Storm Water Management Plan

for

Madison County, Mississippi

January 5, 2009 – December 31, 2013

Prepared by Warnock & Associates, LLC

March 2009

Executive Summary

In accordance with 40 CFR Part 122.32 and Mississippi Law, Madison County is required to submit a storm water management plan (SWMP). The SWMP defines Madison County's plan to develop, implement and enforce a storm water management program, which is designed to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate requirements of the Clean Water Act (CWA) in accordance with the Mississippi Department of Environmental Quality (MDEQ) Phase II program. In the SWMP, six minimum control measures are addressed, as required by state regulations. The plan also identifies the County's legal authority to implement the general permit. The Re-Coverage Form for (MS4) general permit MSRMS4-031 and the subject SWMP will be submitted by March 14, 2009. The subsequent MS4 permit will cover the period from January 5, 2009 to December 31, 2013.

Legal Authority

Currently, Madison County subdivision regulations provide the County with the authority to control development within its boundaries. Its authority addresses both industrial and municipal discharges. As part of the Phase II compliance plan that has been adopted by the Board of Supervisors, we plan on updating our current regulations to meet or exceed all Phase II storm water compliance requirements.

Reporting Requirements

After each term of the permit cycle, Madison County will submit its required annual report. The report will cover the status of compliance with the permit, an assessment of the appropriateness of the BMPs and progress toward achieving the measurable goals for each of the six minimum control measures. The annual report will also include a summary of the activities that Madison County will undertake during the reporting cycle and any changes to BMPs or measurable goals and all relevant data (monitoring, etc.) obtained during the reporting period.

Storm Water Management Program

The plan includes measures that are intended to result in the reduction of pollutants to the maximum extent practicable (MEP). Those six minimum measures are outlined here. The identified water quality pollutants are fecal coliform, restaurant grease, oil and suspended solids. The six minimum controls will address the identified water quality pollutants.

The six minimum controls are:

1) Public Education/Outreach
2) Public Participation/Involvement
3) Illicit Discharge Detection/Elimination
4) Construction Site Runoff Control
5) Post Construction Runoff Control
6) Pollution Prevention/Good Housekeeping

Each measure will be addressed separately as follows.

1) PUBLIC EDUCATION and OUTREACH

Madison County has chosen a mix of best management practices (BMPs) to address the fecal coliform, grease and oil and pathogen pollutants. This control measure will target not only homeowners, but also restaurateurs, industry and the general public. The community's knowledge of and participation in the storm water management program is integral to its success. Full compliance comes with each citizen's awareness of his/her own responsibilities. These responsibilities include actions each person can take to improve the existing water quality, as well as protect area waters from future damage. Success of this measure will be identified by a reduction in practices that affect storm water quality, as well as by participation in community activities such as organized storm drain marking, stream-cleaning, and litter clean-up projects.

Minimum Measure Objective: Print and other appropriate media will be used by the County to reach the general public.

1) BMP: Storm water education for local citizens/developers/engineers & restaurant owners

Measurable Goal: The County will work hand in hand with local environmental and storm water protection agencies to provide literature and offer presentations and events to improve public awareness of storm water protection issues. The County will provide storm water protection education pamphlets/brochures at the entrances of local restaurants, offices, shops, and other public facilities that can be received by citizens. In addition, local governmental websites and news publications containing similar information will be used to educate the public. Topics may include water conservation practices, lawn and garden activities, proper disposal of household hazardous waste and trash management, and ways to become involved in the storm water program.

Justification: By having multiple methods to reach the public, the County hopes to educate all citizens on local storm water impacts.

2) BMP: The County will work hand in hand with local environmental and storm water protection agencies to offer presentations and events to support storm water education for local schools.

Measurable Goal: A minimum of 50% of all school children (grades 2-8) will be educated every 2 years on storm water pollution by providing them with handouts, posters, and live presentations, as well as other media. Topics may include water conservation practices, lawn and garden activities, proper disposal of household hazardous waste and trash management.

Justification: Educating school children on storm water and water quality practices will help promote better public awareness. The children in grades 2 and higher are more likely to understand and pass along the message to their families.

