Screens (1.5" openings)	Basis: HydroQual, 2003* (NYC CSO sampling showing 10% of items > 1.5 inches min dimension)
43%	Baffle Vault	take minimum of new baffle vaults calculated for Boston (HydroQual, 1999)
59%	PS Gate Baffle	6 ft submergence; take average of baffle efficiencies calculated for Boston (HydroQual 1999)

NOTE: these removal efficiencies assume that the devices are properly maintained and are designed for the peak flow rate in the typical year.

HydroQual, 1995 "City-Wide Floatables Study: Evaluation of Non-Structural Methods to Control Combined and Storm Sewer Floatable Materials" prepared for the NYC DEP, January 1995

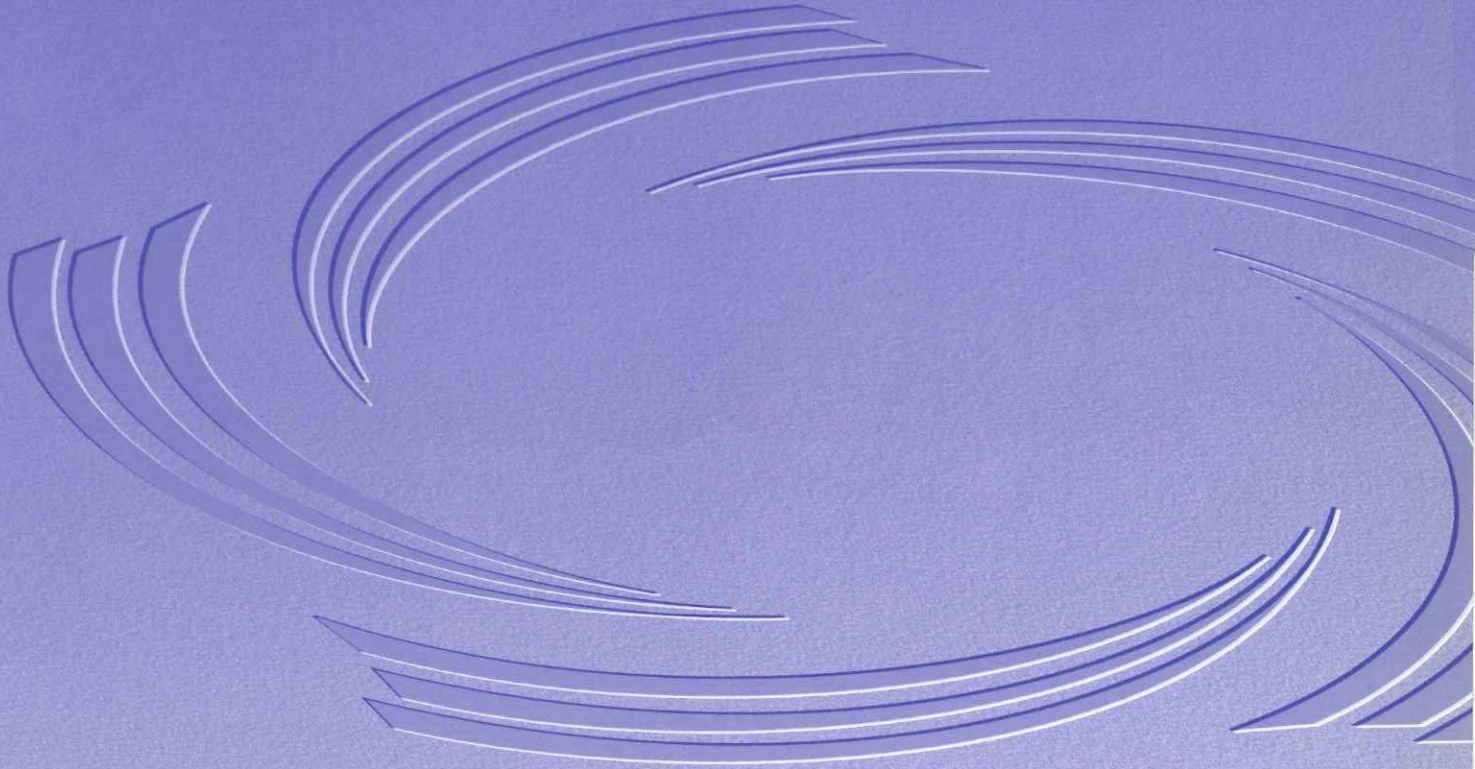
HydroQual et al, 1999 "Floatables Control Preliminary Design Report, Volume 1" prepared for Boston Water and Sewer Commission, October 1999.

HydroQual et al, 2003 "Evaluation of Corona Avenue Vortex Facility, Volume 1, Report" prepared for the New York City Department of Environmental Engineering, Bureau of Environmental Engineering, September 2003.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 8: NMC 7 – POLLUTION PREVENTION PROGRAMS TO REDUCE CONTAMINANTS IN CSOS**

### **8.1 INTRODUCTION**

As described by the EPA guidance, “The seventh minimum control, pollution prevention, is intended to keep contaminants from entering the CSS and thus receiving waters via Combined Sewer Overflows (CSOs). Congress enacted the Pollution Prevention Act of 1990 to establish a national strategy for pollution prevention. The Act establishes the following hierarchy for pollution management efforts:

- Pollution should be prevented or reduced at the source whenever feasible.
- Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible.
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible.
- Disposal or release of pollution into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

The objective of this minimum control is to reduce to the greatest extent possible the amount of contaminants that enter the combined sewer system. Many of the suggested measures involve behavioral change rather than construction of storage or treatment devices.

The Louisville Metro government and MSD’s Pollution Prevention (P2) initiatives include local specialized programs that address response and mitigation of hazardous materials discharges from hazmat incidents and motor vehicle accidents, and commercial-sector P2 educational program development that address existing or potential pollutants of concern.

### **8.2 PROGRAM OVERVIEW**

Louisville Metro and MSD use the following strategies and programs to prevent pollution from entering the sewers: An Erosion Prevention and Sediment Control (EPSC) permit, compliance, and enforcement program; routine catch basin cleaning and street sweeping; enforcement of litter laws; fertilizer, pesticide, and de-icing chemical usage management; public education programs and media advertisements; solid waste reduction and recycling; yard waste collection and composting; household hazardous waste collection; and, water conservation initiatives.

MSD’s EPSC program addresses silt and sediment discharges from land disturbing activities. Commercial and industrial pollutant runoff and discharges are controlled by MSD’s pretreatment permits, auxiliary programs such as development Industrial/Commercial Plumbing Plan Review (I/CPFR) and administration of the local Hazardous Materials Ordinance (HMO), as well as targeted educational campaigns. The MSD-supported motor vehicle accident mitigation program removes automotive fluids and fuels from the streets and roads at the time of the spill, and prevents washing those fluids into the sewers. MSD publicizes P2 public educational materials in a variety of ways including web pages, newsletters, advertisements, brochures, pamphlets and books, as well as participating in local workshops and festivals offering such a venue.

Municipal control measures conducted by Louisville Metropolitan Government, such as street sweeping, removes silt, sediment, leaves and other litter before being washed into the collection system. Adequate solid waste management collection and disposal programs, recyclable materials collections, a household hazardous waste drop off location and yard waste collection

and composting programs all reduce the likelihood that residents will use the sewers for a method of disposal.

Extensive public education programs that address litter prevention and proper solid waste management reinforce the solid waste management efforts. Reducing or eliminating the discharge of toxic materials from municipal operations such as street de-icing and facility maintenance is practiced through materials substitution and alternative landscaping programs. Use-based volume charges and loading-based quality surcharges for water and sewer service, as well as facility-specific industrial permit and monitoring requirements encourage water conservation efforts. Slowing wet weather runoff through water storage and landscape modification serves terrestrial as well as riparian ecological systems by reducing CSOs and stream bank erosion while providing natural watering to urban landscapes and recharging groundwater aquifers.

### **8.3 SYSTEM CHARACTERIZATION**

The CSS is located in the older section of Louisville. Urban P2 programs and services such as universal solid waste, yard waste and recyclable materials collection, street sweeping and street de-icing are provided to residents in this area. The characterization of the critical assets of the CSS is described in detail in Section 2 (NMC 1) of this report.

Each physical infrastructure asset in Louisville Metro is uniquely identified in a geocoded database referred to as Metro Information, Development and Assets System (MIDAS). The geocoded data tables are used to delineate responsibility and areas for activities such as litter pickup, street sweeping and catch basin cleaning. The database is used to map, track and report work activities performed on these assets. MIDAS is also used to generate mailing lists for specific audiences such as a geographically-targeted mass mailing of educational information for a neighborhood project or a pollution prevention brochure sent only to the residences where private swimming pools are located.

### **8.4 EROSION PREVENTION AND SEDIMENT CONTROL**

MSD developed and implemented a comprehensive erosion prevention and sediment control (EPSC) permit program that includes a training and certification program, permit application process, compliance inspections, as well as forms and guidance materials. MSD administers the EPSC Ordinance and requires EPSC Land Disturbance Permits for all construction sites in Louisville Metro that disturb more than 2000 square feet of land. The permits require EPSC Best Management Practices (BMPs) for new development projects.

General Permits are required for utilities and public agencies that have frequent but small land-disturbing maintenance activities. General permits streamline the EPSC Ordinance process by allowing these agencies and entities to avoid the plan approval process for any small-scale or repetitive land disturbing activities. MSD issued EPSC General Permits for the following governmental entities, utility companies and public agencies: Louisville Metro, Insight Communications, Parks Department, United States Postal Service, BellSouth, Louisville Water Company, Louisville Gas and Electric, and Jefferson County Public Schools. In addition to administering and enforcing the EPSC Program, MSD has an approved EPSC General Permit in place for its own operations. The permit was approved by the Louisville Metro government.



## **8.5 HAZARDOUS MATERIALS ORDINANCE PROGRAM ADMINISTRATION**

The risk of discharge of hazardous materials into the CSS is reduced through MSD's administration of the Hazardous Materials Ordinance and the Louisville Metro Hazmat Incident Integrated Response Program.

### **8.5.1 Hazardous Materials Ordinance and HMPC Program**

All commercial and industrial sites in Louisville Metro, including those in the CSS that have a reportable quantity of hazardous materials on-site are required by MSD to file a current Hazardous Materials (Spill) Prevention and Control plan (HMPC). Retail sales establishments are not exempt from the HMPC program.

The HMPC plan is required to include all hazardous materials stored, amounts, locations, primary storage container type, secondary containment type, response equipment and procedures. HMPC Plans are reviewed and the sites are inspected prior to plan approval. Significant industrial users are inspected annually and non-SIUs are inspected on a risk-based schedule.

The Hazardous Materials Ordinance regulates all hazardous materials that are federally listed substances as well as all characteristically hazardous wastes and petroleum. In addition to the HMPC plan, the ordinance requires immediate local spill response reporting to 911 for any size spill that enters a sewer or drainage inlet, or any reportable quantity of material that is released to the environment. The result is that hazardous materials best management practices have been implemented throughout the Louisville Metro area.

### **8.5.2 Response to Hazmat Incidents and to Citizen Reports of Illicit Discharges**

MSD uses efficient technologies that enable instantaneous communications and immediate response to hazardous materials releases, as well as to citizens' concerns and reports of non-stormwater discharges to catch basins. When a hazardous materials release is reported to 911, the Louisville Metro Integrated Response System includes notification by the 911 call center to fire and police departments, the MSD Industrial Waste Department (IWD), the MSD Computer Operations Center, the Metro Health Department, the Metro Emergency Management Agency, and to the KY state emergency response system.

Trained responders isolate and mitigate a release before it enters the sewer system when possible, and remain onsite until a responsible party arrives to undertake remedial actions. MSD responders have electronic communications technology that includes pagers, cellular telephones, two-way radios and laptop computers with wireless web access to the MSD sewer asset information and LOJIC GIS databases. This technology enables timely response actions and on-site determination of potential upstream sources as well as the downstream mitigation of released materials.

Calls to the 24-hour customer service center or messages transmitted via the web that report illicit discharges to sewers, catch basins or streams are immediately referred to and investigated by an MSD Industrial Waste Department on-call Emergency Response Pretreatment Inspector. An IWD responder is on-call 24 hours per day and investigates the complaint immediately.

Sewer blockage reports are relayed to MSD's on-call Infrastructure and Flood Protection (I&FP) inspectors. Tele-inspection equipment vans include technology for instantaneous viewing of the sewer video during the inspection, measurement of the distance traveled by the remote sewer camera and real-time access to the Hansen database to update the inspection findings record for immediate work order generation.

### **8.5.3 Motor Vehicle Accident Mitigation Program**

MSD purchases spill mitigation materials and provides them to fire departments for use in motor vehicle accident response. The fire department responders use the mitigation materials to absorb vehicle fluids, then they remove the contaminated material and return it to MSD for disposal at MSD expense. The program, which costs approximately \$18,000 per year, provides a convenient alternative to fire departments to keep them from flushing motor vehicle fluids from vehicle accidents into the nearest catch basin or stream.

## **8.6 PRETREATMENT PROGRAM ADMINISTRATION**

MSD personnel actively promote P2 for commercial and industrial facilities during routine permit and compliance inspections and emergency incident followup inspections. Industrial facilities may be referred to the free P2 audit services offered by the Kentucky Pollution Prevention Center at the University of Louisville. All facilities that store petroleum or hazardous materials are required to comply with the local Hazardous Materials Ordinance as well as the Wastewater/Stormwater Discharge Regulations administered by IWD. Targeted P2 education programs are developed for commercial sectors such as Food Service Establishments (FSEs) and dental offices. Refer to Section 4 (NMC 3) for more information related to the pretreatment program activities.

### **8.6.1 Wastewater Discharge Permits**

The MSD IWD pretreatment program discharge permit program places standard conditions as well as site-specific special conditions on industrial and commercial user permits. Permits issued for facilities in the CSS may specify water conservation requirements, stormwater runoff slug control requirements or wet weather discharge conditions. All SIUs were surveyed in 2004 to determine if wet weather storage capacity exists at their facility. Inspections include outdoor storage areas, discharge volume and timing and materials handling practices.

### **8.6.2 Commercial Sector P2 Education Projects**

Numerous small commercial facilities located throughout the community may individually or collectively cause capacity and maintenance problems or may discharge potential pollutants of concern to the CSS. MSD addresses these concerns by development and distribution of P2 BMP educational materials. FSE grease discharges are addressed by a comprehensive FOG program that includes P2 education. BMP educational materials for dental practices were developed for distribution during 2006. The dental office educational materials target mercury, silver and lead waste management. Future commercial sectors to be addressed may include salvage operations, radiator shops and/or commercial printers.

#### **8.6.2.1 Restaurant Grease P2 Program**

Uncontrolled grease from FSEs has the potential to congeal in the sewer system causing blockages and overflows. MSD has a comprehensive P2 education program for grease management, as well as a defined incident response program with followup investigation and

compliance and enforcement procedures. A training video for P2 in FSEs was introduced in 1999. Refer to Item 8-1 in the NMC Supplemental Information binder.

The grease P2 program includes presentations to trade groups, distribution of educational materials at trade shows and during followup to grease blockage incidents. The program emphasizes adequate grease interceptor maintenance, recovery of recyclable grease, good kitchen housekeeping and source controls.

#### **8.6.2.2 Dental Practice BMP Education Project**

Mercury is a toxic pollutant of increasing concern because it bioaccumulates in the environment. Studies in other communities have found that dental offices contribute measurable amounts of mercury to wastewater, but the contribution can be significantly reduced by implementation of adequate Best Management Practices (BMPs) in the dental office. Other potential pollutants from dental office operations may include silver, lead, and other chemical materials. MSD promotes adoption of BMPs for dental offices by collaborating with other public agencies and the Kentucky Dental Association. Educational materials were presented at the Kentucky Dental Association annual conference in May, 2006 and are available to all dentists in Louisville Metro. Refer to Item 8-2 in the NMC Supplemental Information binder for a copy of the mercury control initiative P2 BMP educational materials.

### **8.7 PUBLIC EDUCATION PROGRAMS**

Environmental education and volunteerism have strong traditions in the community. Brightside is a Louisville Metro public/private collaboration that leads these efforts. Brightside organizes and supports environmental education programs, litter control and beautification projects and mass media campaigns. Brightside, which began in 1986, has directly involved tens of thousands of residents and business employees in its collaborative litter cleanup campaigns in Louisville neighborhoods, and has planted millions of flowers, shrubs and trees in adopted public easements called "Bright Sites." Brightside's mass media advertising campaigns on buses and billboards and in local magazines and newsletters discourage littering. "Green Mile" and "Bright Site" adoption signs include the name of the organization or business that sponsors that location. Brightside enabled citizen volunteers to clear more than 80 tons of trash from public easements in 2005.

The benefits of these wide-spread and highly visible public education efforts include instilling pride and a sense of ownership of the condition of the local environment in the public conscience. Enabling volunteers to perform the direct service of removing tons of trash and litter from the streets and increasing vegetative cover in locations that might otherwise be maintained as impervious surfaces are valuable contributions to the common good. The Brightside webpage found at <http://www.louisvilleky.gov/Brightside/GreenMile/> lists fifty-six businesses, educational institutions, public agencies and non-profit organizations as "Green Mile" sponsors. Louisville Metro benefits from these efforts by having less street litter than is seen in other communities, resulting in less solid and floatable materials entering the combined sewer system. Hundreds of landscaped major thoroughfares and intersections reduce the public cost of street easement maintenance. Catch basin cleaning is also reduced by encouraging and enabling thousands of volunteers to perform gardening and litter pickup.

MSD focuses its environmental education and involvement efforts on development and support of watershed-specific organizations and activities in addition to providing financial support for litter and solid waste education programs such as Brightside. MSD also targets specific commercial sectors for pollution prevention education. MSD funds and provides information to

the Salt River Watershed Water Watch organization's stream monitoring of streams affected by CSOs. The Beargrass Creek Watershed Council stakeholder group was instrumental in developing a watershed report, a symposium and a creek sweep that provides the opportunity for residents to directly participate in water quality improvements and provides an opportunity for agencies to present educational sessions on wet weather pollution prevention and runoff controls.

### **8.7.1 Louisville Metro Environmental Education**

Brightside is dedicated to educating the community on how to improve the environment. MSD also provides funding for the Brightside educational programs for Jefferson County students such as the Youth Environmentally Active Club, Eco-Drama and Youth Environmental Leadership Institute. The goal of these programs is to build awareness and inspire compliance. Brightside environmental education collaborations reach into public and private elementary schools throughout Louisville Metro, instilling environmental protection values into the next generation. Brightside partnered with schools to implement a "Keep It Clean" competition in 17 area high schools during the year and featured litter prevention in the Eco-Drama program available to all 3rd grade classrooms. Brightside's Fred Wiche Award honors individuals, groups, and schools for environmental stewardship. Each year, schools are also provided with a curriculum component about environmental issues in the community through the publication, "ABCs of the Environment."

### **8.7.2 Mass Media Campaigns**

*Example of a Brightside Anti-Litter Campaign Advertisement*



Brightside advertises against littering on TARC buses, roadside billboards, and in local publications. The graphics, an example of which is seen here, effectively draw attention to the message. The Brightside Anti-Litter Campaign webpage is located at <http://www.keepitcleanlouisville.org/>.

### **8.7.3 Beargrass Creek Watershed Council**

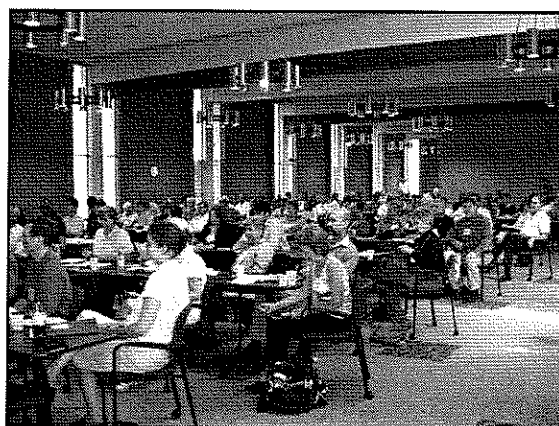
Beargrass Creek is the only internal urban stream in Louisville that is affected by CSOs. MSD supported the development of a coalition of concerned citizens, agency staff and business owners who came together as the Beargrass Creek Watershed Council stakeholder's group. MSD is an active participant and makes technical assistance available to the group. The Council instituted several valuable public education and participation events including compilation of a new watershed report in 2005, instituting an annual creek sweep field day, and producing a significant watershed symposium that was attended by more than one hundred participants from environment groups, government agencies, private developers and elected officials.

### **8.7.3.1 Beargrass Creek Watershed Report**

Between December 2003 and June 2005, the Beargrass Creek Watershed Council collaborated on development of Beargrass Creek Watershed: State of the Streams Report. This comprehensive report was compiled from information and data obtained from the Center for Watershed Protection; Kentucky Division of Water; MSD; U.S. Army Corps of Engineers; U.S. Geological Survey; University of Louisville Center for Infrastructure Research; and Louisville and Jefferson County Information Consortium. The report discusses the condition of Beargrass Creek and provides guidance information for residents to improve the water quality of the stream. Refer to Item 8-3 in the NMC Supplemental Information binder for a copy of the report.

### **8.7.3.2 Beargrass Creek Watershed Roundtable**

A major project that was initiated in 2004 was the development of a comprehensive workshop to present the community with the findings of the Council, and to educate developers, public agency staff, environmentalists, educators and public officials on methods to incorporate low-impact development and watershed protection into the actions and services they provide to the community. The Beargrass Creek Watershed Council worked to develop this symposium to educate the community on the challenges and possibilities for the stream most affected by CSOs and urban runoff, Beargrass Creek.



*Attendance at Beargrass Creek Watershed Symposium*

### **8.7.3.3 Beargrass Creek Sweep**

This creek sweep activity was initiated by the Beargrass Creek Watershed Council in 2003. The event is sponsored by Kentucky Waterways Alliance, Louisville Nature Center, Metro Parks, and the Jefferson County Natural Resources Conservation Service and is organized by MSD. Beargrass Creek Sweep includes educational areas where volunteers learn how to create a rain garden or install a rain barrel, understand the benefits of riparian restoration and no-mow zones and to participate in the Water Watch monitoring program.

### **8.7.4 MSD and Louisville Metro Public Outreach and Education**

The MSD website, [www.msdlouky.org](http://www.msdlouky.org) addresses water quality, EPSC, hazardous materials management and flooding and drainage programs as well as articles regarding the CSS capital projects. MSD collaborates with Jefferson County Public Schools to offer an EPSC Certification Course as a formal Continuing Education opportunity. Water bill inserts, newsletters and other mailings, advertisements in local media and distribution of pamphlets and brochures during community festivals and neighborhood events are used to inform residents about swimming pool water discharges, catch basin care, and other impacts they may have on water quality and wet weather discharges. MSD also produces educational video materials for distribution, such as "Celebrate Our Streams". Refer to Item 8-4 in the NMC Supplemental Information binder for examples of MSD and Louisville Metro pollution prevention educational materials.

MSD also publishes and distributes more substantial public education documents. MSD Annual Reports include articles that describe the challenges and progress made during the year for MSD activities. Refer to Item 8-5 of the NMC Supplemental Information binder for examples of the

MSD Annual Report. A summary of the findings of the first ten years of stream monitoring was published as the "Water Quality Report 2000." That report was the public education component of the 1999 Synthesis Report. It included "You Can Make a Difference" frames with P2 instructions for residents. Refer to Item 8-6 in the NMC Supplemental Information binder for the Water Quality Report 2000. A history book entitled "50 Years of Progress" published by MSD discusses the origins and impacts of the combined sewer system and the water quality challenges facing the community. Refer to Item 8-7 in the NMC Supplemental Information binder for the 50-year history book.



*MSD staff demonstrates the EnviroScape at Earth Day at the Zoo.*

MSD financially supported development of the Beargrass State of the Streams report for the Beargrass Creek Council and donated staff hours to the project. MSD conducts landscaping courses and presentations regarding water quality to the public. Past activities have included presentations at the Kentucky Waterway Alliance/ Beargrass Creek Council Roundtable, citizen group meetings such as the Rubbertown Community Advisory Council, high schools, and other seminars. MSD staff has also conducted classes for JCPS teachers on storm water management as part of an outdoor classroom curriculum. MSD conducts neighborhood meetings attended by affected residents and business owners to discuss its wet weather capital improvement projects.

MSD participates in the annual community-wide Earth Day at the Zoo celebration and purchased an EnviroScape® Watershed/ Nonpoint Source model that demonstrates how different land uses affect water quality for stormwater pollution prevention education activities. The EnviroScape was used for the first time April 2005 at Earth Day at the Louisville Zoo. The Louisville Zoo Earth Day festivities attract thousands of people every year. MSD demonstrates stormwater pollution prevention with the EnviroScape at other family-oriented public events such as neighborhood environmental health fairs and presents educational materials at occasions like the Big Rock Jazz Festival that is held on the Middle Fork of Beargrass Creek where water quality is affected by CSOs.

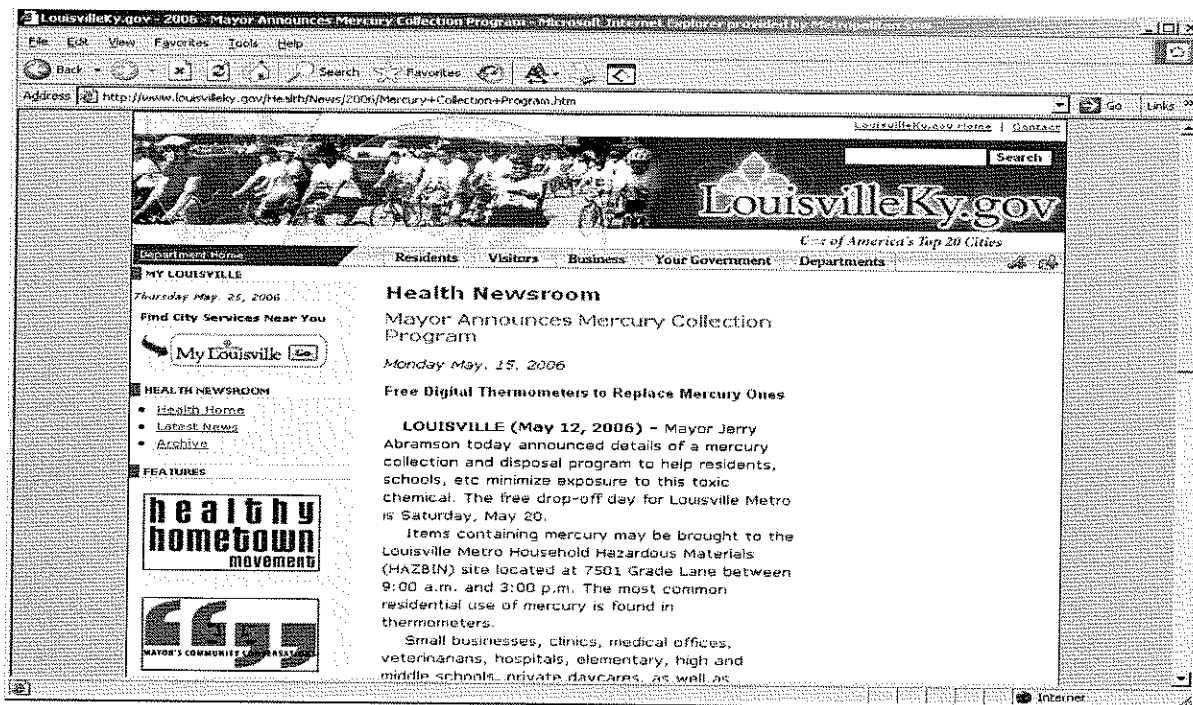
MSD promotes downspout disconnections, and requires them in CSS separation project areas. Residents are provided educational materials and technical assistance in redirecting flow from building foundations and into rain barrels and/or rain gardens. Refer to Item # 8-4 in the NMC Supplemental Information binder for a copy of the Rain Barrel brochure.

Louisville Metro's website, [www.louisvilleky.gov](http://www.louisvilleky.gov) addresses water quality, Green Outlook, snow removal, hazardous waste and recycling issues. Green Outlook is intended to encourage everyone living and working in Louisville Metro to consider the environment, and how it is affected by everyday habits. Green Outlook publicizes information regarding the curbside recycling program as well as composting and household hazardous waste management. Mass mailings are sent to residents once a year detailing the entire recycling program. In addition,

new residents receive this information when they move into the Louisville Metro area. Green Outlook and Brightside continued to implement Louisville Metro's environmental education and action strategies. Brightside continues to provide public-private collaboration for environmental improvements and educational programs. Refer to Item 8-4 in the NMC Supplemental Information binder for educational materials distributed by Green Outlook and Brightside.

Louisville Metro began three new pollution prevention and public education program initiatives in 2006. They included a Litter Summit in January, a Medical Waste Disposal campaign and a Mercury Collection Program with a Thermometer Exchange in May. Benefits of these programs include additional litter control programs and removal of toxic materials from homes and small businesses where they might be flushed into the combined sewer.

*Louisville Metro web site publicized the mercury collection program.*



## 8.8 CONTROL MEASURES

Educational projects such as storm drain stenciling and the daily tasks performed by municipal agencies reduce pollutant discharges to the CSS. Direct control activities by municipal agencies include street and catch basin cleaning, solid waste management and litter control.

### 8.8.1 Storm Drain Stenciling

MSD provides environmental educators with supplies and training for community service projects to apply stencils to catch basins upon request. A total of 9300 catch basins have been stenciled in this program. MSD staff provides training presentations to classes and groups to improve their understanding of the impacts of discharges to catch basins on the CSS and the receiving stream.

### 8.8.2 Catch Basin Cleaning

Routine catch basin cleaning is performed by MSD in the combined sewer service area. Approximately 30,000 catch basins are cleaned regularly. The catch basin cleaning program is

discussed in more detail in the section for Solids and Floatables Controls of this report. Catch basin maintenance is discussed as part of the section for Proper Operation and Maintenance Programs, Critical Assets: Catch Basins.

### **8.8.3 Street Sweeping**

Main arteries, neighborhood street sections, viaducts and downtown streets and sidewalks within the Louisville are cleaned on a regular schedule by Louisville Metro. Residents of high tree density areas are instructed to compost leaves onsite or place them in paper bags for collection. Louisville Metro collects yard waste weekly and the collected waste is composted. Within the Louisville Metro's Central Business District, a vacuum truck performs continuous daily cleaning of debris from sidewalks and curbs. Street sweeping for special events includes annual cleanups for Old Louisville Blitz, Southern Parkway Bridal Path, Mini Marathon, Thunder Over Louisville, the Pegasus Parade route and float staging area, Kentucky Oaks and Kentucky Derby, as well as sweeping of the parking lots at the University of Louisville and the Mayor's Hike and Bike Sweep.

During 2005, Louisville Metro removed more than 1900 tons of debris from parts of the CSS area, and transported the waste to the local landfill, thereby preventing that waste from entering the CSS. Refer to Section 7 (NMC 6) for additional details of the street sweeping program.

### **8.8.4 Solid Waste Reduction, Collection and Recycling**

Providing adequate waste recycling and disposal services is important to CSS protection because it lessens the likelihood that residents will improperly dispose of solid waste and toxic contaminants that could then enter the CSS. Louisville Metro began curbside recyclables collections and yard waste collection and composting during the early 1990s. Other waste management practices include litter cleanups, bulk item pickups and a tire drop off location for residents where the tires are shredded for recycling.

#### **8.8.4.1 Residential Solid Waste and Recyclables Collection**

Louisville Metro has universal once-a-week garbage, yard waste and recycling collections for Urban Service Area residents in single family to eight-family dwellings. The Semi-Automated Pilot Cart program provided 80,000 large wheeled trash bins with lids to households in the Urban Service Area. This program was initiated to prevent animals from scattering garbage from open containers or ripping open plastic bags. In 2004, over 72,000 tons of garbage was collected in the urban area. Each household generated more than 1500 lbs of garbage.

The "Fully-Automated Litter Containment" program replaced old wire mesh trash baskets with covered, plastic trash baskets. These trash baskets are located throughout downtown Louisville and prevent liquid and small sized debris from falling out of the trash baskets.

Louisville Metro was named the winner of the Division One (population 250,000+) category for Cans for Cash: City Recycling Challenge held by the United States Conference of Mayors in September, 2005. The program challenged like-sized cities to compete the first two weeks in September to encourage recycling. Louisville had the most innovative education and marketing campaign to promote recycling and raise awareness about its importance over the long term. The City's campaign, dubbed "The Cantucky Derby - Race Against Cities" featured the Gallopalooza horse, Go for Gin, wearing a garland of red aluminum cans, as the mascot. Arco Aluminum was a sponsor of the event.



#### **8.8.4.2 Yard Waste Collection and Composting**

Yard waste is collected weekly and is taken to a compost facility. Compost is sold back to the residents. A drop off location for Christmas trees is established each year and advertised on the radio and mentioned during local newscasts. The trees are shredded and added to the municipal compost operation. The Louisville Zoo composts manures and sells the product as "zoodoo." Louisville Metro Solid Waste Management provides presentations and publications to encourage establishment of residential compost piles for yard waste, and annually publishes reminders to resident to keep leaves out of street gutters. The Air Pollution Control District's "Lawn Care for Cleaner Air" program also encourages composting and mulching.

#### **8.8.4.3 Recycling**

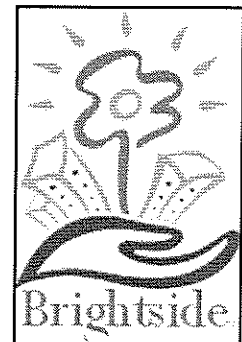
Recyclables are collected separately from garbage once per week. Louisville Metro provides orange plastic bins for household recycling in the Urban Service Area. Glass, metal, plastic, newspaper, cardboard and other household paper items are accepted. Louisville Metro's overall recycling programs diverted nearly 19,000 tons of recyclable materials from the solid waste stream in 2004. Louisville Metro also collects office paper from the Urban Service Area agencies and downtown businesses for recycling.

In addition to the urban area curbside recycling, Louisville Metro has 14 recycling drop-off centers located at public buildings and fire stations. These centers accept curbside recycling items plus household batteries. Oils and fluids from Louisville Metro vehicles are collected and properly recycled or recovered. Refer to Item 8-4 in the NMC Supplemental Information binder for a Louisville Metro brochure/poster distributed to inform residents of recycling opportunities.

#### **8.8.5 Litter Control**

Brightside is a Louisville Metro government public-private collaboration that promotes civic pride by partnering with citizens to keep the community clean, green and environmentally aware. Brightside organizes community-wide and neighborhood cleanups and oversees more than 75 BrightSites throughout Louisville Metro. Brightside involves the community in special projects and programs such as Green Mile, the Fred Wiche Award and environmental education programs.

Brightside hosted a "Litter-Free Louisville Summit" in January, 2006 as part of the ongoing community-wide "Keep It Clean" campaign. The Summit brought more than 80 business, civic and neighborhood leaders together to discuss issues pertaining to all forms of litter and to develop new tactics to reduce litter across Louisville. Mayor Jerry Abramson, who created Brightside in 1987 to mobilize the city to become more clean and green with year-round cleanups and new initiatives, challenged citizens and businesses to become involved in cleaning up the community. Sponsors of the Litter-Free Louisville Summit included: BIRP- Business Industry Recycling Program, Galt House Hotel & Suites, Keep America Beautiful, and White Castle.



Outcomes of the "Litter-Free Louisville Summit" included: A pilot program to notify litterers of violating the law. Louisville Metro Solid Waste Management workers and more than 150 Bee Line Courier drivers call MetroCall 311 to report litterers, providing car license-plate numbers, vehicle description, and details of the incident. The owner of the vehicle receives a letter including the details of the littering incident along with a Brightside car litter bag and a reminder of the state law prohibiting littering with penalties up to \$500, 12 months in jail, or both. Several auto dealerships, oil-change locations, car washes and auto-repair shops throughout Louisville

will begin placing litter bags in vehicles that are purchased or serviced. Refer to Item 8-4 of the NMC Supplementary Information binder for an example of the Brightside litter bag. Six organizations were added to the list of businesses, schools and community groups whose volunteers clean community roadways through the Brightside Green Mile program. Those organizations include: Brown-Forman, Brownsboro Paint and Hardware, California Neighborhood Association, Jefferson County Public Schools, Pepsi and the City of Rolling Hills.

In addition, Mayor Abramson formed a Litter-Free Louisville citizen task force and charged agencies of city government to develop campaigns to address cigarette litter and temporary signs illegally placed in the public right-of-way – known as “street spam.”

Abramson said Brightside and other city departments have together made progress in combating litter. Increased litter removal and education efforts include: more than 50 “Green Miles” adopted; citizen volunteers cleared more than 80 tons of trash in 2005; inmate crews cleared more than 26 tons of trash last year; supplemental winter interstate cleanups cleared almost 150 tons of trash; sidewalk sweeping was made available to neighborhoods conducting cleanups; street sweeping was made available for suburban arteries for the first time, with more than 1,000 miles cleaned to date; decorative trashcans were purchased for downtown and distributed to Metro Council representatives for each district; partnerships with schools implemented the “Keep It Clean” competition in 17 area high schools and featured litter prevention in the Eco-Drama program available to all 3rd grade classrooms.

#### **8.8.5.1 Neighborhood Cleanups**

Thousands of people participate as individual volunteers, civic organizations, and businesses in neighborhood cleanups throughout the year. Brightside supplies trash bags, brooms, and gloves and coordinates special collection and/or disposal of the debris after the cleanup. In addition, large intensive one-day efforts such as the Pre-Derby Cleanup are held community-wide.

#### **8.8.5.2 Clean Sweep Program**

This partnership between Brightside and the Transit Authority of River City targets litter at bus shelters throughout Louisville Metro. The Clean Sweep Program includes removal of litter and graffiti followed by power washing the sidewalk and bench each month. Thirteen “Hot Spot” bus shelter locations throughout Louisville are cleaned twice daily (except for federal holidays) and an additional 22 locations are cleaned once each weekday. TARC and Brightside selected the sites on a “most needed” basis. The effort is made possible by a donation of \$75,000 from TARC.

#### **8.8.5.3 “Brightsites”**

Many neighborhood civic groups and businesses have purchased Brightsites, or landscaped intersections, medians and small street-side parks in this program that replaces weeds and litter with plants and flowers. Brightside also manages a popular Community Garden Program with gardens scattered on vacant lots acquired throughout Louisville.

#### **8.8.5.4 The Green Mile Program**

This anti-litter campaign operated by Brightside is similar to the Adopt-a-Highway on state-maintained roads. Green Mile allows groups or businesses to keep stretches of Metro roads clean and litter-free. Groups that sign up receive recognition on special signage at the site. More than thirty different organizations, some with multiple locations, maintain Green Miles. More than fifty miles of Louisville Metro streets are adopted as Green Miles.

### **8.8.6 Animal Waste Ordinance**

Merger of the governments of the City of Louisville with the Jefferson Fiscal Court had the effect that ordinances, regulations and codes of each governmental body were adopted by the merged Louisville Metro government. One advantage of this was that environmental protections that had been previously adopted by one body now apply to all.

