

**Will the New Federal Phase 2 Storm Water Program Work?:  
Test Case with Michigan's Voluntary General Storm Water Permit**

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**ABSTRACT**

The Rouge River National Wet Weather Demonstration Project (Rouge Project) in Southeast Michigan is a working example of how a systematic watershed approach to pollution management can result in cost-effective and ultimately greater and faster achievement of designated uses in a water body. The Rouge Project has expanded from a program to build and evaluate alternative approaches to control combined sewer overflows (CSOs) to a comprehensive watershed-based pollution abatement initiative. The Rouge River Watershed is largely urbanized, spans approximately 438 square miles, and is home to over 1.5 million people in 48 communities and 3 counties.

The Rouge Project has spent considerable efforts to build institutional and regulatory frameworks necessary to accommodate a watershed approach to wet weather pollution management. Part of this framework is a new watershed-based general permit for municipal storm water discharges issued under the National Pollutant Discharge Elimination System (NPDES) program. This storm water permit program was developed jointly by the Rouge communities and the Michigan Department of Environmental Quality (MDEQ) and is based on the concept of cooperative, locally based storm water and watershed management. Communities and agencies in over 95 percent of the watershed are have applied for coverage under this new innovative, watershed-based permit program to implement the federal Phase II storm water program. The MDEQ permit requires permittees to participate in watershed management planning for a self-determined subwatershed unit. The watershed management plan will form the basis for implementing watershed goals and objectives that will result in improved water quality and pollution control.

This paper discusses the advantages of using the watershed approach to address storm water control. While the apparent direction of EPA's Phase II storm water regulations due to be promulgated in September 1999 appears to encourage the use of the watershed approach, the details in the regulation do not reflect that theme. A comparison of the directions the Phase II regulations appear to be taking and the approach of the Rouge Project is made and discussed.

The Rouge River Project has learned a great deal on what it takes to restore an urban waterway to its beneficial uses. The use of the watershed approach is proving to be very effective in addressing issues associated with storm water management, CSO control, and related stressors on water quality.

**KEYWORDS**

Watershed, watershed management, storm water, Phase II storm water regulations, general storm water permit, CSO controls, Rouge River National Wet Weather Demonstration Project

**INTRODUCTION**

The Rouge Project has learned a great deal on what it takes to restore an urban waterway to its beneficial uses. The purpose of this document is to present some of the basic information on the Rouge Project, to summarize the watershed approach being utilized in the Rouge Project including the use of a general

storm water permit, to summarize the apparent approach United States Environmental Protection Agency (USEPA) is taking in the development of its final Phase II storm water regulations, and to compare what the Rouge Project has learned on storm water control to the proposed Federal storm water control program.

### **Background on the Rouge Project**

The Rouge Project was initiated in 1992 by the Wayne County (Michigan) Department of Environment. The Project is a USEPA grant funded comprehensive program to manage wet weather pollution to restore the water quality of the Rouge River, a tributary of the Detroit River in Southeast Michigan. The Rouge River has been designated as a significant source of pollution to the Great Lakes system. The Rouge River Watershed is largely urbanized, spans approximately 438 square miles, and is home to over 1.5 million people in 48 communities and 3 counties.

The early focus of the Rouge Project was on the control of CSOs in the older urban core portion of the downstream areas of the Rouge Watershed. As a finite number of point source CSO discharges could be identified and responsibility for each defined, the traditional regulatory approach of issuing NPDES permits mandating corrective action worked relatively well. Additional monitoring of the river showed that the other sources of pollution such as industrial and municipal point sources, storm water runoff, interflow from abandoned dumps, discharges from illicit connections, discharges from failed on-site septic systems, and resuspension of contaminated sediment, needed to be controlled before full restoration of the river would be achieved throughout the watershed.

Based upon what was learned, the focus of the Rouge Project became more holistic to consider the impacts from all sources of pollution and use impairments in receiving waters. The historic implementation of water quality management programs in the United States at the federal and state levels has been to focus on point sources, which are the most obvious sources of pollution to water bodies. This program has worked well to control pollution from most point sources but has also left a patchwork of regulated and unregulated discharges of storm water and nonpoint source pollution to surface waters. This patchwork is especially true in most urbanized areas where multiple local jurisdictions are located in the same watershed. More subtle sources of pollution, such as storm water, are now emerging as the next priority for attention. The challenge for the Rouge Project became to develop innovative solutions to achieve water quality objectives that may: 1) be more cost-effective, 2) be implemented in a more timely fashion and 3) be better able meet local needs. It has also become clear that water resources management must have the support of the general public in order to be effective and to become self-sustaining. A locally driven watershed approach to pollution management as a means to achieve management goals is an exciting concept, which has been discussed by many but for which there is limited practical experience. This is particularly true in urban situations where there are multiple sources of impairment to a water body and stiff competition for limited local resources to address the pollution sources. The Rouge Project has provided a unique opportunity for a watershed-wide approach to restoring and protecting an urban river system by using a cooperative, locally based approach to pollution control.