2) PUBLIC PARTICIPATION/INVOLVEMENT

Madison County public participation control measure has a significant public component. The public participation program is a key component of the public education measure. Increased public knowledge and support in the development and decision making process will minimize potential future challenges. The County will continue to provide meetings and other forms of education and outreach, throughout the permit term
Notices of meetings and opportunities to participate will be posted at the local courthouse, post office and library. A notice will also be published once a week for three weeks in the local newspaper. By posting notices in various locations, it is the goal of the County to reach all ethnic and economic groups, giving everyone an opportunity to participate. Success of this measure will be determined by a continuous increase in participation, and possibly citizens, business owners, etc., taking initiatives in their own communities to help reduce storm water impacts (neighborhood clean up days, neighborhood litter patrols, etc.).

Minimum Measure Objective: Involve local stakeholder groups, including local governments, businesses and citizens, among others, in making decisions about storm water management priorities and programs. Allow for public participation in the implementation of this program.

1) BMP: Hold public meetings to receive input on the implementation of the program

Measurable Goal: Quarterly public meetings will be held to inform the public, including local stakeholders such as developers, on storm water issues. Topics will include the progress of the program, and the following year's planned activities, in addition to the updating of any applicable ordinances.

Justification: By not only informing citizens about the program, but also including them in the implementation, it is more likely that the County will gain their support in its efforts.
2) BMP: Regulate and enforce current ordinance(s) adopted by the Madison County. Public input in compliance with/updating of ordinances

Measurable Goal: As it is needed to update or develop new ordinances, as well as when their implementation becomes an issue, public (including stakeholders such as developers) input will be sought.

Justification: Including the public in such important decisions will lead them to not only better understand how they affect the quality of storm water, but also lead to their taking a vested interest in maintaining storm water quality.

3) BMP: Marking of storm drains; stream clean up and monitoring

Measurable Goal: Volunteers will gather at regular intervals throughout the permit term to mark storm drains. Volunteers will gather at regular intervals throughout the permit term to clean local streams of debris. Volunteers will also regularly monitor local streams for debris.

Justification: By marking local storm drains, the community will be more aware of how they are affecting the storm water quality. When communities participate in cleaning streams, they realize they have a vested interest in maintaining the cleanliness of their areas.

3) ILLICIT DISCHARGE DETECTION and ELIMINATION

The illicit discharge detection measure will involve both County staff and local citizens. A map will be created and periodically updated to identify all storm sewer outfalls and all the waters that receive storm water discharges. Additional information (catch basins, pipes, culverts and other storm water structures) may also be collected. Massive amounts of information will be generated over time to identify water quality trends and generate reports.

Madison County will have access to historical sampling data. The data will be available to field personnel during inspections. This will be key in identifying those areas of the County that have a high occurrence of illicit discharges and illegal dumping.

Once an area is identified, additional steps will be taken to determine the source of the illicit discharge. Any necessary sampling and monitoring data, as well as industrial and construction SWMPs, will be obtained by the County from MDEQ for review. This data will be for reference, and if future sampling results show elevated levels of a particular pollutant then the County can focus its investigation to determine the source of the illicit discharge. Success of this measure will be determined by an overall reduction in illicit discharges and illegal dumping, in addition to refurbishment of any failing septic systems.

Minimum Measure Objective: Continue to develop and update a detailed map of the storm drain system, identify and remove illicit discharges, establish legal authority for enforcement actions, and encourage public education and involvement in eliminating illicit discharges. Also included in this measure will me methods to review existing flood plain management projects and maintain continued compliance over the course of the permit term.

1) BMP: Storm drainage system map

Measurable Goal: Continue to develop and update storm drainage system map throughout the permit term.

Justification: This map will aid the County in targeting outfalls with dry weather flows and other suspicious discharges for more in-depth inspection and monitoring and will help coordinate management activities to remove illicit connections and track storm drain system maintenance.

2) BMP: Identify illicit connections through dry weather screening/elimination of illicit discharges

Measurable Goal: Dry-weather surveys will be conducted to identify non-storm water flows. Once each year's survey is complete, areas with suspicious discharges will be inspected to detect suspected direct connections to the storm water system and identify areas where wastewater might be leaking into adjacent storm drainpipes. When an illegal connection is identified, the County governing body will inform the contractor in writing. Once informed, the contractor will be required to take action within 30 days or face a fine or other such penalty as outlined in the ordinance.