As an example, §91.011 was a Jefferson County ordinance that required the owner or person in charge of a pet animal to have in his or her possession, a suitable device for the picking up, collection and proper sanitary disposal of the animal feces or manure from any animal that was allowed in public. This ordinance requires the owner or person in control of a dog to immediately remove all feces deposited by the animal in another person's yard or in a public easement or park and dispose of it in a sanitary manner. The section was adopted as Louisville Metro Ordinance No. 97-2003, approved 5-16-2003.

### **8.8.7 Control of Fertilizers, Pesticides and De-icing Chemicals**

Municipal operations have the potential to release toxic materials that may then wash off during wet weather. Activities such as street de-icing and use of fertilizers, pesticides or herbicides as well as chemical materials storage must be managed properly to prevent pollution through minimizing exposure of potential pollutants to rainfall and runoff. MSD and Louisville Metro strive to reduce the amounts of chemicals used in their operations and to substitute less-toxic alternatives when feasible.

#### **8.8.7.1 Herbicide, Pesticide and Fertilizer Use Minimization**

Louisville Metro Public Works uses herbicides and pesticides to control weeds and vectors in vacant lots. The Metro Parks Department uses herbicides and fertilizers on golf courses and at some parks when needed. All public employees who apply pesticides are trained and certified as Pest Control Applicators.

The MSD biosolids product Louisville Green is marketed locally as a soil conditioning organic fertilizer. Louisville Green is a slow release 5-3-0 high organic-content product. Metro Parks now uses Louisville Green on its golf course and parks facilities. Refer to Item 8-4 in the NMC Supplemental Information binder for a public education brochure and a magazine advertisement that encourage the public to use Louisville Green.

#### **8.8.7.2 Community Mosquito Control**

In 2002, there were 28 confirmed human cases of illness caused by West Nile Virus in the Louisville Metro area, including two West Nile Virus related deaths. West Nile virus was also found in ten horses, 63 birds, and 19 mosquito samples in Metro Louisville during 2002.

The Louisville Metro Health Department initiated a coordinated mosquito control program in 2003 to address this public health threat. The program includes pesticide applicator certification training and coordination among various Metro agencies that treat mosquito-infested areas and that provide public education regarding mosquito control. The educational aspect emphasizes removal of containers of standing water where mosquitoes breed. The goal is to efficiently reduce the mosquito population in Metro Louisville and subsequently reduce mosquito-borne disease transmission, improving the health and quality of life for the residents. By developing a community approach to mosquito control and partnering with numerous metro government agencies and community partners, more people were working towards reducing the mosquito



population, thereby reducing the chance for mosquito borne disease transmission, while coordinated efforts to reduce standing water minimized the over-application of pesticides.

The continuing coordinated effort reduced human illness caused by West Nile Virus by 96%, and there were no further deaths from the disease. More than 200 MSD and Metro agency staff members receive annual training as pesticide applicators to safely manage pesticides. Refer to Item 8-4 in the NMC Supplemental Information binder for a course outline of the training provided to MSD employees who are involved in mosquito control activities.

#### **8.8.7.3 De-icing Program**

Snow coordinators in Metro Government review the snow and ice removal plan each year. Some routes are added and others are subtracted, but the goal remains the same – to make sure that city residents can get to school, work or the hospital. The city clears about one-third of the 3,000 miles of roads in the community, which includes major thoroughfares, school routes, hospital routes and arteries that feed major employers. Another one-third of the roads are cleared by the state, small cities and private contractors, and the remaining third are neighborhood streets that are not cleared.

Louisville Metro keeps 17,500 tons of salt on hand at seven domes and covered storage facilities during the winter. An additional 17,500 tons is stored underground for emergency reserve. Louisville Metro calibrates salt spreaders annually. Salt is pre-wetted with liquid calcium chloride based on temperature at the time of application. Calcium chloride addition allows salt to melt ice at colder temperatures and is less toxic than sodium chloride. Salt is applied to damp pavement at the beginning of a winter storm before ice forms in order to minimize the amount of dry salt blown away or thrown aside by vehicle tires. All salt spreaders are ground speed controlled. A predetermined rate is applied based upon the speed of the truck. Brine trucks were purchased in 2005 to enable pre-treatment of pavement before onset of winter storms. Brine application reduces salt usage because the brine adheres to the pavement and prevents icepack formation beneath snow accumulation. Plowing is then more effective and does not remove the brine as it would remove loose salt.

Three agencies within Louisville Metro maintain routes for snow removal and de-icing and other Louisville Metro routes are operated by the Kentucky Transportation Cabinet, District 5 and MSD. Louisville Metro holds an annual meeting for these agencies to discuss snow removal and de-icing and to evaluate best techniques and practices. Louisville Metro performs yearly Internet research to learn about new application practices and technologies.

#### **8.8.8 Illegal Dumping**

Federal, state and local laws, regulations and ordinances prohibit dumping and discharge of wastes in unpermitted locations. The KYDEP Louisville Regional Office enforces the state regulations governing solid waste and hazardous waste disposal. Kentucky PRIDE is a state-wide program that addresses open dumping and littering, while the Louisville Metro Health Department also inspects and issues citations and cleanup orders for local illegal dumps. "No Dumping" signs are posted in locations that have been used for dumping in the past. The Urban Service Area is universally served by Louisville Metro Solid Waste Management Services curbside pickup of waste and recyclables. Illegal dumping is comparatively rare in the CSS relative to the more suburban areas where residents must individually contract for private solid waste services.

### **8.8.9 Bulk Refuse Disposal**

Louisville Metro holds quarterly residential curbside collections for bulky items in the urban service area in an effort called "Project Pickup". The department collected more than 51,000 tons of junk during 2004.

The Waste Reduction Center on Meriwether Avenue accepts dropped-off bulk and household items from Louisville Metro residents. Residents are charged a fee depending on the quantity of the items. Scrapped metal items from the Waste Reduction Center and appliances, as well as any Freon or hazardous materials from the appliances are recycled / recovered under contract. In addition, up to four used tires are accepted from residents. The tires are shredded onsite and marketed for beneficial reuse.

Twice a year Louisville Metro has a "Commissioners Junk Drop-Off" day, usually in April and October. These temporary sites allow drop-off of anything other than tires, yard waste and hazardous materials.

### **8.8.10 Household Hazardous Waste**

Louisville Metro Solid Waste Management Services operates the Haz-Bin, a permanent household hazardous waste drop-off center. The center takes solvents, pesticides, insecticides and any other household toxic, corrosive, reactive and ignitable wastes. Appliances are accepted on specific appliance days at the Grade Lane site and are recycled. Non-asbestos roofing shingles are also recycled.

## **8.9 WET WEATHER FLOW MINIMIZATION AND WATER CONSERVATION**

Combined sewers overflow in response to wet weather events because the stormwater volume that enters the sewers during precipitation events is added to the wastewater volume in the sewer. Reducing wastewater volume, in addition to stormwater runoff volume, can reduce the frequency and duration of CSOs.

### **8.9.1 Discharge Volume Reduction Incentives**

Drainage fees, water and sewer use charges and sewer quality charges naturally encourage water conservation by providing financial incentives to use and discharge less water. Wastewater discharge permit status for Significant Industrial Users is required by the pretreatment program regulations to be based on process wastewater discharge volume. Drainage fees are based on measured impervious surface area.

Fees based on volume consumed encourage water conservation because the actual volume and wastewater strength that is discharged is directly controlled by the user. Financial incentives to reduce those fees are inherent in the rate schedules for drainage, water use and sewer use. Industrial users may have the opportunity to become non-significant users if they reduce discharge volume below the SIU criteria.

### **8.9.2 Landscaping for Wet Weather Runoff Control**

Wet weather runoff velocity and volume can be reduced by proper landscape management. Rain barrels, rain gardens and vegetation with native tree and shrub species contribute to runoff reductions. Trees are valuable for decreasing and slowing runoff as well as cooling the runoff temperature. Classes, workdays and seminars are regularly offered to the community on implementing these landscape modification techniques.

MSD installed a demonstration Rain Garden and several Rain Barrels on private residential properties located in the combined sewer system at 1852 and 1850 Harvard Drive in the Belknap Neighborhood during the week of April 10, 2006. Benefits of the downspout disconnection and rain barrel educational programs are removal of clean stormwater from the combined sewer system. Refer to Item 8-4 in the NMC Supplemental Information binder for a brochure titled "Rain Barrels" that is distributed to encourage their installation by residents.

MSD moved into its new Central Maintenance Facility in 2001. The facility, located in the CSS, included in its construction a wetlands pond stormwater detention basin that collects stormwater from neighboring properties and provides habitat for wetlands species. Sub-grade vegetated islands were installed in the parking lot with curb cuts and pavement slope drainage patterns that channel runoff toward these islands. The islands are planted with native wetland-tolerant shrub and tree species. Shade trees such as sycamore, tulip tree/yellow poplar, oak and river birch were planted in wide unpaved areas around the building and in the parking lot islands to provide tree canopy. Downspouts were routed onto the vegetated areas where possible to increase the potential for groundwater infiltration and to water the vegetation.

### **8.9.3 Long-term Community Planning**

Cornerstone 2020 was a community-wide long-term planning process. The goal developed by the project was that Louisville Metro become a community widely recognized for its quality of life, sense of tradition and competitive spirit with a livable, vibrant and economically diverse community. To develop a plan that is both broad enough and flexible enough to guide development for the next 25 years, citizens, business and government leaders, resource people and staff were organized into several key committees. The Livability Committee studied issues such as parks, open space, natural resources, sewer and water service, and other environmental issues. The Livability Committee worked on transportation for people and goods, including strategies to create more efficient connections between places where people live, work, shop and enjoy leisure time, as well as to provide for non-automotive travel. The Louisville Metro Land Development Code was amended in July 2004 to implement the additional green space requirements and protections to riparian zones envisioned in Cornerstone 2020. The Land Development Code may be found on the Louisville Metro website at [www.louisvilleky.gov](http://www.louisvilleky.gov).

### **8.10 COMPLIANCE SUMMARY**

Throughout MSD and Louisville Metro, preventing pollution is a daily activity for agency operations, residents, firefighters and MSD employees. Pollution prevention is inherent in programs that prevent silt and sediment discharges to combined sewers, clean streets and catch basins, manage solid waste, promote recycling and composting, reduce chemical use, regulate hazardous materials management, as well as implement water conservation and wet weather discharge minimization efforts. MSD and Louisville Metro educate the public on their role in preventing pollution via websites, advertisements, newsletters, volunteer opportunities, theater productions, classes and workshops and by publishing pamphlets, posters, brochures and books. Additional educational campaigns address potential commercial sector-specific pollutant contributions. Benefits of a "soft" approach to environmental compliance and improvement are not always measurable, but the level of participation and enthusiasm for voluntary pollution prevention activities such as the Beargrass Creek Watershed Symposium and the Green Mile program is high, and new events such as the Litter Summit demonstrate that the community is actively seeking to enhance its pollution prevention and environmental improvement programs.

### **8.11 LISTING OF SUPPLEMENTAL INFORMATION**

**Item 8-1 Grease pollution Prevention Program Materials for Food Service Establishments**

- Training Video on CD ROM
- DO/DON'T Poster for Restaurants
- Article in Vol. II, Issue V of Kentucky Restaurant Association Magazine, "Prep"

**Item 8-2 Mercury Pollution Prevention Program Educational Materials for Dental Offices**

- Training Powerpoint Presentation on CD ROM
- BMP DO/DON'T Poster for Mercury Amalgam Management
- BMP/P2 Brochure

**Item 8-3 Beargrass Creek Watershed State of the Streams Report**

**Item 8-4 Examples of Pollution Prevention Educational Materials**

- Fat Free Sewers
- Rain Barrels – Not Just a Drop in the Bucket
- MSD Countywide Inflow and Infiltration Elimination Program
- Louisville Green All Organic Slow-Release-Nitrogen Fertilizer
- Working Together to Improve Chenoweth Run- Project XL
- River Sweep 2005
- Reclaiming the Health and Value of Our Streams
- What's Cooking in Your Backyard
- Louisville Metro Recycles brochure/poster
- Community Partnerships with Brightside
- MSD REPORT Summer 2004
- MSD Classes – Lifelong Learning
- Pesticide Applicator Training Agenda
- Brightside litterbag
- Green Mile flyer
- Clean and Green Coloring Book

**Item 8-5 MSD Annual Reports for years 2002, 2003 and 2005**

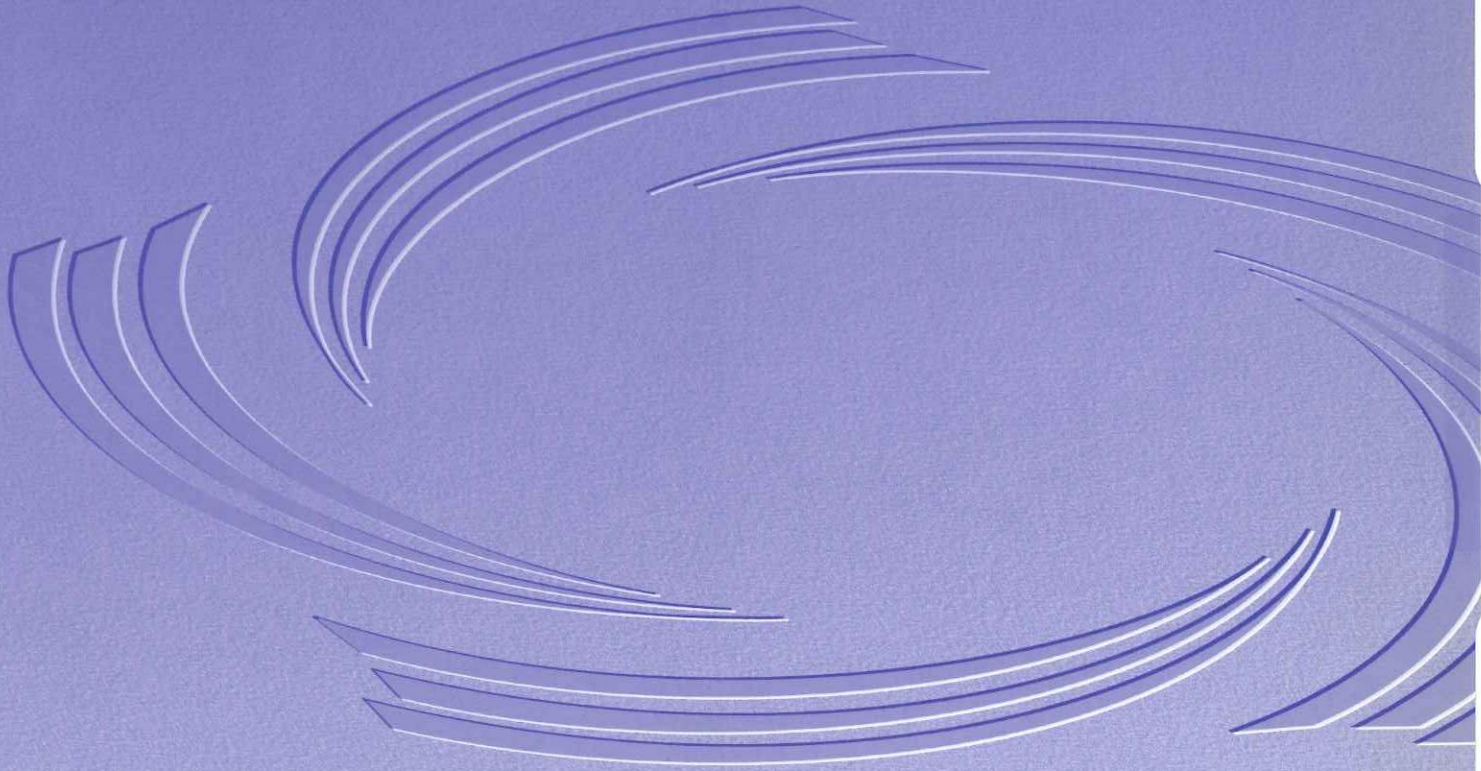
**Item 8-6 MSD Water Quality Report 2000**

**Item 8-7 50 years of service, A history of the first half-century of the Louisville and Jefferson County Metropolitan Sewer District**



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District





## **SECTION 9: NMC 8 – PUBLIC NOTIFICATION**

### **9.1 INTRODUCTION**

The objective of this control is to inform the public of the location of Combined Sewer Overflows (CSOs), the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities curtailed as a result of CSOs. Public notification is of particular concern at recreational areas directly or indirectly affected by CSOs. The principal advantage of a notification program is the reduced exposure of the general public to potential health risks.

Per EPA's Guidance for Nine Minimum Controls, the municipality should take measures to adequately inform the public relative to CSOs. The most appropriate mechanism for public notification will probably vary with local circumstances, such as the character and size of the area and means of public access. The methods selected should be the most cost-effective and provide a reasonable assurance that the affected public is informed in a timely manner. Examples include signage posted at CSO outfalls and use areas affected by CSO discharges, notices in newspapers or on radio/television, letters to affected residents/businesses, telephone hot lines and web sites.

### **9.2 PROGRAM OVERVIEW**

MSD uses a variety of media to educate the public about the operation of the combined system. MSD educational materials reach almost every household in Louisville Metro via water bill inserts, press releases, email list servers, doorhangers, distribution at public events, training seminars, neighborhood meetings, presentations to community groups and the MSD website.

MSD publishes an annual report that provides the public with detailed information relative to MSD's CSO Abatement Program and a wide range of sewerage related issues. MSD also publishes a monthly newsletter titled "Update." This newsletter is distributed to over 2000 subscribers, plus several thousand more who download this publication on the MSD website. Starting in the September 2006 issue, a "Consent Decree Spotlight" feature has been added, to be run several times per year. The September feature discusses the revised procedures for public notification of sewer overflows. A copy of September's "Update" is included as Appendix 9-A at the back of this Section.

MSD has also implemented a CSO Public Information and Notification Program. The major focus of the program is to create an awareness of the CSO issues, history, potential impacts to the local environment, alternatives for mitigation, and the cost associated with mitigation. In support of this program, MSD developed a brochure entitled "Streams, Sewers and CSOs," which provides some history and background on CSOs. The brochure is being updated to provide additional information about overflows, protection of public health, and the enhanced notification procedures MSD is implementing. The updated brochure will be available for distribution to the public by September 30, 2006. MSD also produced a video entitled "Celebrate Our Streams" that contains 12 minutes of video focused on CSOs. Refer to Items 9-1 through 9-3, and Pollution Prevention Public Education Items 8-1 through 8-7, in the Supplemental Information binder for samples of public notification materials used by MSD over the years.

### **9.3 SYSTEM CHARACTERIZATION**

During the developmental stages of the CSO program, MSD conducted extensive field surveys of the combined sewer system and developed a CSO inventory. Signage was posted at CSO outfalls. In addition, MSD determined those areas used by the public that were in close proximity to a CSO and targeted them for signage.

Part of this effort included determining who in the community should receive notification, when they should be notified and the best method to disseminate the information. MSD reviewed available alternatives for dissemination of hard copy public education materials and decided that the best option is to use a combination of direct mail and bill inserts. In order to ensure appropriate dissemination of information concerning wet weather discharges, MSD will utilize the GIS to identify property owners in the vicinity of CSO outfalls, as well as those downstream that could be potentially impacted. MSD also reviewed available options for electronic distribution of information and whether real time dissemination was best or if it was best to use programmatic, after the fact notification.

### **9.4 PUBLIC NOTIFICATION PLAN**

MSD makes a concerted effort to ensure that the public is made aware of potential or actual overflows through both event-based public notification activities and programmatic (on-going) outreach and educational activities. Event-based activities are designed to notify the public to limit their contact with areas impacted by overflows. The programmatic educational outreach activities focus on providing the public with a heightened level of awareness concerning overflows, including the causes, potential health hazards, environmental impacts, MSD abatement activities and the public's role in helping to alleviate these conditions.

As part of this programmatic review and enhancement, the following initiatives will be performed:

- MSD will send a letter to all MSD customers by September 30, 2006, describing the enhanced public notification program, explaining the new signage being posted, and describing the wet weather program that the community is embarking on for the next 20 years.
- In the spring of each year, MSD will provide a bill insert to be received by all MSD customers before the start of the recreational contact season. The insert will provide general overview and awareness information relating to public health.
- MSD has also prepared two doorhangers: one will be distributed to homeowners following a sewer backup that could have caused basement or surface flooding. The other doorhanger will be distributed to neighborhoods that could be affected by dry weather overflows that reach receiving waters in significant quantities. The notification matrix (Table 9-1) describes the distribution rationale and method for these notifications.
- \* MSD will also provide an annual mailing which provides general awareness and warning information about overflows and methods the public should take to protect its health. This mailing will be distributed to customers within 500 feet of Beargrass Creek (all three forks) and the Kentucky side of the Ohio River, as determined by a GIS plot. These customers are most impacted by the combined sewer system. The first annual mailing will be completed by September 30, 2006.
- Bilingual CSO notification signs have been placed at public access points on both sides of Beargrass Creek, and along the Kentucky side of the Ohio River.

- Overflow alert messages, to be placed as “screen crawls” during TV news broadcasts and as alerts to be read during radio news broadcasts have been written and submitted to local media. The messages will also be placed on the MSD website. Requests to run these messages will be triggered anytime precipitation occurs in areas in or tributary to the CSS that could result in overflows, as illustrated in Table 9-1.

**TABLE 9-1 NOTIFICATION MATRIX**

<b>Event &amp; Trigger</b>	<b>Doorhanger (MSD responding supervisor)</b>	<b>Website Light -- Red/Yellow/Green (Automatic trigger and MSD MSD)</b>	<b>TV Screen Crawl MSD-1 (Automatic e-mail)</b>	<b>TV Screen Crawl MSD-2 (Manual Initiation)</b>	<b>Radio PSA MSD-1 (Automatic e-mail)</b>	<b>Radio PSA MSD-2 (Manual Initiation)</b>	<b>Website Screen Crawl and e-mail listserv (Automatic trigger or MSD webmaster)</b>
<b>Prediction of significant rainfall</b>		Yellow					X
<b>Dry weather overflow</b>							
- Any volume (basement back-up etc)	X						
- >1000 gallons	X	Red		X		X	X
<b>Measured Rainfall</b>							
- >0.1 inch, rain gauges in CSS or tributary areas		Red	X		X		X
- >0.75 inch rain gauges anywhere in Jefferson County		Red	X		X		X

MSD is also evaluating the feasibility and reliability of utilizing the community’s E911 system to contact the public by a variety of methods (user selected) such as email, text message, fax, or telephone.

The following describes some of the major notification activities in more detail.

**9.4.1 Signage**

Warning signs have been installed at each CSO and in areas where there is public access to the water body downstream of CSOs. Along Beargrass Creek, access points on both sides of the stream have signs posted. Along the Ohio River, signs have been posted on the Kentucky side of the river at potential access points. Signs are posted at public use areas downstream of documented overflow locations (e.g., parks, golf courses, schools, popular recreation spots, marinas, easy access locations, etc.). The sign siting criteria are presented in Table 9-2.

### Table 9-2 Signage Siting Criteria

1. Signs will be posted at documented overflow locations or within 100 feet upstream or downstream of the overflow locations, in the location most visibly practical, unless no access points are visible through field observation.
2. Where signs are posted, the message will be written in both English and Spanish.
3. Signs will be a minimum of 12 inches wide by 18 inches tall.
4. For overflow locations on the Ohio River, there will be signs at locations visible to the public from the Kentucky riverbank.
5. Signs will be posted at public use areas upstream or downstream of documented overflow locations (e.g., parks, golf courses, schools, popular recreation spots, marinas, easy access locations, etc).
6. Signs will be installed at visible entry/exit locations of trails, manmade paths, and access points along the stream.



**Figure 9-1**  
**CSO Notification Sign**



**Figure 9-2**  
**Overflow Notification**  
**Temporary Sign**

Locating signs to comply with the criteria listed above is a 4-step process.

- The first step is determining locations for signs in accordance with the criteria. This activity will be completed by September 22, 2006.
- The second step is actually installing the signs. A typical sign installation is shown in Figure 9 – 1. All signs in the CSO area will be installed by September 30, 2006.
- The third step is documenting each sign location with GPS coordinates and a picture. An example of the sign location log is shown in Table 9 – 3. Sign documentation will be completed by September 30, 2006.
- The fourth step is on-going maintenance of the signs. An annual spring-time inspection will be made of all signs installed. Missing or defaced signs will be replaced, and some signs may be moved to more appropriate locations.

As of September 30, 2006, approximately 135 signs will have been posted in the CSO area in accordance with the sign siting criteria. The signs, which are written in both English and Spanish, include a phone number for customer inquiries. The phone number provided is answered by the MSD customer service unit, which is available 24 hours a day, 7 days a week. Refer to the Interim CSO Long Term Control Plan for a complete listing of CSOs.

MSD also developed temporary warning signs to be posted around overflow control zones as outlined in the Sewer Overflow Response Plan. An example of the temporary warning sign is shown in Fig 9-2.

#### **9.4.2 Public Notifications**

MSD performs public notification in accordance with the Sewer Overflow Response Protocol (SORP) and corresponding Field Procedures Manual, both dated May 12, 2006. An enhanced notification program has been developed that reflects considerations such as the character and size of the area and means of public access, who should be informed, and when they should be informed.

This program includes expanded use of the various forms of media, with specific area-targeted notifications where appropriate. For general background and understanding, in addition to the informational letter sent to all customers, MSD will annually (every spring) distribute a sewer overflow fact sheet to homes located within 500 feet of Beargrass Creek or the Ohio River. A copy of this fact sheet is included as an attachment following this Section.

Informational doorhangers will also be used for overflows that occur in areas not posted with overflow warning signs. Copies of these doorhangers are included as attachments following this Section. The protocol for deciding when and where these doorhangers will be placed is as follows:

- Sewer Back-Up Doorhanger- When a sewer back-up is found or suspected to have occurred, MSD staff will place a doorhanger on houses on both sides of the street or stream, from the blockage point upstream to the next manhole, or further if the terrain indicates that the blockage could have affected more customers. The responding supervisor is responsible for making this determination. If the back-up results in a significant release of wastewater to any surface water, the Dry Weather Overflow Doorhanger will also be placed as noted below.
- Dry Weather Overflow Doorhanger - After the overflow is contained and appropriate warning signs placed around the overflow point, the responding field staff will place doorhangers on houses on both sides of the street or stream for at least a 5-house radius (standard city block) of the overflow point. If the overflow was of significant volume and reached a stream not otherwise posted, the doorhangers will be placed on both sides of the stream for a distance not less than a standard city block, and further if the volume of the overflow compared to the stream volume warrants it. The responding supervisor is responsible for making this determination.

By September 30, MSD will also implement an automated overflow advisory notification of television and radio stations to broadcast warnings of sewer overflows. The combined sewer wet weather overflow advisories will be automatically triggered by MSD's rain gauge system. Automatic triggers will be configured to electronically submit requests to selected media outlets to read and/or scroll the supplied messages for either wet weather overflows (red condition) or isolated dry weather overflows. This same information will be transmitted to the general public

who sign up to receive these notifications on the MSD website. A second overflow notification will warn the public if a significant dry weather overflow has occurred that could be released to surface waters. The dry weather overflow notification will be manually triggered by the responding supervisor's overflow report in accordance with the SORP. The associated messages are shown in Table 9-3. An email notification will be transmitted every 24 hours for 48 hours after rainfall has ceased.

As described in 9.4.3, alerts will also be posted on the MSD website when rainfall is forecast that will likely trigger overflows, during rains, and for a period following rains to notify the public of overflows.

The enhanced public notification program is being prepared in conjunction with the SORP and will be implemented by the end of September 2006. Table 9-1 previously showed a matrix of notification activities that describes the circumstances or triggers that will activate the various notification methods.

### **TABLE 9-3**

#### **MSD-01 –Wet Weather Overflows**

Recent rainfall has created the risk of sewer overflows in the Louisville Metro area. Avoid contact with water in streams, drainage ditches and standing water until 48 hours after the rain has stopped. Call MSD at 587-0603 or go to [www.msdlouky.org](http://www.msdlouky.org) for information.

#### **MSD-02 - Dry Weather Overflow**

A sewer overflow has occurred in the \_\_\_\_\_ area of Louisville Metro. Avoid contact with water in streams, drainage ditches and standing water in this area and downstream for the next 48 hours. Call MSD at 587-0603 or go to [www.msdlouky.org](http://www.msdlouky.org) for information.

### **9.4.3 MSD Website**

MSD will add a feature to its website by September 30, 2006, to inform the public of the potential for overflows to occur. The MSD home page will include a simulated traffic light which will operate as follows: "green" for no overflows expected; "yellow" when higher than 50% probability of significant rainfall is predicted; "red" when rainfall occurs and conditions for overflows are likely. The MSD rain gauge network is utilized for this purpose. "Red" condition to be triggered when either of the following conditions are met:

- When one of the selected rain gages within the combined sewer system records greater than or equal to 1/10-inch of rain
- When any one rain gage in the entire combined or separate system records 3/4-inch of rain.

The traffic light will remain red for 48 hours after the rainfall has ended to reinforce the message that the public should avoid contact with surface water for 48 hours after rainfall has ceased. Reminder notifications will be triggered every 24 hours for as long as the traffic light is red.

### **9.4.4 Customer Inquiries (call center, online inquiry system)**

MSD's Customer Relations Call Center (CRCC) personnel are trained to answer questions from the public regarding discharges and CSOs, and are available 24 hours a day, 7 days a week.

Signage and disseminated information include contact names and telephone numbers so the public will know who to call. Calls from customers are received by the MSD Customer Relations Call Center (CRCC) and are logged into Hansen™ as Customer Service Requests (CSR). Customers may also enter customer service requests (CSRs) online and may check on their status at <http://www.msdlouky.org>. Once the CSR has been entered into Hansen™, a responsible department/division is assigned and the CSR is routed for response.

A "Frequently Asked Questions" fact sheet has been prepared for use by CRCC personnel. This FAQ sheet will also be available for distribution at public meetings and other public gatherings as appropriate. The initial version of the FAQ sheet is included as Appendix 9-B. The FAQ will be revised periodically as the CRCC develops an expanded list of questions asked by customers.

### **9.5 SUMMARY OF COMPLIANCE**

MSD has utilized various methods in order to notify the public. Many of these efforts have also served to raise awareness of overflows and other water quality issues. Additional means and methods of notification have been employed in order to convey this information to potentially impacted communities. MSD will implement all elements of the enhanced public notification program by September 30, 2006. As part of this programmatic review and enhancement, the following initiatives will be performed.

- A letter/brochure mailing will be sent to every household in Louisville Metro. A similar information package will be distributed as a bill stuffer every spring, as a reminder to people who use our surface water for recreation.
- Signs have been posted along waters that could be impacted by CSOs. Signs have been posted on both sides of Beargrass Creek and the Kentucky side of the Ohio River.
- Temporary notification signs have been developed for use at overflows in areas not posted with warning signs.
- MSD has also prepared two doorhangers: one will be distributed to homeowners following a sewer backup that could have caused basement or surface flooding. The other doorhanger will be distributed to neighborhoods that could be affected by dry weather overflows that reach receiving waters in significant quantities.
- MSD will also provide an annual mailing which provides general information about overflows and methods the public should take to protect its health. This mailing will be distributed annually to areas within 500 feet of receiving waters potentially affected by sewer overflows as described previously.
- Overflow advisory messages, to be placed as "screen crawls" during TV news broadcasts and as alerts to be read during radio news broadcasts have been written and submitted to local media. The messages will also be placed on the MSD website. Requests to run these messages will automatically be triggered anytime precipitation occurs in areas in or tributary to the CSS that could result in overflows. At the same time as the media advisories are triggered, e-mail notifications will be sent to individuals who have registered on MSD's web site to receive these notifications.
- MSD's web site home page is being modified to include a "green-yellow-red" light overflow notification.

MSD is also evaluating the feasibility and reliability of utilizing the community's E911 system to contact by a variety of methods (user selected) such as email, text message, fax, or telephone.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

**9.6 Listing of SUPPLEMENTAL information**

Item 9-1 Challenges for the Community: An MSD Perspective

Item 9-2a Public Notification Sample Materials

Item 9-2b Previous Public Notification Sample Materials

- Brochure (to be revised)
- Video
- Bill inserts
- MSD 2004 Annual Report



# Update

September 2006

*"We are providing a higher level of service, which brings a greater acceptance of our rates and we're very proud of that." – Bud Schardein*



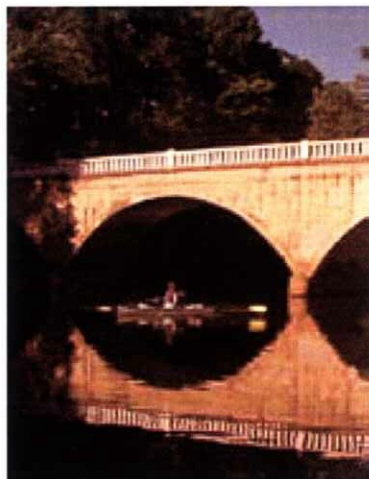
*More than 600 MSD employees gathered for annual employee meetings held at the Central Maintenance Facility, the Main Office and wastewater treatment plants.*

## Service excellence praised at annual employee meetings

Extending MSD's open-door policy, Executive Director Bud Schardein and division directors opened doors to MSD facilities across Metro Louisville during a series of employee meetings held in August. "Having more than 600 employees makes it challenging for us to ensure all of our employees understand our new initiatives, our administrative policies and — most importantly — that we hear about all the outstanding work they've been doing," said Schardein.

During the series of 10 employee meetings, visits were made to the Central Maintenance Facility and wastewater treatment plants. Time during the meetings was dedicated mostly to addressing employee questions and comments, but Schardein and division directors also discussed ongoing initiatives such as clean water, flood protection and the continuation of Project DRI.

Citing the efforts of the employees, Schardein noted, "We are providing a higher level of service, which brings a greater acceptance of our rates and we're very proud of that."



*MSD works to ensure that the community can enjoy clean waterways such as Harrods Creek. However, these areas should be avoided during and after heavy rains.*

## Consent Decree Spotlight

### Expanded Public Notification Relative to Use of Our Waterways

MSD is expanding its public notification and education program as it relates to water pollution problems in our community's drainage channels, streams, and the Ohio River during and after rain events. MSD monitors surface water runoff for pollutants from both flooding and water quality perspectives. Our drainage channels, streams, and the Ohio River are subject to urban runoff contaminants such as fertilizers, petroleum products and other lawn treatments, and may be subject to sewage overflows during and after rain events.

Some of the new notification and education efforts will be in place in the next month, including additional signage in areas of sanitary sewer and combined sewer overflows, as well as along other potentially impacted streams and river banks. We will also be sending a letter to customers and posting information on our Web site with procedures for signing up to receive additional communications during and after measurable rain storms.

Care should be taken to avoid contact with surface streams and the Ohio River during and after rain storms to minimize health risks associated with urban runoff and sewage overflows. MSD continues to reduce and eliminate the occurrences and locations of sewer overflows, but much work needs to be done. MSD wants everyone to enjoy our local waterways, but also wants to protect our community when pollution levels are high.



**MSD**

● CONNECT WITH US  
24/7 Customer Relations:  
502-587-0603  
TDD/TTY: 502-540-6233

● [www.msdlouky.org](http://www.msdlouky.org)  
En español: 502-540-6423  
(De 8 de la mañana a 5 de la tarde,  
de Lunes a Viernes)

## Upcoming Events

**September 4**

**MSD offices will be closed.**

For emergency service anytime, phone MSD's Customer Relations Department at 587-0603.

**September 7**

**DiverseWorks for You Certification Orientation**

9 a.m., 700 W. Liberty, first floor

**September 11**

**MSD Board Meeting**

10 a.m., 700 W. Liberty, first floor

**September 25**

**MSD Board Meeting**

10 a.m., 700 W. Liberty, first floor

**October 12**

**MSD Retirees Club meeting and luncheon**

11 a.m., Masterson's Restaurant, Atrium B

## MSD Milestones

**We are proud to announce:**

MSD Budget and Finance Director **Marion Gee** was profiled in the July 28 issue of *Business First*.

Laboratory Manager **Zonetta English** has received the August 2006 Award of Excellence from the U.S. Environmental Protection Agency's Environmental Laboratory Advisory Board.

**Welcome to MSD:**

**Robert Carradine**, Utility Trainee  
**Austin Duvall**, Utility Trainee  
**William Phillips**, Utility Trainee  
**Eric Sowards**, Utility Trainee

**Congratulations on your promotions:**

**Eddie McAfee**, Utility Worker III  
**Donnie Stirneman**, Utility Worker III

**Changing the pace:**

**David Floyd**, Utility Worker II  
- from Drainage to Physical Assets

**We will miss:**

**Dave Carty**, retired July 31

## Certified Success

**DiverseWorks for these recently certified businesses: Clean Solutions (WBE)**

Carpet cleaning, floor scrubbing and refinishing, floor waxing and janitorial supplies  
Contact: Honey Paine, 502/778-6880

## Area Team News

### Development Team:

An 18-condominium development at Factory Lane and Old Henry Road will receive sewer service as part of an agreement with MSD to plan for future area development. LC Capital, LLC, will install a sewer interceptor that would allow the elimination of one of Woodmont's pumping stations. The new sewer system also will divert wastewater, which is currently treated by the Oldham County Sanitation District, to be treated by MSD facilities. MSD will pay \$108,668 for the excess costs of the developer.

### Floyds Fork/North County/Operations Area Team:

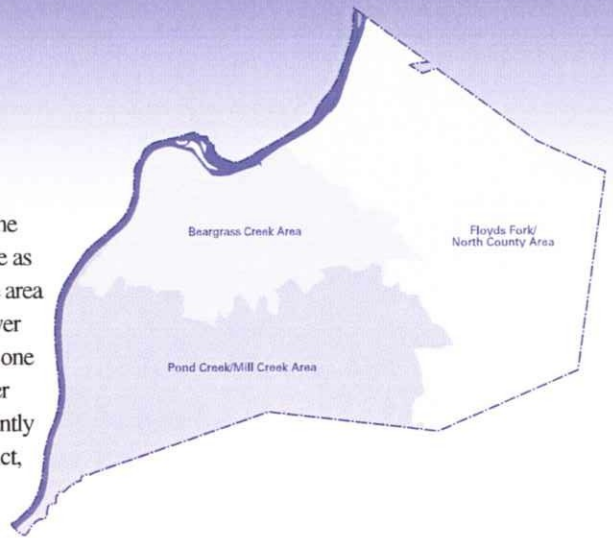
Neighbors near the 27<sup>th</sup> Street pumping station will be better protected from flooding when a sluice gate actuator is replaced at the station. Sluice gates are opened or closed during floods to block flow. The \$64,000 project includes replacement of the gate, electric motorized actuators, weather enclosures and other fixtures.

Webster Environmental Associates will provide technical expertise and consulting regarding odor control measures at the **Morris Forman, Cedar Creek and other wastewater treatment plants**. For \$118,855, Webster will investigate odor complaints, conduct system testing and design odor control improvements.