The Rouge Project is designed to identify the most efficient and cost effective controls of wet weather pollution, while assuring maximum use of the resource. A great deal has been accomplished along these lines. The following summarizes some of those accomplishments, focusing on CSO controls first. Approximately 50 percent of the watershed is served by separate sewer systems, with an additional 20 percent of the watershed served by combined sewers (157 overflow points) and the remaining area served by on-site sewage disposal systems. CSO controls are being implemented in phases. Under the first phase, six communities have separated their sewers and eight communities have constructed or are constructing 10 retention treatment basins. Each of these basins is sized for different design storms and several employ innovative technology. A two-year evaluation study of the CSO control basins began on June 1, 1997. The results from the evaluation study coupled with efforts to control storm water and other

pollution sources in the watershed will provide the basis for the second phase CSO control program on the remaining CSO sources in the watershed. The information gained from the evaluation of design storms and control technologies will be useful nationwide on determining cost effective CSO controls to meet water quality standards.

The watershed contains seven subwatersheds that range in size between 19 and 89 square miles (**See Figure 1 “Location Map of the Rouge and Seven Subwatersheds and Location of Rouge Watershed in Michigan”**). Older communities served by combined sewers dominate downstream portions of the Rouge River Watershed, while the headwater areas are typically open space, agricultural land, or low density residential developments that are undergoing rapid change due to growth pressures. Fully developed areas, typical of the middle portions of the Rouge Watershed, have separated storm sewers and limited opportunities to address storm water problems with structural solutions.

Data gathered by the Rouge Project has shown numerous water quality and designated use problems, including high bacteria levels and low dissolved oxygen levels during wet weather events in all areas of the watershed. Fish consumption is restricted in much of the watershed due to the threat to human health. All but one of the subwatersheds has moderate to severe degradation of wildlife habitats, with fish populations suffering severe impairment in half of the subwatersheds. Aesthetic enjoyment is moderately to severely impaired throughout the watershed. Restrictions to small boat navigation resulting from logjams, garbage and sedimentation, are a moderate to severe impairment in virtually all seven subwatersheds.

Innovative storm water control and watershed management technologies are also being evaluated under the Rouge Project. Twenty-five (25) different communities and agencies throughout the watershed are implementing over 100 pilot projects. Categories of pilot management projects currently underway include wetlands creation and restoration, structural storm water practices such as grassed swales and detention ponds, erosion controls, streambank stabilization and habitat restoration, to name a few.

The Rouge Project has learned that illicit connections and failing septic systems are major sources of pollution problems in the Detroit urban area. Creative ways to deal with these sources of pollution have been initiated.

A suite of computer models has been developed by the Rouge Project to simulate the water quality and quantity response of the Rouge River during wet weather events for existing and future conditions under various CSO and storm water runoff management alternatives. This effort has resulted in a very useful public communication tool on water quality indices tied to actions needed to restore the Rouge River. A comprehensive geographic information system (GIS) and relational databases were designed and implemented to manage the wealth of data collected under the Project. In addition, a special data exploration tool, DataView, was developed to support routine analyses of large time series data sets. DataView is user-friendly and readily transferable to other locations. Related to DataView is the Rouge Information Manager, also a user-friendly, readily transferable tool (an “electronic file cabinet”) for accessing multi-media information about the Rouge River restoration effort.

Effective, readily transferable tools have been developed, employed by the Project, and are being shared with other cities and state agencies. Finally, use of the watershed approach has proven to be very efficient and cost effective in dealing with wet weather issues.

Additional information on the Rouge Project can be obtained at the web site “<http://www.rougeriver.com>.”

## **USEPA’S PHASE II STORM WATER PROGRAM**

The USEPA is in the process of finalizing the *Draft Phase II Federal Storm Water Regulations and Initiatives* (USEPA, 1998). It is not the purpose of this paper to present a detailed discussion of the federal Phase II storm water control program. USEPA has developed a series of 14 fact sheets that provide an overview of the proposed Phase II storm water program and explain the proposed regulations in greater detail

(USEPA, 1999). The following is a summary of the Phase II storm water program as discussed in USEPA's fact sheets. Obviously, USEPA may promulgate the final Phase II program with requirements that vary significantly from this summary.

USEPA has used a phased approach to address storm water runoff, which has been documented throughout the literature as a leading source of impairment to waters of the U.S. Phase I of USEPA's storm water program was promulgated in 1990. Phase I relies on the NPDES permit coverage to address storm water runoff from: (1) "medium" and "large" municipal separate storm sewer systems (MS4s), generally serving populations of 100,000 or more people, (2) construction sites greater than 5 acres, and (3) 10 categories of industrial sources.