Justification: By identifying areas with suspected direct connections of wastewater discharge lines into the storm water system, these areas can be effectively eliminated. Elimination of illicit discharges/connections will lead to improved overall water quality.

3) BMP: Identify illegal dumping areas

Measurable Goal: Areas that have been identified by the County as having significant illegal dumping will be identified and signs will be posted stating possible fines for dumping refuse in these areas. County personnel will monitor the areas on a regular basis in order to enforce the measure.

Justification: By identifying these areas and imposing fines for illegal dumping, the goal of the County is to eliminate areas of illegal dumping.

4) BMP: Identify failing septic systems

Measurable Goal: Septic systems of homes and businesses will be inspected. Those homes and businesses that have systems identified as failing or suspected of failing in the future will be given recommendations on possible corrective actions.

Justification: By identifying these failing systems, corrections can be made and any further burden on storm water will be eliminated.

5) BMP: Inform County employees, the public and businesses on illegal dumping

Measurable Goal: In coordination with the Public Education/Outreach and Public Involvement/Participation minimum measures, information will be passed along to the above mentioned parties on the storm water-related hazards associated with illegal dumping and illicit discharges. There will also be opportunities to participate in activities, such as marking of storm drains.

Justification: By educating County employees, the general public and local businesses, the County's goal is to further stress the importance of responsible waste handling. As a part of this effort, and in coordination with the Public Education/Outreach and Public Involvement/Participation, Madison County continues to show relevant County employees the *Just Passing Through* videotape.

6) BMP: Ordinance

Measurable Goal: A County Ordinance has been adopted, prohibiting non-storm water discharges not allowed by the MS4 General Permit into the storm sewer system.

Justification: An ordinance has and will continue to allow the County to effectively enforce measures to eliminate illicit discharges into the storm sewer system.

4) CONSTRUCTION SITE RUNOFF CONTROL

Madison County recognizes that construction sites can generate a significant amount of silts and sediments in a short period of time. The Phase II rule requires Madison County to develop and enforce a storm water management program. Madison County has chosen to implement an Erosion and Sediment Control (ESC) Plan to reduce construction pollutants in its storm water runoff. The plan requires that land disturbance of one or more acres are regulated. It also requires developers to submit a plan designed by a qualified Professional Engineer that contains measures to reduce soil erosion and practices to control sediments that have already eroded. Additionally, ESC requires the submittal of construction plans prior to commencement of construction. If construction commences prior to the submittal and approval of the plans, potential heavy fines will be levied. The ordinance then requires the developer to install and maintain those specified measures and practices agreed to in the plan. Sites may be inspected for compliance and if found lacking, an inspector may issue a permit violation, stop work order, fine or other measure to ensure compliance. In coordination with the Public Education/Outreach and Public Participation/Involvement minimum measures, receipt and consideration of information submitted by the public will occur at the series of public hearings that are a part of the process of adopting/implementing new ordinances. The County also feels as if the other public education/outreach and participation/involvement efforts will also provide valuable feedback from the residents, business owners and developers in the form of verbal comments, which will be noted by presenters and addressed in the appropriate way. If, in the process of implementing the SWMP, the County feels it necessary to pursue another means of gathering information and comments from the general public, including local business owners and developers, such efforts will be noted and an appropriate course of action will be considered. Success of this measure will be identified by the identifiable reduction in construction pollutants that occur in the storm water runoff.