MSD has selected CH2M Hill to provide engineering consulting services regarding process, structural and operational objectives at the **Morris Forman Wastewater Treatment Plant**. Specifically, the firm will help MSD market Louisville Green, design concrete repairs for the plant's decant tanks and design electrical modifications for the plant's effluent pump station.

Equipment used in the alternative solids process at the **Morris Forman Wastewater Treatment Plant** will be coated with a hardened metal material to prevent wear and reduce maintenance on the equipment. The improvements to the drying mixers will cost \$77,426.

In order to further reduce odors at the **West County Wastewater Treatment Plant**, construction will soon take place to install aluminum covers, which will enclose treatment processes and pipe air to an existing biofilter. The project will cost \$105,000.



*A sewer rehabilitation project along Running Fox Circle has corrected low spots in the sewer line which have caused repeated backups for 13 of 30 area properties in the past five years.*

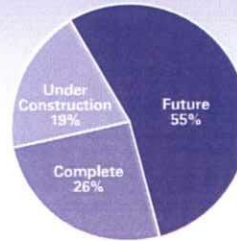
### Pond Creek/Mill Creek Area Team:

Since a sewer replacement project began on **Running Fox Circle** near Fern Creek Road, construction crews have discovered several sags in the existing sewer line that need to be repaired. The roadway, which has been damaged due to heavy equipment and inadequate sub-grade foundation, also will be repaired. The project will cost \$279,724 and will be completed without disrupting service.

Construction will soon take place for the Watterson Woods Sanitary Sewer project impacting property owners near Watterson Trail and Stony Brook Drive. Approximately 1,830 feet of pipe will be installed and wastewater flow will be diverted from the **Watterson Woods Wastewater Treatment Plant**, which will be taken off-line and demolished. The project will cost \$597,213.

## Project DRI Progress

*Project DRI has improved drainage throughout the Metro area with 381 projects completed during Phase 1. Since Phase 2 began in 2005, 45 percent of 345 planned projects are either underway or completed.*



Project DRI Phase 2

### Drainage Response Initiative Projects

The Project DRI partnership between Louisville Metro and MSD is solving drainage problems throughout the community. These projects are ready for construction:

- A \$201,040 project along **Anita Boulevard and El Prado Street** will include installation of side-yard pipe, roadside paved swales, earthen swales and the replacement of driveway culverts and aprons. The project, which also involves several properties along *Granada Drive*, will address approximately 14 service requests and impact 49 properties.
- Rear-yard drainage improvements will be performed through a \$64,100 project on **Dunkirk Lane** in the Valley Village Subdivision. Nine service requests will be addressed and 32 area properties will benefit from the project to correct a poorly defined drainage system.
- Three hundred feet of paved swale will be installed and driveway aprons and culverts will be replaced along **Mary Ellen Drive** to eliminate standing water. The \$83,650 project will address nine service requests and benefit an additional 45 properties.
- Approximately 1,160 feet of rear-yard drainage improvements will be performed to correct a poorly defined drainage system between **Red Oak Lane** and **Red Fern Road**. The \$108,980 project will address six service requests and benefit 35 properties.
- Eight service requests will be resolved and 92 properties will benefit from improvements to alleviate standing water in driveways and roadways along **Richmont** and **Shagbark** roads. Roadside pipe and a yard-drain system will be installed, roadside swales will be regraded and driveway aprons will be replaced as part of the \$188,351 project. The project includes portions of Broadleaf and Oboe drives.
- Eighteen service requests will be addressed through improvements along **Tin Dor** and **Kirsch** ways. Paved swales will be installed and driveway aprons will be replaced with the \$101,175 project, which benefits 54 properties.
- A roadside paved swale, driveway aprons and culverts will be constructed along **Winslow Drive**, including Albion Drive, to resolve approximately 12 service requests regarding a poorly defined drainage system. The \$63,760 project also will include a rear-yard paved ditch between Juanita Lane and Winslow Drive and benefit 31 properties.

## New Action Plan explores Jeffersontown expansion

MSD will explore ways to better use the capacity of the **Floyds Fork Wastewater Treatment Plant** by expanding its service area south and east of the plant. Specifically, the plan will determine the potential to divert wastewater from the **Jeffersontown Wastewater Treatment Plant** and pinpoint any changes the expansion may have on plant capacity. It also will examine how continued growth and development will impact the plant over the next 20 years.

The original Floyds Fork Action Plan, completed in 2004, made recommendations to eliminate 10 MSD and two private treatment plants and to provide regional wastewater treatment service to areas in northeastern Jefferson County. The Floyds Fork Wastewater Treatment Plant, located near Shelbyville Road, has been in operation since 2001. It has the capacity to treat 3.25 million gallons of wastewater per day.

Strand Associates was selected to perform the study and create the action plan based on their previous experience with MSD. The firm recently completed the 2004 Floyds Fork Service Area Update Master Plan.

## Customer First at Work

"When I called on Saturday night I expected to get a recorded message, however, my call was answered by **Leila Cunningham**. Within an hour, **Terry Richardson** was here to analyze the problem. Thank you for your timely service."  
— *Betty Kassulke, St. Matthews*

"**Jill Allen** did an outstanding job diagnosing the problem. She followed through on all phases of the solution. We've had several rains since the completion of the project and the ditch has functioned as we were told it would."  
— *Don and Regina Stinson, Fairdale*

"After I reported a force main break located on my property, I woke the next morning to find that a nearby pump station was taken off line to prevent further spillage, a repair contractor had been mobilized, utility locates were in progress and the appropriate warning signs had been positioned around the area. Thank you, **Kevin Ries** for a job well done."  
— *Gary J. Swanson, PE, Copperfield Subdivision*

"**Darrell Goodwin** and **Sean Brown** were very courteous, helpful and efficient. My compliments to their work."  
— *Mitch Charney, Glenview*

## Peer-to-Peer Praise

"Process Specialist **Mike Carter** filled in at the last minute to present an environmental education tour to 27 teenagers, five teachers and two UofL professors. Mike is a great example of how MSD employees have incorporated additional duties into their busy schedules."  
— *Phyllis Croce, Eric Brady and Dennis Thomasson, MSD*



# MSD

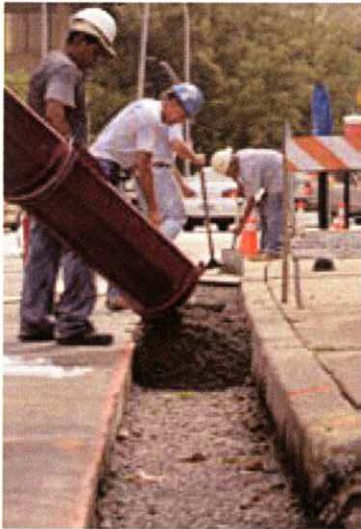
Louisville and Jefferson County  
Metropolitan Sewer District

700 West Liberty Street  
Louisville, KY 40203-1911



Printed on 30% post-consumer  
content paper

© COPYRIGHT 2006  
Louisville and Jefferson  
County Metropolitan Sewer  
District, LOJIC map data  
copyrighted by the Louisville  
and Jefferson County Metropolitan  
Sewer District and the Louisville  
Water Company.  
All Rights Reserved.



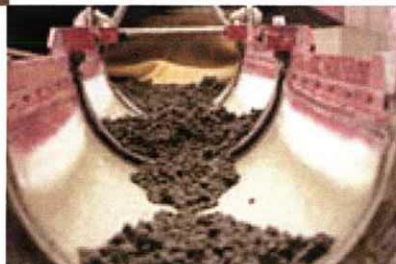
## Concrete test aims to reduce sewer overflows

One of MSD's efforts to reduce sewage overflows is taking place just outside of its administrative offices. Porous concrete, which is designed to allow stormwater to seep through rather than drain off, has been installed in a two-foot strip along the curb of Liberty Street.

Ideally, the concrete, which resembles compacted gravel, will reduce the amount of stormwater that enters the sewer system. When stormwater and wastewater overwhelm the system, dangerous overflows occur in the city's waterways.

"If the concrete works as we hope it will, the stormwater that seeps into the ground will contain less pollutants since it hasn't washed across the roadways and collected urban contaminants," said MSD Executive Director Bud Schardein.

*Above: Porous concrete is installed in a two-foot strip along the curb of Liberty Street to catch stormwater runoff before it enters the drainage system.*



The new concrete was installed in August. MSD will monitor stormwater entering catch basins near the test site to determine the concrete's effectiveness. The initial test site was installed last year at a parking lot for the Girl Scouts of Kentuckiana's new headquarters on Lexington Road.

*Left: Porous concrete contains less lime and finer particles than ordinary concrete.*

## Frequently Asked Questions

### **What is a combined sewer system?**

In a combined sewer system, wastewater (from homes, businesses, and industries) and stormwater (from rain, melted snow, ice, etc.) are collected in the same sewer pipe. In dry weather, wastewater flow would typically go to a wastewater treatment plant. In an overflow event, some combined sewage and stormwater is flows or is released directly to streams.

### **What is a sanitary sewer system?**

In a sanitary sewer system, the pipes are designed to collect and convey only wastewater. Stormwater, sump pumps, foundation drains or roof drains flow directly into streams.

### **What is a sewer overflow?**

Some sewer systems are designed so that, when sewers become overloaded with too much flow, the water exits the sewer system and overflows into a nearby body of water through a relief sewer. This prevents excess flow from backing up into the street or people's homes. The overflow may contain untreated sewage. Overflows may also happen because stormwater or groundwater has leaked into sanitary sewer pipes and there are openings in the pipes through which the sewage overflows.

### **What is an outfall?**

An outfall is the place where a sewer, drain, or stream discharges, or the point where treated wastewater is discharged into receiving waters.

### **What is an outfall sewer?**

An outfall sewer receives wastewater from a system of sewer pipes or from a wastewater treatment plant and carries it to a point of ultimate or final discharge in the environment.

### **What should I do in the event of a sewer overflow?**

The most important thing to do is to stay away from water in ditches, streams and rivers during and after rainfall. This is when overflows are most likely to occur, although they may occasionally occur during dry weather. (MSD will immediately notify the public when substantial dry weather overflows occur.) If you do come into contact with water that has been contaminated by a sewer overflow, you should wash with warm water and soap before touching any surfaces, persons or food.

### **What will happen if I come into contact with contaminated water?**

It depends on how long and how much contact you had. If you swallow water mixed with sewage, you might become ill and need to seek medical attention. If the contact was external – skin only – then a thorough washing with soap and warm water will be sufficient to kill any bacteria you might have encountered. The best thing to do is avoid the water altogether.

# CAUTION



The surface water in this area may be contaminated by a temporary overflow of a sanitary sewer.

Please avoid physical contact as it may pose a health risk.

For additional information, call MSD at 537-0503



MSD

# **WARNING**

# **ADVERTENCIA**

## **DURING AND AFTER RAIN EVENTS**

The surface water in this area contains runoff contaminants and is subject to sewage overflows. Avoid contact with water, due to increased health risks, during these times. For more information, visit our website or call the telephone number below.



## **DURANTE Y DESPUES DE LLUVIA**

El agua en esta área contiene contaminantes recogidos por la lluvia en el suelo y las calles, y está sujeto a desbordamientos de las alcantarillas sanitarias. Evite contacto con el agua durante y después de la lluvia debido a riesgos de salud. Para más información, visite nuestra página del internet o llame al teléfono que aparece a continuación.

 **MSD**  
[www.msdlouky.org](http://www.msdlouky.org)

**(502) 587-0603**  
**SIGN/SEÑAL S0051**

Play it **SAFE**  
with **Sewer**  
**Overflows:**

**What You Need To Know:**

In many areas of Louisville Metro, sewage and stormwater runoff flow into the same sewer pipe. When these sewers get too full, the excess overflows into local waterways.

Surface waters near your home may be subject to sewer overflows during wet weather. Sewage contains bacteria that could cause illness if ingested. MSD wants to ensure your safety during a sewer overflow.

**We ask you to follow these simple rules:**



- Avoid contact with creeks, streams, drainage ditches and standing water during and 48 hours after a rainfall. Don't swim, fish or play in water until at least 48 hours after rain has ended.

*(Continued on back)*



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

**CAUTION:**  
**SEWER**  
**BACKUP**



A sewer backup has occurred in this neighborhood. This means that water containing sewage may have entered your yard or basement.

Check your basement and yard, and call MSD at (502) 587-0603 immediately if you find sewage in your basement or yard. **Do not try to clean it up yourself.** Call MSD for assistance and instructions, (502) 587-0603.



Please avoid contact with standing water, drainage ditches or nearby streams, as it may contain sewage and stormwater runoff contaminants that could make you sick. Keep children and pets away.

*(Continued on back)*



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District

**SEWER**  
**OVERFLOW**  
**WARNING**



A sewer overflow has occurred in this area. Water containing sewage has been discharged from the sewer and may be on the ground, in drainage ditches or in nearby streams.

You are advised to avoid contact with creeks, streams, drainage ditches and standing water, as they may contain sewage and stormwater runoff contaminants that could make you sick.

If you, your family or your pets come in contact with possibly contaminated water, **wash with warm, soapy water**, especially before handling food.

**For the next 48 hours,  
DO NOT SWIM, FISH or WADE  
in outdoor waters!**

For additional information, call (502) 587-0603 or visit the MSD Web site at [www.msdlouky.org](http://www.msdlouky.org) to register for automatic e-mail notifications.



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



- Always keep children and pets out of ponds, creeks, streams, drainage ditches and other places that might receive sewer overflows.
- If you come in contact with sewage, **wash with warm, soapy water**, especially before handling food.

MSD is working to improve the city's sewer system. Areas of overflow have already been reduced and will continue to diminish as our program progresses. In the meantime, we ask you to follow these simple safety precautions to protect your health and the health of your children and pets.

For additional information, call (502) 587-0603 or visit the MSD Web site at [www.msdlouky.org](http://www.msdlouky.org) to register for automatic e-mail notifications.

If you, your family or your pets come in contact with sewage or possibly contaminated surface water, **wash with warm, soapy water**, especially before handling food.

For additional information, call (502) 587-0603 or visit the MSD Web site at [www.msdlouky.org](http://www.msdlouky.org) to register for automatic e-mail notifications.



# MSD

Louisville and Jefferson County  
Metropolitan Sewer District

700 West Liberty Street  
Louisville, KY 40203-1911

 **24-hour Customer Relations: 587-0603**  
[www.msdlouky.org](http://www.msdlouky.org)  
[customerrelations@msdlouky.org](mailto:customerrelations@msdlouky.org)

© 2006 Louisville and Jefferson County Metropolitan Sewer District

 Printed on 30% post-consumer content paper  
09/06 — 2,000



# MSD

Louisville and Jefferson County  
Metropolitan Sewer District

700 West Liberty Street  
Louisville, KY 40203-1911

 **24-hour Customer Relations: 587-0603**  
[www.msdlouky.org](http://www.msdlouky.org)  
[customerrelations@msdlouky.org](mailto:customerrelations@msdlouky.org)

© 2006 Louisville and Jefferson County Metropolitan Sewer District

 Printed on 30% post-consumer content paper  
09/06 — 2,000



# MSD

Louisville and Jefferson County  
Metropolitan Sewer District

700 West Liberty Street  
Louisville, KY 40203-1911

 **24-hour Customer Relations: 587-0603**  
[www.msdlouky.org](http://www.msdlouky.org)  
[customerrelations@msdlouky.org](mailto:customerrelations@msdlouky.org)

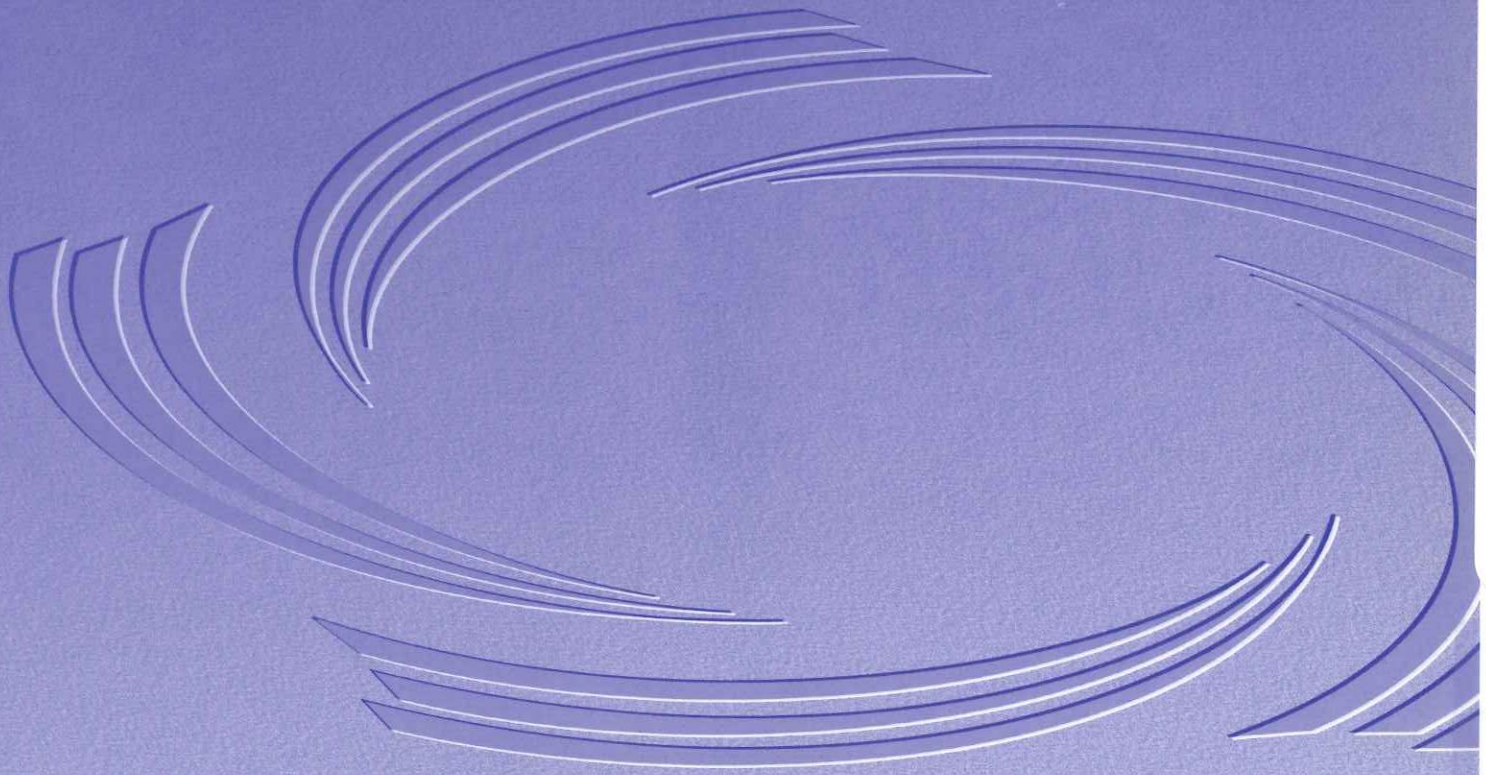
© 2006 Louisville and Jefferson County Metropolitan Sewer District

 Printed on 30% post-consumer content paper  
09/06 — 2,000



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



## **SECTION 10: NMC 9: MONITORING TO CHARACTERIZE CSO IMPACTS AND THE EFFICACY OF CSO CONTROLS**

### **10.1 INTRODUCTION**

As defined in the EPA guidance documents, the ninth minimum control requires visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs. This minimum control is an initial characterization of the CSS to collect and document information on overflow occurrences and known water quality problems and incidents that reflect use impairments caused by CSOs. Changes in the occurrences of such incidents can provide a preliminary indication of the effectiveness of the NMC. This minimum control is the precursor to the more extensive characterization and monitoring efforts required as part of MSD's current CSO Long Term Control Plan (LTCP) to assess changes in pollutant loadings or receiving water conditions. Adequate monitoring of the CSS and its receiving streams is required in order to characterize the sewer system. Monitoring the wastewater pollutants that are present in the CSS as well as the water quality of streams aids in understanding the impacts of CSOs on those streams and determines the efficacy of the CSO abatement actions.

Extensive and intensive surveillance, monitoring, and modeling projects have been performed to support current and past CSO Program activities. Many MSD projects and programs include monitoring as an important component and the monitoring data used in one project may be applicable to other programs in that watershed.

### **10.2 OVERVIEW**

MSD's CSO, SSO, MS4, and industrial compliance and hazardous materials regulatory programs as well as the MSD Laboratory are integrated into the Regulatory Management Services Division. This division coordinates monitoring efforts and evaluates the collection system and water quality from a holistic, watershed-based approach, to address source controls through pollution prevention and pretreatment compliance programs, and to focus resources and expertise to effectively address wet weather discharges. The monitoring data of MSD's administrative programs are integrated into a comprehensive database. Historic data is now systematically entered into electronic databases. Figure 10-1 illustrates the structure of the MSD electronic databases. These databases are evolving into interlinked relational database to facilitate future evaluation of impacts and inter-relationships.

MSD's extensive monitoring programs include CSO and collection system sampling and flow monitoring, wet weather and dry weather sampling of stream waters, telemetered ambient water quality monitors, USGS stream gauges, a network of online telemetered rain gauges, biological monitoring of aquatic organisms, sediment sampling, industrial user monitoring, incident response program sampling and treatment plant influent and effluent monitoring. Some visual inspections are performed of CSO discharge activity. Citizen reports of questionable or illicit discharges are investigated. MSD supports citizen water watch monitoring activities and collaborates with USGS and The Ohio River Sanitation Commission (ORSANCO) in-stream and wet weather monitoring efforts. This section summarizes the CSS characterization efforts and outlines the monitoring program elements, as well as the studies, modeling, and analyses performed that use data to confirm the effectiveness of the nine minimum control requirements as well as to review and update the LTCP and MSD's other water quality improvement programs.

This section is organized under 10 subheadings:

- **Introduction**, presenting the purpose of the section.
- **Overview of Sampling and Characterization Activities**, briefly introducing the wealth of activities undertaken to characterize the CSOs and their impacts.
- **CSS Characterization** describing the CSS and the data compiled to characterize it.
- **Monitoring to Characterize CSO Impacts** describing flow monitoring and water quality sampling undertaken to characterize the combined sewer system, the overflows from the combined sewers, and the receiving water quality response.
- **CSS Model** discussing the mathematical model of the combined sewer system used to refine the characterization and support LTCP evaluations of alternatives.
- **Water Quality Models** introducing mathematical models to be used to refine the characterization of CSO impacts and to support LTCP evaluations.
- **Overall Impacts of CSOs on Receiving Stream** summarizing the weight of professional opinion of those working with the characterization data regarding the perceived impact of CSOs.
- **Incidents Relating to CSO Impacts** summarizing past adverse incidents suspected of being related to CSOs.
- **Assessment of CSO Control Measures in Place** presenting analyses of the impacts existing CSO control measures
- **Conclusions** presenting evaluation and recommendations regarding the adequacy of the existing characterization and monitoring programs for sustaining the LTCP efforts.

### **10.3 COMBINED SEWER SYSTEM CHARACTERIZATION**

The CSS system serving Louisville Metro is a complex network of conduits, diversion structures, flow control devices, and pump stations. The system details were investigated prior to the submittal of the first CSOP in 1993. The characterization investigations included visual inspections during sewer walks, teleinspections of small-diameter sewers, development of a geographic information system database from inspection findings, as-built drawings, and aerial reconnaissance mapping as well as research into the history of the development of the sewer system. Significant capital expenditures, coupled with repair and maintenance activities since 1996, have closed CSOs, enhanced conveyance capacities of the collection system and added wet weather storage capacity to the CSS, resulting in the elimination of significant amounts of CSO occurrences. Current details of the CSS characteristics are described in preceding sections of this report and again summarized below.

#### **10.3.1 General Characteristics of the Combined Sewer System**

The MSD combined sewer system is tributary to the MFWTP. The MFWTP also serves a large separate sewer area. Flows from the separate sewer service areas travel through the combined sewer in the interceptors that thus serve both combined sewer service areas and separate

sewer service areas. The combined service areas, separate service areas and major joint interceptors are shown on Figure 10-2.

The combined sewer service system is further subdivided into three service areas illustrated in Figure 10-3. Overflows from the two Ohio River regions discharge directly to the Ohio River, while overflows from the Beargrass Creek region discharge to a multitude of smaller urban stream. Figures 10-4, 10-5 and 10-6 show critical details of the combined sewer systems in the Beargrass Creek Region, the Ohio North Region, and the Ohio Rive West Region, respectively. Details shown in include:

- Interceptors
- CSO locations and numbers
- Watersheds tributary to each CSO
- Receiving Streams

The above figures are maintained in the MSD LOJIC GIS system and are readily interfaced with land use, topographic and other maps for spatial analysis. These spatial analysis are readily interfaced with field monitoring and modeling efforts (see below) to characterize the combined sewer system. Table 10-1 summarizes a combination of spatial analysis and other data, detailing, for each CSO:

- CSO number
- CSO location
- CSO latitude and longitude
- Receiving Stream
- Watershed tributary area
- Land use characteristics
- Population
- Overflow type
- Low flow conduit diameter
- Outlet sewer diameter
- Side weir length
- High level pipe diameter
- Orifice diameter
- Status

### **10.3.2 Existing System Condition**

Beginning in the spring of 1991, a crew of MSD and consulting engineer personnel inspected the major pump stations and each CSO point accessible without undo risk to personnel. From these inspections a hard copy inventory of each CSO was compiled including a written description of intended operation, location, overflow type, elevation, and sketches of the location. This work resulted in a complete CSO Inventory. Later that data was converted into a relational database.

MSD previously delineated boundaries of the individual CSO areas. The geocoded area data was integrated into the GIS system, LOJIC. MSD can perform analysis such as determining the industries within each CSO boundary, percentages of impervious surfaces, and types of zoning (residential, business, and industrial). Refer to Exhibit 31 of the 308 Submittal for a complete copy of the CSO Inventory.

MSD system characterization is updated through routine sewer inspections, teleinspections, wet weather reconnaissance of the CSOs and the receiving streams, as well as wet weather and dry weather monitoring and sampling of the collection system, the CSOs, and the streams. Overflow occurrences, volume estimates, and load estimates are made possible through the monitoring and modeling programs described in detail in this section.

Details of the visual inventory and of CCTV inspections are summarized below in distinct subsections.

#### **10.3.2.1 Visual Inspection**

The MSD visual inspection programs are conducted in support of the preventive maintenance programs. Those programs were recently summarized in the MSD Capacity, Management, Operation and Maintenance Self Assessment (May 12, 2006). Their application in the CSS is was further documented in the supplementary materials submitted with NMC Compliance Report (June 3, 2006). Results of visual inspections are summarize in field inventory forms are stored in the Hansen database. Figure 10-7 shows an example of the visual inventory data.

#### **10.3.2.2 CCTV**

The MSD performs multiple CCTV inspections each year. CCTV inspections since 2000 are summarized in Table 10-2. Figure 10-8 illustrates which lines have been televised since 2000.

### **10.4 MONITORING TO CHARACTERIZE CSO IMPACTS**

MSD conducts and cooperated in numerous monitoring and modeling programs that characterize the combined sewer system, the combined sewer overflows, and the receiving waters they impact. Table 10-3 summarizes these programs. The following narrative describes the programs in greater detail. Their use in characterizing CSS, CSO and receiving waters are further detailed under distinct heading following the general narrative.

MSD and the United States Geological Survey (USGS) have monitored water quality in Jefferson County since the late 1980s. Samples of surface waters were collected on a routine basis, not specifically during wet weather. In early 1991, data from the Middle and South Forks of Beargrass Creek were examined in an attempt to identify any apparent CSO impacts. Based upon this analysis, no violations of state water quality criteria were noted during wet weather

with the exception of coliform concentrations, which exceeded standards both upstream and downstream of known CSOs. A significant drop in dissolved oxygen levels was noted downstream of CSOs during the drought of 1988. Possible causes include accumulated benthic deposits or a general decrease in water quality due to the accrued effects of urbanization. MSD recognized the need for more pertinent data and initiated a monitoring and sampling program explicitly geared to wet weather.

In the Ohio River Watershed, the Louisville Area Demonstration Study of the ORSANCO Project was completed in October 2001. That monitoring included concurrent sampling of CSOs, receiving streams on both sides of the river, as well as the instream monitoring down the length and across the breadth of the local affected river segments. A water quality model developed using that data will be capable of predicting fecal coliform and E coli concentrations. This tool is now used for evaluating wet weather impacts on the Ohio River under various pollutant control scenarios.

Kentucky has issued a blanket designation of the majority of stream segments in the Commonwealth, as warm aquatic habitat with use attainment to be primary and secondary contact recreation regardless of historic alterations, depth or flow of the stream or current uses. Both the Ohio River and portions of Beargrass Creek are designated for full body-contact recreation although it is unlikely to occur during wet weather events due to inaccessibility and safety issues.

MSD characterized the affected watersheds to determine how the CSS operates in varying rainfall conditions and how the CSS impacts water quality. The Beargrass Creek Watershed has approximately 38 stream miles on the 2002 303(d) list for exceedences of the State Water Quality Standards. Beargrass Creek has a large number of point sources that discharge into the creek, including CSOs, SSOs, and stormwater discharges. The watershed is primarily urban with a high percentage of impervious surfaces. In this watershed, MSD conducts CSO water quality sampling, CSS analysis (modeling), and water quality monitoring. MSD has developed, and is enhancing, the Beargrass Creek Water Quality Model, which will enable MSD to develop program priorities and project schedules based on potential water quality impacts. Additionally, MSD is partnering with KDOW and the University of Kentucky to develop dissolved oxygen and pathogen TMDLs for Beargrass Creek.



*Monitoring the South Fork of Beargrass Creek*

Beargrass Creek has warning signs posted along the stream at CSO points. The South Fork of Beargrass Creek contains a significant length of "improved" or concrete lined channel that is affected by CSOs is shown above, and has little remaining natural habitat or recreational access.

Access to the Ohio River in the CSO-affected area is limited by use and topography. Heavy barge traffic, industrial facilities, floodwalls, levees, a walled canal, locks, dams and steep banks without beaches discourage wading and swimming in the areas downstream of the CSOs. Recreational boating is prohibited in the barge canal and upstream of the hydroelectric plant and the dam. The nearest Louisville Metro recreational boat ramp on the Ohio River below the dam is more than five miles downstream of a CSO. Ohio River CSOs upstream from the downtown Waterfront Park boat docks include CSO 3, 23, 29, 118 and 123, and the mouth of Beargrass Creek.

MSD's monitoring program in the CSS includes collection system monitoring, wet weather CSO monitoring, and ambient stream monitoring to determine the impact of CSOs on water quality in the receiving streams. Networks of rain gauges, stream gauges, and sewer flow meters provide flow volumetrics. Special monitoring projects are developed and implemented such as those designed to determine the effects of industrial discharges on CSOs as well as evaluation projects for new CSO control measures and development of TMDLs for the three Forks of Beargrass Creek. During 2005, collection system monitoring locations within the CSS and at CSOs were sampled for more than 2900 analytical data points. Monitoring included field measurements, sample collection, and laboratory analyses as well as flow measurements. Analytes included conventional pollutants, nutrients, fecal coliform, metals, organics, and flow. Analytical results are available electronically upon request. Monitoring for the TMDL project includes metals, fecal coliform, and nutrients. The TMDL project for Beargrass Creek includes a total of 58 monitoring locations in the upstream separate sewer area and the lower combined sewer areas of the watershed. Continuous ambient monitoring is performed at stream locations that also have a USGS stream flow gauge.

#### **10.4.1 Collection System Monitoring**

The CSS is continuously monitored for flow at four locations with long-term telemetered flow meters. The long-term collection system flow monitors are located on the Southern Outfall and the Southwestern Outfall. Refer to Section 4 (NMC 3) of this report for a map of these meter locations. Portable flow meters are also installed when feasible during sampling at other locations. The collection system sampling locations include 15 sewer manhole locations on the three forks of Beargrass Creek that are monitored for the TMDL project. The Ohio River Interceptor, the Southwestern Outfall and the Southern Outfall are routinely sampled to characterize combined wastewater upstream from the MFWTP wastewater treatment plant. Ten Ohio River CSS monitoring locations immediately upstream of CSOs are sampled in addition to the sewer main interceptor monitoring. Collection system monitoring includes sampling for metals, nutrients, cyanide, oil and grease, BOD, COD, TSS and TVSS.

Figure 10-9 shows locations of sewer systems flow monitoring sites for the several projects. Figure 10-10 shows CSO monitoring sites. Table 10-4 details the flow monitoring at these sites. Sampling results are included in the MSD database LIMS database which, as indicated in the introduction to this system, is linked to the geodatabase to support analyses and characterization. Table 10-5 summarizes the sampling sites in the collection system, showing the location of the sites, the number of samples and the period over which the samples were collected. Appendix 10-1 details the parameters analyzed at each sampling site, including the number of analyses of each parameter and the range of values observed. Table 10-6 and Appendix 10-2 respectively show similar sampling parameter details for sewers outside of the



combined sewer service area. Several of these non-CSS sewers flow through the combined sewer interceptors.

Table 10-7 summarizes how the results of these analyses as summarized for use in the water quality tool. This summary will be updated with the data to be collected through 2007. Table 10-8 summarizes the CSS pollutant characterization from 2001.

#### **10.4.2 CSO Quality Monitoring**

Seven CSOs sampled on Beargrass Creek are located on Figure 10-11. The sites monitored for flow are located on Figure 10-12. Several of the CSS sites mentioned in the preceding paragraph are located in the collection system immediately upstream of CSOs that discharge into the Ohio River. The Ohio River CSO outfalls are represented by the upstream sampling because they discharge underwater into the channel of the river and are not accessible for direct sampling. Table 10-9 summarized the characteristics of the flow monitoring at these sites. Table 10-10 summarizes the sampling at these sites, while table 10-11 presents a 2001 summary of the pollutant observations.

#### **10.4.3 MSD Ambient Stream Water Quality Monitoring Programs**

MSD, ORSANCO, and potentially other researchers, occasionally sample for water quality characteristics, particularly in the Ohio River. The following narrative summarizes the background and findings to date from the receiving water monitoring programs reviewed to date.

##### **10.4.3.1 Overview**

The Beargrass Creek Watershed is a high priority for implementation of CSO controls because it is a low-flow inland urban watershed. The stream consists of three forks that pass through parks as well as other public contact and recreation areas. The Kentucky 303(d) list includes Beargrass Creek as impaired water for metals, organic enrichment, low DO, pathogens and habitat alteration. MSD collaborates with ORSANCO to characterize wet weather non-point source as well as CSO impacts to the Ohio River from the communities on both sides of the River.

MSD has operated a Long Term Monitoring Network (LTMN) in-stream monitoring program as a partnership with USGS for 17 years. The instruments in the Long Term Monitoring Network record readings every 15 minutes. Seven of the LTMN sites are located in the Beargrass Creek Watershed as part of the CSO ambient monitoring program. Each of the LTMN locations is equipped with a minimonitor that measures pH, conductivity, temperature, dissolved oxygen, percent dissolved oxygen, and a USGS stream flow gauge. Atmospheric deposition data is also collected as part of the joint agreement with USGS. Wet weather sampling, biological monitoring and habitat characterization is performed at these same locations to determine ambient stream water quality and habitat conditions. The SIU/CSO project includes sample collection at SIUs and the CSOs downstream from them to determine if water quality is being adversely affected by industrial discharges. Collection system sample locations include flow meters to enable pollutant loading calculations to be made.

Continuous monitoring is performed by a sonde "minimonitor" water quality meter and a stream flow gauge at each fixed stream location. This pairing of continuous (5 to 15 minute data, 24 hours/day, 365 days/year) stream flow with continuous (15 minute data, 24 hours/day, 365



days/year) water quality data enables pollutant loading calculations to be made for the monitored locations.

Habitat evaluations are conducted for each stream monitoring location every two years, weather permitting. Macro invertebrates, fish and algae are sampled in alternate years. In the future, algae, macroinvertebrates and fish will be sampled every other year (odd years) at all LTMN sites with algae being done in the spring and fall, and macroinvertebrates and fish in the fall. That way each of the three indicators will be sampled every other year instead of sampling macros during some years and fish in others. All three biological indices will be calculated together every other year.

The LTMN enabled MSD to establish baseline conditions in the late 1980s and track long-term trends in stream water quality, determine the number and magnitude of water quality standard exceedences, evaluate improvements in water quality following implementation of the NMC and develop total maximum daily loads (TMDLs) for impaired water bodies. The program also supports MSD's regulatory activities and helps to further the goal of program integration. A water quality Synthesis Report will include data comparisons throughout the historic LTMN to determine long-term trends and provide data to be utilized in developing programmatic strategies to address specific water quality problems. MSD is currently negotiating a new Municipal Separate Storm Sewer System (MS4) permit with DOW. It is anticipated that some sampling and monitoring programs will be revised in accordance with this permit.

MSD and the community have performed extensive monitoring throughout the three watersheds within Beargrass Creek. Community monitoring efforts have included monitoring by the Salt River Watershed Watch, the Friends of Beargrass Creek, the University of Louisville, and monitoring activities by local schools. Though MSD does not utilize this information for purposes of modeling or program development, it does allow MSD to scan for anomalies within the watersheds.

#### **10.4.3.2 Recreational Contact Stream Sampling**

Ambient monitoring data is supplemented with periodic wet weather sampling for fecal coliform, solids, and nutrients and metals collected at wet weather point sources. Fecal Coliform samples are currently collected five times per month at each of the long-term monitoring network locations during the period of May 1 through October 31 each year. The intent of the monitoring is to determine if recreational contact standards are being met. Fecal coliform, metals, and nutrients samples were collected in the Special Projects areas of the Mill Creek and Muddy Fork of Beargrass Creek watersheds. Stream samples were also collected to investigate suspected contamination or illicit discharges.

#### **10.4.3.3 CSO / SIU Sampling**

The purpose of the IU/CSO project is to characterize and assess the potential risk of water quality impairments associated with combined and separate sewer overflows that have permitted non-domestic facilities discharging to the collection system upstream of these overflow points. The focus of this effort is potential risk of impacts to both the Beargrass Creek and Ohio River watersheds because a combination of CSOs and SSOs discharge to these streams.

Current industrial discharge permit limits are based on the treatment efficiency of the wastewater treatment plant, not the assimilative capacity of the receiving stream. However, because of the presence of CSOs and SSOs, the possibility exists that discharges to the sewer system from SIUs, GDPs, and unregulated non-domestic dischargers may enter the receiving stream during wet weather events. This monitoring project was initiated to assess non-domestic discharges to the sewer system and the impact on the water quality within the Beargrass Creek and Ohio River watersheds during overflow events.

MSD has undertaken an intensive effort to assess the impact of non-domestic discharges on CSOs. Sampling was completed to develop a history of potential pollutants from industries and related CSOs. Work for FY05 included sampling and evaluation of data at Ohio River CSOs. Evaluation criteria have been developed to allow the determination of Pollutants of Concern (POC) on a CSO and industry-specific basis. The CSO area will continue to be assessed for risk from both permitted and non-permitted facilities. The likelihood of impacts from new industry recognized as potential SIUs will also be addressed through assessment of masses of pollutants in individual sewersheds. Refer to Section 4 (NMC 3) for additional information pertaining to this sampling and system characterization initiative.