USEPA proposed its Phase II rule on January 9, 1998 (40 CFR Part 122 & 123). The Phase II program would expand the existing Phase I program by addressing other sources that EPA believes are the unregulated sources of storm water discharges that have the greatest likelihood of causing continued environmental degradation. Those sources are: (1) owners or operators of small MS4s located in "urbanized areas" as defined by the Bureau of the Census and (2) owners or operators of construction activities that disturb equal to or greater than 1 and less than 5 acres of land. On a case-by-case basis, permitting agencies can designate other MS4s and construction sites for coverage as well.

The following is a brief summary of the requirements of the Phase II proposed rule as they apply to municipal storm water discharges, as described in USEPA's draft regulations and fact sheets. Owners or operators of Phase II-designated small MS4s would be required to apply for NPDES permit coverage, most likely under a general rather than individual permit, and to implement storm water discharge management controls, commonly referred to as best management practices (BMPs). Specific requirements are summarized below.

### **Requirements for Small MS4s**

A regulated small MS4 owner or operator would need to develop and implement a storm water management program designed to reduce the discharge of pollutants from their MS4 to the "maximum extent practicable" and to protect water quality. The proposal assumes the use of narrative, rather than numeric, effluent limitations in the form of measurable goals.

The small MS4 storm water management program would need to include the following six minimum control measures: public education and outreach; public participation/involvement; illicit discharge detection and elimination; construction site runoff control; post-construction runoff control; and pollution prevention/good housekeeping.

A regulated small MS4 owner or operator would need to include their selection of BMPs and measurable goals for each minimum measure in their permit application. The evaluation and assessment of those chosen BMPs and measurable goals would then need to be included in periodic reports to the NPDES permitting authority.

EPA is committed to providing a "tool box" to facilitate implementation of the final Phase II storm water program. The "tool box" is expected to include the following components: Fact Sheets; Guidance Documents; Information Clearinghouse/Web Site; Training and Outreach Efforts; Technical Research; and Support for Demonstration Projects. EPA plans to have a preliminary working toolbox in place by the time the final Phase II rule is published. Three years after publication of the final rule, when the general permits are issued, a fully operational toolbox is scheduled to be available.

The final Phase II rule is scheduled for issuance in September 1999. The NPDES permitting authority would issue general permits for Phase II-designated small MS4s within 3 years from the date of publication of the final rule. Owners or operators of Phase II-designated small MS4s and construction activity would obtain permit coverage within 3 years and 90 days of publication of the final rule. The regulated small MS4s would

fully implement their storm water management programs by the end of the first permit term, typically a 5-year period.

It is important to note the new approach USEPA seems to be taking under the proposed Phase II program. The program is based on the use of federally enforceable NPDES permits, but USEPA has expressed its encouragement of the use of general permits and its desire to provide flexibility for regulated owners and operators to determine the most appropriate storm water controls. In the draft program, USEPA proposes allowing for the recognition and inclusion of existing NPDES and non-NPDES storm water programs in Phase II permits as well as working toward a unified and comprehensive storm water program with the existing NPDES Storm Water Phase I program. Finally, the draft program includes general language describing USEPA's intentions to facilitate and promote watershed planning and to implement the storm water program on a watershed basis.

As stated earlier, the Rouge Project is using the watershed approach as the main force in restoring the Rouge River. The key item in the watershed approach is the use of the Michigan storm water General Permit, described below, by Rouge River Watershed communities and agencies.

### **THE MICHIGAN NPDES GENERAL PERMIT FOR MUNICIPAL STORM WATER DISCHARGES**

Beginning in 1995, the Michigan Department of Environmental Quality (MDEQ), the Rouge Project and the communities in the Rouge Watershed jointly developed an innovative, watershed-based NPDES general permit ("General Permit") for municipal storm water discharges which was issued on July 31, 1997 (MDEQ, 1997). This collaborative process was outlined in a report "Adapting Regulatory Frameworks to Accommodating Watershed Approaches to Storm Water Management" (Fredericks, et al., 1997). The General Permit incorporates the following elements:

#### **General:**

- coverage will be voluntary until the final EPA Phase II storm water regulations are promulgated
- only public agencies who own, operate, or control storm water are provided the opportunity for coverage;
- subwatershed size is established by the potential permittees during the application process;
- application and permit process have limited required actions, the focus is to establish desired outcomes.

#### **Requires permittee to develop:**

- *Illicit Discharge Elimination Plan* that has the goal of eliminating raw sewage discharges and includes addressing failing septic systems and improper connections of sanitary sewers to storm drains and open waterways.
- *Public Education Plan* designed to inform residents and businesses what actions they should take to protect the river.
- In cooperation with others, a *Watershed Management Plan* to resolve water quality concerns which includes: short and long-term goals for the watershed, delineation of actions needed to achieve the goals, estimated benefits and costs of management options, an opportunity for all stakeholders to participate in the process.
- *Storm Water Pollution Prevention Initiative* which includes evaluation and implementation of pollution prevention and good housekeeping practices and the evaluation and implementation of BMPs to minimize impacts of new development and redevelopment.
- *Monitoring and Reporting Plan* including schedule for revisions to the Watershed Management Plan.