Minimum Measure Objective: Establish a set of minimum erosion and sediment control (ESC) requirements for construction sites that disturb one acre or more. These requirements include planning, installation, inspection and maintenance of ESC practices. Appropriate BMP measures shall be utilized to insure adequate erosion and sediment control at the construction sites. Erosion control BMP measures in the planning stage shall promote phased construction development, as feasible, to minimize the extent and time that disturbed area is barren and susceptible to erosion. The County shall monitor earthwork operations to insure that the contractor concludes grading operations in a reasonable and timely manner. The contractor shall provide adequate and sustainable vegetative growth as soon as possible. If adequate grassing cannot be achieved by typical seeding and mulching methods due to site conditions, solid sod may be considered on a case by case basis by the County. Rip rap of sufficient size shall be used, as required, to dissipate energy and reduce velocity of storm-water discharge and prevent soil erosion at culvert outlets. As part of the County's review and approval process, drainage studies for pre and post development conditions should be performed by a professional engineer, in behalf of the contractor. Proposed drainage structures and impacted existing drainage structures should be designed by the Engineer for appropriate design storm frequencies and installed properly by the contractor. Adequate culvert sizes will minimize wash-outs of roads and roadbed materials during large storm events. The culverts shall be constructed with adequate end treatments to prevent undermining of the culvert outlets.

Silt fence and erosion checks (hay bales) shall be designed and installed according to the approved erosion and sediment control plan.

1) BMP: Training of County personnel and contractors

Measurable Goal: All County personnel and contractors that have dealings with storm water related issues will continue to receive educational training on issues related to storm water management. These efforts will be coordinated with the Public Involvement/Outreach measure efforts.

Justification: Educating County personnel and contractors about the proper selection, installation, inspection and maintenance of BMPs will help to ensure compliance with ESC requirements. Madison County continues to show relevant County employees the *Just Passing Through* videotape. The County will distribute educational videos and notification of training courses for contractors and developers that currently conduct business within the County.

2) BMP: Mandatory pre construction meetings/review of construction plans

Measurable Goal: Upon submittal of construction plans for approval by the appropriate County personnel, representatives from the developer's engineers and contractors will be required to meet with County engineer or public works director in order to ensure awareness that they are required to follow storm water management practices, including erosion and sediment control measures. These plans will include consideration for any potential water quality impacts, which will also be reviewed. Also considered under this measure will be any concerns the public may voice relative to any construction activities.

Justification: By meeting with the above mentioned parties face-to-face, the County believes it can further stress the importance of following the measures necessary to reduce storm water impacts, as well as be certain the contractor is aware that he must follow these practices.

3) BMP: Madison County issued Construction Site Storm Water Runoff Control Permit

Measurable Goal: All construction will be required to obtain the Permit prior to commencement of construction. This permit will include the requirement that all construction site operators implement ESC BMPs, including the appropriate controls for waste (discarded building materials, concrete truck washout, chemicals, litter and sanitary waste).

Justification: This will provide tighter reigns on construction and development in Madison County in an effort to protect the integrity of local storm water with respect to erosion and other storm water impacts.

4) BMP: Periodic inspections

Measurable Goal: Local County construction inspectors will fill out periodic inspection reports that have been adopted by the Board of Supervisors. Once completed, the County engineer or public works director, who will advise on any necessary actions that need to

be taken, will review these inspection reports. Should any improvements be needed, the contractors will be required to do so within an allotted period of time, and an additional inspection will then be performed. All sites will be periodically inspected, regardless of nature of construction activity, topography, soil characteristics and receiving water quality.

Justification: This will provide an additional level of oversight on construction activities.

5) BMP: Ordinance

Measurable Goal: A County Ordinance has been adopted that requires erosion and sediment controls, including enforcement measures.

Justification: The ordinance will continue to allow the County to effectively enforce measures governing construction site storm water runoff controls.

5) POST-CONSTRUCTION RUNOFF CONTROL

Madison County will address the Post-Construction Runoff Measure with both structural and non-structural BMPs. The controls seek to use *Green Infrastructure* methods to reduce the amount of impervious cover in all new and redevelopments by increasing natural land sets aside for conservation and to use pervious areas for more effective storm water management. There will also be an attempt made to coordinate with the County's Smart Growth Initiative. Success of this measure will be identified by the maintenance of pre-development water quality standards within the County.

Minimum Measure Objective: Establish, install and maintain structural storm water controls by disconnecting impervious surfaces, therefore reducing the volume and increasing the quality of storm water runoff and maintaining pre-development runoff conditions.

1) BMP: Develop a program to maintain structural BMPs

Measurable Goal: Madison County will maintain a record of the permits issued for development throughout the county. These records will be used to develop an inventory of significant sources and locations that will require monitoring and post-construction runoff control until which time adequate vegetation has been established to insure long-term sedimentation and erosion control.