#### **10.4.4 In Stream Water Quality Monitoring Data**

MSD in-stream monitoring programs include flow monitoring and sampling. Figure 10-13 shows the locations of long term flow monitoring stations. The ambient flow monitoring stations are a joint effort of the USDG and MSD. Table 10-12 summarizes the in-stream sampling programs to date.

Table 10-13 summarizes the sampling sites in the receiving waters, showing the location of the sites, the number of samples and the period over which the samples were collected. Appendix 10-3 details the parameters analyzed at each sampling site, including the number of analyses of each parameter and the range of values observed.

#### **10.4.5 Rain Gauge Network**

Water volume in each watershed is calculated based on actual rainfall data. In spring of 2003, fifteen new telemetry-equipped rain gauges were installed throughout Jefferson County. The rain gauge system includes monitors in each of the major watersheds. The new rain gauge telemetry data is available via the Internet. These rain gauges provide MSD with the ability to better calibrate rainfall predictions based on storms as they approach. The rain gauge information is utilized by MSD staff for flash flood emergency response preparation, as well as the CSO program sampling, watershed modeling efforts, and integrated into the CSS Real Time Control system.

#### **10.4.6 CSO Flow Monitoring**

There are CSOs in the system with long-term flow meters. The largest CSOs on the Ohio River are monitored in addition to flow meters installed in the Southwestern Outfall and the Southern Outfall collection system. Additional CSO flow meters are located in the Beargrass Creek Watershed. The CSOs currently being monitored are 110, 117, 127, 140, 151, 152, 206 and 211. Flow data is available electronically.

## **10.5 COMBINED SEWER SYSTEM MODELING**

### **Model Development**

The CSO Control policy describes modeling as a valuable tool for characterizing a CSS. The proper and effective use of models, is supported by EPA and the sophistication of the model should relate to the complexity of the system to be modeled.

The MSD Combined Sewer System hydraulic model (CSS model) was initially developed in 1991 and 1992 utilizing EPA's Storm Water Management Model (version 4.05 and 4.3) software, known as SWMM. The selection of the hydraulic model was based on the complexity and size of the MSD collection and conveyance system and the SWMM's ability to simulate full hydrodynamic equations.

In the late 1990s the MSD CSS model was converted from EPA's SWMM to the proprietary XP-SWMM model in recognition of the need for a useful graphical user interface (GUI), geographic information systems (GIS), and enhanced SWMM capabilities. XP-SWMM is an enhanced version of EPA's SWMM model.

The current CSS model was utilized to estimate the CSO hydraulic loads (Average Annual Overflow Volume and Frequency) using XP-SWMM version 8.5. The modeling performed in year 2006 for the purpose of analysis and evaluation of the various components of the Nine Minimum Control (NMC) efforts were completed using XP-SWMM version 10.

### **Historical Development of the Model**

The development and calibration of the MSD CSS model was a part of early efforts associated with the CSO Abatement Program. The major objectives of the initial model development were to:

- Comply with CSO Policy Requirements
- Estimate CSO hydraulic and pollutant loads
- Assist in identifying the location of significant CSOs
- Assist in evaluating corrective actions
- Assist in prioritizing corrective actions

Figure 10-14 is a diagram exhibiting the History of Development of the CSS model.

### **Model Calibration**

One of the early phases of work conducted for the abatement program was the flow monitoring program. Data gathered for sewer system flows and flow levels during various storm conditions provided the data necessary to calibrate and verify the CSS model. The model baseline condition was that dry weather flow was normally occurring in the system, upon which wet weather flows were superimposed. Model input consisted of dry weather flow directly entered as a constant flow and wet weather hydrographs generated in the runoff module are routed through the sewer system. CSS model was initially calibrated (DWF and WWF) using flow monitoring data collected in 1992. When the CSS model was upgraded in 2004, the model was re-calibrated using flow monitoring data collected in 2002 to adjust/redistribute dry weather flow as well as reviewing wet weather responses.

Another step in the calibration process was to develop and apply the proper boundary conditions for the CSS model. Four locations exist where the CSS model receives flow from separate sewer systems (SSS) upstream of the CSS, as summarized below.

**CSS MODEL BOUNDARY LOCATIONS**

<b>MH No.</b>	<b>Location</b>
45899	Middle Fork at Seneca Park Road (MF Boundary)
23211	Goldsmith Lane at Trout Creek (BGI Boundary)
51175	Southeast Diversion Structure at Mall Road (BGI Boundary)
12599	Mellwood Avenue Sewer at Mellwood Lane (NSTS Boundary)

Although separate sanitary and storm sewer systems exist in the service areas upstream of the CSS, the sanitary sewers are susceptible to significant wet weather inflow and infiltration. As a consequence, the quantities of flow entering the CSS from the sanitary sewer systems can be substantially greater during wet weather periods than during dry weather periods. Efforts were undertaken during the 2004 wet weather calibration process to quantify the amount of deviation between the dry weather and wet weather conditions at these model boundary locations. There have been efforts to integrate CSS model and Separate Sewer System models to provide a more accurate and seamless analytical tool for alternative selection.

MSD has frequently updated the CSS model to reflect changing system conditions in the CSS by incorporating physical changes to various system features, and to take advantage of significant advances in computer hardware and software since the development of the model. The model modification, calibration and verification process updates as well as developing QAPP/Standards for sewer modeling will continue as the program proceeds and additional data and operating information become available as well as the system operational modifications and other suggested improvements are made to the system.

**10.6 WATER QUALITY MODELING**

In addition to extensive monitoring programs, MSD employs extensive modeling activities to assess the performance of existing controls, as well as to determine pollutant loadings, receiving water quality impacts and the design of structural CSO controls to implement the Long Term Control Plan. The water quality modeling to date addresses local tributary receiving stream (Beargrass Creek) modeling and modeling of the Ohio River.

**10.6.1 Beargrass Creek Modeling Activities**

The Beargrass Creek Watershed has approximately 38 stream miles on the 2002 303(d) list for exceedences of the State Water Quality Standards. Because the State is required to develop Total Maximum Daily Loads (TMDLs) for first priority streams within the next decade, wet weather sampling specifically for the development of TMDLs is ongoing in the Beargrass Creek watershed. MSD, the KDOW, and the University of Kentucky are working together to develop the TMDLs for three forks of Beargrass Creek. The Beargrass Creek TMDL for both dissolved oxygen and pathogens is expected to be complete during 2007. The information collected from the long-term monitoring can also be used to develop future TMDLs. MSD will provide the data



generated by this joint effort to the DOW for their use in development of the 305(b) Report: Kentucky Report to Congress on Water Quality and the 303(d) Listing of Impaired Water Bodies and for TMDLs, as well as to various non-government organizations, such as the Friends of Beargrass Creek, the Beargrass Creek Watershed Council and the Salt River Watershed Watch. Hydrologic Response Unit monitoring is also being performed. Data from 58 monitoring locations in the Beargrass Creek watershed including stream sites, CSOs and SSOs is being used to develop the TMDLs.

As the TMDL programs progress in Beargrass Creek and the Ohio River watersheds, monitoring and modeling are essential to measuring success and adapting to changes. MSD is committed to comprehensive information development, analysis and management. The modeling and monitoring currently underway include: Beargrass Creek Water Quality Model; Long-term Monitoring Network; CSO/XP SWMM Model Update; Recreational Contact Monitoring; ORSANCO Project; and the CSO/SIU project.

#### **10.6.1.1 Beargrass Creek XP-SWMM Model**

MSD is developing a model that improves the interaction between the sanitary and combined sewer collection system in the Beargrass Creek watershed. The modeling standards are being reviewed and updated. The boundary conditions are being revised to more accurately reflect actual conditions. These models incorporate storm water inputs from the watershed, models flows in the collection system and will be used in a predictive mode to determine location and magnitude of SSOs and CSOs due to various storm events. Ultimately, these models will be major components used to develop information for decision making for MSD's Long Term Control Plan for CSOs and Sanitary Sewer Discharge Plan for SSOs.

#### **10.6.1.2 Beargrass Creek Water Quality Model**

MSD is assisting the University of Kentucky with information related to the development of Total Maximum Daily Loads (TMDLs) for three sub-basins of Beargrass Creek, Jefferson County, Kentucky. These sub-basins have been on the State of Kentucky's 303(d) Listing of Impaired Water Bodies since the early 1990's for pathogens and dissolved oxygen/organic enrichment and do not meet the Designated-Use Criteria for Primary Contact Recreation and Aquatic Life. Monitoring and modeling efforts to support the development of TMDLs is currently ongoing with wet weather sampling and model development both underway. The monitoring effort consists of 14 in-stream continuous monitors collecting water temperature, pH, dissolved oxygen (DO), dissolved oxygen saturation (% DO), and specific conductance at 15-minute intervals. Ammonia data is also collected using continuous monitors at some locations. Continuous, 5-minute interval, stream flow data is being monitored at three United States Geological Survey (USGS) gauges. Discontinuous data was collected during dry and under small storm wet weather conditions and additional discontinuous data is being collected for larger storm wet weather events. Sampling occurred within the stream and CSS during dry weather. During small storm events, sampling occurred in-stream, at CSO locations, and from runoff associated with specific land uses.

Large storm event sampling includes data collected in-stream, at sanitary sewer overflow locations, at CSO locations, and from runoff associated with specific land uses. MSD is currently developing a model of the Beargrass Creek watershed, the Water Quality Tool (WQT) to assist in the assembly of TMDLs for DO and pathogens and for decision making support of



the Long Term Control Plan (LTCP). The modeling effort will assist MSD in targeting priority problems (land-side characterization), identifying wet weather flow effects on receiving water (receiving water assessment) and measuring the success of abatement initiatives through water quality monitoring and modeling (technology performance evaluation).

As such, it is necessary for MSD to characterize wet weather flows from a range of sources including CSO, SSO and non-point source watershed loadings (Hydrologic Response Units - HRUs). In addition, characterization of the receiving waters of Beargrass Creek in support of TMDL development for DO and pathogens is necessary, as is the determination of baseline conditions prior to abatement activities in the Beargrass Creek watershed.

The modeling approach of the Beargrass Creek Water Quality Model (BCWQM) is currently in the calibration stage of development. The BCWQM was developed by integrating HSPF water model and XP-SWMM collection system to continuously simulate in-stream flow, DO, phosphorus, nitrogen, solids and fecal coliform in the South, Middle and Muddy Forks of Beargrass Creek. HSPF was used to simulate runoff (volume and quality) and in-stream flow and water quality at 1-hour intervals throughout the watershed. Runoff is distributed from the HSPF watershed model to the combined sewer and stormwater systems in the XP-SWMM model. In addition, I/I is included in the modeling of the sanitary sewer system modeled in XP-SWMM. The outputs from the HSPF watershed model that do not enter the collection system are modeled as going directly to the receiving waters, while the runoff and I/I that does enter the collection system results in point sources that go to the receiving water. Thus, both point and non-point source loadings are modeled in the receiving water.

Continuous monitoring data provides significant advantages for HSPF development and calibration. Hourly DO simulations were improved by using continuous water temperature and pH data as model inputs. Hourly simulations proved essential to understanding the diurnal changes in water quality, especially DO and in accurately simulating storm events. To further support DO modeling efforts, a study of the sediment oxygen demand in the receiving waters was indicated. Water quantity and quality calibration is accomplished using residuals analysis to compare simulated and observed values. Typically only flow calibrations are accomplished this way because water quality data are collected using grab samples. This calibration method is possible because of the availability of hourly water quality and stream flow observations. Recent literature review indicates that MSD has pioneered HSPF-SWMM integration for continuous simulation modeling.

The BCWQM will be being used to simulate the effects of Real Time Control on the CSS and in-stream flow and water quality. The final BCWQM is intended to be a water quality management tool used to simulate and compare the effectiveness of various water quality improvement strategies for the entire MSD collection system and watershed for Beargrass Creek.

### **10.6.2 Ohio River Modeling**

Over 15,000 water quality data points were collected by the Ohio River Valley Water Sanitation Commission (ORSANCO), Louisville and Jefferson County MSD, and the Indiana communities of Jeffersonville and New Albany throughout the course of the Louisville Area Demonstration Project. MSD collaborated with ORSANCO on this study and the sampling activities associated with the project were completed by October of 2001. Data collected during three dry weather

events, five wet weather events and two dye surveys was provided to the contract modelers by May of 2002.

The outputs from the landside model and hydrodynamic model were used as input to the final predictive water quality model. The project team determined that bacteria were the only constituents adversely impairing water quality in the Ohio River. A two-dimensional water quality model was developed using the EPA's WASP model framework to simulate E. coli and fecal coliform over a 50 mile stretch of the Ohio River. The water quality model was calibrated and verified to the bacteria data from the sampled wet weather events. The water quality model calibration and verification was completed in 2003. Ten simple source (e.g. CSO, tributary) reduction alternatives were simulated with the water quality model in 2004. These alternatives were simulated over the course of a calendar year corresponding to conditions from December 2000 through November 2001.

Model results were presented to project participants at a meeting in September 2004 and included comparisons of simulated concentrations to applicable water quality standards and animations of model results. The results from the control alternative simulations indicated that neither CSO nor stormwater source control alone would alleviate water quality impacts in the Ohio River. Stormwater is the primary source of bacteria loadings to the Ohio River.

The project was also successful in transferring the modeling framework developed for the Cincinnati metropolitan area's wet weather demonstration project to another large urban area. The final report describing all of the project activities is complete by the end of 2004.

### **10.7 OVERALL IMPACTS OF CSO ON RECEIVING STREAMS**

Extensive surveillance and monitoring activities provide on-going characterization of the CSS and relevant data on the efficacy of implementation of the CSO Nine Minimum Controls as well as the more complex CSO abatement activities of the LTCP. Monitoring provides valuable water quality data for use by the public, ORSANCO and the Kentucky Division of Water. MSD continues to integrate appropriate technological advances into the monitoring program and to compile accurate and valid data in order to generate usable information for planning, implementing and evaluating the effectiveness of the CSO nine minimum control programs.

As an enhancement to the sophisticated data collection and characterization program currently in place, MSD will update the CSO monitoring component of the program. MSD will explore the feasibility and cost-effectiveness of installing additional flow meters at select CSO locations. The visual inspection program currently in place, as discussed in Section 2 (NMC 1) of this document, will be assessed for the possibility of providing additional data to assist in model calibration efforts currently underway for finalization of the CSO Long Term Control Plan. This data may include confirmation of wet weather overflow events and documentation of stream impacts if observed. This enhanced program will be in place by September 30, 2006.

To date, MSD water quality professionals have observed:

- As indicated in the 2004 KY 303d List, stream reaches impacted by CSOs occasionally violate water quality standards for pathogens. Stream reaches not impacted by CSOs also violate water quality standards for pathogens.





- As indicated in the 2004 KY 303d List, stream reaches impacted by CSOs occasionally violate water quality standards for DO. Stream reaches not impacted by CSOs also also violate water quality standards for DO.
- As indicated in the 2004 KY 303d List, stream reaches impacted by CSOs occasionally violate water quality standards for Cadmium. Stream reaches not impacted by CSOs also also violate water quality standards for Cadmium. Cadmium measurements, however, are under review and these observations may be invalid.
- Debris associated with sanitary sewage is sometimes observed in several of the stream reaches. These observations are being addressed in the solids and floatable control program (see Section 7).
- MSD biological sampling indicates that several stream reaches impacted by CSOs have stressed ecosystems (low IBIs). Stream reaches not impacted by CSOs also have stressed ecosystems (low IBIs).
- Measured values of parameters in the CSOs are highly variable, with standard deviations often exceeding the average values. This variability lends a high degree of uncertainty to any projections of potential impacts.
- Measured values of parameters in the receiving waters are highly variable. Comparison between averages at sequential sites would require multiple observations to be statistically significant.

**10.8 INCIDENTS POTENTIALLY RELATED TO CSO IMPACTS**

As owners of the CSOs, MSD takes responsibility for investigating reported incidents of adverse conditions potentially related to CSOs. MSD staff regularly observe the status of the local receiving waters, monitors receiving water quality and responds to customer complaints regarding observed conditions in the sewers or receiving waters. In addition, MSD responds to inquiries from DOW, ORSANCO another agencies charged with protection of the Jefferson County water resource.

MSD has received few reports of adverse conditions related to CSOs. Each such report has been investigated. Most such reports have proven not be related to CSOs – the condition observed was actually caused by something other than CSOs. Incidents where CSOs are potentially the cause of observed adverse impacts receive further investigation and a plan toward their resolution. Major reports of adverse impacts related to CSOs are summarized below:

Incident Potentially Related to CSO Impacts	Resolution
Regulatory observation that the CSOs discharging dilute sewage to receiving waters, are limiting the beneficial uses (KY 303d List).	This concern is addressed in the MSD Interim Long Term Control Plan Update (September 15, 2006) and in the Beargrass Creek TMDL.

### **10.9 ASSESSMENT OF CSO CONTROL MEASURES IN PLACE**

CSO control measures implemented to date include the nine minimum controls previously discussed, and elimination of the CSOs detailed in Tables 10-14, and initiation of the Real Time Controls.

To date, the performance of MSD CSO controls has been measured primarily by means of subjective interpretation of visual observations. Combined sewer system inspection, both structured inspection programs and inspections made during the course of operation or maintenance, provide the bulk of the observations that are interpreted as evidence of failure (or success). In addition, citizen complaints can provide evidence of NMC failure. For example, complaints of sanitary debris in the streams may indicate failure of floatables controls.

The evaluation of CSO control performance will be addressed in the long term control planning and documented in the post-construction monitoring section of the final LTCP report.

### **10.10 CONCLUSIONS**

The purpose of the system characterization, monitoring and modeling is to assist in developing appropriate measures to implement as part of the nine minimum control plan, and to support development of the long term CSO control plan. The monitoring and modeling together provide the tools used to objectively characterize the existing system, objectively define a baseline against which to evaluate the expected effectiveness of the NMC and the LTCP, and validate models that support consistent projection of expected conditions under alternative future conditions.

Professionals involved in the MSD LTCP and ongoing sewer system management review the monitoring and modeling programs documented in this section and concluded that the available data, when supplemented with the planned model improvements, are sufficient for the intended purposes of NMC assessment and LTCP development.

While existing monitoring and modeling approaches are adequate to support characterization of CSOs and their impacts, the analysis and distribution of results requires improvement. As part of the LTCP, a regular review and reporting of water quality trends will be implemented. A bi-annual water quality report will look for statistical trends in water quality as compared to baseline data. Given the extensive database of water quality measurements, the baseline conditions are well established both in time and in location. The first bi-annual water quality report will be prepared in December 2007. In addition to the bi-annual report of water quality trends, a bi-annual summary of water quality conditions and water quality trends will be prepared and posted on MSD's web site. This bi-annual summary will be prepared to be understandable by the general public, and will be widely distributed through MSD's active public outreach and education programs described in Section 11.4.

In addition, several supplemental monitoring programs are planned to provide data to support model refinements and the TMDL efforts. The supplemental monitoring programs include are listed in Table 10-15.

**10.11 DATA REFERENCES**

<b>Author</b>	<b>Date</b>	<b>Title</b>	<b>Publisher/ Owner/Contact</b>
Louisville MSD	June 3, 2006	Interim CSO LTCP	
Kentucky DOW	August 2, 1999	KPDES Permit KY0022411, for Morris Forman Wastewater Treatment Plant	Louisville MSD
Kentucky DOW	March 3, 2000	KPDES Permit KYS000001 for Municipal Storm Sewers	Multiple agencies, including Louisville MSD
US District Court, Western District of Kentucky, Louisville Division	August 12, 2005	Consent Decree	US District Court/Louisville MSD
Louisville MSD	May 12, 2006	Capacity, Management, Operation and Maintenance Self Assessment.	Louisville MSD
O'Brien & Gere	April 2, 2004	CSS Model Maintenance-System Update Status Memorandum	Louisville MSD
O'Brien & Gere	November 25, 2003	CSS Model Maintenance-Model Update Memorandum,	Louisville MSD
O'Brien & Gere	FY03	CSO SWMM Model Information Paper,	Louisville MSD
Tenney Pavoni Associates, Inc. & O'Brien & Gere Engineers	July 1993	Combined Sewer Operational Plan (ChapterV),	Louisville MSD
MSD	LIVE	MSD LIMS (LABWORKS ENTERPRISE)	PATRICK FITZGERALD
MSD	LIVE	MSD SONDE DATABASES	PATRICK FITZGERALD
MSD	LIVE	MSD FLOW METER DATABASES	PATRICK FITZGERALD & MIKE GRIFFITH
MSD	LIVE	STREAM FLOW DATABASES FROM USGS	PATRICK FITZGERALD
MSD	LIVE	RAIN GAUGE DATABASES	PATRICK FITZGERALD
MSD	LIVE	ONERAIN RAIN PIXEL DATABASE	PATRICK FITZGERALD
MSD	2006	ALGAE DATABASE	PATRICK FITZGERALD
MSD	2006	MACROINVERTEBRATE DATABASE	PATRICK FITZGERALD
MSD	2006	FISH IBI DATABASE	PATRICK FITZGERALD

Table 10-1  
CSO Summary  
page 1 of 3

CSO NO.	CSO NAME	LOCATION	LATITUDE - N DEG MIN SEC			LONGITUDE - E DEG MIN SEC			RECEIVING STREAM	DRAINAGE AREA (ACRES)	LAND USE					POPULATION	Overflow Type and Configuration					STATUS	COMMENTS	
											Residential	Commercial	Industrial	Parks	Vacant		OVERFLOW TYPE	LOW FLOW DIA	OUTLET SEWER DIA	SIDE WEIR LENGTH	HIGH LEVEL PIPE DIA			ORIFICE DIA
015	SOUTHWESTERN PS	BELLS LN & I-264	38	13	15.0	85	49	23.4	OR	7,441.3	50.9%	18.9%	16.7%	2.5%	11.0%	49,721	DIVERSION DAM	2-60"	18'4" x 27'6" inverted egg	NA			ACTIVE	
016	MILES PARK BYPASS	S OF 45th & WINNROSE	38	14	14.3	85	41	41.8	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	10"	48"	5'			ACTIVE	
018	NIGHTINGALE PS	NIGHTINGALE & SFBGC	38	12	55.1	85	42	39.6	SF BGC	--	NA	NA	NA	NA	NA	NA	HIGH LEVEL PIPE W/ SIDE WEIR		27"	4'	5' x 4'		ACTIVE	
019	34th STREET PS	34th & RUDD	38	16	36.6	85	48	10.7	OR	1,192.4	55.5%	12.3%	10.9%	5.4%	15.9%	8,976	DIVERSION DAM	24"	11'6"				ACTIVE	
020	BUCHANAN PS	BUCHANAN & FRANKLIN	38	15	24.4	85	43	52.9	OR	86.6	19.3%	14.7%	54.0%	3.0%	8.9%	247	DIVERSION DAM	6' x 6'	6'6" X 6'1.5"				ACTIVE	
022	FOURTH ST PS	FOURTH & MAIN	38	15	23.4	85	45	23.5	OR	95.2	6.2%	91.3%	1.8%	0.7%	0.0%	259	DIVERSION DAM	30"					ACTIVE	
023	ORI @ 4th ST PS	FOURTH & MAIN	38	15	23.4	85	45	23.5	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR		96" x 96"	13'-6"			ACTIVE	
026	CRD 6th & BROADWAY	6th & BROADWAY	38	14	46.5	85	45	42.6	OR	8.4	0.0%	69.2%	30.8%	0.0%	0.0%	0	SIDE WEIR		36"	3'			ACTIVE	
027	CRD 7th & BROADWAY	7th & BROADWAY	38	14	47.0	85	45	48.4	OR	10.1	0.0%	100.0%	0.0%	0.0%	0.0%	0	SIDE WEIR		42"	3'-8.5"			ACTIVE	
028	CRD 6th & YORK	6TH & YORK	38	14	40.3	85	45	43.5	OR	6.1	0.0%	84.0%	16.0%	0.0%	0.0%	0	SIDE WEIR	36"	42"	3'-6"			ACTIVE	
029	CRD 8th & YORK	8th & YORK	38	14	41.5	85	45	55.8	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR		60"	5'			ACTIVE	
030	CRD 9th & YORK "A"	9th & YORK	38	14	42.2	85	46	1.2	OR	32.6	13.7%	62.0%	8.9%	0.0%	15.4%	183	SIDE WEIR		54"	5'-9"			ACTIVE	
031	CRD 6th & BRECKINRIDGE	6th & BRECKINRIDGE	38	14	32.0	85	45	44.7	OR	3.8	82.2%	12.6%	0.0%	0.0%	5.2%	12	SIDE WEIR		30"	4'-11"			ACTIVE	
032	CRD 4th & BRECKINRIDGE	4th & BRECKINRIDGE	38	14	30.8	85	45	33.0	OR	6.4	0.0%	100.0%	0.0%	0.0%	0.0%	1	SIDE WEIR	36"	24" and 27" - in 18" - out	10'			ACTIVE	
033	CRD ON YORK E OF 4th	ON YORK E OF 4th	38	14	38.9	85	45	28.4	OR	4.3	0.0%	100.0%	0.0%	0.0%	0.0%	0	SIDE WEIR	36"	30" x 39" egg	3'			ACTIVE	
034	CRD 4th & YORK	4th & YORK	38	14	39.2	85	45	30.9	OR	5.1	7.9%	92.1%	0.0%	0.0%	0.0%	0	SIDE WEIR	36"	30" x 45" egg	3'-2"			ACTIVE	
035	CRD 2nd & BROADWAY NO 1	2nd & BROADWAY	38	14	45.6	85	45	18.1	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	36"	36" x 54" egg	3'			ACTIVE	
036	CRD 3rd & BROADWAY	3rd & BROADWAY	38	14	45.1	85	45	24.2	OR	20.0	19.4%	79.5%	1.1%	0.0%	0.0%	267	SIDE WEIR	36"	30" x 45" egg	2'-6"			ACTIVE	
038	CRD 5th & BROADWAY	5th & BROADWAY	38	14	46.1	85	45	36.2	OR	9.5	0.0%	62.8%	37.2%	0.0%	0.0%	1	SIDE WEIR	5'5" x 8'1.5" inverted egg	30"	3'-5"			ACTIVE	
050	12th STREET	12th ST N OF MAIN	38	15	33.0	85	46	10.5	OR	36.3	0.0%	32.2%	60.8%	0.0%	6.9%	33	DIVERSION DAM	16"	7'-6"				ACTIVE	
051	11th STREET	11th ST N OF MAIN	38	15	29.0	85	46	5.1	OR	6.3	0.0%	15.4%	82.3%	0.0%	2.3%	0	DIVERSION DAM	8"	7'-0"				ACTIVE	
052	10th STREET	10th ST N OF MAIN	38	15	29.9	85	45	58.8	OR	8.7	0.0%	45.7%	17.6%	0.0%	36.7%	0	DIVERSION DAM	10"	48"				ACTIVE	
053	8th STREET	8th ST N OF MAIN	38	15	26.8	85	48	47.2	OR	34.1	0.0%	90.3%	5.3%	0.0%	4.4%	565	DIVERSION DAM	12"	7'-0"				ACTIVE	
054	7th STREET	7th ST N OF MAIN	38	15	27.2	85	45	40.9	OR	7.1	0.0%	90.5%	9.5%	0.0%	0.0%	10	DIVERSION DAM	12"	12"				ACTIVE	
055	6th STREET	6th ST N OF MAIN	38	15	26.9	85	45	35.1	OR	18.0	0.0%	91.3%	0.0%	8.7%	0.0%	304	DIVERSION DAM	12"	36"				ACTIVE	
056	5th STREET	5th ST N OF MAIN	38	15	25.0	85	45	29.4	OR	22.0	4.5%	93.4%	0.0%	2.1%	0.0%	11	DIVERSION DAM	12"	7'-0"				ACTIVE	
057	FIRST STREET OVFL WEIR	1st & MAIN	38	15	21.1	85	45	5.5	OR	--	NA	NA	NA	NA	NA	NA	HIGH PIPE	30"	72"		42"		ACTIVE	
058	PRESTON ST OVFL WEIR	PRESTON & MAIN	38	15	19.5	85	44	45.1	OR	105.4	16.8%	51.8%	14.1%	2.0%	15.2%	1,115	SIDE WEIR	18"	5'-0"X5'-0"	8'-0"			ACTIVE	
062	LOGAN COMPANY	N OF BUCHANAN PS	38	15	31.1	85	43	52.7	OR	--	NA	NA	NA	NA	NA	NA	DIVERSION DAM	54" SE	5'7.5" x 4'0" basket handle				ACTIVE	
081	LETTERLE	LETTERLE @ BGC PS	38	15	39.4	85	43	8.6	SF BGC	--	NA	NA	NA	NA	NA	NA	HIGH LEVEL PIPE		10"		8"		ACTIVE	Scheduled to be eliminated by 9/2006
082	BGI AT BGC	BGC @ OMFT	38	15	7.0	85	43	39.5	SF BGC	16.0	NA	NA	NA	NA	NA	NA	HIGH LEVEL PIPE	5'-2"X4'-11"	5'-2"X4'-11"	12"			ACTIVE	
083	BRENT ST & BROADWAY CONNECT	BRENT & BROADWAY	38	14	40.0	85	44	7.2	SF BGC	45.7	22.4%	56.5%	16.1%	0.0%	4.9%	245	DIVERSION DAM	8"	18"				ACTIVE	
084	BRENT ST @ BGC	BRENT ST @ BGC	38	14	38.4	85	44	8.0	SF BGC	125.1	52.3%	40.4%	3.6%	1.8%	1.9%	496	DIVERSION DAM	15"	54"				ACTIVE	
086	PAYNE AT SPRING	PAYNE ST @ SPRING ST	38	15	5.6	85	43	8.1	MF BGC	6.1	53.4%	17.7%	23.4%	0.0%	5.4%	24	LEAPING WEIR	10"	24"				ACTIVE	
087	BLUEHORSE	FRANKFORT @ BLUEHORSE	38	15	29.8	85	43	13.9	SF BGC	8.0	23.3%	25.1%	8.3%	0.0%	38.3%	14	LEAPING WEIR	10"	24"				ACTIVE	Scheduled to be eliminated by 9/2006
088	MELLWOOD AVE INT	BROWNSBORO RD @ BGC	38	15	37.0	85	43	4.8	SF BGC	Separated	77.5%	15.5%	6.8%	0.0%	0.2%	177	LEAPING WEIR	24"	24"				SEWERS SEPARATED	Sewers Separated
091	SCHILLER AVE OVFL	SCHILLER & HIGHLAND	38	14	11.5	85	43	57.2	SF BGC	15.0	94.5%	3.7%	0.0%	0.0%	1.8%	243	ORIFICE		24"		8"		ACTIVE	
092	ST CATHERINE @ BGC	SCHILLER BTW KY & ST CATHERINE	38	14	5.6	85	43	54.3	SF BGC	7.7	89.5%	10.5%	0.0%	0.0%	0.0%	131	LEAPING WEIR	15"	24"				ACTIVE	
093	SPRING STREET	SPRING ST N OF MELLWOOD	38	15	21.0	85	43	21.3	SF BGC	20.8	10.0%	31.0%	36.0%	0.0%	22.9%	98	LEAPING WEIR	15"	36"				ACTIVE	
097	CANTONMENT SIPHON NO 2	BGC S OF EASTERN PKWY	38	13	23.1	85	43	28.2	SF BGC	--	NA	NA	NA	NA	NA	NA	HIGH LEVEL PIPE		39"		15"		ACTIVE	
104	SW PKWY SEWER @ BROADWAY	SW PKWY & BROADWAY	38	15	1.7	85	49	45.1	OR	62.0	95.2%	4.0%	0.0%	0.8%	0.0%	454	DIVERSION DAM	24"	48"	NA			ACTIVE	
105	WESTERN OUTFALL @ BROADWAY	BROADWAY @ SW PKWY	38	15	2.0	85	49	42.8	OR	1,893.0	57.2%	13.0%	19.8%	1.5%	8.5%	18,197	DIVERSION DAM	24"	11'9"	NA			ACTIVE	
106	ROYAL - NEFF	BACKYARD OF 1212 ROYAL	38	15	2.1	85	49	42.4	SF BGC	11.8	95.7%	0.0%	0.0%	4.3%	0.0%	103	DIVERSION DAM	6"	12" and 15" - in 18" - out				ACTIVE	
108	REG NO 1 - NEWBURG	NEWBURG @ TREVILIAN	38	12	54.5	85	42	13.4	SF BGC	485.2	94.1%	4.8%	0.0%	0.8%	0.3%	3,636	REGULATOR W/ RACK BARS	12" x 24"	dual 7'6" x 7'0"				ACTIVE	
099	REG NO 2 - DEER PARK	BEHIND O. L. O. P.	38	13	7.2	85	42	52.9	SF BGC	95.4	80.6%	19.0%	0.0%	0.4%	0.0%	435	REGULATOR W/ RACK BARS	12" x 15"	54"				ACTIVE	
110	REG NO 3 - GOSS AVE	BGC S OF EASTERN PKWY	38	13	30.9	85	43	38.5	SF BGC	73.0	85.1%	10.3%	0.0%	4.6%	0.0%	492	REGULATOR W/ RACK BARS	12" x 15"	60"				ACTIVE	

Table 10-1  
CSO Summary  
page 2 of 3

CSO NO.	CSO NAME	LOCATION	LATITUDE - N DEG MIN SEC			LONGITUDE - E DEG MIN SEC			RECEIVING STREAM	DRAINAGE AREA (ACRES)	LAND USE					POPULATION	Overflow Type and Configuration					STATUS	COMMENTS	
											Residential	Commercial	Industrial	Parks	Vacant		OVERFLOW TYPE	LOW FLOW DIA	OUTLET SEWER DIA	SIDE WEIR LENGTH	HIGH LEVEL PIPE DIA			ORIFICE DIA
111	EMERSON STREET SEWER	BGC N OF EASTERN PKWY	38	13	32.0	85	43	38.3	SF BGC	99.4	83.0%	15.5%	0.0%	0.2%	1.2%	765	DIVERSION DAM		5'2.5" x 4'9" basket handle			10"	ACTIVE	
113	ELLISON AVENUE SEWER	ELLISON & SCHILLER	38	13	51.3	85	43	45.7	SF BGC	67.6	90.7%	4.1%	3.4%	0.4%	0.6%	521	DIVERSION DAM		48"			8"	ACTIVE	
117	REG NO 11 - DRY RUN	LOGAN & CALDWELL	38	14	17.7	85	44	21.4	SF BGC	74.2	48.3%	21.9%	13.2%	2.4%	14.3%	9,327	DIVERSION DAM W/ REGULATOR	24" x 24"	9'6"				ACTIVE	
118	REG NO 15 - E BRDWAY	BROADWAY W OF BGC	38	14	40.0	85	44	11.2	SF BGC	354.1	28.0%	52.8%	8.9%	0.7%	9.6%	3,871	DIVERSION DAM W/ REGULATOR	16" x 34"	8'0"				ACTIVE	
119	BRENT STREET SEWER	BGC N OF BROADWAY	38	14	41.0	85	44	7.4	SF BGC	--	NA	NA	NA	NA	NA	NA	HIGH LEVEL PIPE		18"		15"	ACTIVE		
120	PHOENIX HILL SEWER	E OF BGC & S OF BAXTER	38	14	52.6	85	43	55.6	SF BGC	7.7	25.7%	50.1%	19.5%	0.0%	4.7%	54	DIVERSION DAM	8"	24"				ACTIVE	
121	REG NO 18 - GREEN ST	LEXINGTON RD W OF BGC	38	14	59.0	85	43	52.1	SF BGC	107.2	36.4%	24.4%	25.2%	2.8%	11.3%	899	DIVERSION DAM W/ REGULATOR	12"	36"				ACTIVE	
125	REG NO 24 - GRINSTEAD DR	GRINSTEAD @ I-64	38	14	54.1	85	42	1.4	MF BGC	391.0	57.4%	36.5%	0.0%	0.6%	5.5%	2,124	REGULATOR W/ RACK BARS	15"	7'3"				ACTIVE	
126	REG NO 26 - RAYMOND AVE	I-64 & SAUNDERS LN	38	14	55.3	85	42	10.4	MF BGC	35.3	83.6%	4.0%	0.0%	0.0%	12.4%	230	REGULATOR	15"	36"				ACTIVE	
127	ETLEY AVENUE	LEXINGTON RD OP ETLEY	38	14	45.2	85	42	16.5	MF BGC	192.3	81.7%	13.4%	0.0%	4.5%	0.3%	1,904	DIVERSION DAM	12"	6'0"				ACTIVE	
130	WEBSTER STREET	S OF STORY OP WEBSTER	38	15	22.2	85	43	34.0	SF BGC	28.4	24.2%	37.3%	32.3%	0.0%	6.1%	61	DIVERSION DAM	12"	24"				ACTIVE	
131	REG NO 33 - MELWD & FRANKFORT	FRANKFORT AVE @ BGC	38	15	28.5	85	43	11.7	SF BGC	50.3	48.2%	38.7%	11.1%	0.0%	2.0%	380	REGULATOR W/ RACK BARS	15"	30"				ACTIVE	
132	REG NO 35 - BROWNSBORO	BROWNSBORO & DRESCHER B	38	15	36.9	85	42	42.3	MudF BGC	674.0	75.2%	16.9%	1.2%	2.7%	4.0%	5,650	REGULATOR W/ RACK BARS	16" x 21"	10'11" x 10'0" basket handle				ACTIVE	
137	CALVARY CEMETARY	CALVARY CEMETARY @ BGC	38	13	23.4	85	43	19.2	SF BGC	26.7	84.8%	13.6%	0.0%	1.6%	0.0%	83	DIVERSION DAM	8"	12" and 24" - in 24" - out				ACTIVE	
140	LOCUST STREET	LOCUST SW OF SPRING	38	15	7.8	85	43	13.1	MF BGC	75.5	60.7%	5.7%	21.3%	1.3%	11.1%	574							ACTIVE	
141	BAXTER AVE @ BGC	BAXTER AVE & BGC	38	14	56.1	85	43	51.8	SF BGC	16.5	56.4%	28.7%	15.0%	0.0%	0.0%	131	ORIFICE		18"			15"	ACTIVE	
142	SBR LOGAN ST @ ST CATHERINE	LOGAN & ST CATHERINE	38	14	7.0	85	44	22.5	SF BGC	--	NA	NA	NA	NA	NA	NA	SIDE WEIR		24"	5'		18"	ACTIVE	
144	VANCE ST REGULATOR	S END OF VANCE & I-64	38	15	2.8	85	42	35.1	MF BGC	16.4	70.0%	14.3%	9.4%	0.0%	6.2%	105	DIVERSION DAM W/ REGULATOR	7.5" x 15.38"	42"				ACTIVE	
146	SNEADS BRANCH DIVERSION	SWAN ST S OF BGC	38	14	11.3	85	44	13.5	SF BGC	724.6	77.4%	11.8%	3.5%	4.3%	3.0%	8,939	RACK BARS	18"	7'0"				ACTIVE	
147	SWAN STREET DIVERSION	SWAN ST N OF BGC	38	14	12.4	85	44	13.3	SF BGC	Separated	85.5%	11.4%	2.3%	0.0%	0.8%	472	ORIFICE		36"			10"	SEWERS SEPARATED	Scheduled to be eliminated by 09/2007
148	EASTERN PKWY DIVERSION	EASTERN PKWY E OF BGC	38	13	31.4	85	43	33.2	SF BGC	24.9	99.6%	0.4%	0.0%	0.0%	0.0%	472	DIVERSION DAM	8"	24"				ACTIVE	
149	DRY RUN DIVERSION	KENTUCKY STREET & ST PAUL CT	38	14	14.0	85	44	37.2	SF BGC	225.8	48.3%	21.9%	13.2%	2.4%	14.3%	Included in CSO117	DIVERSION DAM	48" x 33"	8'6"				ACTIVE	
150	8th ST @ COMMON PLACE	8th ST & COMMON PLACE	38	15	28.7	85	45	46.8	OR	1.8	0.0%	90.3%	5.3%	0.0%	4.4%	Included in CSO053	DIVERSION DAM	8"					ACTIVE	
151	REG NO 5 - CASTLEWOOD	BGC & CASTLEWOOD DELL	38	13	47.6	85	43	30.8	SF BGC	232.5	89.6%	3.3%	0.0%	6.5%	0.6%	2,501	REGULATOR W/ RACK BARS	24"	66"				ACTIVE	
152	REG NO 7 - SOUTHEASTERN	BGC & RUFER AVENUE	38	14	1.3	85	43	43.1	SF BGC	260.6	64.4%	22.7%	0.0%	12.2%	0.6%	2,759	REGULATOR W/ RACK BARS	18"	7'0"				ACTIVE	
153	COOPER STREET	LEXINGTON & COOPER	38	15	0.3	85	43	47.3	SF BGC	41.7	85.1%	10.3%	2.2%	0.4%	2.0%	417	DIVERSION DAM	8"	36"				ACTIVE	
154	MELLWOOD @ SCHOEFFEL	MELLWOOD AVE & EDWD POND BR	38	15	43.3	85	42	55.2	MudF BGC	31.0	46.6%	23.8%	29.6%	0.0%	0.1%	136	DIVERSION DAM	12" & 15"	48"				ACTIVE	
155	ROWAN ST @ 12th ST	ROWAN & 12th	38	15	33.8	85	46	10.7	OR	11.9	0.0%	0.0%	28.6%	0.0%	71.4%	0	DIVERSION DAM	8"	7'-0"				ACTIVE	
156	6th & WASHINGTON SAN DIV	WASHINGTON W OF 6th	38	15	27.5	85	45	35.7	OR	--	NA	NA	NA	NA	NA	NA	DIVERSION DAM	6"	12"				ACTIVE	
160	SEWER IN ALLEY SAN DIV	1ST ST BTW MAIN & MARKET	38	15	19.3	85	45	5.7	OR	2.0	0.0%	89.7%	10.3%	0.0%	0.0%	0	DIVERSION DAM	6"	30"				ACTIVE	
161	MARKET ST SAN DIV	FIRST & MARKET	38	15	17.0	85	45	6.7	OR	2.5	0.0%	82.9%	17.1%	0.0%	0.0%	0	DIVERSION DAM	8"	30"				ACTIVE	
166	BEALS BRANCH SAN DIV	LEXINGTON RD & I-64	38	14	41.8	85	41	79.1	MF BGC	681.1	77.0%	15.5%	0.0%	4.6%	3.0%	3,503	DIVERSION DAM W/ RACK BARS	24"	10'3" semi- elliptical				ACTIVE	
167	BROWNSBORO LAT NO 2	BROWNSBORO & DRESCHER B	38	15	36.6	85	42	43.4	MudF BGC	11.0	75.2%	16.9%	1.2%	2.7%	4.0%	Included in CSO132	DIVERSION DAM	15"	24"				ACTIVE	
172	ADAMS STREET	ADAMS ST & I-64	38	15	46.7	85	43	46.8	OR	13.7	0.0%	87.0%	0.0%	0.0%	13.0%	0	SIDE WEIR	10"	36"	3'-6"			ACTIVE	
174	SBR GOSS & BOYLE	GOSS AVE & BOYLE ST	38	13	46.5	85	44	20.9	SF BGC	169.6	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	54"	7'0"	4'			ACTIVE	
178	CRD 9th & YORK "B"	9th & YORK	38	14	41.7	85	46	1.5	OR	29.7	17.0%	17.7%	43.0%	0.0%	22.2%	204	SIDE WEIR	54"	4'-0" X 6'0"	8'			ACTIVE	
179	KENTUCKY ST SEWER OVFL	KENTUCKY ST & ST PAUL CT	38	14	14.0	85	44	37.5	SF BGC	461.8	48.3%	21.9%	13.2%	2.4%	14.3%	Included in CSO117	SIDE WEIR	8'6"	8'0" - in 9'6" - out				ACTIVE	

