

3.7 OHIO RIVER

This report is an update to the *WATERS of Jefferson County Report – July 1, 2000 to June 30, 2001*. For additional information on the Ohio River Watershed, refer to the *WATERS of Jefferson County Report – July 1, 2000 to June 30, 2001* located on the CD in Appendix I.

Figure 19. Ohio River Watershed

Exhibit 10 illustrates several features of the Municipal Separate Storm Sewer System (MS4), Combined Sewer Overflow (CSO), and Sanitary Sewer Overflow (SSO) Programs in the Ohio River Watershed.



3.7.1 RESOURCE MANAGEMENT PROCESS

With the initial *WATERS of Jefferson County Report – Year Zero* in December of 1999, MSD has been in the process of transitioning from a programmatically driven program to one that is more water quality driven. To aid in that effort, MSD has adopted the Resource Management Process (RMP), which is shown in *Figure 1* within the Program Section of the *WATERS Report*. This process sets the foundation for water quality based decision making. The RMP is a cyclic process that allows MSD the opportunity to prioritize projects using criteria that reach beyond regulatory requirements.

3.7.1.1 Scoping

MSD is in the process of developing watershed action plans. The first watershed to undergo this effort is Beargrass Creek. There has been some discussion in including the Ohio River Watershed within that action plan effort.

3.7.1.2 Assessment


Geographic Information Systems

Land Use - The Ohio River Watershed has an area of approximately 39.8 square miles and contains 49.5 stream miles. The Ohio River Watershed is highlighted in yellow in *Figure 19*. *Table 38* illustrates the land use percentages in the Ohio River Watershed.

Table 38. Ohio River - Land Use Percentages (1998)

Total Impervious	Undeveloped	Commercial	Parks	Public	Industrial	Residential
43.0	18.6	7.4	5.0	6.2	21.4	41.4

Monitoring**Monitoring Activities**

MS4 ORSANCO Project - Sampling activities associated with the Louisville Area Demonstration Study were completed by October 2001. Data collected during three dry weather events, five wet weather events and two dye surveys were provided to the contract modelers by May 2002. Over 15,000 water quality data points were collected by the Ohio River Valley Water Sanitation Commission (ORSANCO), Louisville MSD, and the Indiana communities of Jeffersonville and New Albany throughout the course of this study. Delays in the land-side pollutant loading model resulted from unavailability of meteorological data and growing banks of data on both the Kentucky and Indiana sides of the river, however, this model is expected to be complete by Fall 2002. This model and the hydrodynamic model (previously reported as completed in June 2001) will serve as input to the final predictive water quality model. A meeting of the project participants in October 2002 indicated that the water quality model is expected to be complete by the end of 2002. Also discussed during this meeting were the visions for the water quality model and the content of the final study report. The water quality model will be capable of predicting fecal coliform and *E. coli* concentrations following rain events. It will also be capable of predicting other constituents (outside the scope of this study). The model will serve as a useful tool for evaluating wet weather impacts on the Ohio River under various pollutant control scenarios. It will also include methods for presenting complex information to audiences with a range of technical expertise. The main focus of the report will be the transferability of methods developed during a similar study conducted on the Cincinnati/ Northern Kentucky area of the Ohio River. The final report is expected to be complete by Spring 2003. 


MS4 TMDL Development - The Ohio River Watershed has approximately 23 miles of second priority stream on the 1998 303(d) list for violations of the State Water Quality Standards. The State is required to develop TMDLs for first priority streams within the next decade. *Table 39* shows the impairments and pollutants of concern for the watershed. 

Table 39. Ohio River - 303(d) List of Waters for TMDL Development

Streams	1998 303(d) Listing			Proposed 2002 303(d) Listing		
	Priority	Impaired Use	Pollutant of Concern	Priority	Impaired Use	Pollutant of Concern
Ohio River* (mile 0.0 to 2.3)	Second	Fish Consumption, Swimming	Pathogens, Priority Organics, PCBs	First	Fish Consumption, Swimming	Pathogens, PCBs, Dioxin

Notes from Table 39:

* The reach of the Ohio River that borders Kentucky was included in the 1998 303(d) list because of partial support of fish consumption because of a number of pollutants including Priority Organics (specifically Chlordane). The Food and Drug Administration (FDA) Action Level for Chlordane in fish tissue was used (0.3 ppm) as the criteria. ORSANCO has Chlordane data for fish tissue from fish taken from the Ohio River for the period of 1988 to 1999. The data extended from Ohio River Mile 317, which is the upstream-most section of the Ohio River along the Kentucky border, to Ohio River Mile 962. The data shows that since 1992, levels of Chlordane in fish taken from the Ohio River have been less than the FDA Action Level of 0.3 ppm. In addition, what little in-stream Chlordane concentration data that are available show that the concentrations of chlordane is below Kentucky's standard for warm water aquatic habitat. Kentucky submitted a request to EPA to delist the Ohio River along Kentucky's border for Chlordane. EPA concurred and the Ohio River along Kentucky's border has been informally delisted for Chlordane. A request to formally delist the Ohio River for Chlordane will be submitted to EPA Region 4 with the 2002 303(d) Report.