The subwatershed storm water management plans developed by the communities and other public agencies do not require state approval; however, the individual pollution prevention initiatives emanating from the watershed planning process require state approval as the activities specified in the initiatives become permit requirements upon approval.

## ROUGE COMMUNITY/AGENCIES APPROACH TO APPLICATION AND PERMIT REQUIREMENTS

A total of 43 communities and agencies who own, operate, or control storm water systems in the Rouge River Watershed have coverage under Michigan's new watershed-based General Permit for municipal storm water discharges. The document "Implementing a Model Watershed Approach Through a State General Storm Water NPDES Permit" (Cave, et al., 1998) outlines key issues discussed and decisions reached by the communities as they developed their General Permit applications.

The MDEQ General Storm Water Permit encourages communities and agencies that own and operate storm water management facilities to voluntarily apply for coverage. Within six months after the MDEQ issues a certificate of coverage (COG) to a community/agency, the general storm water permit requires the submission of a public involvement plan for approval by the state. This plan identifies the approaches that will be used within the hydrologic area to involve stakeholders in the development of a watershed plan that must be completed within 18 months after the COG is issued. Once a consensus watershed plan has been completed, each agency and community within the hydrologic unit must prepare and submit for state approval its own pollution prevention initiative that identifies actions and schedules to address the pollution concerns identified in the consensus watershed plan.

The Michigan General Storm Water Permit is quite flexible and allows those seeking coverage under the permit to use a wide variety of approaches to meet the public education, illicit connection/ illegal discharge, and public involvement requirements. This flexible framework has allowed communities to experiment with various approaches that recognize local constraints and seize upon unique opportunities to meet the desired outcomes. While the basic requirements for what must be in the watershed plan are more detailed, the permittees within a hydrologic or subwatershed unit are allowed considerable freedom in deciding upon their own priorities, remedial actions and schedules. Pollution prevention initiatives that are expected to be proposed by the communities will likely involve a commitment to continue or expand current activities like soil erosion and sedimentation control; implement new activities to address priority issues such as failing septic systems; and, implement regional projects to reduce the frequency and velocity of storm flows in the river.

Table 1 and Table 2 outline the variety of public education and illicit discharge detection and elimination approaches identified by the communities and public agencies in the Rouge Upper Subwatershed. From Figure 1, the Rouge Upper subwatershed is one of seven subwatersheds involving the forty-three communities and agencies that applied for coverage under the Michigan Storm Water General Permit within the Rouge River Watershed. (See **Table 1 Public Education Activities Planned for General Permit as Identified by Upper Rouge Subwatershed Communities** and **Table 2 "Illicit Discharge Elimination Activities Planned for General Permit as Identified by Rouge River Upper Subwatershed Communities"**).

Across the watershed, communities actively sought ways to address cooperatively, rather than individually, illicit connection/illegal discharge investigations, and public education projects. In one subwatershed group, a community with experience in the production of videos, agreed to make a river stewardship video that all other communities within the subwatershed could use on cable television, or through the distribution of cassette copies to local libraries and/or schools. In the same watershed, another community offered the use of its consultant to solicit bids for freestanding public information display boards, and to develop storm water information materials for the boards that could be used by all communities at public gatherings and inside public facilities. One community obtained the support of the local college to house and provide administrative support for a well-established non-profit organization, Friends of the Rouge, whose public information activities were subsequently funded by several subwatershed groups to implement portions of the public education plans.

## **ADVANTAGES OF WATERSHED APPROACH**

### **Holistic Solutions/Local Ownership**

There are distinct advantages in managing storm water on a watershed basis. From the work already completed on the Rouge Project, it is clear that an integrated approach is needed to address all sources of water pollution and excessive flows in this urbanized watershed. By requiring those agencies and communities with responsibility for storm water to work together at the subwatershed level to establish goals and objectives, local agencies and the state regulatory agency are forced to view solutions holistically. To achieve the desired level of river restoration, there must be integrated action plans that address not only storm water but failing on-site sewage disposal systems (OSDS), CSOs, sanitary sewer overflows (SSOs), and significant nonpoint sources of pollution.