Table 10-1  
CSO Summary  
page 3 of 3

CSO NO.	CSO NAME	LOCATION	LATITUDE - N DEG MIN SEC			LONGITUDE - E DEG MIN SEC			RECEIVING STREAM	DRAINAGE AREA (ACRES)	LAND USE					POPULATION	Overflow Type and Configuration					STATUS	COMMENTS		
											Residential	Commercial	Industrial	Parks	Vacant		OVERFLOW TYPE	LOW FLOW DIA	OUTLET SEWER DIA	SIDE WEIR LENGTH	HIGH LEVEL PIPE DIA			ORIFICE DIA	
180	SBR ORMSBY AVE RELIEF	ORMSBY & CLAY	38	13	49.4	85	44	39.0	SF BGC	2.8	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	30"	36"	6'			ACTIVE		
181	CRD 2nd & BROADWAY NO 2	2nd & BROADWAY	38	14	45.0	85	45	18.2	OR	22.6	10.3%	89.7%	0.0%	0.0%	0.0%	200	SIDE WEIR	36"X54"	36"	5'-9"			ACTIVE		
182	SBR SHELBY & BURNETT	BURNETT W OF SHELBY ST	38	13	30.0	85	44	34.1	SF BGC	147.3	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	60"	70" semi-elliptical - in 60" - out	5'			ACTIVE		
183	SBR ALEXANDER & KESWICK	ALEXANDER & KESWICK	38	13	7.2	85	44	33.9	SF BGC	3.2	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	HIGH LEVEL PIPE	6'-6"	18"		18"		ACTIVE		
184	SBR FETTER & ALEXANDER	FETTER & ALEXANDER	38	13	0.7	85	44	28.3	SF BGC	109.3	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	54"	6'0" semi-elliptical	4'-6"			ACTIVE		
185	SBR SHELBY & KESWICK	SHELBY & KESWICK	38	13	5.3	85	44	38.2	SF BGC	145.8	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	48"	6'6" semi-elliptical	4'			ACTIVE		
186	SBR LOGAN & OAK	LOGAN & OAK	38	13	59.8	85	44	23.8	SF BGC	0.0	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	18"	18"	7'			ACTIVE		
187	SBR SHELBY & CAMP	SHELBY & CAMP	38	13	52.5	85	44	30.6	SF BGC	5.2	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	15"	18"	4'			ACTIVE		
188	SBR SHELBY & CLAY	SHELBY & CLAY	38	13	55.6	85	44	37.4	SF BGC	14.7	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	SIDE WEIR	21"	20"	4'			ACTIVE		
189	NORTHWESTERN SAN DIV	SHAWNEE PARK FLOOD PS	38	15	19.2	85	49	37.7	OR	1,148.7	69.1%	9.4%	9.0%	3.1%	9.5%	9,660	SIDE WEIR	3'6"	13'6" x 9'0"	27'			ACTIVE		
190	SEVENTEENTH ST SAN DIV	17th ST & NW PKWY	38	15	52.4	85	46	29.3	OR	145.4	25.3%	19.6%	34.1%	0.0%	20.9%	1,137	DIVERSION DAM	24"					ACTIVE		
191	ALGONQUIN PKWY SAN DIV	SOUTHWESTERN PS	38	13	16.0	85	49	24.5	OR	339.8	5320.0%	6.0%	15.5%	1.1%	24.2%	1,152	DIVERSION DAM	24"	8'0"	NA			ACTIVE		
192	CRD S 6th & GARLAND	6th & GARLAND	38	14	27.9	85	45	45.5	OR	9.0	63.3%	2.9%	0.7%	12.8%	20.3%	65	SIDE WEIR	24"	18"	4'			ACTIVE		
193	CRD S 6th & KENTUCKY	6th & KENTUCKY	38	14	24.0	85	45	46.1	OR	22.7	46.4%	33.7%	0.8%	5.5%	13.7%	287	SIDE WEIR	24"	18"	4'			ACTIVE		
194	CRD S OAK W OF 4th	OAK ST W OF 4th ST	38	14	6.4	85	45	40.8	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	18"	12"	6'			ACTIVE		
195	CRD S 4th & OAK	4th & OAK	38	14	5.8	85	45	37.2	OR	7.3	92.9%	7.1%	0.0%	0.0%	0.0%	222	SIDE WEIR	27"	18"	4'			ACTIVE		
196	CRD S 3rd & OAK	3rd & OAK	38	14	4.8	85	45	30.9	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	24"	18"	4'			ACTIVE		
197	CRD S 3rd S OF OAK	3rd ST S OF OAK ST	38	14	3.1	85	45	31.5	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	16"		4'			ACTIVE		
198	CRD S 3rd & ORMSBY	3rd & ORMSBY	38	13	58.2	85	45	32.1	OR	13.0	41.8%	47.4%	0.0%	0.0%	10.8%	247	SIDE WEIR	24"	15"	4'			ACTIVE		
199	CRD S 3rd N OF MAGNOLIA	3rd ST N OF MAGNOLIA	38	13	49.2	85	45	33.7	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	15"	15"	4'			ACTIVE		
200	CRD S 3rd & MAGNOLIA	3rd & MAGNOLIA	38	13	44.7	85	45	34.5	OR	10.3	34.0%	20.6%	0.0%	45.3%	0.0%	114	SIDE WEIR	15"	18"	4'			ACTIVE		
201	CRD S 5th & KENTUCKY	5th & KENTUCKY	38	14	20.9	85	45	38.3	OR	--	NA	NA	NA	NA	NA	NA	SIDE WEIR	18"	21"	4'			ACTIVE		
202	CRD S ORMSBY W OF 3rd	ORMSBY W OF 3rd ST	38	13	58.0	85	45	35.3	OR	5.3	57.0%	43.0%	0.0%	0.0%	0.0%	75	SIDE WEIR	12"	15"	4'			ACTIVE		
203	CRD S 4th & ORMSBY	4th & ORMSBY	38	13	58.3	85	45	38.5	OR	14.2	35.5%	29.3%	0.0%	35.2%	0.0%	148	SIDE WEIR	24"	21"	4'			ACTIVE		
205	SBR MORGAN STREET RELIEF	MORGAN & HOERTZ	38	13	20.8	85	44	30.1	SF BGC	9.5	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	Included in CSO146	HIGH LEVEL PIPE	30"	30"		15"		ACTIVE		
206	CHEROKEE PARK @ SPRING DR	CHEROKEE RD & SPRING DR	38	14	0.3	85	41	45.8	MF BGC	464.7	87.6%	12.2%	0.0%	0.1%	0.2%	4,382	DIVERSION DAM	8"	87"				SEWERS SEPARATED	Project on going	
207	2nd & JEFFERSON	2ND & JEFFERSON	38	15	12.5	85	45	12.8	OR	2.5	NA	NA	NA	NA	NA	NA	DIVERSION DAM	8"					ACTIVE		
208	12th & JEFFERSON	12th & JEFFERSON	38	15	18.5	85	46	13.0	OR	11.2	62.3%	0.0%	0.0%	37.7%	0.0%	NA	DIVERSION DAM	24"	12"				ACTIVE		
210	45th STREET-GREENWOOD	S OF 45th & WINNROSE	38	14	14.3	85	41	41.8	OR	166.7	89.0%	3.6%	0.3%	6.4%	0.7%	1,775	DIVERSION DAM	10"	66" semi-elliptical	NA			ACTIVE		
211	MAIN DIVERSION STRUCTURE	WAYNE SUPPLY	38	14	11.5	85	49	40.9	OR	3,478.2	36.0%	24.2%	24.8%	2.8%	12.3%	NA	INFLATABLE DAM	96"	15'-6"X15'-2"	NA			ACTIVE		
SBR CSOs 142,174,180,182,183,184,185,186,187,188,205										SF BGC															
*** MORRIS FORMAN SERVICE ARA POPULATION = 397,895																									

Notes:

This information was developed through computer model simulations processed on March 10, 2004. It is NOT measured data.  
 The rainfall data utilized as input was an average rainfall year developed through a statistical analysis evaluating 54 years of rainfall data (1948 to 2002) for Jefferson County KY for 2003 model simulation.  
 The rainfall data utilized for Reference Storm simulations, 2-yr storm and 5-yr storm are historical rainfall events, identified based on statistical analysis of rainfall data (1960-1990).  
 The model simulation was done assuming the peak capacity at MFWTP equal to 350 mgd. However, sustainability of the 350 mgd has not yet been proven.

**Table 10-2**  
**Summary of CCTV**  
page 1 of 1

	# of Inspections by Type		Length
<b>2000</b>			
P/T	4		790.33
TVF	117		26,122.65
TVI	297		70,472.35
TVR	31		8,123.97
	<b>Annual Count</b>	<b>449</b>	<b>Annual Length</b> <b>105,509.30</b>
<b>2001</b>			
TVF	93		22,400.12
TVI	402		94,645.17
TVLIS	1		180.00
TVNC	15		1,500.54
TVR	22		5,474.90
	<b>Annual Count</b>	<b>533</b>	<b>Annual Length</b> <b>124,200.73</b>
<b>2002</b>			
P/T	2		1,088.80
TVF	77		18,182.24
TVI	319		74,957.02
TVR	22		6,335.79
	<b>Annual Count</b>	<b>420</b>	<b>Annual Length</b> <b>100,563.85</b>
<b>2003</b>			
P/T	9		2,693.53
TVF	15		3,411.05
TVI	306		71,976.39
TVR	10		1,761.11
	<b>Annual Count</b>	<b>340</b>	<b>Annual Length</b> <b>79,842.08</b>
<b>2004</b>			
P/T	10		2,594.44
TVF	10		2,231.93
TVI	247		58,313.33
TVR	5		1,153.00
	<b>Annual Count</b>	<b>272</b>	<b>Annual Length</b> <b>64,292.70</b>
<b>2005</b>			
P/T	23		6,745.62
PMTV	16		1,572.58
TVF	1		300.00
TVI	291		72,050.53
	<b>Annual Count</b>	<b>331</b>	<b>Annual Length</b> <b>80,668.73</b>
<b>2006</b>			
P/T	34		8,961.30
PMTV	96		20,852.53
TVI	196		48,113.85
	<b>Annual Count</b>	<b>326</b>	<b>Annual Length</b> <b>77,927.68</b>
	<b>Total # TV Inspections</b>	<b>2,671</b>	<b>Annual Length</b> <b>Total Length Inspected</b> <b>633,005.07</b>

**Table 10-3**  
**Monitoring Programs**  
page 1 of 1

<b>Project/Program Name</b>	<b>CSO</b>	<b>CSS</b>	<b>In - Stream</b>	<b>Purpose</b>
CDS Verification Testing	X		X	Performance Evaluation
ORSANCO Wet Weather Demonstration Project	X		X	Wet Weather Impact Study
Water Quality Tool	X	X	X	CSO Characterization
SIU Monitoring	X		X	CSO Characterization and Permit Monitoring
Long-Term Monitoring Network			X	Water Quality Data Collection
Recreational Contact Season Testing			X	Water Quality Data Collection
Environmental Technology Verification Program	X			Performance Evaluation
Force Main Sampling		X		Influent Characterization
Real Time Control		X		Wastewater Flow Management
Willow Pond Testing			X	Water Quality Data Collection
Beargrass Creek TMDL	X		X	TMDL Development



**Table 10-4**  
**CSO Flow Monitoring**  
page 1 of 4

Site#	Meter Location	Monitor Type	Monitoring Period	Number of storms monitored	Avg. Daily Flow (MGD)	Peak Flow Rate (MGD)	Peak Flow Depth (inches)	Max. Rainfall Depth (inches)	Date of Peak	Observations
1	Colorado between Rodman & Creel	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	0.2	84.9	55.3	2.66	3/26/2002	The scattergraph showed good example of normal open channel flow with an obstacle or silt in the sewer line.
3	East Main	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	23.2	119.4	119.4	2.66	3/26/2002	The scattergraph showed the likelihood of debris in the sewerline.
4	Nightingale PS	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	2.5	31.3	159.8	2.66	3/26/2002	The scattergraph showed normal open channel pipe flow, with some variations before reaching a surcharged condition likely due to the downstream pump station. Hydrograph shows flows typical of a site affected by infiltration
5	Nightingale PS	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	10.6	17.4	125.6	2.66	3/26/2002	The scattergraph showed that the pipe is typically flowing above half-full and the likelihood of a downstream pump station.
6	Seneca Park Road	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	13.7	29.1	104.5	2.66	3/26/2002	The scattergraph showed that the pipe is generally flowing at or above half full.
7	Shelby & Caldwell	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	1.2	62.8	48.6	2.66	3/26/2002	The scattergraph showed a good example of normal flows during average conditions. There may be some shifting debris or obstacles in the line.
8	3302 Trout Creek Rd.	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	1.2	19.3	136.3	2.66	3/26/2002	This manhole was submerged during the 3/18-3/20 rainfalls. The hydrograph indicates the possibility of a small amount of infiltration.
9	Mall Road	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	5.1	11.8	119.7	2.66	3/26/2002	The scattergraph showed that the pipe generally flows at approximately half-full or more with some bottlenecks and a possible overflow downstream.
10	1225 Union Ave.	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	2.9	25.2	29	2.66	3/26/2002	The scattergraph showed normal open channel flows with a possible light blockage or shifting debris downstream for a time, creating some lower than expected velocities.
12	100 10th Street	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	0.5	42.9	27.9	2.66	3/26/2002	There has been minimal flow in this pipe, even during rain events. It appears that the flow this pipe was originally designed for has been rerouted to another part of the sewer system.
13	401 38th Street	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	0.9	6.2	31.4	2.66	3/26/2002	The scattergraph is a very good example of normal open channel.
14	1800 Mellwood Ave.	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	3.2	135.3	55.3	2.66	3/26/2002	The scattergraph is very typical of a line experiencing a bottlenecks condition. The hydrograph indicates that there may have been almost a complete blockage of the line from March 22-25.
17	Lenox Ave.	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	2.5	156.9	66.6	2.66	3/26/2002	Temporary bottleneck or blockage due to debris deposited from the March 26th rainfall event caused some variations in the scattergraph. This hydrograph showed some evidence of infiltration.
18	4526 Broadway	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	2.3	142.0	48.1	2.66	3/26/2002	The scattergraph showed a flow pattern typical of a possible overflow or a dam.
19	Shawnee Park	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	0.5	84.4	57.6	2.66	3/26/2002	The system appears to have been completely blocked or surcharged from March 23-25, as evidenced on the hydrograph and also depicted as high level readings with zero velocity on the scattergraph.
20	Cardinal & 4th	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	3.5	43.4	167.3	2.66	3/26/2002	The scattergraph generally showed normal open channel flow with occasional temporary blockages.
22	1309 45th Street	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	1.6	96.6	69.9	2.66	3/26/2002	The two high level points may indicate the presence of a downstream overflow

**Table 10-4**  
**CSO Flow Monitoring**  
page 2 of 4

Site#	Meter Location	Monitor Type	Monitoring Period	Number of storms monitored	Avg. Daily Flow (MGD)	Peak Flow Rate (MGD)	Peak Flow Depth (inches)	Max. Rainfall Depth (inches)	Date of Peak	Observations
28	28th & Broadway	American Sigma 910 A/V	1/29/02 - 4/11/2002	5	0.2	30.3	114.6	2.66	3/26/2002	The scattergraph showed the possibility of silt or an obstacle in the sewer line.
1	Vehicle impoundment lot east of Ohio Street	Marsh-McBirney Model 260	Jan through June 1992	18	3.0	20	110	2.31	3/18/1992	The site was subjected to backwater from the Robert J. Starkey PS and the Ohio River. Site contained 16" of silt at the meter location.
2	Washington Street and Cabel Street	Marsh-McBirney Model 260	Apr through June 1992	10	22.0	62	160	2.31	3/18/1992	This flowmeter experienced chronic fouling problems and was relocated to Site 2A during phase two.
2A	Locust Street and Spring Street	Marsh-McBirney Model 260	Apr through June 1992	10	20.0	85	150	2.3	6/18/1992	The flowmeter was relocated from site 2. The site was subjected to the backwater from the Robert J. Stakey PS. The depth spikes result from backwater effects created by wet well levels at the PS.
3	Cherokee Park just east of Bridge No.1	Marsh-McBirney Model 260	Apr through June 1992	10	12.0	38	53	2.3	6/18/1992	Recorded good velocity and depth data.
4	Beals Branch Road just north of I-64	Marsh-McBirney Model 260	Apr through June 1992	10	2.5	105	26	2.3	6/18/1992	Recorded good velocity and depth data.
5	Lexington Road and Grisstead Dr.	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	85	26	2.3	6/18/1992	Normal daily flow is only an inch or so deep and this resulted in inaccurate velocity data causing erratic flows to be calculated.
6	South of I-64 and Breckenridge lane	Marsh-McBirney Model 260	Apr through June 1992	10	9.0	28	68	2.3	6/18/1992	Recorded good velocity and depth data.
8	Washington Street and Buchanan Street	Marsh-McBirney Model 260	Apr through June 1992	10	22.0	67	68/139	0.26	5/18/1992	The site was subjected to the backwater from the Robert J. Stakey PS. The depth spikes result from backwater effects created by wet well levels at the PS.
9	East Broadway at Campbell Street	Marsh-McBirney Model 260	Jan through June 1992	10	1.5	420	88	2.3	6/18/1992	The flowmeter sensor was offset from the invert at this site. Diurnal fluctuations expose the sensor during the early morning hours resulting in a loss of data.
10	Caldwell Street and Shelby Street	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	262	60	0.5	5/2/1992	The flowmeter sensor was offset from the invert at this site. Diurnal fluctuations expose the sensor during the early morning hours resulting in a loss of data.
11	Swan Street and Kentucky Street	Marsh-McBirney Model 260	Apr through June 1992	10	1.5	120	45	2.3	6/18/1992	The flowmeter sensor was offset from the invert at this site. Diurnal fluctuations expose the sensor during the early morning hours resulting in a loss of data.
12	Brent Street just north of Rufer Street	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	100	57	0.5	5/2/1992	Recorded good velocity and depth data.
13	Merson Street north of Eastern Parkway	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	80	20	2.3	6/18/1992	Recorded good velocity and depth data.
14	South of Eastern Parkway and west of Beargrass Ck	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	29	17	2.3	6/18/1992	Recorded good velocity and depth data.
15	Downstream of Nightingale Diversion	Marsh-McBirney Model 260	Apr through June 1992	10	10.0	13	90	2.3	6/18/1992	This flowmeter experienced fouling problems intermittently.
16	Trevilian Way and Ashwood Ave.	Marsh-McBirney Model 260	Apr through June 1993	10	1.0	260	39	2.3	6/18/1992	This flowmeter was subjected to backwater from Beargrass Creek
17	BGI just east of Gardiner Lane	Marsh-McBirney Model 260	Apr through June 1992	10	11.0	19	40/72	1.33	4/15/1992	Recorded good velocity and depth data.
18	BGIR just east of Gardiner Lane	Marsh-McBirney Model 260	Apr through June 1992	10	1.0	16	34	2.3	6/18/1992	Recorded good velocity and depth data.
19	Union Ave. north of Fayette Ave.	Marsh-McBirney Model 260	Apr through June 1992	10	5.0	34	25	2.3	6/18/1992	The flowmeter site was on the discharge line from the Nightingale PS.

**Table 10-4**  
**CSO Flow Monitoring**  
page 3 of 4

Site#	Meter Location	Monitor Type	Monitoring Period	Number of storms monitored	Avg. Daily Flow (MGD)	Peak Flow Rate (MGD)	Peak Flow Depth (inches)	Max. Rainfall Depth (inches)	Date of Peak	Observations
20	Franklin Street and Johnson Street	Marsh-McBirney Model 260	Jan through Mar 1992	8	0.3	28	19	2.31	3/18/1992	This flowmeter experienced intermittent problems reading depth and velocity
21	Washington Street just west of Campbell St	Marsh-McBirney Model 260	Jan through Mar 1992	8	42.0	6	33		Numerous	Pump operation at the Robert J. Starkey PS can be clearly seen on the graph of typical daily flow.
22	5th Street just north of Market Street	Marsh-McBirney Model 260	Jan through Feb 1992	4	0.5	3	17	0.68	1/13/1992	The flowmeter was relocated after a few weeks when the flow did not increase significantly during rain events.
23	6th Street at the north edge of Main Street	Marsh-McBirney Model 260	Jan through Feb 1992	4	<0.1	1	5.5	0.68	1/13/1992	The flowmeter was relocated after a few weeks when the flow did not increase significantly during rain events.
24	10th Street just north of Main Street	Marsh-McBirney Model 260	Jan through Feb 1992	4	<0.1	0.7	4.5	0.68	1/13/1992	The flowmeter was relocated after a few weeks when the flow did not increase significantly during rain events.
25	Main Street west of 14th Street	Marsh-McBirney Model 260	Jan through Mar 1992	8	42.0	80	67	0.89	3/7/1992	The depth and flow spikes reflect the number of pumps running at the Robert J. Stakey PS.
26	30th Street and Cedar Street	Marsh-McBirney Model 260	Jan through Mar 1992	8	<0.5	53	61	2.31	3/18/1992	The flowmeter sensor was exposed during normal flows and yielded data only during rain events.
27	33rd Street and Rudd Ave.	Marsh-McBirney Model 260	Jan through Mar 1992	8	1.2	135	72	2.31	3/18/1992	Recorded good velocity and depth data.
28&41	26th Street and Northwestern Parkway	Marsh-McBirney Model 260	Jan through Mar 1992	8	1.7	12	18	2.31	3/18/1992	The site 28 experienced intermittent fouling problems and was relocated to site 41.
29	38th Street and Herman Street	Marsh-McBirney Model 260	Jan through Mar 1992	8	0.2	29	56	2.31	3/18/1992	The flowmeter experienced numerous problems with sensor fouling and battery life.
30	Amy Street just north of Muhammad Ali Blvd	Marsh-McBirney Model 260	Jan through Mar 1992	8	47.0	-	80	0.82	3/10/1992	The depth and flow spikes reflect the number of pumps running at the Robert J. Stakey PS.
31	Winnrose Way and west of Cecil Asvenue	Marsh-McBirney Model 260	Jan through June 1992	4	45.0	113	150/228	1.33	4/16/1992	The depth and flow spikes reflect the number of pumps running at the Robert J. Stakey PS.
32	Shawnee Park opposite of River Park Dr. and Southwestern PKWY	Marsh-McBirney Model 260	Jan through Mar 1992	8	2.0	400	77	2.31	3/18/1992	The flowmeter experienced sporadic problems measuring velocity
33	Shawnee Park just north of Broadway	Marsh-McBirney Model 260	Jan through Mar 1992	8	2.0	25	80	2.31	3/18/1992	Recorded good velocity and depth data.
34	West Broadway just south of Shawnee Park	Marsh-McBirney Model 260	Jan through Mar 1992	8	2.8	300	80	2.31	3/18/1992	The flowmeter sensor was offset from the invert at his iste. Diurnal fluctuations expose the sensor during the early morning hours resulting in a loss of data.
35	West Broadway west of Southwestern PKWY near Ohio River	Marsh-McBirney Model 260	Jan through Feb 1992	4	0.0	25	22	0.64	2/23/1992	The flowmeter was on the overflowside of the sewer and experienced fouling and battery life problems since the senro was dry a majority of the time. The Sewer was monitored during the first half of phase one and relocated during the second half of phase one.
36B	45th Street just north of Winnrose Way	Marsh-McBirney Model 260	Jan through June 1992	18	4.0	32	40/64	0.26	5/17/1992*	The flowmeter experienced chronic fouling problems resulting in inaccurate velocity data.
37	Wayne Supply Co. just east of the CSO211	Marsh-McBirney Model 260	Jan through June 1992	18	5.0	900	212	2.3	6/18/1992	The flowmeter sensor was offset from the invert at his iste. Diurnal fluctuations expose the sensor during the early morning hours resulting in a loss of data.
38	12 Street and Wilson Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	-	-	67	0.68	1/13/1992	The flowmeter site was physically bad location and was not properly calibrated for velocity. Depth measurements were accurate.
39	Rodman Street and Compton Street	Marsh-McBirney Model 260	Jan through Mar 1992	8	0.3	90	48	2.31	3/18/1992	The flowmeter experienced intermittent fouling problems resulting in inaccurate velocity data.

**Table 10-4**  
**CSO Flow Monitoring**  
page 4 of 4

Site#	Meter Location	Monitor Type	Monitoring Period	Number of storms monitored	Avg. Daily Flow (MGD)	Peak Flow Rate (MGD)	Peak Flow Depth (inches)	Max. Rainfall Depth (inches)	Date of Peak	Observations
40	4th Street and Cardinal Drive	Marsh-McBirney Model 260	Feb through Mar 1992	4	2.0	120	53	2.31	3/18/1992	The flowmeter experienced intermittent fouling problems resulting in inaccurate velocity data.
42	8th Street and Magazine Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	0.5	160	42	2.31	3/18/1992	The flowmeter was relocated from site 22 during the second half of phase one.
43	Hale Street west of 28th Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	0.3	40	50	2.31	3/18/1992	The flowmeter was relocated from site 23 during the second half of phase one.
44	Grand Ave west of 26th Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	0.2	-	50	2.31	3/18/1992	The flowmeter was relocated from site 24 during the second half of phase one.
45	23rd Street and Maple Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	0.6	70	87	2.31	3/18/1992	The flowmeter was relocated from site 35 during the second half of phase one.
46	Wilson Street just east of 18th Street	Marsh-McBirney Model 260	Feb through Mar 1992	4	4.0	245	90	2.31	3/18/1992	The flowmeter was relocated from site 38 during the second half of phase one.
50	Near the southern end of Castlewood Dell	Marsh-McBirney Model 260	Apr through June 1992	10	<1.0	65	19	2.3	6/18/1992	Recorded good velocity and depth data.
51	Kentucky Street and Schiller Ave.	Marsh-McBirney Model 260	Apr through June 1992	10	18.0	24	46	1.33	4/16/1992	The flowmeter experienced repeated problems recording velocity and failed completely near the end of phase two.
LR1	Taylor Blvd and Camden Ave	Referenced in 1993 CSOP	ADS Environmental Services							
LR2	Longfield Ave and Cliff Ave	Referenced in 1993 CSOP	ADS Environmental Services							
LR3	Southwestern Outfall at Sevent Street	Referenced in 1993 CSOP	ADS Environmental Services							

\* No data recorded during 6/18/1992 event

Reference

\*\*\*Report on Combined Sewer System Flow Monitoring, Prepared by Tenny Pavoni Associates Inc. February 1993

\*\*\*Flow Monitoring Report Combined Sewer System Flow Monitoring, GRW May, 2002

**Table 10-5**  
**CSS Sampling Summary**  
page 1 of 3

LOCCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
C0000008	CSO 206 effluent	NR X of Spring ST & Cherokee	in park about 30 yards N of ST	67	2/9/2001	5/14/2004
C0000009	CSO 209 EFFLUENT	Scenic Loop at base of Baringer Hill	Path uphill from Christensen Fountain	41	4/12/2004	10/10/2005
C0000010	CSO 108 influent			5	2/15/2001	2/15/2001
C0000011	CSO 108 effluent N Unit			6	2/15/2001	2/15/2001
C0000012	CSO 108 effluent, S Unit			6	2/15/2001	2/15/2001
C0000013	CSO 108 Weir	CSO 108 outfall	FR flow over weir to outfall	11	2/25/2001	4/21/2004
C0000015	CSO 91 Schiller Ave cross BGC			2	5/25/2000	3/19/2002
C0000016	S Outfall Surge Basin	1400 Cecil AVE (Wayne Supply)	S Basin on W side of property	33	8/8/2000	8/3/2006
C0000017	CSO #210, Greenwood AVE Bypass	1401 Cecil AVE (Wayne Supply)	N Basin on W side of property	26	8/8/2000	11/8/2000
C0000018	MH in East Sewer@38th&Main			1	9/9/2000	9/9/2000
C0000024	CSO 110	NR E PKWY Medical CTR	W Side of 1138 E PKWY	68	2/9/2001	5/14/2004
C0000025	CSO 117	behind 989 Logan ST	gate @ E side of lot	49	2/25/2001	5/14/2004
C0000026	CSO 125	X of I-64 W & Grinsted RD	SE corner, 139 FT N of hydrant	28	2/9/2001	12/12/2001
C0000027	CSO 127	MH behind 2295 Lexington RD	14 FT from NW corner of bld	43	2/9/2001	5/14/2004
C0000028	CSO 140	X of Lobdell Alley & Locust ST	40 FT SE of 1401 Locust	22	2/9/2001	3/12/2003
C0000029	CSO 151	1310 Castlewood Dell	46 FT SW off backyard gate	62	2/9/2001	5/14/2004
C0000030	CSO 152	50 FT NW of end of Ruffer ST	Nside of 1203 Ruffer	67	2/9/2001	5/14/2004
C0000031	CSO 153			4	5/7/2001	5/10/2001
C0000032	Manhole #71868	X pf Caldwell & S Shelgy STs	30 FT W of X @ 730 Caldwell	59	1/10/2001	12/16/2001
C0000033	Manhole #08870	70 FT SE of 756 Brent ST	in front of address	49	1/10/2001	12/16/2001
C0000034	Manhole at CSO - 153	1139 Lexington RD	23 FT from rear of business	55	1/10/2001	12/16/2001
C0000035	Manhole #40027	135 FT of 1421 Lexington RD	20 FT from NE corner of bridge	49	1/10/2001	12/16/2001
C0000036	Manhole #13993	2305 Bickel RD	148 FT NE of address	51	1/10/2001	12/16/2001
C0000037	Manhole #40028	1421 Lexington RD	In Parking Lot on W side	47	1/10/2001	12/16/2001
C0000038	Manhole #12524	Behind 1917 Frankfort AVE	4 FT from APT BLDG parking log	43	2/15/2001	12/16/2001
C0000041	Manhole #08993	Behind 1110 Eastern PKWY	MH 150 NE down alley	61	1/10/2001	12/16/2001

**Table 10-5**  
**CSS Sampling Summary**  
page 2 of 3

LOCCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
C0000042	CSO #16	Greenwood Ave Bypass Structure	@ Whayne Supply	8	11/8/2000	11/8/2000
C0000043	CSO #19	34th ST & Rudd AVE	in mid 34th, outside of Pump STA	6	11/8/2000	11/8/2000
C0000044	CSO #50	12th ST between Main & Rowan		11	11/8/2000	11/8/2000
C0000045	CSO #189	Shawnee FPS, left rear of BLDG	in grass 15 FT off RD	5	11/8/2000	11/8/2000
C0000046	CSO #190	NW PKWY under I-64 overpass	In walk, front of 27th ST FPS	2	11/8/2000	11/8/2000
C0000053	MSD Manhole #08125			1	1/17/2001	1/17/2001
C0000054	MFWTP CSMH#1 - SWI at Chevron			365	1/29/2001	9/6/2006
C0000055	MFWTP CSMH#2 - ORI in Driveway			62	1/29/2001	11/8/2001
C0000060	MSD M/H #08209			34	2/5/2001	3/3/2004
C0000063	MSD M/H #93135 Effluent	Newburg Rd @ CSO 108		24	5/7/2001	6/22/2001
C0000067	MSD M/H# 08279			1	4/16/2001	4/16/2001
C0000069	MSD M/H# 23192			25	4/17/2001	3/3/2004
C0000070	MSD M/H# 56010			1	4/25/2001	4/25/2001
C0000083	Septage Receiving Site @ MFWTP			90	10/22/2001	2/23/2002
C0000085	MFWTP CSMH#2A - ORI in Field			329	11/9/2001	9/6/2006
C0000086	MH12848 Payne St. near Sturgis			22	3/19/2002	5/22/2002
C0000088	MSD Manhole #08073			3	1/17/2002	1/17/2002
C0000093	MSD Manhole #12841			18	3/19/2002	3/31/2002
C0000094	MSD Manhole #12866			20	3/19/2002	3/31/2002
C0000095	MH Kendall Ct. & Anderson St.			1	4/29/2002	4/29/2002
C0000096	34th St. Pump Sta. Influent			1	4/30/2002	4/30/2002
C0000102	MSD Manhole # 30309			3	8/20/2002	8/22/2002
C0000103	MSD Manhole # 08872			3	8/20/2002	8/22/2002
C0000104	CSO 146			3	8/20/2002	8/22/2002
C0000105	MSD Manhole # 71867			6	8/20/2002	1/23/2003
C0000113	MSD Manhole # 08882			4	2/24/2003	2/27/2003
C0000114	CSO 121			3	3/11/2003	3/13/2003
C0000115	CSO 083			4	3/10/2003	3/13/2003

**Table 10-5**  
**CSS Sampling Summary**  
page 3 of 3

LOCCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
C0000117	MSD Manhole #85123			4	12/7/2005	8/3/2006
C0000120	MH near dump site at Cabel St			4	7/21/2003	9/12/2003
C0000127	MSD M/H #04249			1	3/3/2004	3/3/2004
C0000128	Influent to Buchanan St PS			1	3/9/2004	3/9/2004
C0000131	MSD Manhole # 12774			1	4/18/2004	4/18/2004
C0000142	CSO #190 Upstream of Weir	Upstream of CSO 190	Sample in same MH as CSO 190 US of weir	4	12/7/2005	7/31/2006
C0000143	MSD Manhole 08076-T	Upstream of CSO 19	Rudd Ave just West of 33rd St	4	12/7/2005	7/31/2006
C0000144	MSD Manhole 08726-SM	Upstream of CSO 189	In grass near River Park Drive & SW Pwy	4	11/30/2005	7/31/2006
C0000145	MSD Manhole 08635	Upstream of CSO 105	Center of st @ 4526 W Broadway	4	12/7/2005	7/31/2006
C0000146	CSO 104 upstream of dam	Upstream of CSO 104	SE corner Southeastern Pky & W Broadway	4	12/7/2005	7/31/2006
C0000147	MSD Manhole 08112-SM	Upstream of CSO 16	In front of 1309 S 45th Street	4	11/30/2005	8/3/2006
C0000148	Access point 50' N of CSO 210	Upstream of CSO 210	In North detention basin @ Whayne Supply	4	11/30/2005	8/3/2006
C0000149	CSO 191 upstream of dam	Upstream of CSO 191	In SWPS driveway 100' S of RR tracks	4	11/30/2005	8/3/2006
C0000150	Starkey Pump Stn (Buchanan)			2	11/16/2005	12/2/2005

