

3.9 POND CREEK

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

Exhibit 12 illustrates several features of the Municipal Separate Storm Sewer System (MS4) and Sanitary Sewer Overflow (SSO) Programs in the Pond Creek Watershed.

Figure 23. Pond Creek Watershed (Jefferson County Only)



3.9.1 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 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.

3.9.1.1 Scoping

MSD is in the process of developing watershed action plans. The first watershed to undergo this effort is Beargrass Creek. The schedule for the Pond Creek Watershed Action Plan has not been established.

3.9.1.2 Assessment

Geographic Information Systems

Land Use - The Pond Creek Watershed has an area approximately 89.3 square miles and contains 649.6 stream miles in Jefferson County. Pond Creek is highlighted in yellow in *Figure 23*. *Table 45* illustrates land use percentages in the Pond Creek Watershed.

Table 45. Pond Creek - Land Use Percentages (1998)

Total Impervious	Undeveloped	Commercial	Parks	Public	Industrial	Residential
28.0	34.4	4.0	8.6	2.4	11.3	39.3

Monitoring

MSD has performed monitoring activities within the Pond Creek Watershed. Below is a compilation of those activities:

Monitoring Activities

MS4 SSO Ambient Monitoring - MSD has four long-term monitoring locations in the Pond Creek Watershed as part of their ambient monitoring program. Each location has a minimonitor and a United States Geological Survey (USGS) stream flow gauge, which operate continuous node-collectors. Data is recorded at intervals of 15 minutes, 24 hours per day.




Water quality data collected during this reporting period has been analyzed. The majority of the data was collected with minimonitors from the ambient monitoring sites. A summary of the water quality violations for all of Jefferson County can be found in the WATERS of Jefferson County Report – July 1, 2001 to June 30, 2002 CD located in *Appendix I*. Table 46 shows a summary of the water quality violation within the Pond Creek Watershed. 

Table 46. Summary of Water Quality Violations in the Pond Creek Watershed – 3rd Qtr 2000 to 3rd Qtr 2001

	# of Acute DO Violations	% Acute DO Violations	# Hrs Chronic DO Violations	% Hours Chronic DO Violations	# Temperature Violations	% Temperature Violations	# pH Violations	% pH Violations
Brier Creek at Bearcamp Road	1,464	39.5	1,767	47.7	0	0.0	0	0.0
Fern Creek at Old Bardstown Road	78	2.1	417	11.0	0	0.0	0	0.0
Northern Ditch at Preston Highway	806	29.9	338	12.6	242	8.5	48	1.7
Pond Creek at Manslick Road	320	10.3	993	31.8	33	0.6	0	0.0
Pond Creek at Pendleton Road	353	7.8	910	20.0	0	0.0	0	0.0

MS4 Habitat and Biological Monitoring - During the reporting period algae and macro-invertebrates were sampled at the ambient stream monitoring locations. Algae were sampled six different times (every three days) at the ambient monitoring sites during summer months. Three-day growth rates, maximum carrying capacity, community structure, and biomass estimates are being analyzed for each sample. 

SSO Post-Rehabilitation Analysis – This project involved the installation of flow monitors in the Pond Creek Watershed in order to assess the success rate of rehabilitation construction. Following completion of each rehabilitation construction project, MSD specified which basins should be monitored, analyzed the flow data, and prepared a brief report on the effectiveness of the rehabilitation effort. 


MS4 TMDL Development – The ambient monitoring data will also be used in the development of Total Maximum Daily Loads (TMDLs). The State is required to develop TMDLs for first priority streams within the next decade. Pond Creek has 17 miles of streams on the 1998 303(d) list for violations of the State Water Quality Standards. *Table 47* shows the impairments and pollutants of concern for the watershed. 

Table 47. Pond Creek - 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
Fern Creek/Northern Ditch of Pond Creek* (mile 0.0 to 7.5)	First	Aquatic Life Swimming	Organic Enrichment/Low DO, Pathogens, Nutrients, Ammonia	First	Aquatic Life, Swimming	Organic Enrichment/Low DO, Pathogens, Nutrients, Ammonia
Fern Creek/Northern Ditch of Pond Creek** (mile 2.3 to 15.2)				First	Aquatic Life, Swimming	Organic Enrichment/Low DO, Nutrients, Metals
Pond Creek of Salt River (mile 0.0 to 17.0)	Second	Aquatic Life Swimming	Organic Enrichment/Low DO, Pathogens, Metals	First	Aquatic Life Swimming	Organic Enrichment/low DO, Pathogens, Metals
Pond Creek of Ohio River *** (mile 0.0 to 1.5)	Second	Aquatic Life	Nutrients, Chlorine	Second	Aquatic Life	Nutrients, Chlorine
Slop Ditch of Southern Ditch**** (mile 0.0 to 3.5)	First	Aquatic Life Swimming	Pathogens, Metals, Flow Alterations	First	Aquatic Life Swimming	Pathogens, Metals, Flow Alterations
Spring Ditch of Northern Ditch ***** (mile 0.0 to 2.7)	First	Swimming	Pathogens	First	Aquatic Life, Swimming	Pathogens, Metals
Southern Ditch of Pond Creek***** (mile 0.0 to 5.5)	Second	Aquatic Life Swimming	Organic Enrichment/Low DO, Pathogens	First	Aquatic Life Swimming	Pathogens