Ideally, a watershed-based regulatory framework should encompass all dischargers so that pollution sources can be addressed holistically. Practically, it must be recognized that prior NPDES permit programs at the state and federal level are already in place for municipal and industrial point source waste treatment discharges, and for many industrial and commercial storm water discharges. While the Michigan watershed-based storm water General Permit covers only public agencies that own, operate or control storm water conveyance systems not currently under a Phase I storm water permit, the required watershed management plan does provide a framework for integrating activities under other permit programs. In addition, the General Permit gives communities and agencies the flexibility and encouragement to incorporate nonpoint source controls and pollution prevention activities as part of the required watershed management plan. For example, many communities have initiated pilot projects to evaluate how storm water BMPs will control storm water flow and prevent pollution. In some cases these pilot projects have permanently changed the way communities and/or government agencies manage storm water. These management practices will be included as part of a watershed management plan, and credit will be given to the entities that are performing those functions.

By allowing local agencies a role in establishing workable subwatershed units the problems may not be any less complex, but the solutions may be more achievable and cost effective. Many of the subwatershed units selected in the Rouge River Watershed involve communities that have combined sewers, separated sewers and OSDS. Some individual communities have all three within their corporate limits. Once the communities began to work together at the subwatershed level to establish goals to achieve water quality standards necessary to restore the river, each found that they had a significant role in the process and that the control of flow in the rapidly developing headwater areas was as significant as CSO problems in the lower portion of the watershed. Evaluating the sources of water quality problems and/or the threats to existing uses of the river at the subwatershed level by local agencies is leading to a better understanding of local constraints, opportunities for innovative solutions, ownership of the long-term river restoration effort and interagency cooperation.

### **Overcoming Institutional / Regulatory Barriers**

Local agencies and communities in urbanized areas have a long history of cooperative efforts to address the delivery of common public services. Recent trends in Michigan, and elsewhere in the country, to reduce the size and cost of government and limit local taxing power have accelerated efforts at the local level to integrate or share the cost of a broad range of government services. Local agencies are increasingly seeking ways with their neighboring jurisdictions to reduce the cost of police and fire protection, solid waste disposal, libraries, recreational facilities, infrastructure maintenance and repairs, public transit, water supplies, and sewage disposal. Unfortunately, except in a few isolated instances where a single authority has been created to oversee all aspects of water management, the legal responsibility for storm water is widely dispersed between local communities, county health and drain agencies, road agencies, private

developers and autonomous school districts and public colleges. The creation of a new level of government in the form of a water management authority with broad powers has been resoundingly rejected in the Rouge River Watershed by local agencies, and is likely to receive the same reception in many other urban areas of the country.

State and federal water quality regulatory programs have traditionally focused on large point sources where responsibility for obtaining and complying with specific permit limits is easy to establish. The regulatory framework to control water pollution has generally discouraged rather than encouraged cooperative solutions among communities and has relied upon command and control to achieve results. The complexities involved in addressing wet weather pollution problems in urban areas and the widely dispersed accountability for managing storm water demands a new regulatory framework that will encourage cooperation among the locally responsible public agencies to design integrated, holistic solutions. The watershed approach to storm water regulation developed in Michigan offers an opportunity to overcome the institutional and regulatory impediments that have discouraged cooperative local approaches to restoring urban watersheds.

Institutional arrangements and financing options necessary to implement the General Permit and subwatershed management plans are one of the many elements which the local communities in the Rouge Watershed are addressing in their working groups. As part of the subwatershed planning process, communities and agencies are also identifying issues which cross subwatershed boundaries. Rouge Project staff and the MDEQ are currently providing coordination of the individual subwatershed efforts and are assisting subwatersheds in developing a comprehensive strategy for addressing watershed-wide issues. The subwatershed communities are also identifying those activities such as public education and water quality monitoring which may be most cost-effectively performed throughout the entire watershed by a single entity.

### **Increased Local Accountability and Political Support**

Building a watershed restoration project from the bottom-up by helping local communities and agencies identify the problems, set their own priorities for restoration, select their own remedial measures and propose their own schedules requires a sharing of power between federal and state regulators, and local agencies not usually found in water pollution control programs. The General Storm Water Permit program in Michigan is voluntary at this time and it has allowed state regulators the ability to provide flexibility that might not otherwise be available. It has also increased the accountability of local agencies who no longer have the freedom to blame federal and state officials for the impositions of requirements, but now are responsible for convincing local elected officials that the programs proposed are in the best long-term interest of the local residents.

### **Opportunities for Cost Efficiencies/Innovation**

As discussed earlier, the Rouge River communities that have obtained coverage under Michigan's General Storm Water Permit and are working in subwatershed groups have already developed more cost effective and efficient methods to meet the public education requirements through cooperatively developed projects. Similar joint programs are underway to train local community and agency staff in illicit discharge elimination activities and in sharing staff and equipment to conduct river and enclosed storm drain surveys. The three county health agencies are developing common approaches to permitting and inspecting OSDS. The county road agencies are working with the state highway agency to address the design, construction and maintenance of transportation drainage systems.