T: 0-6  
**Sewer Sampling Summary**  
 page 1 of 2

LOGCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
C0000001	J'town CSMH 1			198	5/8/2000	8/17/2006
C0000002	J'town CSMH 2			203	5/8/2000	8/17/2006
C0000003	J'town CSMH 3			193	5/8/2000	8/17/2006
C0000004	J'town CSMH 4			193	5/9/2000	8/17/2006
C0000005	J'town CSMH 5			176	5/8/2000	10/20/2005
C0000006	J'town Chenoweth Run PS			60	5/10/2000	10/17/2005
C0000019	MH 78' line west of Riverdale			1	9/21/2000	9/21/2000
C0000020	MH Bethany Ln @SDFD			1	9/21/2000	9/21/2000
C0000021	MH Ashby Ln @ Mill Creek			2	9/21/2000	9/27/2000
C0000022	MH Johnsontown Rd@Black Pond			2	9/21/2000	9/27/2000
C0000023	MH Oak Park at Stephen Ditch			1	9/27/2000	9/27/2000
C0000039	Manhole #51174	Bent Creek APT Parking	MH NR X of Terril & Peabody Lot	56	1/10/2001	12/16/2001
C0000040	Manhole #45835	NR X of Alta Vista & Seneca PK	MH 25 yards W of Alta Vista	59	1/10/2001	12/16/2001
C0000049	Hite Creek CSMH #3			20	4/16/2001	9/11/2006
C0000056	WCWTP CSMH#1 (PC-1)			75	3/5/2001	7/18/2006
C0000057	WCWTP CSMH#2 (PC-2)			73	6/8/2000	7/18/2006
C0000058	WCWTP CSMH#3 (MC-1)			76	3/5/2001	7/18/2006
C0000059	WCWTP CSMH #4 (MC-2)			79	3/5/2001	7/18/2006
C0000061	Hite Creek CSMH #6			15	4/16/2001	9/11/2006
C0000064	Manhole bh 3333 Bardstown Rd.			25	4/9/2001	11/29/2001
C0000065	Manhole at 7607 Old Shep' Road			28	4/9/2001	11/29/2001
C0000066	Manhole bh 9800 Shelbyville Rd			24	4/9/2001	11/29/2001
C0000071	J'town CSMH 2A			3	8/14/2001	8/16/2001
C0000072	J'town CSMH 2B			3	8/14/2001	8/16/2001
C0000084	MH1083-PS Beckley Station			9	10/22/2001	11/15/2001
C0000090	MSD Manhole #48775			7	8/20/2002	1/30/2003
C0000091	MSD Manhole #30683-SM			6	8/20/2002	1/30/2003
C0000092	MSD Manhole #18916			1	2/20/2002	2/20/2002
C0000097	J'town CSMH 2A-1			4	6/10/2002	6/13/2002
C0000098	J'town CSMH 2A-2			4	6/10/2002	6/13/2002
C0000099	MSD Manhole #19076			2	6/11/2002	6/11/2002
C0000100	MSD Manhole #46488			1	7/1/2002	7/1/2002
C0000101	MSD Manhole #19161			1	7/1/2002	7/1/2002
C0000107	MSD Manhole # 21058	200 TYNE RD	In Front Yard, 20 FT E of DRWY	101	12/18/2002	5/27/2004
C0000108	MSD Manhole # 21102	116 MARSHALL DR	Middle of ST, 10 FT from PROP	92	2/9/2002	5/27/2004
C0000109	MSD Manhole # 21094	271 Brunswick RD	2 FT N of Driveway	66	12/18/2002	12/18/2003
C0000110	MSD Manhole # 25017	Stongehenge APTS	25 FT W of APT 308	97	12/18/2002	5/27/2004
C0000112	MSD Manhole # 18534	3048 Radiance RD	Middle of ST, 10 FT from PROP	12	12/18/2002	12/18/2003
C0000121	MSD M/H #08430			1	9/2/2003	9/2/2003
C0000126	SSO @ Southeast Div. Structure	South Fork Beargrass & Buechel Branch	Sample overflow pipe	1	3/9/2005	3/9/2005
C0000129	MSD MH# 08935-SM	1001 Breckenridge LN	S of CRK, NE corner Pking lot	10	5/24/2004	5/26/2004



T: 0-6  
**Sewer Sampling Summary**

page 2 of 2

LOCCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
C0000130	MSD MH# MSD0012-PS	Highgate Springs Pump Station	N of SFBGC & S 3246 Radiance RD	28	5/25/2004	3/12/2006
C0000134	Shively Pump Station			1	3/15/2005	3/15/2005
C0000137	Pumped SSO @Cordova & Biltmore	MSD Manhole #21153	In front yard of 4524 Cordova Road	8	3/12/2006	3/12/2006
C0000139	Lake Forest CSMH 1	MSD Manhole #84509		68	7/24/2005	7/27/2005
C0000140	Lake Forest CSMH 2	MSD Manhole #84511		23	7/24/2005	7/25/2005
C0000141	Lake Forest CSMH 3	MSD Manhole #84512		69	7/24/2005	7/27/2005

Table 10-7  
CSS Pollutant Characterization  
page 1 of 4

Location	MH @ CSO 153	MH 12524	MH13993	MH40027	MH40028	MH45835	MH 51174	MH 71868	MH 08870	MH 08993	
LOCCODE	C0000034	C0000038	C0000036	C0000035	C0000037	C0000040	C0000039	C0000032	C0000033	C0000041	
Sewershed Characteristics	Single Family Residential	Single and Multi-Family Residential	Single and Multi-Family Residential	Mixed Use	Mixed Use	Single Family Residential and Park Space	Multi-Family Residential	Single Family Residential	Mixed Use	Mixed Use	
Project	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	Water Quality Tool	
Period	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	
Event Based?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Number of Dry Weather Events	2	0	2	2	2	2	2	2	2	2	
Number of Wet Weather Event	5	5	5	4	4	6	5	6	5	7	
Ammonia N (mg/L)	Number of Tests	28	21	23	28	24	31	28	30	28	30
	Minimum Result	0.006	0.0022	0.5	0.06	0.06	0.06	0.06	0.06	0.017	0.342
	Maximum Result	36	3	50	7	21	23	22	22	16	58
Arsenic (mg/L)	Number of Tests	6	6	6	6	6	6	6	6	6	6
	Minimum Result	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Maximum Result	0.0025	0.00777	0.00386	0.00518	0.0042	0.00336	0.0057	0.0045	0.002	0.0047
Barium (mg/L)	Number of Tests	28	21	23	27	24	31	28	30	26	30
	Minimum Result	0.0037	0.00576	0.002	0.0115	0.0346	0.002	0.002	0.0086	0.006	0.002
	Maximum Result	0.087	0.126	0.061	0.17	0.151	0.76	0.137	0.071	0.445	0.057
Beryllium (mg/L)	Number of Tests	22	14	17	21	19	25	22	24	20	23
	Minimum Result	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.002	0.002	0.002
	Maximum Result	0.002	0.002	0.008	0.002	0.002	0.002	13.9	0.002	0.002	0.002
BOD (5-Day) (mg/L)	Number of Tests	28	22	26	24	25	31	28	31	24	31
	Minimum	3	8	7	6	7	6	6	6	9	5

Table 10-7  
CSS Pollutant Characterization  
page 2 of 4

Location	MH @ CSO 153	MH 12524	MH13993	MH40027	MH40028	MH45835	MH 51174	MH 71868	MH 08870	MH 08993
LOCCODE	C0000034	C0000038	C0000036	C0000035	C0000037	C0000040	C0000039	C0000032	C0000033	C0000041
Sewershed Characteristics	Single Family Residential	Single and Multi-Family Residential	Single and Multi-Family Residential	Mixed Use	Mixed Use	Single Family Residential and Park Space	Multi-Family Residential	Single Family Residential	Mixed Use	Mixed Use
Result										
Maximum Result	320	210	250	142	140	282	220	245	123	220
Number of Tests	28	21	23	26	24	31	28	29	28	30
Minimum Result	0.0002	0.0002	0.00014	0.002	0.0002	0.002	0.0002	0.002	0.002	0.002
Maximum Result	0.002	0.002	0.002	0.0022	0.01389	0.3556	0.002	0.002	0.002	0.079
Number of Tests	22	15	17	21	19	25	22	24	20	24
Minimum Result	0.003	7.57	13.3	11.6	28	50.1	14.8	13.73	13.7	6.34
Maximum Result	56.2	40.9	60.1	188	80	74.4	78.9	65.2	78.3	60
Number of Tests	21	15	17	21	19	24	21	24	21	24
Minimum Result	4.86	3.66	6.21	16.71	28.38	40.12	6.72	6.1	9.1	4.8
Maximum Result	110.08	5.1	132.84	5260	124.83	103.97	106.75	2810	110.77	102.9
Number of Tests	28	20	23	27	25	30	28	29	26	30
Minimum Result	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Maximum Result	0.166	0.022	0.013	0.016	0.006	0.815	0.0199	0.009	0.006	0.03
Number of Tests	22	22	26	22	25	29	28	31	23	26
Minimum Result	6,000	480	1	1,000	6,000	6,000	2,100	0	593	6,000
Maximum Result	125X10 <sup>6</sup>	34X10 <sup>6</sup>	34X10 <sup>6</sup>	36X10 <sup>6</sup>	34X10 <sup>6</sup>	36X10 <sup>6</sup>	38X10 <sup>6</sup>	34X10 <sup>6</sup>	2X10 <sup>6</sup>	34X10 <sup>6</sup>
Number of Tests	22	15	17	21	19	24	22	24	20	24
Minimum Result	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Maximum Result	0.04	0.04	0.072	0.107	0.103	0.141	0.109	2.94	0.108	0.048
Number of Tests	22	15	17	21	19	23	22	24	20	24
Minimum Result	0.07	0.42	0.0435	0.7	0.889	0.378	0.051	0.64	0.03	0.4
Maximum Result	6.71	11.3	2.1	22.4	29.3	4.99	7.89	4.54	2.14	1.66
Number of Tests	28	21	23	27	25	30	28	30	28	30
Minimum	0.001	13.7	7.04	7.105	3.4	2.73	3.78	9.97	1	6.98

Table 10-7  
 CSS Pollutant Characterization  
 page 3 of 4

Location	MH @ CSO 153	MH 12524	MH13993	MH40027	MH40028	MH45835	MH 51174	MH 71868	MH 08870	MH 08993	
LOCCODE	C0000034	C0000038	C0000036	C0000035	C0000037	C0000040	C0000039	C0000032	C0000033	C0000041	
Sewershed Characteristics	Single Family Residential	Single and Multi-Family Residential	Single and Multi-Family Residential	Mixed Use	Mixed Use	Single Family Residential and Park Space	Multi-Family Residential	Single Family Residential	Mixed Use	Mixed Use	
Result											
Maximum Result	45.9	516.4	748.42	27.605	27.487	14.1	112.03	81.97	53.6	258.4	
Magnesium (mg/L)	Number of Tests	22	15	17	21	19	31	22	24	20	24
	Minimum Result	0.012	1.05	2.01	1.96	6.85	0.0002	2.78	1.863	0.021	1.087
	Maximum Result	15.6	7.878	15.8	34.7	20	0.00097	16.3	17.4	17.3	15.4
Mercury (ug/L)	Number of Tests	28	21	23	27	25	30	28	24	28	30
	Minimum Result	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.0002	0.002
	Maximum Result	0.38	0.2	0.703	0.44	0.58	0.97	0.386	0.514	0.00132	1.02
Nickel (mg/L)	Number of Tests	22	14	17	21	18	25	22	24	20	24
	Minimum Result	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001
	Maximum Result	0.147	0.022	0.01	0.042	0.004	0.447	0.011	0.01	0.003	0.01
Nitrate (mg/L)	Number of Tests	19	12	14	22	8	11	12	23	21	18
	Minimum Result	0.28	0.01	0.01	0.44	0.26	0.01	0.01	0.01	0.29	0.01
	Maximum Result	1.39	1.05	1.6	1.84	1.55	1.29	1.42	5.06	2.08	1.14
Nitrite (mg/L)	Number of Tests	21	5	12	6	2	9	4	23	12	9
	Minimum Result	0.005	0.005	0.005	0.33	0.27	0.005	0.005	0.005	0.005	0.005
	Maximum Result	0.75	0.25	1.03	0.55	0.37	2.33	0.7	0.28	0.78	0.35
Ortho-Phosphate (mg/L)	Number of Tests	20	15	16	20	16	23	15	22	20	23
	Minimum Result	0.34	0.31	0.4	0.33	0.7	0.61	0.34	0.05	0.34	0.31
	Maximum Result	4.87	1.48	5.44	1.78	2.53	2.79	2.63	9.4	5.01	4.35
Organic N (mg/L)	Number of Tests	28	19	20	28	24	28	25	27	25	27
	Minimum Result	0.006	0.1	0.8	0.5	0.672	0.06	0.06	0.63	0.17	0.66
	Maximum Result	0.018	10.2	38	19	10.6	23	27	12	13	15
Total Phosphorus (mg/L)	Number of Tests	28	21	29	27	25	18	28	30	28	30
	Minimum	0.02	0.4	0.41	0.27	0.281	1.1	0.023	0.1	0.002	0.239

Table 10-7  
CSS Pollutant Characterization  
page 4 of 4

Location	MH @ CSO 153	MH 12524	MH13993	MH40027	MH40028	MH45835	MH 51174	MH 71868	MH 08870	MH 08993
LOCCODE	C0000034	C0000038	C0000036	C0000035	C0000037	C0000040	C0000039	C0000032	C0000033	C0000041
Sewershed Characteristics	Single Family Residential	Single and Multi-Family Residential	Single and Multi-Family Residential	Mixed Use	Mixed Use	Single Family Residential and Park Space	Multi-Family Residential	Single Family Residential	Mixed Use	Mixed Use
Result										
Maximum Result	7.9	303	140	5.97	6.31	6.81	281	274	122	176
Selenium (mg/L)										
Number of Tests	28	21	23	26	25	31	28	30	28	30
Minimum Result	0.002	0.001	0.001	0.00028	0.002	0.001	0.001	0.001	0.001	0.001
Maximum Result	0.002	0.002	0.002	0.0043	0.0088	0.0026	0.0025	0.002	0.002	0.010
Silver (mg/L)										
Number of Tests	28	20	23	27	25	30	27	30	26	30
Minimum Result	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Maximum Result	0.013	0.002	0.011	0.031	0.024	0.32	0.028	0.15	0.171	0.12
TSS (mg/L)										
Number of Tests	28	22	26	23	25	31	28	31	25	30
Minimum Result	5	29	27	9	62	62	45	18	7	16
Maximum Result	200	1217	247	826	245	248	430	288	125	212
TKN (mg/L)										
Number of Tests	9	8	12	9	9	12	12	12	12	12
Minimum Result	2.7	3.2	1.86	3.98	6	9	1.98	1	1.86	1.3
Maximum Result	40	12.6	56	24	28	32	26	32	25	68
TOC (mg/L)										
Number of Tests	31	26	31	26	28	33	31	37	30	32
Minimum Result	5.0	4.0	4.0	0.6	1.6	4	2.3	3.0	3.36	3
Maximum Result	118	170.0	92	15	26.4	46	44.9	85.1	39.3	59.1
TVSS (mg/L)										
Number of Tests	28	22	26	23	25	30	28	31	24	30
Minimum Result	6	7	1	1	9	8	1	1	1	1
Maximum Result	200	1198	130	756	116	184	398	250	66	168
Zinc (mg/L)										
Number of Tests	22	15	17	21	19	24	22	24	19	24
Minimum Result	0.008	0.031	0.038	0.028	0.036	0.037	0.008	0.1	0.008	0.038
Maximum Result	0.234	0.343	0.183	0.615	0.133	0.179	0.199	0.4	0.174	0.228

The source for all data presented in this table is MSD LIMS database. Please contact Patrick Fitzgerald for more information

Table 10-8  
 CSS Pollutant Characterization  
 page 1 of 1

Location	Year	# of Sampled Wet Weather Events	# of Sampled Dry Weather Events	# of Storm Events	Total Number of Samples						Purpose	Project	Source (Contact)
					BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC			
MH @ CSO 153	2001	2	5	10	27	27	27	27	27	27	CSO Characterization	CSS Model	MSD LIMS Database (Patrick Fitzgerald)
MH 12524	2001	0	5	10	21	21	21	21	21	21	CSO Characterization	CSS Model	MSD LIMS Database (Patrick Fitzgerald)
MH 13993	2001	2	5	10	27	27	27	27	27	27	CSO Characterization	CSS Model	MSD LIMS Database (Patrick Fitzgerald)
MH 40027	2001	2	4	10	24	24	24	24	24	24	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 40028	2001	2	4	10	24	24	24	24	24	24	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 45835	2001	2	6	10	30	30	30	30	30	30	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 51174	2001	2	5	10	27	27	27	27	27	27	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 71868	2001	2	6	10	X	X	X	X	X	X	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 8870	2001	2	5	10	24	24	24	24	24	24	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)
MH 8993	2001	2	7	10	30	30	30	30	30	30	CSO Characterization	Data to Develop CSO Prioritization Model	MSD LIMS Database (Patrick Fitzgerald)

**Table 10-9**  
**CSO Flow Characteristics**  
page 1 of 2

CSO #	Average Annual Overflow Volume	Land Use	Period	# of Rain (?) Events	Parameters Monitored	Data Interval	Project	Purpose
108		Mixed Use	1999 - 2003	TBD	Flow	5-min?	Performance Evaluation	CSO activity
			1/2001 – 12/2001	9	Flow	5-min?	CSS Model	CSO activity
			1/2004 – 6/2006	5	Flow	5-min?	TMDL	CSO activity
110		Single Family Residential and Park Space	1/2001 – 12/2001	9	Flow	5-min?	CSS Model	CSO activity
			1/2004 – 6/2006	5	Flow	5-min?	Data to Development TMDL	CSO activity
CSO 117		Single Family Residential and Industrial	1/2001 – 12/2001	9	Flow	5-min?	Data to Development CSO Prioritization Model	CSO activity
			1/2004 – 6/2006	5	Flow	5-min?	Data to Development TMDL	CSO activity
CSO 125		Single Family Residential	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	CSO activity
CSO 127		Single Family Residential and Commercial	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	CSO activity
			1/2004 – 6/2006	5		5-min?	Data to Development TMDL	CSO activity
CSO 140		Single Family Residential and Industrial	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	
			1/2005 – 6/2006	1		5-min?	Data to	

**Table 10-9**  
**CSO Flow Characteristics**  
page 2 of 2

CSO #	Average Annual Overflow Volume	Land Use	Period	# of Rain (?) Events	Parameters Monitored	Data Interval	Project	Purpose
							Development TMDL	
CSO 151		Single Family Residential	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	
			1/2004 – 6/2006	5		5-min?	Data to Development TMDL	
CSO 152		Single Family Residential and Commercial	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	
			1/2004 – 6/2006	5		5-min?	Data to Development TMDL	
CSO 153		Single Family Residential	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	
CSO 206		Single Family Residential	1/2001 – 12/2001	9		5-min?	Data to Development CSO Prioritization Model	
			1/2004 – 6/2006	5		5-min?	Data to Development TMDL	
CSO 209		Single Family Residential and Park Space	1/2004 – 6/2006	5		5-min?	Data to Development TMDL	



Table 10-10  
CSO Sampling Summary  
page 1 of 4

Location	CSO 206		CSO 108 Weir		CSO 110		CSO 117		CSO 125		CSO 127		CSO 140		CSO 151		CSO 152		CSO 153	
LOCCODE	C0000008		C0000013		C0000024		C0000025		C0000026		C0000027		C0000028		C0000029		C0000030		C0000031	
Sewershed Characteristics	Single Family Residential and Park Space		Mixed Use		Mixed Use		Mixed Use		Park Space		Commercial		Mixed Use		Single Family Residential		Single Family Residential		Mixed Use	
Project	Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool		Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool	TMDL Development	Water Quality Tool	
Period	2001	2004 - present	2001	2004 - present	2001	2004 - present	2001	2004 - present	2001		2001	2004	2001	2006 - present	2001	2004 - present	2001	2004 - present	2001	
Event Based?	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	
Number of Dry Weather Events	7	5	7	5	7	5	7	5	7		7	5	7	1	7	5	7	5	7	
Ammonia N (mg/L)	Number of Tests	-	2		11		10		13		9		5		13		16		1	
	Minimum Result	-	1		0.06		0.224		0.06		0.06		0.34		0.67		0.06		4.2	
	Maximum Result	-	1.06		4		3.8		2.1		4.3		1.7		4.6		6.0		4.2	
Arsenic (mg/L)	Number of Tests	-	1		3		3		5		4		1		3		7		1	
	Minimum Result	-	0.00208		0.002		0.00404		0.002		0.002		0.00401		0.002		0.002		0.00301	
	Maximum Result	-	0.00208		0.00435		0.00522		0.00329		0.00527		0.00401		0.0028		0.00279		0.00301	
Barium (mg/L)	Number of Tests	-	2		14		13		15		10		8		16		19		1	
	Minimum Result	-	0.049		0.018		0.0329		0.021		0.028		0.038		0.015		0.0127		0.346	
	Maximum Result	-	0.0728		0.143		0.175		0.111		0.157		0.15		0.134		0.124		0.346	
Beryllium (mg/L)	Number of Tests	-	1		11		10		10		7		7		13		13		-	
	Minimum Result	-	0.002		0.002		0.002		0.002		0.001		0.002		0.002		0.002		-	
	Maximum Result	-	0.002		0.002		0.002		0.002		0.002		0.002		0.002		0.002		-	
BOD (5-																				
Number of	2		2		13		14		15		11		8		14		20		1	

Table 10-10  
CSO Sampling Summary  
page 2 of 4

Location	CSO 206	CSO 108 Weir	CSO 110	CSO 117	CSO 125	CSO 127	CSO 140	CSO 151	CSO 152	CSO 153	
LOCCODE	C000008	C000013	C000024	C000025	C000026	C000027	C000028	C000029	C000030	C000031	
Sewershed Characteristics	Single Family Residential and Park Space	Mixed Use	Mixed Use	Mixed Use	Park Space	Commercial	Mixed Use	Single Family Residential	Single Family Residential	Mixed Use	
Day) (mg/L)	Tests										
	Minimum Result	22	20	20	6	7	8	3	21	8	290
	Maximum Result	39	48	138	231	1330	241	85	112	130	290
Cadmium (mg/L)	Number of Tests	14	2	14	13	15	11	8	16	19	1
	Minimum Result	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Maximum Result	0.001228	0.4047	1.4731	2.7894	2.2945	1.391	2.3501	0.8648	2.008	0.002
Calcium (mg/L)	Number of Tests	11	1	11	10	10	7	7	13	12	-
	Minimum Result	6.07	13	9.74	13.87	11.7	10.36	30.5	8.33	13.71	-
	Maximum Result	57.2	13	55.2	48	42.4	43	103.24	53.2	51.5	-
Chloride (mg/L)	Number of Tests	11	1	11	10	10	7	7	13	12	-
	Minimum Result	4.31	6.86	0.002	6.45	6.96	7.35	6.11	7.21	6.81	-
	Maximum Result	113.52	6.86	0.029	116.82	56.72	65.41	67.2	71.55	109.69	-
Chromium (mg/L)	Number of Tests	14	2	14	10	10	11	7	16	19	1
	Minimum Result	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.0375
	Maximum Result	0.026	0.006	0.029	0.107	0.017	0.05	0.027	0.016	0.021	0.0375
Fecal Coliform (col/100mL)	Number of Tests	8	2	12	10	16	10	9	13	15	3
	Minimum Result	7200	11000	18200	100	580	10	430	10	10	120000
	Maximum Result	12x10 <sup>5</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>	2.1x10 <sup>6</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>	12x10 <sup>5</sup>
Copper (mg/L)	Number of Tests	11	1	11	20	10	7	7	13	12	-
	Minimum Result	0.01	0.045	0.027	0.028	0.024	0.024	0.003	0.01	0.015	-
	Maximum Result	0.134	0.045	0.143	0.611	0.151	0.125	0.063	0.142	0.165	-
Iron (mg/L)	Number of Tests	11	1	11	10	10	7	7	16	12	-
	Minimum Result	0.44	1.9	0.498	1.68	0.889	1.88	0.21	0.021	0.741	-
	Maximum Result	11.5	1.9	14.86	9.45	7.36	12.1	13.8	7.99	8.28	-
Lead (ug/L)											
Number of	14	2	14	13	15	11	7	16	19	1	

Table 10-10  
CSO Sampling Summary  
page 3 of 4

Location	CSO 206	CSO 108 Weir	CSO 110	CSO 117	CSO 125	CSO 127	CSO 140	CSO 151	CSO 152	CSO 153
LOCCODE	C0000008	C0000013	C0000024	C0000025	C0000026	C0000027	C0000028	C0000029	C0000030	C0000031
Sewershed Characteristics	Single Family Residential and Park Space	Mixed Use	Mixed Use	Mixed Use	Park Space	Commercial	Mixed Use	Single Family Residential	Single Family Residential	Mixed Use
Tests										
Minimum Result	134.78	31.677	42.99	43.7	3.739	29.2	1	13.175	41.6	0.574
Maximum Result	0.259	67.3	386	692.7	83.9	207.7	119	468.5	311.2	0.574
Magnesium (mg/L)										
Number of Tests	11	1	11	10	10	7	7	13	12	-
Minimum Result	0.08	2.07	1.7	1.95	2.02	1.96	6.52	1.657	2.927	-
Maximum Result	0.48	2.07	13.496	10.2	8.49	8.54	21.361	10.3	8.71	-
Mercury (ug/L)										
Number of Tests	14	2	14	13	15	11	7	16	19	1
Minimum Result	0.2	0.2	0.08	0.08	0.08	0.2	0.08	0.08	0.08	1.015
Maximum Result	0.482	0.274	0.2	2.943	0.341	0.604	3.714	1.448	1.239	1.0115
Nickel (mg/L)										
Number of Tests	11	1	11	10	10	7	7	13	12	-
Minimum Result	0.002	0.003	0.002	0.004	0.001	0.003	0.001	0.002	0.001	-
Maximum Result	0.02	0.003	0.017	0.03	0.011	0.018	0.025	0.013	0.014	-
Nitrate (mg/L)										
Number of Tests	9	1	10	7	9	6	6	13	11	-
Minimum Result	0.3	0.59	0.42	0.27	0.53	0.5	0.53	0.4	0.41	-
Maximum Result	0.92	0.59	0.87	0.66	0.96	0.72	1.84	0.72	0.78	-
Nitrite (mg/L)										
Number of Tests	2	2	5	3	4	0	8	14	2	-
Minimum Result	0.24	0.25	0.25	0.32	0.27	0	0.005	0.005	0.27	-
Maximum Result	0.25	0.38	0.44	0.38	0.36	0	0.005	0.46	0.47	-
Ortho-Phosphate (mg/L)										
Number of Tests	7	1	8	8	10	6	8	13	12	-
Minimum Result	0.35	0.38	0.34	0.35	0.33	0.37	0.34	0.36	0.37	-
Maximum Result	0.72	0.38	0.76	0.97	0.42	0.5	3.39	0.77	1.24	-
Organic N (mg/L)										
Number of Tests	12	2	11	10	13	9	5	13	16	1
Minimum Result	0.06	0.96	0.51	0.49	0.44	0.89	0.33	0.73	0	15.3
Maximum Result	7	6	8	6.675	9.4	17	8.7	8	17	15.3
Total										
Number of	3	1	11	10	10	11	8	13	26	1

Table 10-10  
CSO Sampling Summary  
page 4 of 4

Location	CSO 206	CSO 108 Weir	CSO 110	CSO 117	CSO 125	CSO 127	CSO 140	CSO 151	CSO 152	CSO 153	
LOCCODE	C0000008	C0000013	C0000024	C0000025	C0000026	C0000027	C0000028	C0000029	C0000030	C0000031	
Sewershed Characteristics	Single Family Residential and Park Space	Mixed Use	Mixed Use	Mixed Use	Park Space	Commercial	Mixed Use	Single Family Residential	Single Family Residential	Mixed Use	
Phosphorus (mg/L)	Tests										
	Minimum Result	0.3	0.3	0.403	0.375	0.31	0.4	0.092	0.663	0.002	0.84
	Maximum Result	0.7	0.3	2.78	3.34	1.48	4.32	5.01	2.87	4.51	0.84
Selenium (mg/L)	Number of Tests	14	2	14	13	15	11	8	16	19	1
	Minimum Result	.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.002
	Maximum Result	0.002174	1	1.731	2.827	1	1	1.37	9.418	1.991	0.002
Silver (mg/L)	Number of Tests	14	2	14	13	15	11	8	16	19	1
	Minimum Result	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.00582
	Maximum Result	0.008	0.002	0.015	0.002	0.004	0.023	0.028	0.018	0.064	0.00582
TSS (mg/L)	Number of Tests	14	2	13	14	15	9	7	15	20	1
	Minimum Result	19	107	65	52	28	48	1	30	19	623
	Maximum Result	1540	443	366	596	538	586	291	374	402	623
TKN (mg/L)	Number of Tests	6	1	6	3	8	6	2	5	10	1
	Minimum Result	1	7	5	1	1.7	1	3	1	1	19.5
	Maximum Result	10	7	11	5	11.5	20.2	9	10	21	19.5
TOC (mg/L)	Number of Tests	10	2	10	14	14	10	7	14	23	2
	Minimum Result	5.6	8	4	3.3	4.8	2	1.8	8.4	6.199	31.9
	Maximum Result	40.6	34.3	27.7	36.6	40.8	63.1	13.8	31.7	57.2	50.9
TVSS (mg/L)	Number of Tests	14	2	13	14	15	11	9	15	20	1
	Minimum Result	1	45	34	22	9	26	2	3	3	230
	Maximum Result	1390	321	250	304	403	340	312	186	174	230
Zinc (mg/L)	Number of Tests	11	1	10	10	10	7	7	13	12	-
	Minimum Result	0.037	0.127	0.085	0.086	0.028	0.079	0.008	0.032	0.052	-
	Maximum Result	0.504	0.127	0.446	0.531	0.328	0.507	0.493	0.402	0.581	-

The source for all data presented in this table is MSD LIMS database. Please contact Patrick Fitzgerald for more information.

**Table 10-11**  
**CSO Pollutant Characterization Summary**  
Page 1 of 1

Location	Period	# of Sampled Events	# of Storm Events	PARAMETERS							Project	Purpose	Source (Contact)
				FLOW	BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC			
<b>CSO 108</b>	1999 - 2003	TBD	TBD	X	?	?	X	?	X	?	Performance Evaluation	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2001 – 12/2001	3	7	4	4	4	4	4	4	4	CSO Characterization	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	1	5	2	2	2	2	2	2	2	TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 110</b>													
	1/2001 – 12/2001	5	7	17	17	17	17	17	17	17	Data to Development CSO Prioritization Model CSO Characterization	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	5	5	15	15	15	15	15	15	15	TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO117</b>													
	1/2001 – 12/2001	5	7	13	13	13	13	13	13	13	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	4	5	10	10	10	10	10	10	10	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 125</b>													
	1/2001 – 12/2001	3	7	16	16	16	16	16	16	16	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 127</b>													
	1/2001 – 12/2001	6	7	13	13	13	13	13	13	13	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	4	5	12	12	12	12	12	12	12	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 140</b>													
	1/2001 – 12/2001	4	7	8	8	8	8	8	8	8	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2005 – 6/2006	1	5	1	1	1	1	1	1	1	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 151</b>													
	1/2001 – 12/2001	6	7	17	17	17	17	17	17	17	Data to Development CSO Prioritization Model		MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	5	5	16	16	16	16	16	16	16	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 152</b>													
	1/2001 – 12/2001	7	5	21	21	21	21	21	21	21	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	4	5	17	17	17	17	17	17	17	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 153</b>													
	1/2001 – 12/2001	3	7	3	3	3	3	3	3	3	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 206</b>													
	1/2001 – 12/2001	6	7	15	15	15	15	15	15	15	Data to Development CSO Prioritization Model	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
	1/2004 – 6/2006	5	5	15	15	15	15	15	15	15	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)
<b>CSO 209</b>													
	1/2004 – 6/2006	3	4	11	11	11	11	11	11	11	Data to Development TMDL	CSO Characterization	MSD LIMS Database (Patrick Fitzgerald)

**Table 10-12**  
**In-Stream Sampling Programs**  
Page 1 of 5

WATER BODY	LOCCODE	Period	# of Wet Weather Events	# Wet Weather Samples	# of Dry Weather Events	# Dry Weather Samples	Physical Parameters	Sediment	Biological	BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC	Type of Site	Purpose	Source (Contact)
<b>Muddy Fork</b>																		
Mockingbird Valley	EMUMU001																	
		1991 - Present	NA	NA	NA	NA	Yes	0	Biennial	Yes	Yes	Yes	Yes	Yes		Long-Term Monitoring Network	Water Quality Data Collection	MSD LIMS Database (Patrick Fitzgerald)
		1/2004 - 5/2004	4	19	0	0	26	0	0	26	26	26	26	26	26	TMDL	Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
Westport Rd (1)	EMUMU006																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
Westport Rd (1)	EMUMU007																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
Indian Hills Trail	EMUMU005				0													
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Edith Road	EMUMU008				0													
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Old Cannons Ln	EMIMI002																	
		1991 - Present	NA	NA	NA	NA	Yes			Yes	Yes	Yes	Yes	Yes		Long-Term Monitoring Network	Water Quality Data Collection	MSD LIMS Database (Patrick Fitzgerald)
		1/2001 - 12/2001	9	21	2	6	27	0	0	27	27	27	27	27	27		Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
		1/2004 - Present	5	26	0	0	26	0	0	26	26	26	26	26	26	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)



**Table 10-12**  
**In-Stream Sampling Programs**  
Page 3 of 5

WATER BODY	LOCCODE	Period	# of Wet Weather Events	# Wet Weather Samples	# of Dry Weather Events	# Dry Weather Samples	Physical Parameters	Sediment	Biological	BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC	Type of Site	Purpose	Source (Contact)
Seneca Loop Bridge #1																		
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
MF at Klempner Brothers	EMIMI012																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
<b>South Fork</b>																		
Liberty St	ESFSF021																	
		1/2004 - Present	4	19	0	0	26	0	0	26	26	26	26	26	26	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Trevillian Way	ESFSF001																	
		1991 - Present	NA	NA	NA	NA	Yes	0	Biennial	Yes	Yes	Yes	Yes	Yes		Long-Term Monitoring Network	Water Quality Data Collection	MSD LIMS Database (Patrick Fitzgerald)
		1999 - 2000	TBD	TBD	0	0	TBD	0	0	TBD	TBD	TBD	TBD	TBD			Performance Verification	MSD LIMS Database (Patrick Fitzgerald)
		1/2001 - 12/2001	9	21	2	6	27	0	0	27	27	27	27	27	27		Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
		1/2004 - Present	5	26	0	0	26	0	0	26	26	26	26	26	26	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
<b>Brownsboro Road PS</b>	<b>ESFSF006</b>																	
		1991 - Present	NA	NA	NA	NA	Yes	0	Biennial	Yes	Yes	Yes	Yes	Yes		Long-Term Monitoring Network	Water Quality Data Collection	MSD LIMS Database (Patrick Fitzgerald)
		1/2001 - 12/2001	9	21	2	6	27	0	0	27	27	27	27	27	27		Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)



**Table 10-12**  
**In-Stream Sampling Programs**  
Page 4 of 5

WATER BODY	LOCCODE	Period	# of Wet Weather Events	# Wet Weather Samples	# of Dry Weather Events	# Dry Weather Samples	Physical Parameters	Sediment	Biological	BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC	Type of Site	Purpose	Source (Contact)
		1/2004 – Present	5	26	0	0	26	0	0	26	26	26	26	26	26	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Schiller Ave Ramp	ESFSF002																	
		1991 - Present	NA	NA	NA	NA	Yes	0	Biennial	Yes	Yes	Yes	Yes	Yes		Long-Term Monitoring Network	Water Quality Data Collection	MSD LIMS Database (Patrick Fitzgerald)
		1/2001 – 12/2001	8	18	2	6	24	0	0	24	24	24	24	24	24		Characterization of CSO impacts	MSD LIMS Database (Patrick Fitzgerald)
		1/2004 – Present	5	26	0	0	26	0	0	26	26	26	26	26	26	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Taylorville Rd & Hurstbourne Pkwy	ESFSF024																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Goldsmith Ln	ESFSF025																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Bashford Manor Ln	ESFSF020																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
2001 Newburg Rd	ESFSF026																	
		1999 - 2000	TBD	TBD	0	0	TBD	0	0	TBD	TBD	TBD	TBD	TBD	TBD		Performance Verification	MSD LIMS Database (Patrick Fitzgerald)
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	
Eastern Pkwy	ESFSF027																	
		1/2004 – Present		7		0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database

**Table 10-12**  
**In-Stream Sampling Programs**  
Page 5 of 5

WATER BODY	LOCCODE	Period	# of Wet Weather Events	# Wet Weather Samples	# of Dry Weather Events	# Dry Weather Samples	Physical Parameters	Sediment	Biological	BOD	Nutrients	Solids	Metals	Fecal Coliform	TOC	Type of Site	Purpose	Source (Contact)
																		(Patrick Fitzgerald)
E. Breckinridge St	ESFSF012																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Beargrass Creek at River Rd and Frankfort Ave	ESFSF014																	
		5/2006 - Present	1	7	0	0	7	0	0	7	7	7	7	7	7	TMDL	TMDL	MSD LIMS Database (Patrick Fitzgerald)
Willow Pond																		
Cross-sections of pond	NA	2003	1	TBD	1	TBD		Yes	0									MSD LIMS Database (Patrick Fitzgerald)