Notes from Table 47:

* This section was labeled as Fern Creek, but is more correctly designated as Fern Creek/Northern Ditch. The designation of the Pond Creek stream segments on the USGS topographic maps are not well defined, so the designation of Fern Creek/Northern Ditch will be used in the report.

Notes from Table 47 (continued):

** This section was labeled as Fern Creek, but is more correctly designated as Fern Creek/Northern Ditch. The designation of the Pond Creek stream segments on the USGS topographic maps are not well defined, so the designation of Fern Creek/Northern Ditch will be used in the report. The metal of concern within this stretch of Fern Creek/Northern Ditch is Cadmium. MSD states that additional monitoring data is needed to address Cadmium concerns.

*** The 1998 303(d) Report showed this stream segment as being in both Jefferson and Oldham Counties. It is only in Oldham County.

**** The name of this stream segment has been changed from Slop Ditch to Wetwoods Creek. A bottom-land hardwood wetlands has been created at approximately river mile 1.8 of the existing channel, which is to mitigate flooding and improve water quality of the stream below the wetlands. The flow has not yet been diverted through the wetlands.

***** The listing for Pathogens was in the 1998 303(d) Report. The listing for metals (Cadmium and Zinc) is based on more recent assessment information from MSD. Additional monitoring data is needed to quantify the Cadmium impacts.

***** The stream was listed in the 1998 303(d) Report as being in partial support of both aquatic life and swimming because of Organic Enrichment/Low DO and Pathogens. This proposed 2002 303(d) Report listing is based on more recent information and makes the 1998 listing no longer relevant. Because the aquatic life use is now determined to be fully supporting, a request will be made to EPA Region 4 to delist this stream segment as being impaired for aquatic life use because of Organic Enrichment/Low DO.

Water Quality Impacts

Point Source – The Pond Creek Watershed has a large number of point source discharges. Fecal bacteria levels violate recreational standards about one-half the time. This can be attributed to the large number of small treatment plants scattered throughout the watershed. Table 48 summarizes point sources in the Pond Creek Watershed.

Table 48. Summary of Point Source Regulatory Obligations – Pond Creek 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: 9 Investigated: 10 Eliminated: 7	NA	Year Sampled: 1995, 1996 Total: 2,093 Contaminated: 25 (.011%)	16	16	MSD Regional: NA MSD small: 5 Private: 77

Non-Point Source - Non-point source pollution is a problem in the Pond Creek Watershed. Overall nutrient levels are declining within Pond Creek. This can be attributed to the removal of small wastewater treatment plants and the elimination of septic tanks. Most of the nutrients still present, originate from lawn and agricultural chemicals.

Modeling

SSO Northern Ditch Hydraulic Model – This project was the development of an XP-SWMM2000 computer hydraulic model of the Northern Ditch system. This model simulates dry weather and wet weather flow in the sanitary sewer system and identifies existing and potential capacity limitations in the system.



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

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

3.9.1.4 Strategies

The strategies for the Pond Creek Watershed will be identified during the development of the Pond Creek Watershed Action Plan.

3.9.1.5 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


SAN Bardstown Road Corridor Sanitary Sewer Assessment Project - Local officials placed petitions in banks and businesses along Bardstown Road. A number of property owners in the area signed the petitions. Due to the large response from the property owners, an assessment project was initiated. This project provides sanitary sewer service to 23 property owners. The project is currently in the easement acquisition phase.





SAN Chapel Hill Road Sanitary Sewer Assessment Project - This project provides sanitary sewer service to approximately 43 customers. This assessment area consists of single-family residential units. This area is presently unsewered and the residents utilize on-site disposal systems. The project is currently in the planning phase. 


SAN Deering Road Sanitary Sewer Interceptor and Collector Project - This project will provide sanitary sewer service to 295 properties that currently depend on on-site systems for wastewater treatment. The project is currently under construction and should be completed in the 1st Quarter of 2003. 


SAN Durrett Lane Area Sanitary Sewer Assessment Project – This project will provide sanitary sewer service to 76 properties who currently depend on on-site systems for wastewater treatment. The project is currently under construction and should be completed in the 3rd Quarter of 2002. 