The county agencies in the three counties responsible for designated storm drains are working toward implementation of common standards for storm water management at new developments. County and local officials have worked together to establish protocols for rapidly developing independent GIS to assure that databases can be integrated to assist in watershed-wide water quality/quantity management. The economic and political cost for each community or county agency to develop these approaches has been an

impediment in the past. The watershed approach has allowed these cooperative programs to be established. It is anticipated that the pollution prevention initiatives required following completion of the watershed management plans would also involve joint projects.

Establishing a broad range of cooperative programs to address storm water problems across jurisdictional boundaries is in and of itself innovative. However, with the development of comprehensive watershed plans, new practical approaches to implementing total maximum daily load (TMDL) requirements of the Clean Water Act and effectively using water pollution trading options created at the state level become possible. The Rouge River National Wet Weather Demonstration Project is funding a pilot program to determine how watershed management plans can be used to meet TMDL requirements ahead of state schedules and at potentially lower costs.

The top-down, command-and-control approach often requires repeated threats or legal action by state and federal regulators to assure compliance with requirements due to lack of political will at the local level. Locally generated watershed plans containing specific action schedules that have been adopted by elected boards, commissions and councils are less likely to be abandoned or require enforcement actions to assure compliance. Peer pressure and citizen support at the local level will be sufficient incentive in most instances for each local agency to complete their responsibilities on schedule. Where legal enforcement action is required, the state and federal agencies are more likely to find support among other local agencies who have met their obligations as outlined in the joint subwatershed plan.

#### **COMPARISON BETWEEN APPROACHES: MDEQ GENERAL STORM WATER PERMIT AND THE DRAFT USEPA PHASE II STORM WATER REGULATIONS**

As stated earlier, USEPA's Phase II storm water regulations are due to be promulgated in September 1999. This section presents a comparison between the approach contained in the MDEQ General Storm Water Permit and the proposed USEPA Phase II storm water program as described in the proposed rule and fact sheets. This comparison may no longer be valid upon promulgation of the final Phase II storm water program later this year.

The fundamental approach of the MDEQ General Storm Water Permit is to rely on use of the watershed approach in addressing and correcting water quality problems caused by storm water discharges in context with other discharges and other stressors in the watershed. As stated earlier, the Rouge Project has shown that by holistically addressing all sources of pollution, an effective action plan can be implemented to address impairments and restore river uses. Storm water issues cannot be corrected in a vacuum. They must be integrated into an overall solution that addresses the physical, chemical and biological stressors in a waterway. Storm water adversely affects all three and therefore must be woven into the fabric of the overall watershed management plan and watershed control program. Without this integration, storm water control will become another "add on" program that misses an opportunity to encourage an integrated program that addresses all sources of ecosystem stress in a cost effective, prioritized manner.

USEPA has been promoting the use of the watershed approach in many policy documents. The Phase II fact sheets say that USEPA is attempting to "facilitate and promote watershed planning and to implement the storm water program on a watershed basis." Use of the watershed approach to meet the proposed specific requirements is not, however, promoted within the draft regulation package. What comes through in the Fact Sheets and USEPA comments is more of the traditional old approach. That approach is that each pollution control program is separate from any other program, i.e., storm water control is separate from control of CSOs, with little integration, that a top down approach will be followed, and that use of the watershed approach is given lip service but is not reflected in the implementation of specific requirements in the regulation. That is unfortunate at best.

Use of the holistic, watershed-based approach is working well in restoring the Rouge River water quality. The watershed approach is also working well elsewhere in the Country. General policy statements by senior USEPA officials supporting the use of the watershed approach and a flexible, bottom-up approach to

addressing water quality problems are well meaning. However, those policy statements need to be reflected in specific language that recognizes the use of flexible approaches in the actual implementing regulations. Unless that happens, problems will emerge. For example, municipalities, counties and others will be faced with decisions by individual staff in the State and USEPA Regional Offices on their interpretation of how a watershed approach to address storm water will be integrated with the other water pollution programs currently being implemented. The problems that have arisen in the past over the day-to-day implementation of programs suggest that it would be better to be more explicit in the wording in the actual regulation. Explicit language will minimize future disputes and, more importantly, will foster more effective program implementation with more tangible environmental results.

Clearly USEPA senior leadership is encouraging the use of the watershed approach in program implementation. Therefore, as municipalities, counties and other agencies implement the Phase II regulations the use of the watershed approach should be embraced and the regulatory agency representatives need to be reminded of the overarching policy directions that encourage such an approach.