Water Quality Impacts

The Ohio River Watershed has a large number of point source discharges. The area includes both combined and sanitary sewers that sometimes overflow. The watershed contains a high number of industrial users and general permittees. Table 40 summarizes point sources in the Ohio River Watershed.

Table 40. Summary of Point Source Regulatory Obligations – Ohio River Watershed

<i>Sanitary Sewer Overflows</i>	<i>Combined Sewer Overflows</i>	<i>Storm Water Outfalls</i>	<i>General Permittees</i>	<i>Significant Industrial Users</i>	<i>Wastewater Treatment Plants</i>
Recurring: 2 Investigated: 1 Eliminated: 1	57	NA	27	47	MSD Regional: 1 MSD Small: 1 Private: 5

Non-Point Source - The Ohio River Watershed is mostly urban. Much of the watershed is paved in the form of roads, parking lots, neighborhoods, shopping centers, and industrial sites. This imperviousness contributes to high levels of pollutant from the storm water runoff. Other non-point sources within this watershed are herbicides, pesticides and fertilizers.

3.7.1.3 Targets / Priorities

Compiling, analyzing and communicating information for watershed management should be directly related to the goals and objectives of the stakeholders. The use of indicators and targets helps stakeholders establish meaningful ways to assess whether objectives are being met or can be met in the future. Indicators are measurable or subjectively rankable quantities that provide means of evaluating ecological conditions and other management objectives. Particularly useful indicators are those that can be predicted in response to management options to support effective decision making. Targets are the values of the indicators that define desired conditions or outcomes. For example, water quality stan-

dards provide a basis for identifying levels of key ecological parameters that support protection for various uses of water.

The targets and indicators for the Ohio River Watershed will be identified during the development of the Ohio River Watershed Action Plan.

3.7.1.4 Strategies


The strategies for the Ohio River Watershed will be identified during the development of the Ohio River Watershed Action Plan.


3.7.1.5 Implementation


The following information lists the watershed-specific highlights for the CSO, SSO and MS4 Programs. For highlights that are not watershed-specific, but more programmatic in nature, refer to the Wet Weather / Water Quality Program section of the *WATERS Report*.

Projects


Water Quality Projects


MS4 Central Maintenance Facility BMPs – MSD is in the process of moving into MSD's new Central Maintenance Facility. This facility will house MSD's Maintenance and Operations Departments. The update will include storm water BMPs. This site is approximately 25 acres, of which 19.3 is impervious. The current plans are to reduce the amount of imperviousness by constructing vegetated swales, buffer strips and vegetated islands. The final impervious area should be reduced to 15.7 acres. Approximately one-half of the roof drains will be outleted to a vegetated area. The site also includes a wet basin that contains vegetation to filter parking lot runoff. 


MS4 EPSC General Permit - As part of the MS4 requirement for Construction Site Runoff Controls, Jefferson County has an approved EPSC General Permit in place. Approximately twelve individuals have attended the EPSC Workshop through Jefferson County Public Schools. 

SAN Harold Avenue Phase II Sanitary Sewer Assessment Project – This project will provide sanitary sewer service to two properties. These properties are currently on septic tanks. The project is currently under construction and will be completed by the 4th Quarter of 2002. 

LTCP Main Diversion Structure – MSD wants the flexibility to have the MFWTP receive as much flow as possible (up to the MFWTP capacity) from the Southern Outfall during wet weather. Calculations indicated that with the current piping configuration, the Main Diversion Structure (MDS) could not deliver 350 MGD to the MFWTP. To provide treatment for the maximum flow quantity possible, a project is underway to raise the overflow level at the outfall of the MDS to elevation 422.0 in order to convey more flow through to the MFWTP. An inflatable gate will be placed at the overflow from the MDS.


The gate will provide the capability to raise the water level to provide sufficient head to provide the 350 MGD flow rate to the MFWTP. The gate will also be incorporated into the RTC effort in the future, as well as providing an annual overflow volume reduction. Construction is scheduled for completion by June of 2003. This project is a component of the MFWTP capital program and is therefore not included in the CSO Program related cost presented at the end of this section. 

MS4 Pesticide and Herbicide Use - As a requirement of the MS4 Permit section Good Housekeeping / Pollution Prevention, Jefferson County no longer uses pesticides and herbicides. 


SAN River Road / Edith Avenue Sanitary Sewer Assessment Project – Fifteen commercial properties along River Road requested sanitary sewer service. Construction of the project was completed in the 2nd Quarter of 2002. 