**Table 10-13**  
**Receiving Waters Summary**  
 page 1 of 7

LOC CODE	DESCR	LOC DESCR 2	SAMP LOC	Number of Samples	Min Of COL DATE	Max Of COL DATE
ECBCB001	Cedar Creek @ SR 1442	E of Shepherdsville	USR of Bridge	104	7/29/2003	9/11/2006
ECCCC001	Cedar CK @ Thixton RD	DSM of bridge	5 FT DS of bridge	205	5/2/2000	9/11/2006
ECCCC003	Cedar Creek@ CCWTP -1	7509 Cedar Hollow Drive	100 feet above effluent	1	7/5/2001	7/5/2001
ECCCC004	Cedar Creek@ CCWTP -2	7509 Cedar Hollow Drive	100' below TP effluent	1	7/5/2001	7/5/2001
ECCCC005	Cedar Creek@ Independence S R	9221 Independence School RD		1	7/5/2001	7/5/2001
ECCZZ001	8811 Mt Gerald CT	culvert W of Driveway	2 FT S of MT Gerald CT	6	10/10/2002	9/27/2003
EFFCR001	CHEN Run #1 @ Gelhaus LN	DSL of bridge		206	5/3/2000	9/11/2006
EFFCR002	CHEN Run #1 @ Ruckriegel PKWY	DSR of bridge	2 FT DS of bridge	221	5/3/2000	9/11/2006
EFFCR004	Chen Run #1 @ JTWTP	10725 Taylorsville RD	DS of plant outfall	3	5/3/2000	5/25/2000
EFFCR005	Chen Run #1 @ Chenoweth Run RD	next tp property at 3806 RD		46	5/3/2000	8/18/2006
EFFCR006	Chen Run #1 @ Jtown WWTP(2)	10725 Taylorsville Rd.	upstream from plant	2	5/18/2000	5/25/2000
EFFCR008	Chen Run #1@SPS146 Element LN			1	5/3/2000	5/3/2000
EFFCR009	CHEN Run #1 Upstream Sediment			1	5/11/2000	5/11/2000
EFFCR010	CHEN Run #1 Dnstream Sediment			1	5/11/2000	5/11/2000
EFFFF001	Floyd's FK @ Ash. AVE	(KY ST HWY 362) (Oldham Co.)		204	5/3/2000	9/8/2006
EFFFF002	Floyd's FK @ Bardstown RD	DSM side of DS bridge	sample same or grabs 10 FT DS	178	5/1/2001	9/11/2006
EFFFF003	Floyds FK@ Old Taylorsville RD	Fisherville	in front of 150302, sample same	205	5/3/2000	9/11/2006
EFFZZ001	1308 Crosstimbers DR	grass swale S of property	20 FT from SW corner of house	2	7/21/2003	7/21/2003
EFFZZ002	14017 Echo Hill Trail	DT in front of property	5 FT NE of Echo Hill Trail	2	10/4/2002	10/4/2002
EGCGC001	Goose CK @ Old Westport RD	DSL of bridge	sample same or 10 FT DS	203	5/3/2000	9/8/2006
EGCGC002	Goose CK @ US HWY 42	opposite Falls Creek entrance	30 FT DSL of bridge	212	5/3/2000	9/8/2006
EGCGC003	Goose CK @ Valley View RD	off Private DR	.5 miles E of Osage CIR	52	4/3/2000	3/11/2002
EGCGC004	Goose CK @ Magnolia LN	off Private DR		52	4/3/2000	3/11/2002
EGCLG001	Little Goose CK @ US H'way 42	NR Harrod's Creek	30 FT DSL side of bridge	204	5/3/2000	9/8/2006
EGCLG002	Little Goose CK @ Barbour LN	100 FT DSR of bridge	surface	2	8/26/2000	8/27/2000

**Table 10-13**  
**Receiving Waters Summary**  
page2 of 7

LOC CODE	DESCR	LOC DESCR 2	SAMP LOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
EGCZZ001	8100 Westport RD	DT in front of Westport School.	Headwall as pipe crosses West entrance	4	7/9/2003	9/27/2003
EHCAA001	Harrods Crk Trib @ Fox Harbor	Pull off 300 feet past subdiv entrance	Downstream of large deadfall in stream	1	8/25/2005	8/25/2005
EHCAB001	Harrods Creek Trib @ Marina	North end of Marina Village	Where trib crosses under entrance drive	1	8/25/2005	8/25/2005
EHCHC001	Harrod's CK @ Covered Bridge RD	HWY 329, Oldham County	Downstream side of bridge	211	5/3/2000	9/8/2006
EHCHC002	Harrod's CK @ UK HWY 42	Downstream side of bridge		1	8/25/2005	8/25/2005
EHCHC004	Harrods Creek @ River Road	Sample from downstream side of bridge	Sample the middle of the stream	4	8/25/2005	8/25/2005
EHCHC005	Harrods Crk Trib US Timberlake	Sample from bank of creek	400 ft upstream of Timberlake TP	1	8/25/2005	8/25/2005
EHCHC006	Harrods Crk US Hunting Ck S TP	Upstream of plant outfall	Sample from creek bank	1	8/25/2005	8/25/2005
EHCHI001	Hite CK DS of WTP Effluent	5512 Hitt Lane	DS of plant outfall	2	5/24/2000	7/29/2006
EHCHI002	Hite CK US of WTP Effluent	5512 Hite Lane	US of Plants outfall	2	5/24/2000	7/29/2006
EHCHI003	Hite Creek @ Sleepy Hollow Rd	Sample US side of private drive bridge	150' US confluence with So Fork Harrods	1	8/25/2005	8/25/2005
EHCSF001	S Fork Harrods Ck US Hite Ck	DS Sleepy Hollow Dam	100 ft US confluence with Hite Creek	1	8/25/2005	8/25/2005
EHCWP001	Wolf Pen Branch @ 8111 WPB RD1	256 FT DS from driveway bridge	78' DS of confluence w UT	2	7/13/2001	7/20/2005
EHCWP002	Wolf Pen Branch @ 8200 WPB RD2	across street	50 FT NE of driveway	85	7/13/2001	9/8/2006
EHCWP003	Wolf Pen Branch @ 8221 WPB Rd	Sample Downstream Side of Bridge	Private Drive	1	8/25/2005	8/25/2005
EHCZZ001	4004 Collins LN	DT on NE corner of property by West 10th ST	2 FT N of Driveway	3	7/21/2003	7/21/2003
EINFR001	Falling Run @ NAWTP		surface	28	8/8/2000	8/13/2000
EINLC001	Lancassange CK @ Utica Pike		surface	11	8/8/2000	8/10/2000
EINLZ001	Lentzier CK @ Utica Pike		surface	7	8/8/2000	8/10/2000
EINMJ001	Mill Creek, IN @ Frontage RD		surface	18	8/8/2000	8/12/2000
EINSZ001	Silver CK @ State Route 62	Indiana	surface	27	8/8/2000	8/13/2000
EMCBI001	BR Div @ St Andrews Church RD	west of Gaymont Drive		116	5/8/2000	4/25/2005
EMCMC001	Mill CK @ Orell RD	USR side of bridge	H2O samples 5 FT US of bridge	296	4/26/2000	9/6/2006

**Table 10-13**  
**Receiving Waters Summary**

page 3 of 7

LOC CODE	DESCR	LOC DESCR 2	SAMP LOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
EMCMC003	Mill CK @ Greenwood RD		20 ft. upstream of bridge	120	4/26/2000	4/25/2005
EMCMC005	Mill Ck.@Pinetree WTP #273(1)	6208 Jeffrey Drive	30' upstream of outfall	56	5/8/2000	4/26/2005
EMCMC006	Mill CK @ Pinetree WTP #273	6208 Jeffrey Drive	40' DS of outfall	56	5/8/2000	4/26/2005
EMCMX001	MX @ Old Cane Run RD	USL side of bridge	H2O samples 10 FT US of bridge	264	4/26/2000	9/6/2006
EMCST001	Stephan Ditch @ Johnstontown Rd	East of Thompson Rd.		21	5/24/2000	4/25/2005
EMCVC001	Valley Ck @ Johnstontown Rd	East of Mapleview Drive		32	5/22/2000	4/25/2005
EMCZZ001	7609 St Andrews Church RD	swale N of Trunell FAM RES CEN	S of RD NE of driveway	7	10/4/2002	8/30/2003
EMCZZ002	5310 Mercury DR	swale BTWN greenhouse & track	70 ft West of Greehouse	5	7/15/2003	7/15/2003
EMCZZ003	6419 Bethany LN	DT on N side of Bethany LN	60 FT from SW corner of FD	7	10/4/2002	7/21/2003
EMIMI002	MIFBGC @ Old Cannons LN	100 yards S of I-64 overpass	downstream of bridge	324	5/3/2000	9/7/2006
EMIMI003	MIFBGC @ Owl CK LN			8	4/3/2000	9/10/2001
EMIMI004	MIFBGC @ Lexington RD 1	@ X of Ledge RD & LEX RD	DSL of culvert, DS CSO 166	70	1/10/2001	1/28/2002
EMIMI005	MIFBGC @ 964 Breckinridge Lin			1	8/23/2002	8/23/2002
EMIMI006	MIFBGC @ Beals Branch Road	X of Scenic Loop BBR	20 FT US of bridge #3	49	3/3/2004	5/15/2004
EMIMI009	MIFBGC @ Browns LN	USL of bridge at Brown Park	DS of Mallard Crossing Apts	106	11/8/2001	9/7/2006
EMIMI010	MIFBGC @ Lexington RD 2	Upstream of CSO 82	downstream of bridge	135	3/3/2004	9/7/2006
EMIMI011	MIFBGC @ Old Cannons LN 2	101 yards S of I-64 overpass	DSM of bridge	330	4/10/2003	4/14/2004
EMIMI013	MIFBGC @ CSO 209 Outfall Pipe	Sample stream at mouth of pipe	400 ft us of bridge #1	3	4/15/2005	5/6/2005
EMIZZ001	10416 Lakeshohore Bluff	concrete DT 10 FT from ST end	x of DT & DT	38	6/3/2003	3/3/2004
EMIZZ002	4550 Bowling BLVD	50 FT W of Bowling BLVD	in PK	32	6/3/2003	2/5/2004
EMIZZ003	312 Whittington PKWY	DT 20 FT S of parking log	50 FT W from headwall	35	10/4/2002	2/5/2004
EMIZZ004	James F Crosby PK	swale at Cedardale & Bellwood	20 FT S of Cadar 300 ft E of X	34	6/3/2003	3/3/2004
EMIZZ005	BTWN 809 & 811 FENLEY AVE REAR	100 FT E of hydrant		27	11/23/2003	3/3/2004
EMIZZ006	1390 Browns LN	DT 10 FT W of Browns LN	100 FT S of X with Sherburn LN	2	9/22/2003	9/22/2003

**Table 10-13**  
**Receiving Waters Summary**  
page 4 of 7

LOGCODE	DESCR	LOCDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
EMUAB001	UT of MUFBGC @ Blankenbaker LN			104	5/1/2000	5/2/2005
EMUEP001	EPB of MUFBGC @ Melwood Ave	Middle of Edwards Pond Branch	250' ds of Mellwood & CSO 154	1	7/28/2003	7/28/2003
EMUMU001	MUFBGC @ Mockingbird Val RD			164	4/3/2000	9/7/2006
EMUMU002	MUFBGC @ MUF SPS	W side of Indian Hills Trail		119	4/3/2000	5/2/2005
EMUMU003	MUFBGC @ Country Club RD			83	4/3/2000	11/18/2003
EMUMU004	MUFBGC @ Hubbards LN	DSM of Bridge	middle of channel	123	4/3/2000	5/2/2005
EMUMU005	MUFBGC @ Indian Hills TRL	Downstream of Bridge	sample from middle of channel	51	7/31/2003	5/2/2005
EMUZZ001	749 N Hite AVE	DT SE of apartment BLDG 700	10 FT from SE corner of BLDG	33	4/17/2002	7/9/2004
EMUZZ002	200 FT SW of 3720 Canoe Lane	5 FT SE of Canoe LN in DTCH		31	11/24/2003	3/3/2004
EMUZZ004	Louisville Country Club	200 yards W of CNTRY Club	Drainage DTCH to Pond	15	2/5/2004	3/3/2004
EOCOC001	Otter CK @ Otter CK Park	(Blue Hole) (Meade Co.)		203	5/2/2000	9/6/2006
EOROC001	River Mile 607 L	left bank	surface	4	8/9/2000	8/11/2000
EOROC002	River Mile 608 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC003	River Mile 608 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC004	River Mile 608 R	Right Bank	surface	3	8/9/2000	8/11/2000
EOROC005	River Mile 610 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC006	River Mile 610 M	midstream	surface	5	8/9/2000	8/13/2000
EOROC007	River Mile 610 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC008	River Mile 612 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC009	River Mile 612 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC010	River Mile 612 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC011	River Mile 614 L	left bank		3	8/9/2000	8/11/2000
EOROC012	River Mile 614 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC013	River Mile 614 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC014	River Mile 615 M	midstream	surface	2	8/12/2000	8/13/2000
EOROC015	River Mile 616 L	left bank	surface	6	8/9/2000	8/11/2000
EOROC016	River Mile 616 M	midstream	surface	6	8/9/2000	8/11/2000
EOROC017	River Mile 616 R	right bank	surface	6	8/9/2000	8/11/2000
EOROC018	River Mile 618 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC019	River Mile 618 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC020	River Mile 618 R	Right Bank	surface	3	8/9/2000	8/11/2000
EOROC022	River Mile 620 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC023	River Mile 620 M	midstream	surface	5	8/9/2000	8/13/2000

**Table 10-13**  
**Receiving Waters Summary**  
page5 of 7

LOC CODE	DESCR	LOC DESCR2	SAMP LOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
EOROC024	River Mile 620 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC025	River Mile 622 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC026	River Mile 622 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC027	River Mile 622 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC028	River Mile 624 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC029	River Mile 624 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC030	River Mile 624 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC031	River Mile 625 M	midstream	surface	2	8/12/2000	8/13/2000
EOROC032	River Mile 626 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC033	River Mile 626 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC034	River Mile 626 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC035	River Mile 628 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC036	River Mile 628 M	midstream	surface	3	8/9/2000	8/11/2000
EOROC037	River Mile 628 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC038	River Mile 630 L	left bank	surface	3	8/9/2000	8/11/2000
EOROC039	River Mile 630 M	midstream	surface	5	8/9/2000	8/13/2000
EOROC040	River Mile 630 R	right bank	surface	3	8/9/2000	8/11/2000
EOROC041	River Mile 635 M	midstream	surface	4	8/12/2000	8/13/2000
EOROC042	River Mile 640 M	midstream	surface	2	8/12/2000	8/13/2000
EOROC043	River Mile 646 M	midstream	surface	2	8/12/2000	8/13/2000
EOROC044	River Mile 651 M	midstream	surface	2	8/12/2000	8/13/2000
EOROC045	River Mile 655 M	midstream	surface	1	8/13/2000	8/13/2000
EOROC046	River Mile 660 M	midstream	surface	5	8/12/2000	8/13/2000
EOROC047	River Mile 586	midstream	surface	2	8/9/2000	8/10/2000
EOROC048	River Mile 632	midstream	surface	8	8/9/2000	8/11/2000
EOROC049	River Mile 608.7 RS	Jaycee's Boat Ramp (IN)	surface, right shore grab	29	5/2/2002	10/24/2002
EOROC050	River Mile 619.3 RS	Greenwood RD Boat Ramp	surface, left shore grab	29	5/2/2002	10/24/2002
EOROM001	River Mile 588 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM002	River Mile 588 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM003	River Mile 588 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM004	River Mile 590 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM005	River Mile 590 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM006	River Mile 590 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM007	River Mile 592 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM008	River Mile 592 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM009	River Mile 592 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM010	River Mile 594 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM011	River Mile 594 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM013	River Mile 596 L	left bank	surface	3	8/9/2000	8/11/2000

**Table 10-13**  
**Receiving Waters Summary**

page 6 of 7

LOGCODE	DESCR	LOGDESCR2	SAMPLOC	Number of Samples	MinOfCOLDATE	MaxOfCOLDATE
EOROM014	River Mile 596 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM015	River Mile 596 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM016	River Mile 598 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM017	River Mile 598 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM018	River Mile 598 R	right bank		3	8/9/2000	8/11/2000
EOROM019	River Mile 600 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM020	River Mile 600 M	midstream	surface	3	8/9/2000	8/11/2000
EOROM021	River Mile 600 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM022	River Mile 602 L	left bank		3	8/9/2000	8/11/2000
EOROM023	River Mile 602 M	midstream		3	8/9/2000	8/11/2000
EOROM024	River Mile 602 R	right bank	surface	3	8/9/2000	8/11/2000
EOROM025	River Mile 604 L	left bank	surface	3	8/9/2000	8/11/2000
EOROM026	River Mile 604 M	midstream	surface	6	8/9/2000	8/11/2000
EOROM027	River Mile 604 R	right bank	surface	6	8/9/2000	8/11/2000
EOROM028	River Mile 605 L	left bank	surface	9	8/9/2000	8/11/2000
EOROM029	River Mile 594.0 R	right bank	surface	32	8/9/2000	10/24/2002
EPCAA001	UT of Greasy DT@ Grade LN	1.1 mi S of Preston,	@ base of headwall	4	1/4/2001	1/11/2001
EPCBC001	Brier CK.@ Bear Camp RD	pool at DSR side of bridge	sample in pool (Bullitt Co.)	204	5/2/2000	9/6/2006
EPCDK001	Duck Spring @ Fern Valley RD	.5 MI W of INT with Grade LN	S of Rd,at base of headwall	5	1/4/2001	1/11/2001
EPCFC001	Fern CK @ Old Bardstown RD	USL side of bridge	15 FT US of bridge	203	5/3/2000	9/11/2006
EPCND001	Nortern DT@ Preston HWY	135 FT US of bridge	sample same	204	5/2/2000	9/6/2006
EPCPC001	Pond CK@ Manslick RD	DSM of bridge		205	5/2/2000	9/6/2006
EPCPC002	Pond CK @ Pendleton RD	DSL side of bridge	H2O samples FR DS side of bridge	205	5/2/2000	9/6/2006
EPCSY001	Strawberry Yards @ Fern VAL RD	next to Ferrel Gas driveway	S of RD DS of the concrete step	7	1/2/2001	1/11/2001
EPCZZ001	7606 Parkridge Trace	curb Drain SE side of property	30 FT from SW side of DRWY	14	10/4/2002	9/27/2003
EPCZZ002	4417 South Ridge DR	DT on NE side of property	10 FT from NW corner of PROP	8	10/4/2002	7/21/2003
EPCZZ003	1321 Glengarry CT	natural drainage flow	25 FT from W wall of BLDG	9	10/4/2002	7/9/2003
EPCZZ004	4112 Outer Loop	DT between 4112 & parking lot		9	4/17/2002	9/27/2003
EPCZZ005	8001 Ashbottom RD	DT on S side of Ashbottom RD	200 FT W of X with Grade LN	11	10/10/2002	9/27/2003
EPCZZ006	5114 Crittenden DR	DT on W side of Crittenden DR	100 FT S of X with MacLean	9	10/10/2002	7/15/2003



**Table 10-13**  
**Receiving Waters Summary**  
page 7 of 7

LOC CODE	DESCR	LOC DESCR 2	SAMP LOC	Number of Samples	Min Of COL DATE	Max Of COL DATE
EPCZZ007	5800 Poplar Level RD	DT on S end of property	100 FT E of RR	15	10/10/2002	9/27/2003
EPCZZ008	9831 East AVE	pond 200FT NW of Layne ELEM	50 FT W of parking lot	10	10/4/2002	9/27/2003
EPCZZ011	9031 Lakewood DR	DT on W side of Lakewood DR	5FT NW from end of Lakewood	9	10/4/2002	9/27/2003
EPRPR001	Penn Run @ Mt. Washington Rd			204	5/2/2000	9/11/2006
ESFBR001	Buechel Branch @ SFBGC	_FT US of X with SFBGC	by MH 30683-SM	1	8/23/2002	8/23/2002
ESFBR002	BR Beargrass by retention basn			1	5/31/2005	5/31/2005
ESFSF001	SFBGC @ Trevillian Way	sonde 100 feet ds of bridge	manual sample from us side of bridge	661	5/3/2000	9/7/2006
ESFSF002	SFBGC @ Schiller AV Ramp	sonde 50 feet downstream of ramp	manual sample from bridge @ Winter Ave	306	5/3/2000	9/7/2006
ESFSF006	SFBGC @ Brownsboro Road	Just upstream of MSD BGC Pump Station	Sample upstream side of bridge	239	6/16/2000	8/31/2006
ESFSF009	SFBGC NR Eastern PKWY	Beginning of concrete channel		3	11/8/2001	1/28/2002
ESFSF017	SFBGC MH @ E Main ST	DSM of bridge		1	8/23/2002	8/23/2002
ESFSF018	SFBGC @ Swan ST	USM of bridge		4	8/23/2002	1/24/2003
ESFSF021	SFBGC @ Liberty Street	150 feet SE of X Liberty & Baxter	DSM of bridge	49	3/3/2004	5/15/2004
ESFSF029	Beargrass Crk @ Gldsmth & Pbdy			1	5/30/2005	5/30/2005
ESFSF030	SF Beargrass by retention bsn			1	5/31/2005	5/31/2005
ESFSF031	SF Beargrass Ck at Buechel Br			1	5/31/2005	5/31/2005
ESFSF033	SF Beargrass DS Buechel Br.			1	5/31/2005	5/31/2005
ESFSF034	SF Beargrass S @ Goldsmith			1	5/31/2005	5/31/2005
ESFSF035	SF Beargrass N @ Goldsmith			1	5/31/2005	5/31/2005
ESFZZ001	1925 Hikes LN	DT on N side of Hikes LN	3 FT SW of driveway	37	7/9/2003	3/10/2004
ESFZZ002	9420 Bunsen PKWY	DET basin 100 FT behind BLDG	X of concrete culverts	40	4/17/2002	3/3/2004
ESFZZ003	2001 Newburg RD	DT in front of Bellamine UNIV	20 FT E of Newburg RD	20	10/10/2002	1/23/2004
ESFZZ004	3421 Illinois AVE	DT on W side of Illinois AVE	5 FT S of headwall	16	2/21/2003	11/18/2003
ESVSV001	Salt River @W Point Boat Ramp	midstream		5	8/9/2000	8/13/2000
EWCWC001	Wilson CK @ Harrison Fork RD	Bernheim Forrest NR Deatsville	Bullitt/Nelson COs	59	5/2/2000	10/26/2001

Tax -14  
**CSO Eliminated**  
 page 1 of 1

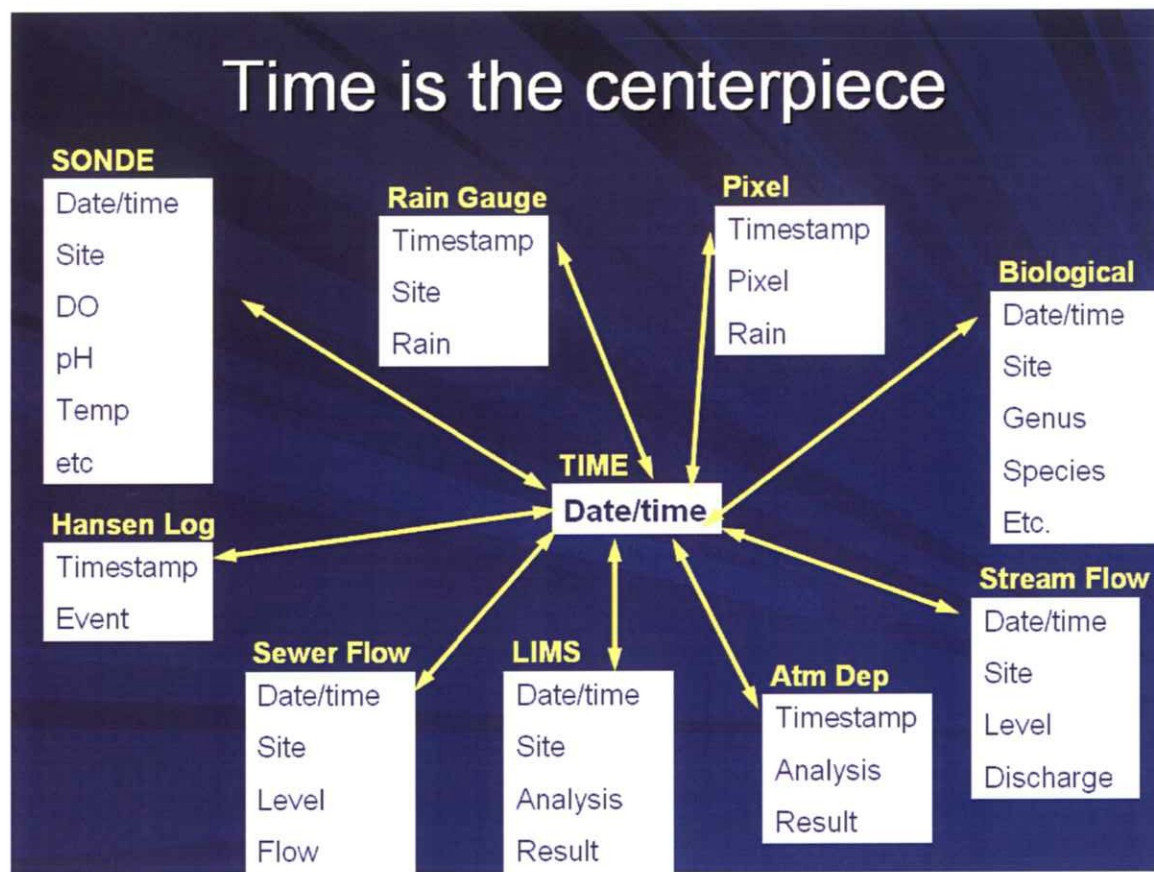
CSO No.	Change description	Year	Cost	Comment
CSO 49	The sewer system tributary to CSO 049 was separated through redevelopment in the area and the CSO was permanently closed.	1999	N/A	This project resulted in negligible decrease of volume.
CSO 65	After monitoring the inactivity of CSO 065, the dam was removed and the overflow discharge pipe was plugged.	1996	N/A	
CSO 80	Initial sewer separation efforts were part of the Breckenridge / Franklin Elementary School Sewer Relocation Project. Once the project was completed, it was noted that additional sanitary connections were found just upstream of CSO 80. These connections were removed through the implementation of a mini-separation project and the CSO was permanently closed.	2001	\$250,000.00	
CSO 123	CSO 123 had 3 distinct areas contributing to the overflow. All 3 areas had new storm sewers constructed and the existing combined sewers were converted to sanitary. Following a one year flow monitoring period the regulator was removed and the overflow was permanently eliminated.	1999	\$308,000.00	CSO 123 was the most upstream CSO in the Middle Fork Beargrass Creek.
CSO 143	This 8-inch high level overflow on a local 8-inch sanitary sewer was determined to be unnecessary and was blocked up and the CSO was eliminated.	1994	N/A	This overflow was closed prior to the completion of the SWMM model development and calibration.
CSO 145	CSO eliminated as part of Letterle PS elimination project	2002	N/A	
CSO 162	A vortex valve was installed in the main line between CSO 162 and CSO 166. The vortex valve regulates the flow advancing to CSO 162. After limiting the flow from CSO 166, the Middle Fork Interceptor was monitored to see if the regulated flow could be contained in the interceptor. CSO 162 was then closed.	1997	N/A	The elimination of the CSO was completed to reduce operation & maintenance issues and thus resulted in negligible decrease of overflow volume.
CSO 204	After completion of the reconnection of several catch basin inlets the overflow discharge pipe was plugged, and CSO 204 was eliminated.	2000	N/A	
CSO 209	The 105-acre area served through CSO 209 consists of approximately 350 residential properties. The physical characteristics of the pipe network upstream of this CSO are not typical of the other CSO systems. This system contained two pipe networks (storm and sanitary) with approximately 37 common manholes. Within each common manhole there was a wall dividing the systems. During a heavy rain, the water level rose such that there was a transfer of flows within the manholes. The pipe system contains 14,225 linear feet of "sanitary sewer" pipe and 15,075 linear feet of "storm sewer" pipe. To date, the MSD public system has been separated. The CSO will be permanently closed following completion of the downspout removal project.	2005	\$1,900,000.00	CSO 209 was located in an environmentally sensitive area, and its outfall is on the Middle Fork of Beargrass Creek in Cherokee Park.

\*\*\*Most of the eliminated CSO general served a fairly small drainage and contributed a very small percentage of the overflow to the entire system

**Table 10-15**  
**Supplemental Monitoring Programs**  
page 1 of 1

<b>Objective</b>	<b>Program Status</b>	<b>Reference</b>
Monitoring sewer flow to refine the model representations of quantity of flow entering the combined sewer service area interceptors from the boundary with the sanitary sewer service area	In development	Section 11.2.5, Interim Long Term Control Plan, September 2006.
Monitoring CSO flow rates at large volume CSO locations to refine the overflow volume estimates.	In development	Section 11.2.5, Interim Long Term Control Plan, September 2006
Monitoring selected receiving water locations, flow and quality, to refine the Water Quality Tool as necessary to support the TMDL. Data collected for this purpose is not considered essential to the long term control planning and hence not discussed further in this summary of long term control plan monitoring and modeling.	In development	Section 11.2.5, Interim Long Term Control Plan, September 2006

**Figure 10-1**  
**MSD Electronic Database Structure**



**FIGURE 10-2**  
**MFWTP SERVICE AREA**

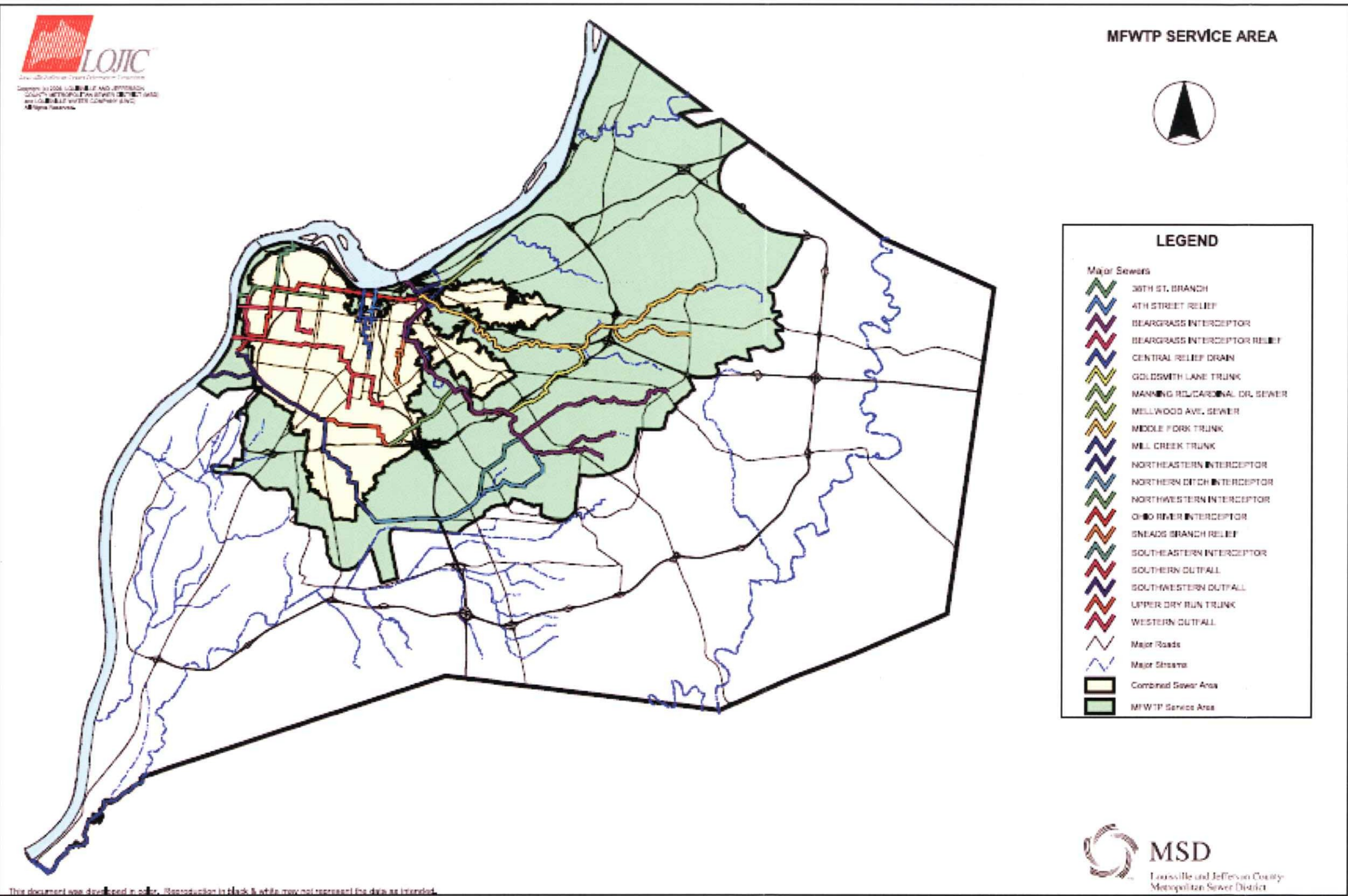
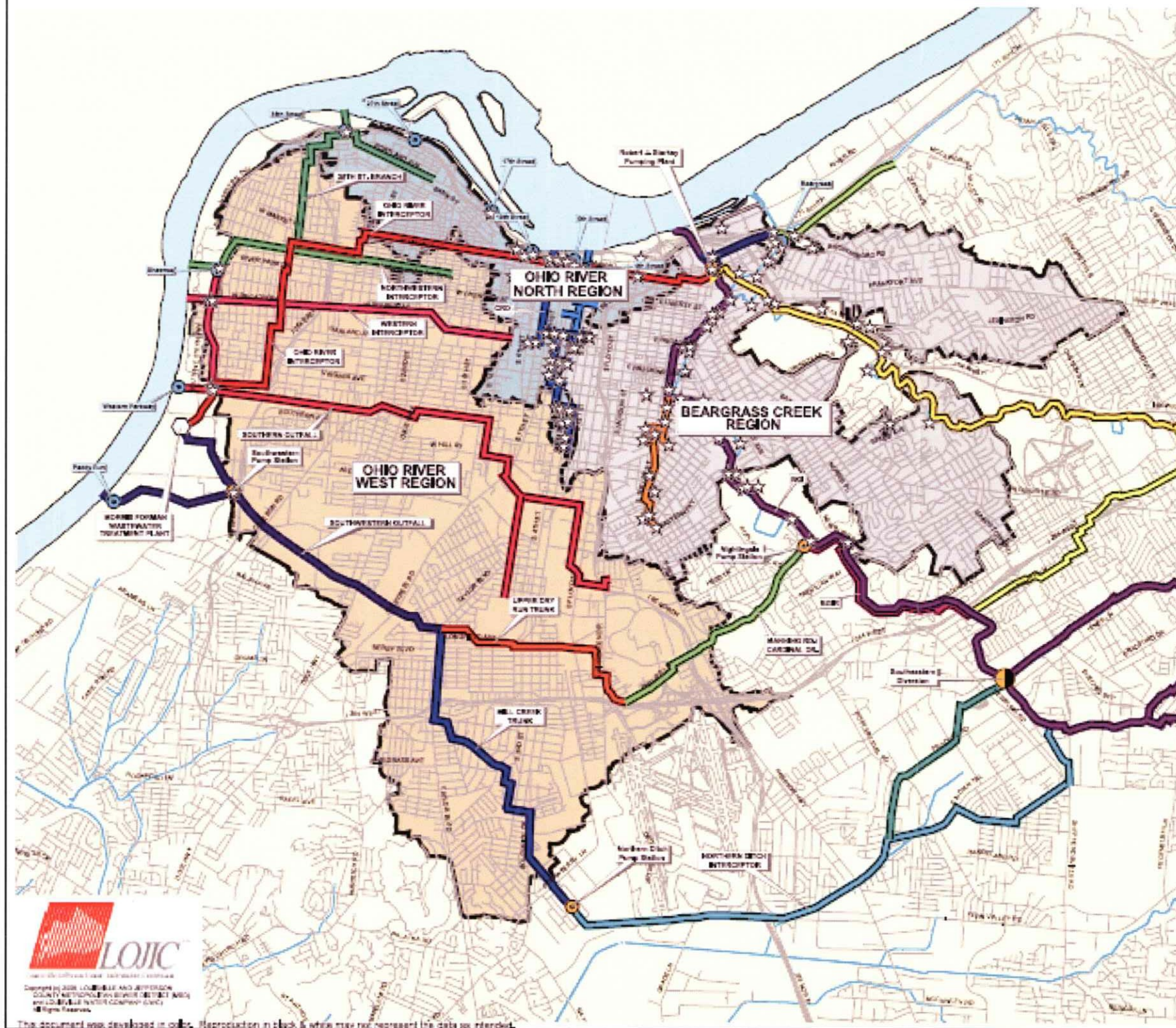


Figure 10-3  
**COMBINED SEWER SYSTEM REGION MAP**

**FIGURE 2-2  
 COMBINED SEWER SYSTEM REGION MAP**



**LEGEND**

- ☆ CSD Locations
- MSD Facilities
  - MORRIS FORMAN WASTEWATER TREATMENT P
  - Sanitary Pump Stations
  - Southern Division
  - Flood Pump Stations
- Roads
- Creeks
- Service Regions / Combined Sewer System
  - BEARGRASS CREEK REGION
  - OHIO RIVER NORTH REGION
  - OHIO RIVER WEST REGION

**LOJIC**  
 LOUISVILLE-JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT  
 1000 W. MARKET STREET, SUITE 200  
 LOUISVILLE, KY 40202  
 (502) 584-1000  
 www.lojic.com

**MSD**  
 Louisville and Jefferson County  
 Metropolitan Sewer District

This document was developed in color. Reproduction in black & white may not represent the data as intended.