## **CONCLUSIONS AND RECOMMENDATIONS**

The proposed federal Phase II storm water regulations for MS4s include some key items that must be addressed in the control of storm water. Those items include a public education/outreach program, public participation/involvement and illicit discharge detection and elimination program. The major omission in the proposed regulation is explicit encouragement for use of a holistic watershed approach in addressing storm water. USEPA has been a proponent of the use of the watershed approach in a number of its policy statements. That support should be manifested in explicit recognition of the use of the watershed approach in addressing and correcting storm water runoff issues. The Rouge Project and others have shown that by holistically addressing all sources of pollution, an effective action plan can be implemented to address impairments and restore river uses. Storm water issues cannot be corrected in a vacuum. They must be integrated into an overall solution that addresses the physical, chemical and biological stressors in a waterway. Storm water adversely affects all three and therefore must be woven into the fabric of the overall watershed management plan and watershed control program. Without this integration, storm water control will become another "add on" program that misses an opportunity to encourage an integrated program that addresses all sources of ecosystem stress in a cost effective, prioritized manner.

The question was asked "Will the new federal Phase II storm water program work?" The answer is "maybe." It definitely would work if it explicitly used language that encouraged use of the watershed approach with the theme of integrating the control programs for all physical, chemical and biological stressors in a watershed. Short of that, the program may just be another separate box of requirements that must be met in a vacuum. If that is the case, the environment will suffer. Therefore, it is strongly recommended that municipalities, counties and other agencies stress the use of the holistic watershed approach as they are implementing the Phase II storm water regulations. Insist on it in any negotiations with the permitting authorities.

Local communities in southeast Michigan and the state regulatory agency are attempting, for the first time, a consensus, cooperative approach to storm water management and regulation under the NPDES program. The Michigan General Permit is a watershed-based, general storm water permit issued under the National Pollutant Discharge Elimination System. The permit requires permittees to immediately initiate some activities such as illicit discharge elimination and to participate in watershed management planning for a self-determined subwatershed unit. The watershed management plan will form the basis for implementing watershed goals and objectives that will result in improved water quality and pollution control. This new regulatory program implements the watershed approach endorsed by USEPA and others and should facilitate watershed-based integration of control programs for different pollution sources such as storm water and CSOs which may be present with a large, urban watershed. This program empowers local government and their stakeholders in identifying problems, choosing from alternative solutions, establishing priorities and schedules, and developing common strategies with neighbors. Communities and others involved in this new program are also addressing issues such as coordination of subwatershed efforts within larger

subwatersheds. It is hoped that this effort and the work of the Rouge River National Wet Weather Demonstration Project will continue to identify and quantify the benefits of cooperative, watershed-based efforts to protect and restore our nations water resources.

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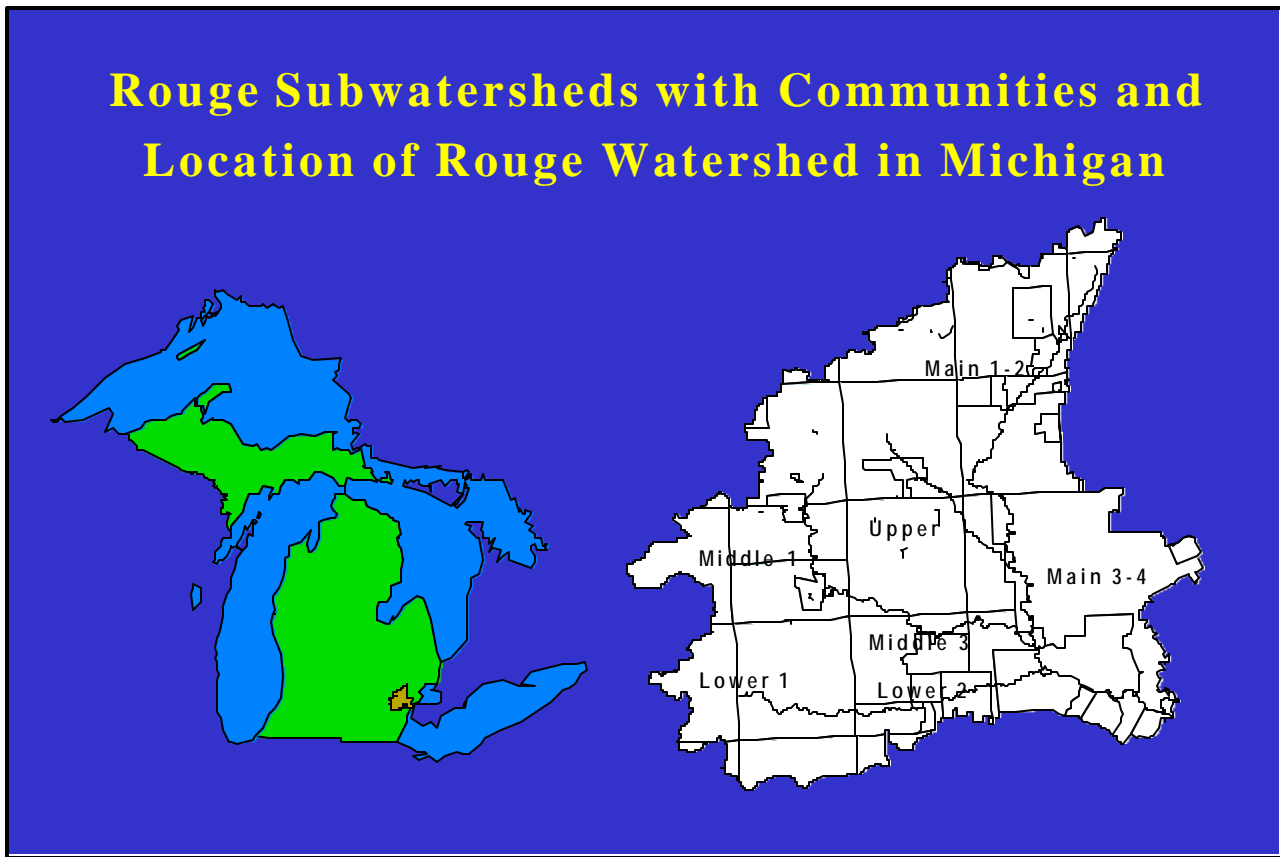
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Figure 1