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 Fern Creek / Nottingham Interceptor #6 Sanitary Sewer Project - This project will eliminate MSD's Nottingham Hills Wastewater Treatment Plant (WTP) and the privately owned Hill Ridge, Wildwood Country Club and Watterson Woods WTPs, in addition to MSD's Nottinghamshire and Watterson Trail Pump Stations. The project will also enable collector project(s) to be initiated to provide sewer service to unsewered areas. The project is currently in the easement acquisition phase. Construction should start in the 3rd Quarter of 2002 and be completed in the 2nd Quarter of 2005. 


SAN Fern Haven Road Sanitary Sewer Assessment Project – This project will provide sanitary sewer service to 156 property owners currently on on-site systems. The project is currently in the easement acquisition phase. Construction is scheduled to begin in the 4th Quarter of 2002 and be completed by the 1st Quarter of 2004. 


SAN Grafton Hall Interceptor and Collector (GH-1 & 1C) Sanitary Sewer Assessment Project – This project will provide sanitary sewer service to 705 property owner who are currently on septic tanks. The project is currently under construction and should be completed in the 4th Quarter of 2002. 


SAN Hurstbourne Parkway Sanitary Sewer Extension - This project will provide sanitary sewer service along the Hurstbourne Parkway roadway extension, provide the design for the elimination of the Ferndale Road Pump Station, and enable a collector project(s) to be initiated to provide collector sewers to an unsewered area. The project is currently under construction and should be completed by the 2nd Quarter of 2003. 


SAN New Cut Road Sanitary Sewer Assessment Project – This project will provide sanitary sewer service to 54 property owners who are currently using on-site systems.

The project is in the easement acquisition phase. Construction should start in the 3rd Quarter of 2002 and be completed by the 2nd Quarter of 2003. 


SAN Northern Ditch Interceptor (NR-1A) Sanitary Sewer Project - This project will produce revenue in excess of operating and maintenance costs by eliminating MSD's Yorktown wastewater treatment plant (WTP), three pumping stations and one lift station. The lift station eliminated is Old North Church Road. Aluma Lane, Inverted Siphon, and the Scottsdale Boulevard are the pumping stations being eliminated. The project is currently in the easement acquisition phase. 


SSO Oaklawn Sanitary Sewer Interceptor Project – This project was initiated to eliminate the sanitary sewer overflow (SSO) at 7204 Preston Highway. The project will also eliminate the siphon under Wet Woods Creek. The project is currently under construction and will be completed in the 2nd Quarter of 2002. 

SAN Orell Road (OR-1) Sanitary Sewer Assessment Project - This project will provide sanitary sewer service to 200 property owners and allow MSD to eliminate one existing wastewater treatment plant which currently serves Colonial Estates Mobile Home Park. The area currently relies on on-site septic systems to treat its wastewater. The project is currently in the planning phase. 


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. 

Flow Reduction Projects

SSO Jeffersontown Phase 3 I/I Remediation – This project consisted of 3,629 LF of cured-in-place sewer main rehabilitation, 35 cured-in-place lateral rehabilitations, and 458 manhole chimney seals. 

SSO Northern Ditch Interceptor Evaluation Phase I – This project analyzed and investigated 80,000 LF of the Northern Ditch interceptor. 

Habitat Enhancement Projects

MS4 Pond Creek Channel Improvement – Two channel improvement projects have been initiated – Pond Creek and Northern Ditch. Design of these projects is nearly complete. Easement acquisition is starting and the project should be ready to bid next year. MSD is going to widen the channel above the low flow portion; flatten slopes and create a bench; plant trees, bushes and vegetation; and install in-stream structures to reduce erosion and improve habitat. The project will also reduce flooding and minimize maintenance and mowing, and provide a trail for public use. 

MS4 Pond Creek Watershed Restoration Plan - The Pond Creek Watershed exhibits the symptoms of urban runoff and prior unregulated development, including poor water quality, lost riparian buffers and wetlands, and severe flooding. To correct these concerns,

MSD staff has developed a conceptual strategy for the implementation of a long-range watershed restoration plan. The plan’s mission is to restore the watershed to a more natural state and reduce flooding through a more cooperative effort. The primary goals of the watershed restoration effort include preservation and restoration of habitat, flood protection for people and property, and promotion of sustained economic development. Currently the plan is in the conceptual strategy phase.



MS4 St. Anthony’s Landing BMP – St. Anthony’s Landing is located along St. Anthony’s Church Road at Big Run Creek. The developer will be creating a riparian buffer adjacent to the creek. The creek will have a larger flood plain and will also contain wetland vegetation. The project is currently in the construction phase.



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.



3.9.1.6 Evaluation

The evaluation for the Pond Creek Watershed will be identified during the development of the Pond Creek Watershed Action Plan.

EXHIBIT #12

Pond Creek Watershed

Exhibit #12 may be downloaded at:

<http://www.msdlouky.org/insidemsd/waters/2002/exhibit12.pdf>  4.9Mb