Figure 10-5  
OHIO RIVER NORTH  
REGION MAP

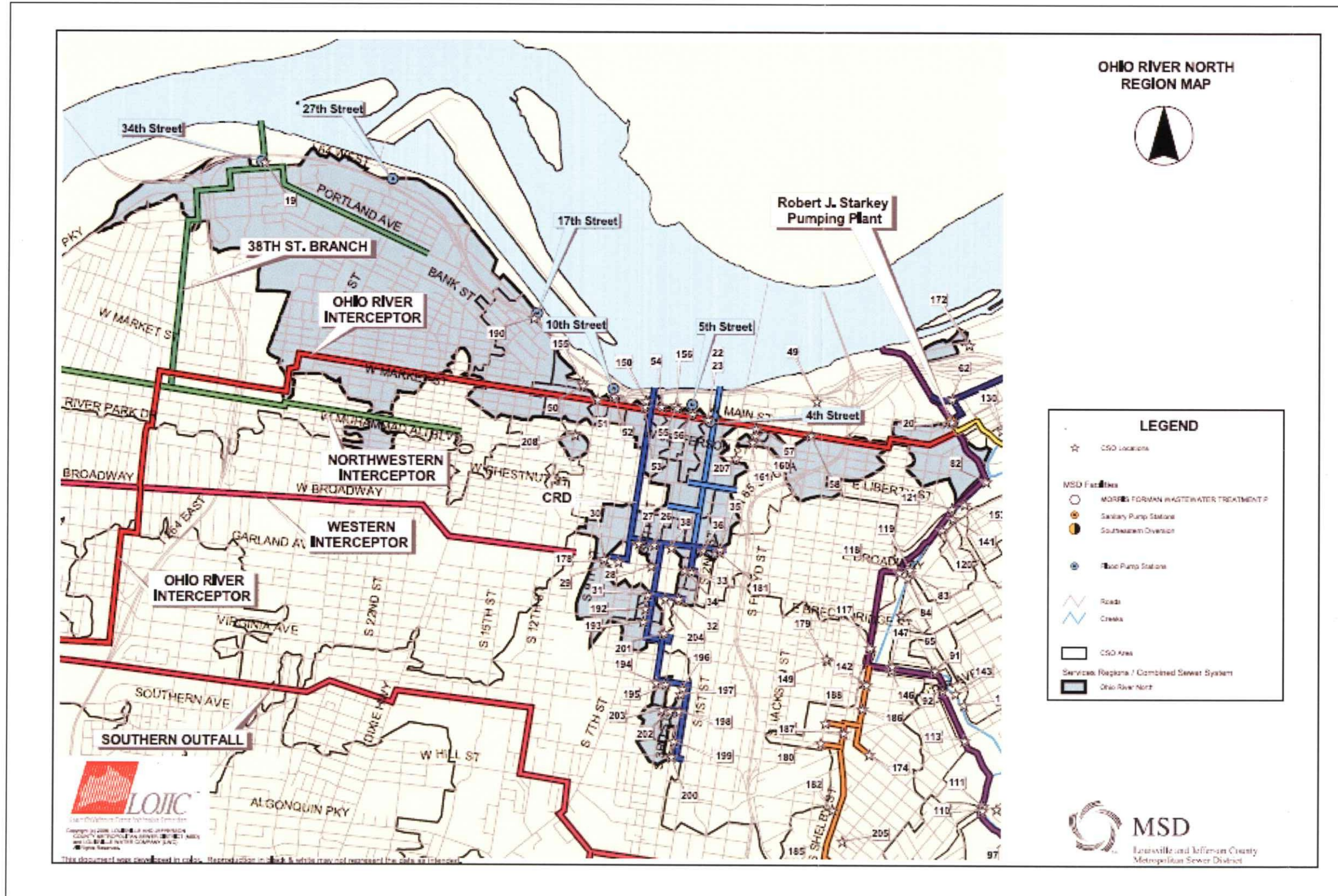
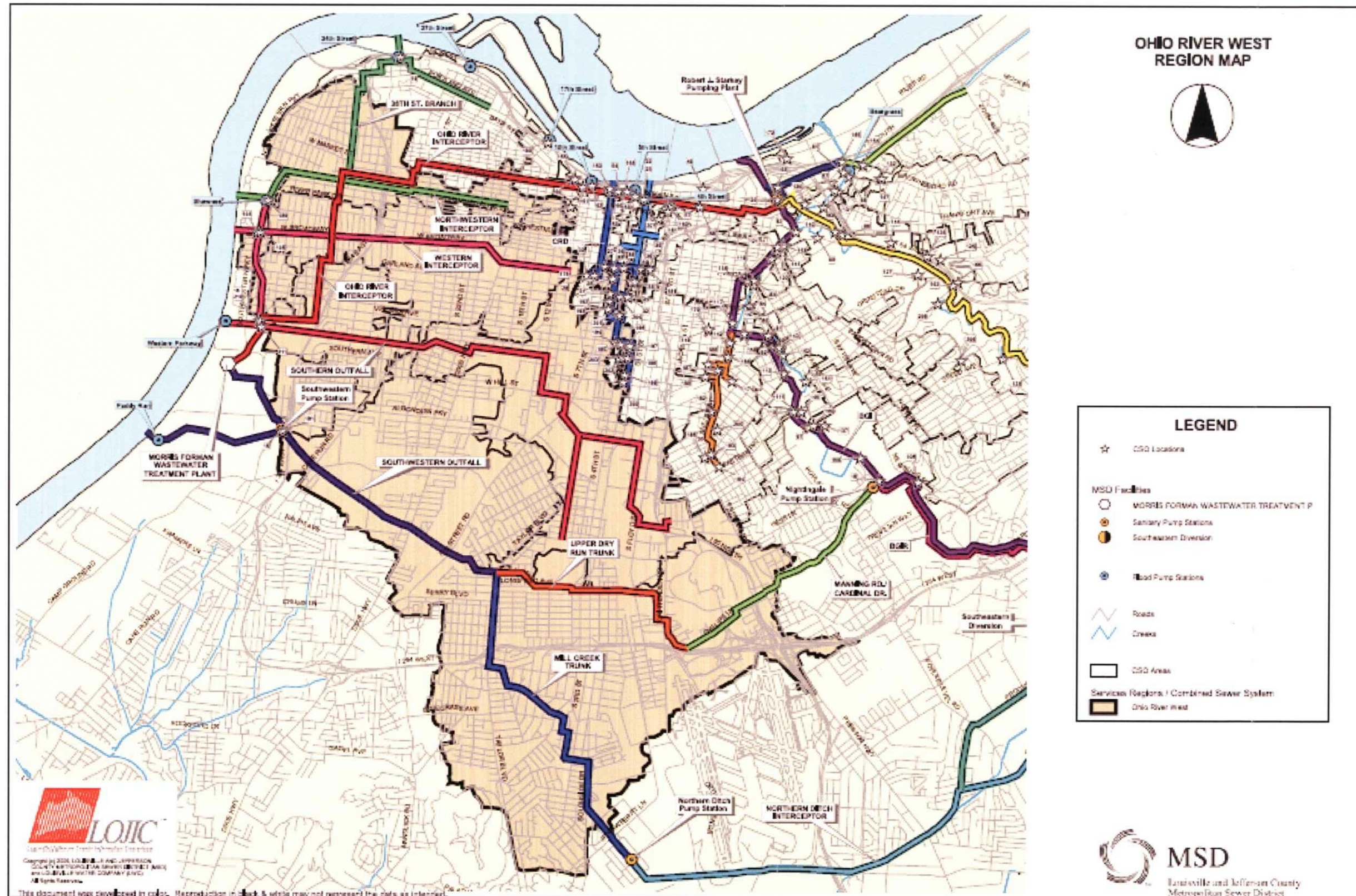




Figure 10-6  
OHIO RIVER  
WEST  
REGION MAP



**FIGURE 10-7  
SAMPLE  
CSO INVENTORY SHEET**

DATE: JUNE 4, 1991  
CSO SERIAL NO. 126  
REGULATOR NO. 25 - RAYMOND AVENUE SEWER  
LOCATION: North of I-64, east of Saunders Lane and west of Grinstead Drive  
OVERFLOW TYPE: REG

**STRUCTURE OVERFLOW ELEVATION:**

438.83 - Crest of dam

**OVERFLOW TYPE AND SEWER GEOMETRY:**

The overflow is located on a 36" circular sewer flowing south from Bickel Avenue. A 27" circular sewer flowing east from Saunders Avenue enters the 36" sewer just upstream of the overflow structure. The Middle Fork Interceptor is flowing west below the 27" sewer. The 36" sewer enters a diversion chamber at invert elevation 437.95 where the low flows drop through missing rack bars and discharge through a 15" sewer at invert elevation 434.44 to a regulator chamber. The flow exits the 15" sewer into the regulator chamber through a regulated opening. The regulator is operated by a float system, which is "tell-tailed" off the Middle Fork Interceptor through a 10" sewer. The flow exits the regulator chamber through an 18" sewer at invert elevation 434.08 to the 33" Middle Fork Interceptor. The invert elevation of the interceptor at this point is 433.07. The float system shuts the regulated opening when the flow in the Middle Fork Interceptor reaches elevation 435.77. The overflows exit the diversion chamber through a 4' x 3' box culvert with a 12" dam located about 5' downstream of the diversion chamber. The crest of the dam is at elevation 438.83.

The shut-off elevation is taken from construction plans. The actual working elevations and capabilities of the regulator are unknown.

**BACKWATER LENGTHS AND STORAGE VOLUMES:**

The 36" sewer is at a 2.373% grade. A 12" dam corresponds to backwater length of about 42 feet. The storage is about 40 cubic feet.

**DOWNSTREAM BACKWATER EFFECTS:**

The overflow discharges to a 6' x 4' box culvert flowing south under I-64 to the Middle Fork of Beargrass Creek. High levels in the creek may backup into the overflow.

Updated  
12/00

**COMBINED SEWER OVERFLOW INVENTORY  
FIELD INVESTIGATION REPORT**

CSO NO.: 126 NAME OF STRUCTURE: Regulator No. 25  
LOCATION: In easement east of Saunders Lane, north of I-64, west of Grinstead Drive  
DATE INSTALLED: 1936 TYPE OF STRUCTURE: Regulator chamber  
MSD ATLAS NO.: 15 RECORD NOS.: G-51, 56, 57, 58  
INTENDED OPERATION AND FUNCTION: To divert low flow from Raymond Avenue area combined to Middle Fork Interceptor sanitary. Tell-tale works by the depth of flow in Beargrass Interceptor.  
FUNCTION AND OPERATION FOUND DURING FIELD INVESTIGATION: As should be.

**DRY WEATHER FLOW CONDITIONS**

NAME OF INLET SEWER: Raymond Avenue Sewer  
RECORD NOS.: G-51, 56, 57, 58 SIZE: 36" GRADE: 2.73%  
LOW FLOW CONNECTION: SIZE: 18" GRADE: N/A  
NAME OF OUTLET SEWER: Middle Fork Interceptor  
RECORD NOS.: A-75 SIZE: 33" GRADE: 0.11%  
NAME OF EVENTUAL RECEIVING BODY OF WATER: Middle Fork of Beargrass Creek  
REMARKS: \_

FIELD INVESTIGATED BY: Tom Middleier DATE: 8/22/89

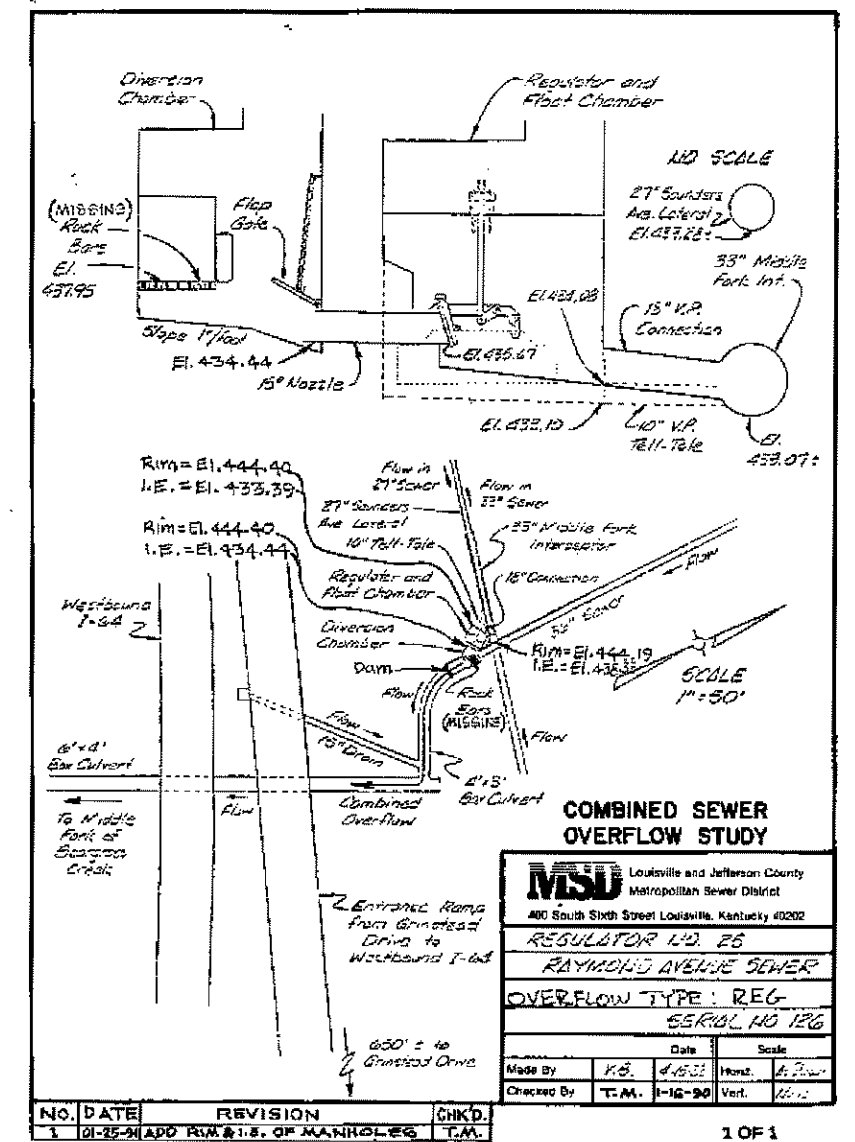


FIGURE 10-8  
CCTV  
INSPECTIONS

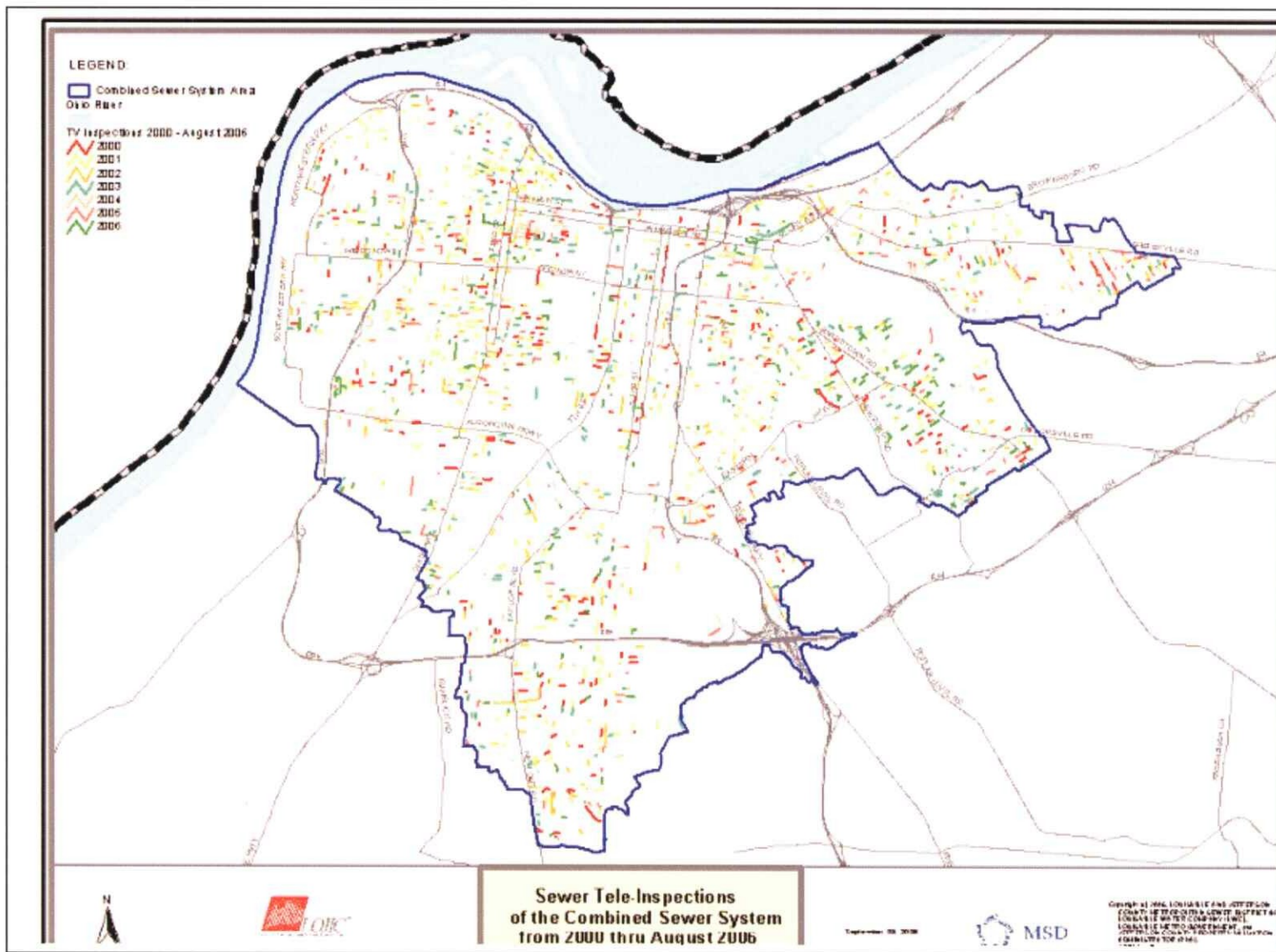


Figure 10-9  
MONITORING  
LOCATIONS

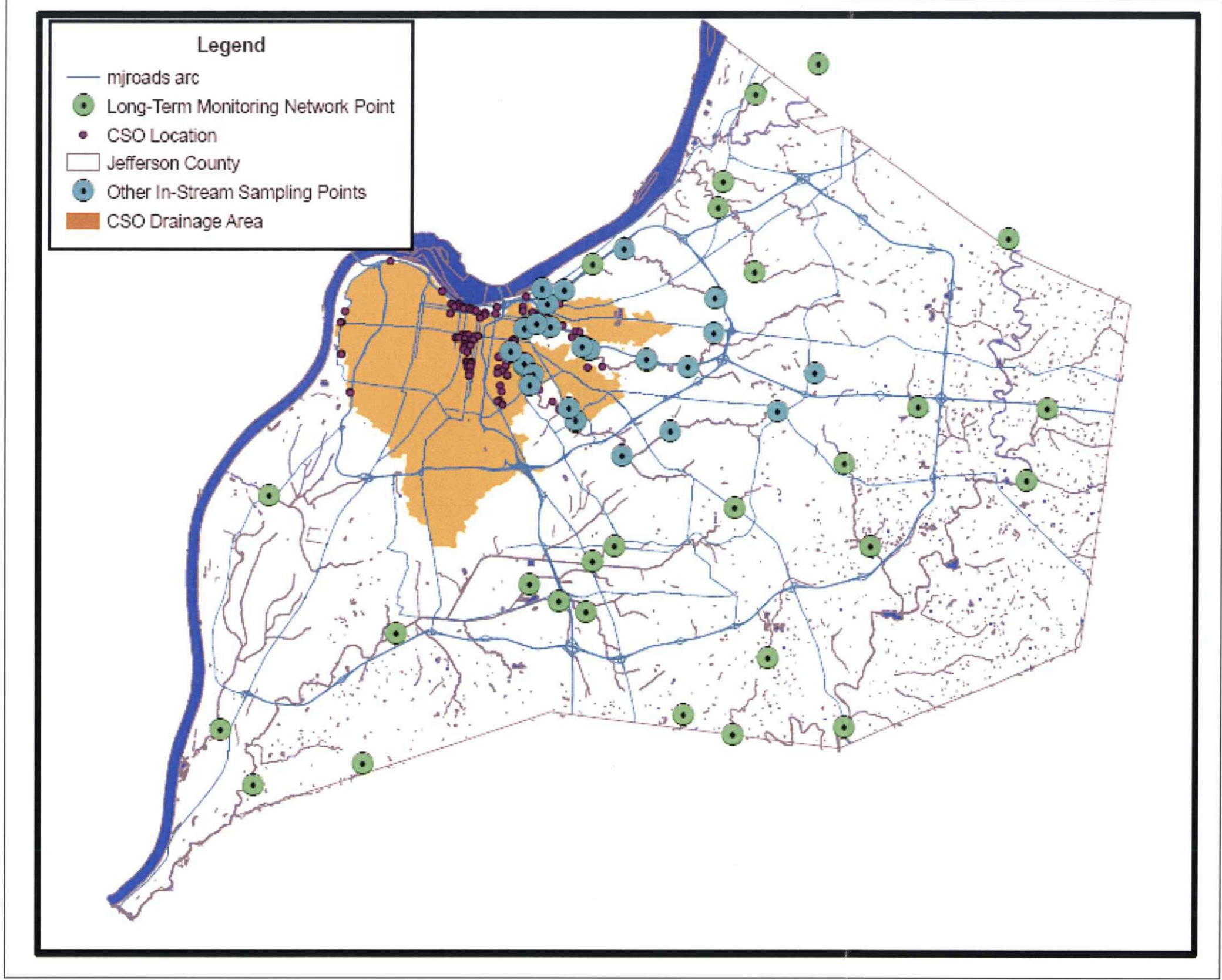


TABLE 10-10

CSS  
MONITORING  
LOCATIONS

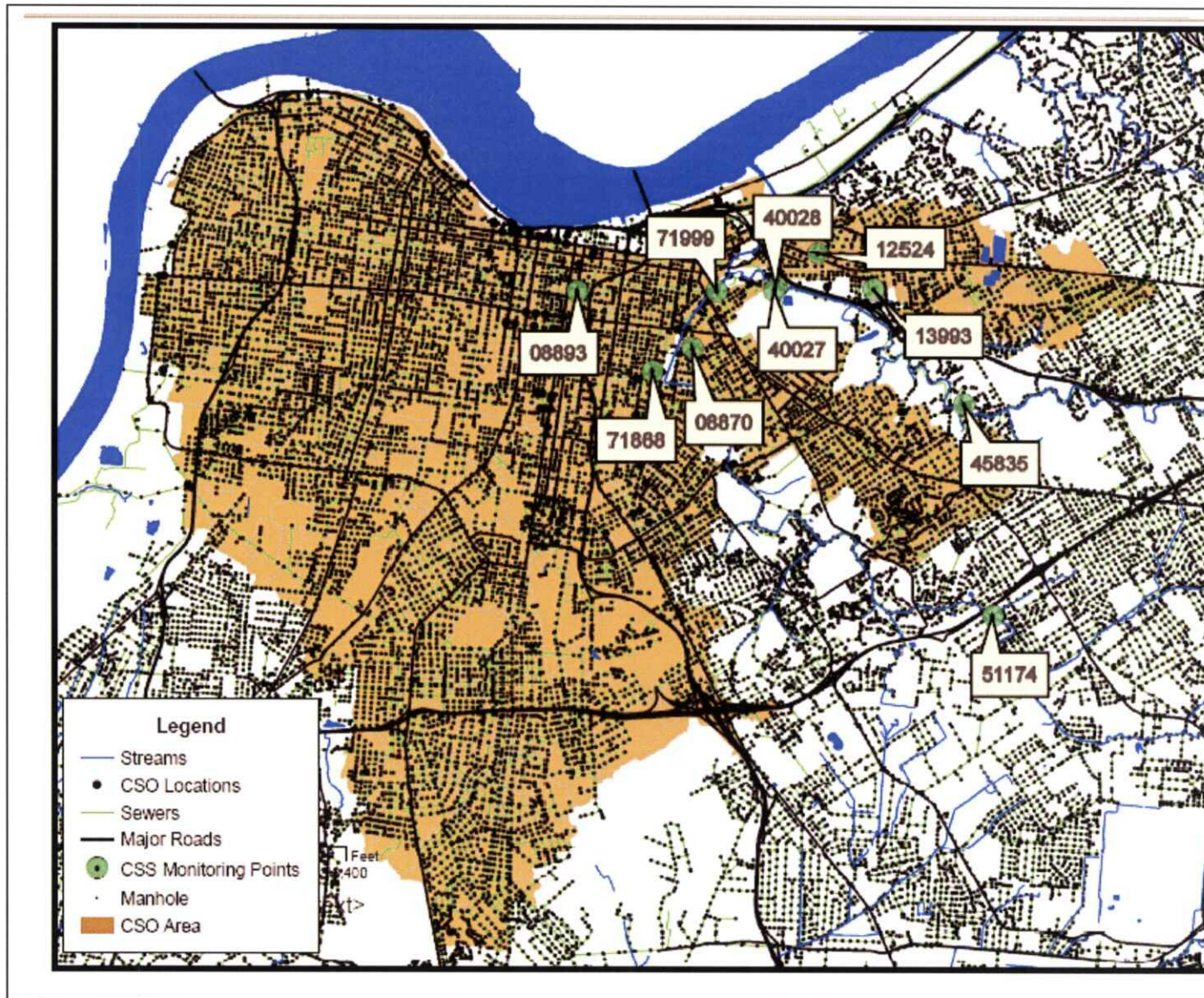


TABLE 10-11  
 BEARGRASS  
 CREEK  
 MONITORING  
 SITES

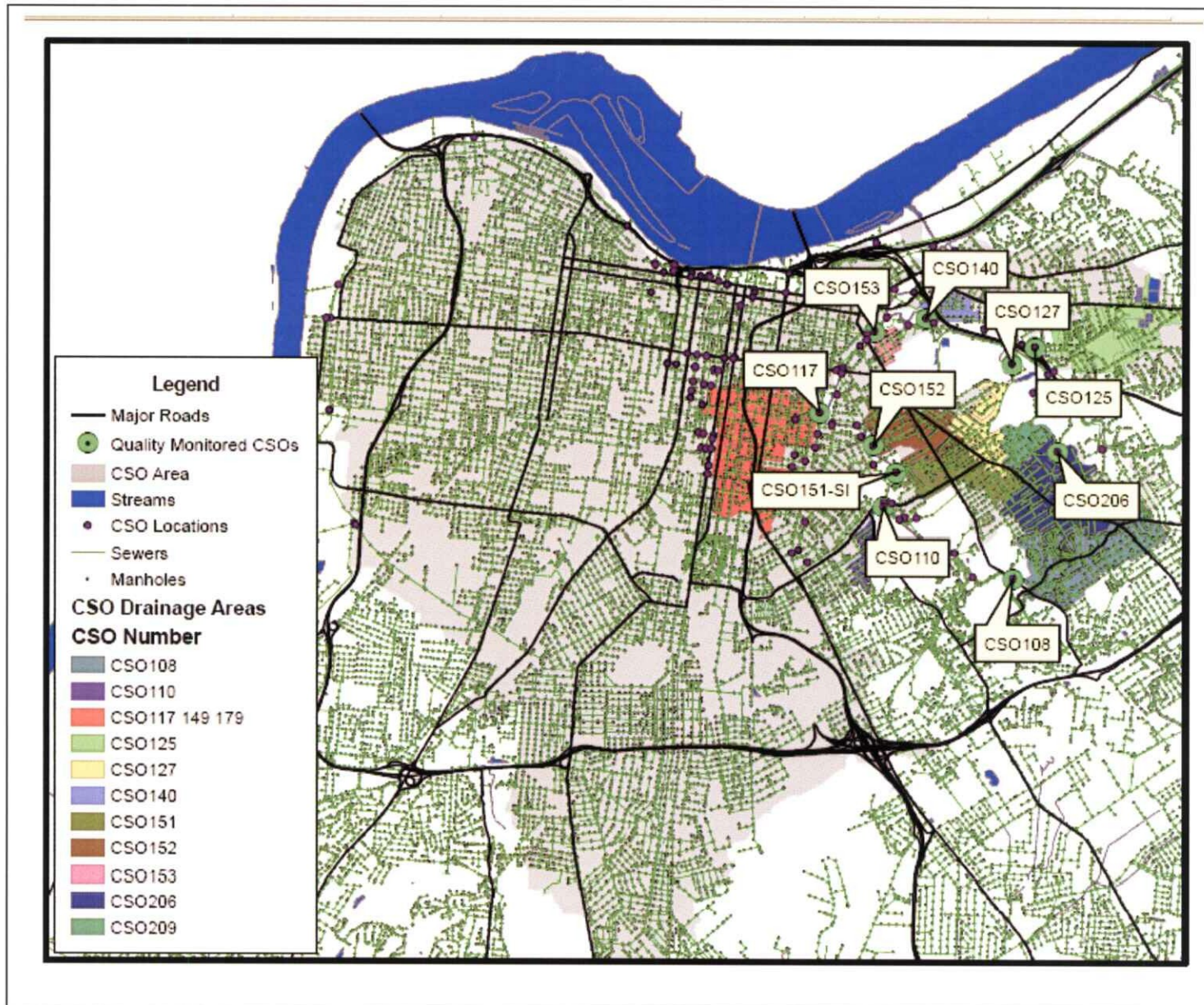
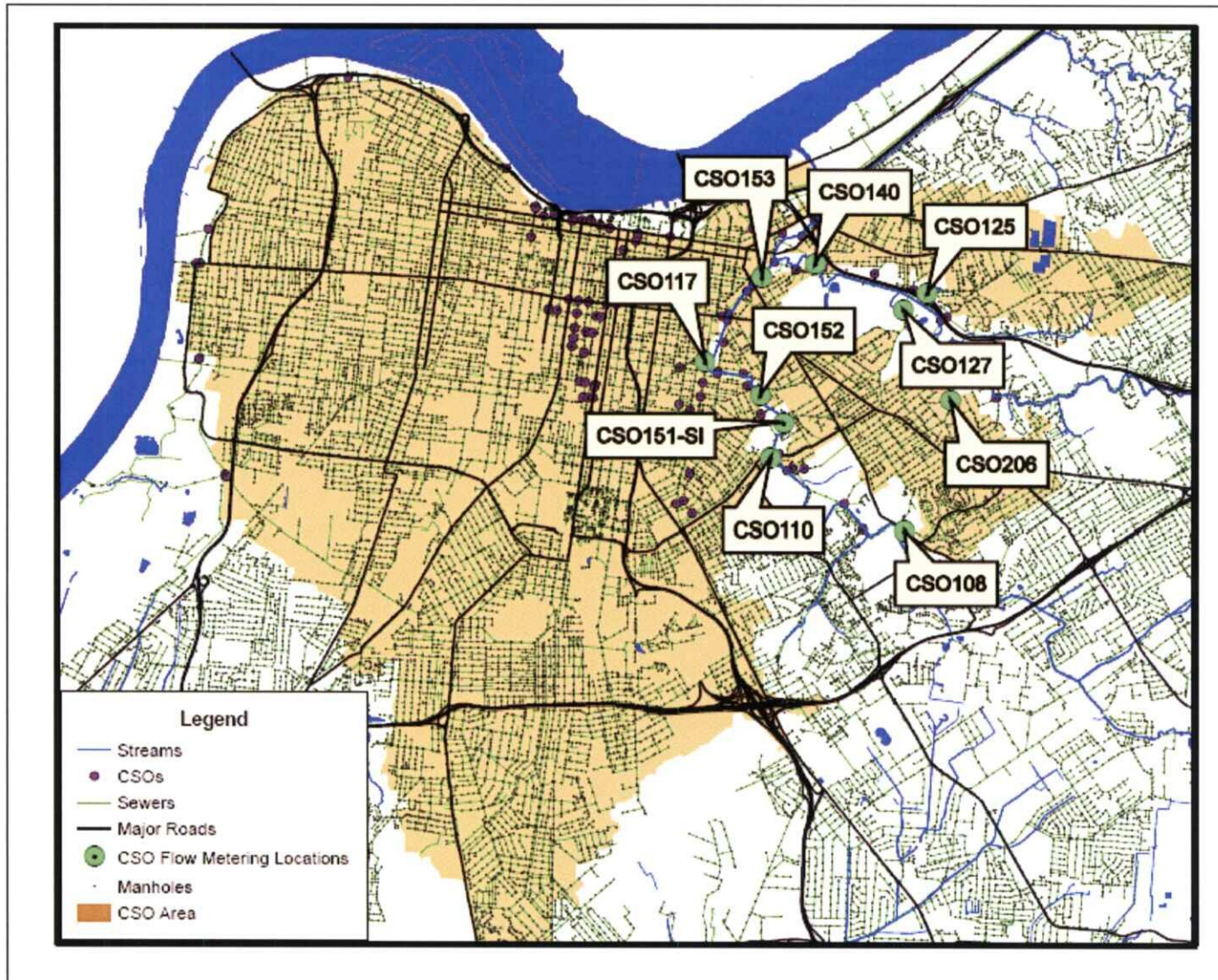
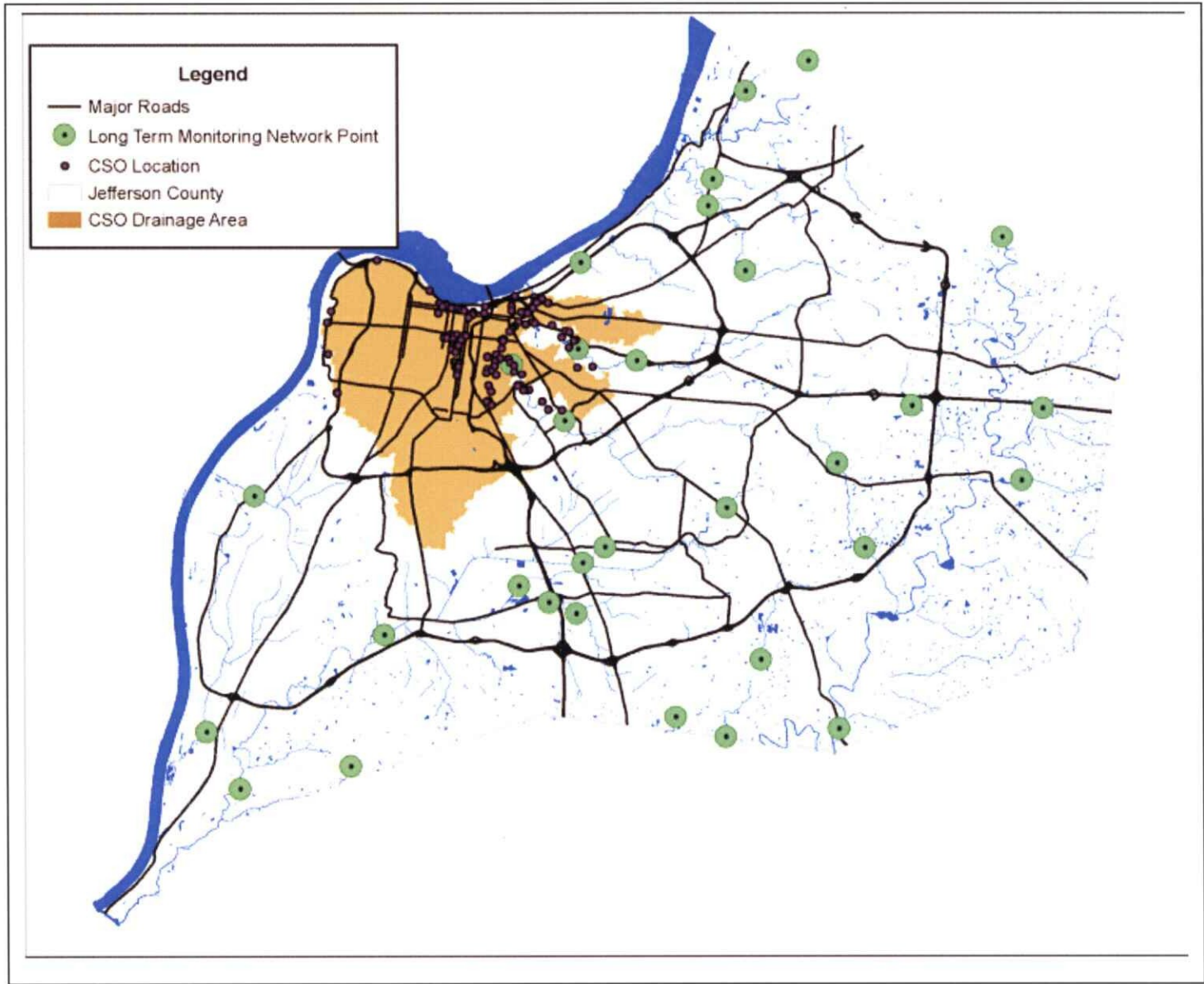


TABLE 10-12  
BEARGRASS CREEK  
FLOW MONITORING  
SITES

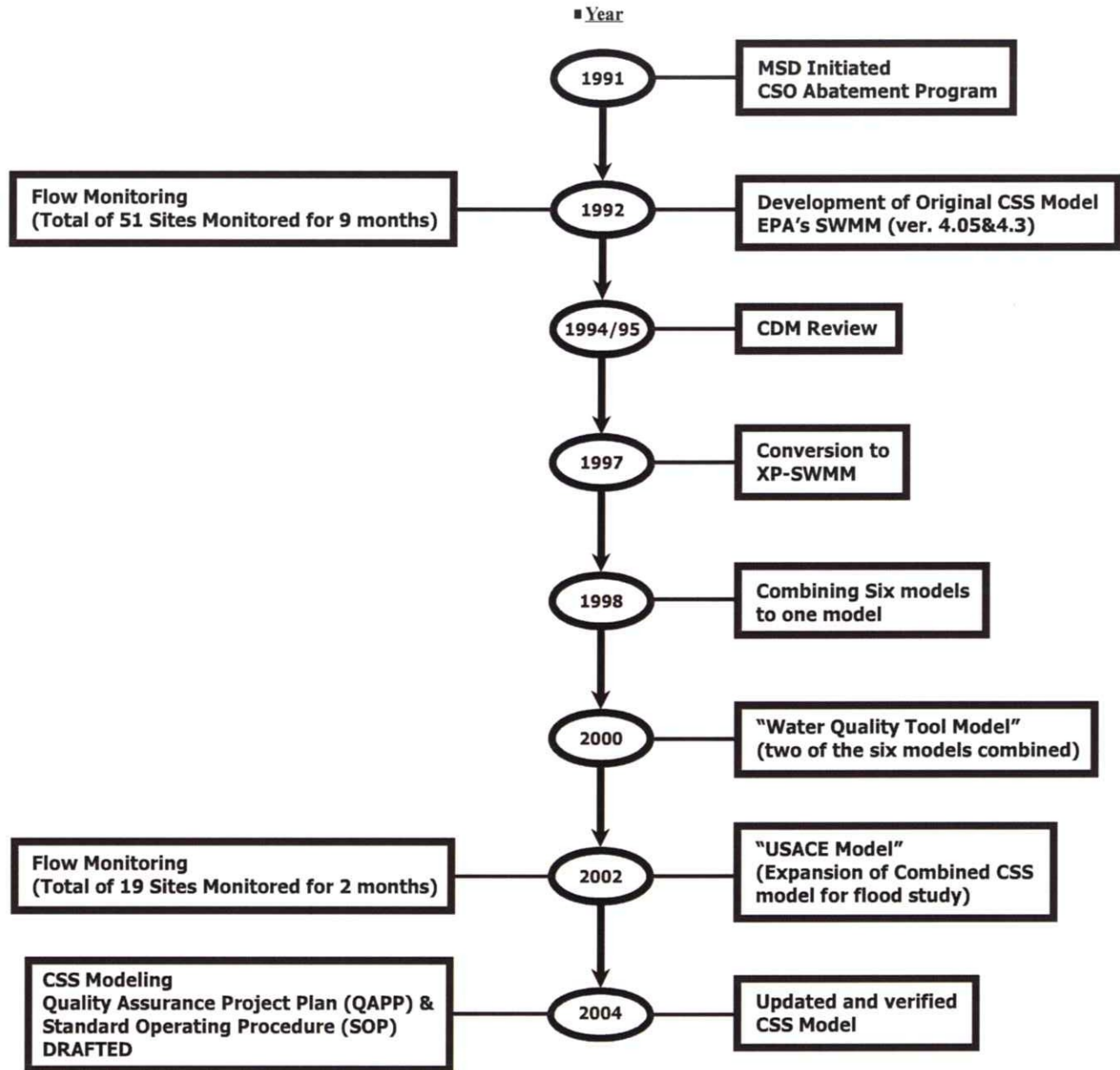




**TABLE 10-13**  
**LONG TERM**  
**MONITORING SITES**



**FIGURE 10-14  
CSS MODEL TIME LINE**



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District