**Table 1**  
**"Public Education Activities Planned for General Permit"**  
**As Identified by Upper Rouge Subwatershed Communities**

<b>Activity</b>	<b>Commerce Township</b>	<b>Farmington</b>	<b>Farmington Hills</b>	<b>Novi</b>	<b>West Bloomfield Township</b>	<b>Livonia</b>	<b>Northville Township</b>	<b>Redford Township</b>
Cable programs, video, public service announcements	x	x	x	x	x	x	x	x
City/Township newsletter series	x	x	x		x	x	x	x
Cosponsor distribution of fact sheets & brochures & business workshops			x					
Design information display board/display case/ resource center for brochure distribution		x	x	x	x	x	x	x
Develop Rouge River friendly brochures/handouts to display at township or city offices	x	x	x	x	x	x	x	x
Explore creation of Watershed Education Center at Schoolcraft College						x		
Household hazardous waste day				x				
Identify stakeholders & match programs to each					x			
Local newspaper articles				x				
Participate in Rouge Rescue w/display, educational materials & refreshments	x	x	x					
Poster contest at schools						x		
Provide information regarding available community sponsored outreach workshops			x					
Request joint Mayor-Council resolution in support of the Rouge Rescue efforts						x		
Rouge Education Project established for WQ monitoring				x				
Storm drain stenciling		x	x	x	x			
Tributary Signage at County Road & River Crossings (Wayne County Responsible)							x	
Web Page		x					x	
Homeowner Association Outreach								x
Contact schools to continue involvement in Rouge Education Program								x

**Table 2  
Illicit Discharge Elimination Activities  
Planned for General Permit**

	Activity	Commerce Township	Farmington	Farmington Hills	Novi	West Bloomfield Township	Oakland County	MDOT	Livonia	Northville Township	Redford Township	Wayne County
Legal	Review existing ordinances for adequacy of control	x	x	x	x	x				x	x	x
	Will adopt additional ordinances for control if necessary			x	x	x				x	x	x
Locating Problems	Review existing data to prioritize investigation areas	x	x	x	x	x	x	x	x		x	x
	Plan developed w/County to locate suspicious sources	x		x		x		x				
	Develop, modify, implement complaint system	x	x	x	x	x	x	x	x	x	x	x
	Procedure to coordinate complaint response/follow up	x	x	x	x	x		x		x	x	x
	Develop / use GIS for tracking complaints and/or activities				x							
	Train employees ident. & reporting of illicit discharges	x	x	x	x	x	x	x	x	x	x	x
	Mapping of storm system, jurisdictions and/or outfalls			x			x	x				
	Develop methods & forms for screening		x								x	x
	Systematic dry weather screening of outfalls or manholes	x	x	x	x	x	x	x	x	x	x	x
	Develop method to identify new outfalls from construction			x		x						x
	Establish priority of suspicious outfalls /follow-up surveys	x	x	x		x		x	x		x	x
	Upstream manholes or dye testing or televising	x		x	x	x	x	x			x	x
Minimize Seepage from Failed OSDS & Sanitary Sewers	Identify and/or map areas served by OSS			x	x	x			x		x	
	Determine feasibility of sewer extension/mitigation	x		x		x					x	
	Review sampling data to establish OSS problem areas			x		x			x			x
	Establish priorities for corrective actions of OSS								x		x	
	Proposals for sanitary sewer to address OSS problems	x			x							
	Develop agreements on OSDS evaluation program	x		x		x			x	x	x	x
	OSDS evaluation prior to sale of property			x		x				x		x
	OSDS evaluation at least every 5 years			x		x						
	Certification of Private Inspectors			x		x						x
	Inspections required at time of OSDS pumping			x		x						x
Continue sanitary sewer maintenance program	x					x					x	