LTCP Southwestern Pump Station – The Southwestern Pump Station (SWPS) reliability modifications were completed in 2002, which replaced screens, pumps, motors and provided variable speed drives ultimately improving the wet weather capture and treatment at the MFWTP.

A project to prevent water infiltration into the Southwestern Outfall was initiated in 2002. This project was identified because the ground above the Outfall sewer is sinking and the pipe is out of alignment with leaking and cracked joints. The project will restore the integrity of the pipeline foundation and prevent a future catastrophic failure.

The SWPS has been identified as a control point in the RTC project. A project is currently under design to replace obsolete actuators, instrumentation and other equipment to provide improved, reliable control to allow storage of excess wet weather flows in the Southwestern Outfall through modulating control of the Sluice Gate Structure. The objective is to reduce overflows to the Ohio River caused when the water level inside the Outfall exceeds the level of the diversion dam. The project is expected to be complete in 2003. 


Flow Reduction Projects

SSO Ervay Avenue I/I Remediation – Under this project 570 LF of 30-inch diameter sewer main was rehabilitated using cured-in-place pipe. 

SSO Sinking Fork Interceptor I/I Remediation – This project consisted of 2,115 LF of cured-in-place sewer main rehabilitation, 21 cured-in-place lateral rehabilitations, and 1,482 manhole chimney seals. 

LTCP Southwest Louisville Feasibility Study – The U.S. Army Corps of Engineers (USACE) completed a reconnaissance study of flooding for the west and southwest sections of Louisville in 1996 to determine Federal interest in providing improvements to alleviate flooding problems. The USACE recommended a more detailed analysis of the flooding problem (feasibility study), which included teaming with MSD as a local spon-


sor. The feasibility study will include additional detailed evaluations of the two detention basins from the reconnaissance phase as well as the evaluation of other mitigative measures to relieve surface flooding in the southwestern Louisville area.


Currently the Southwest Louisville Feasibility Study is in the “existing condition” phase, which is accumulation of information regarding the existing conditions of the area. Subsequent phases will include the alternative analysis and the final report. 

LTCP Upper Dry Run Trunk Storage Facility – The project includes the construction of a two earthen basins (17.25 MG and 15.25 MG) on the Kentucky Fair and Exposition Center (KFEC) property, and the construction of 1,922 LF of 60-inch sewer. Construction of the project started in March of 2001 and is scheduled to be complete in December of 2002. The project was bid for \$4.1 million.


Figure 20: Upper Dry Run Truck Storage Facility




Refer to the *WATERS of Jefferson County Report – Year Zero* for additional information. 


LTCP 11th and Rowan Sanitary Connections – The purpose of this project is to correct improperly connected property service connections tied to the storm sewer system near the intersection of 11th Street and Rowan Street, and the sanitary services located at the 10th Street Flood Pumping Station. Construction was initiated in July 2001 and is scheduled to be completed by the end of 2002. 

Habitat Enhancement Projects

MS4 Upper River Road Multi-Use Trail – The Upper River Road Multi-use Trail has been completed. 

MS4 Park Duvall Greenspace - The City of Louisville increased green space at West Main Street and at the Park Duvall redevelopments. Phase I of the redevelopment is complete. Phases II and III are under construction. 

Education

MS4 Earth Day - KyTC was represented at Earth Day activities presented by the Louisville Zoo. Information regarding the “Adopt-A-Highway” program was distributed. Environmental Stewardship exhibits were also available for review. This activity meets a requirement of the MS4 Permit section titled Public Education / Outreach Programs. 

MS4 Student Stenciling Program - The 2002 Student Stenciling Program took place from June 3rd to August 2nd. The program consisted of three teachers and six students. There was one teacher and two students from each of the following high schools – Central, Jeffersontown and Valley. There were approximately 9,365 catch basins stenciled.

Figure 21: Stencil Used In Ohio River Watershed

The general public was very supportive of the program. Many residents within the stenciled areas of the Ohio River Watershed would stop the teachers and students and thank them for their work. After the Courier-Journal article and the news story on WHAS Channel 11, positive response was even greater. Though a few people voiced their displeasure – through phone calls to MSD, the overall response to the program has been positive. The primary objective of the Student Stenciling Program was to educate the public on the harms of dumping oils, trash and other harmful wastes into catch basins. Through interaction with the public, mass mailings, newspaper/magazine articles and a news story on WHAS 11, these objectives were obtained. The Student Stenciling Program provided a wonderful learning experience for both teachers and students.



3.7.1.6 Evaluation

The evaluation for the Ohio River Watershed will be identified during the development of the Ohio River Watershed Action Plan.

EXHIBIT #10

City/Ohio River Watershed

Exhibit #10 may be downloaded at:

<http://www.msdlouky.org/insidemsd/waters/2002/exhibit10.pdf>  3.7Mb