Justification: The goal of the County is to ensure the proper implementation and maintenance of all structural BMPs. Maintaining this database and incorporating the information into the storm water base map can assure the County their efforts are effective through regular inspections.

2) BMP: Hold annual Post Construction Field Inspections until all Bonds or Letters of Credit are cleared by Madison County.

Measurable Goal: Develop a database of all Letters of Credit or Bond currently on file with the County. Continue to update database as developments are filed with the County. Hold pre-construction and post-construction meetings to make the stakeholders aware of this requirement.

Justification: By requiring a Letter of Credit or Bond, the County hopes to make certain the developer maintains storm water and construction integrity.

3) BMP: Regulate and enforce the adopted Ordinance in regards to Post Construction Runoff Control

Measurable Goal: Continue to regulate and enforce the ordinance adopted by the County governing post-construction runoff control. This ordinance includes appropriate structural and nonstructural BMPs approved for the control of storm water runoff. The County should consider any measures necessary to direct growth, protect sensitive areas, maintain or increase open space, provide water body buffers, minimization of impervious surfaces after development, minimization of directly connected impervious areas, etc. Penalties for non-compliance shall be assessed by the County.

Justification: Ordinances are an effective way to establish performance standards for runoff controls, including appropriate structural and nonstructural BMPs.

4) BMP: Education for developers/the public

Measurable Goal: Education on project designs that minimize water quality impacts will be incorporated into the Public Education/Outreach measure

Justification: By educating on methods to minimize water quality impacts through project design, the County can further ensure the pre-development water quality is maintained.

5) BMP: Assess fee

Measurable Goal: Upon submittal of preliminary plat for approval, Madison County will continue to assess a fee to the developer/builder, which will be used for any necessary maintenance for permanent structural BMPs. The check or money order from the developer/builder for this purpose will be filed in county records prior to authorization and recording of the final plat.

Justification: The question of permanent structural BMP maintenance is often an issue. By assessing fees, the County can assure that these BMPs are appropriately maintained, minimal or no cost to the County.

6) POLLUTION PREVENTION/GOOD HOUSEKEEPING

Madison County Pollution Prevention/Good Housekeeping Measure for municipal operations program goal is to reduce pollutant runoff from municipal operations. The vehicle maintenance program requires that all County-owned vehicles be regularly inspected to eliminate the amount of oil, grease, and fluid leaks. The vehicle list will be posted and available for public viewing. Trouble outfalls will also be evaluated regularly. Information on Integrated Pest Management (IPM) for the County will help employees find alternatives for traditional chemical pesticides. The information will inform employees on non-chemical pest control, and removal of pest by non-chemical means. Information on lawn pesticide application will be offered to municipal employees. Success of this measure will be determined by a reduction in the amount of nutrients entering receiving waters.

Minimum Measure Objective: Reduce the amount of nutrients entering receiving waters through education of municipal employees about lawn care activities, spill prevention and control, and vehicle washing. These education efforts will be incorporated with the Public Education/Outreach and Illicit Discharge Detection/Elimination measures

1) BMP: Training of County personnel

Measurable Goal: Develop a pollution prevention workshop for all County employees responsible for grounds maintenance and landscaping at public facilities. Once per year, hold an additional workshop for new employees and crew managers. Topics will also include fleet and building maintenance, new construction, storm water system maintenance and other land disturbances. This will be done through the utilization of materials available from the Environmental Protection Agency (EPA), the state or other organizations.

Justification: Because of the use of substantial quantities of water and artificial chemicals, there are elevated levels of nutrients and toxics in receiving waters. By emphasizing the benefits of recycling organic matter, reducing the use and planning the timing of application of chemicals and water, etc., grounds and maintenance crews can become better aware if ways they can help reduce these pollutants.

2) BMP: Improvements in County operations

Measurable Goal: Identify possible improvements where needed in County operations, such as vehicle maintenance and washing, road and bridge maintenance, parking lot and street cleaning, spill prevention and response, hazardous materials storage, handling and disposal, and oil recycling. Specific controls for reducing the storm water impacts of these operations will be considered and adopted by the County, as well as methods to track and oversee maintenance activities, schedules and long-term inspection procedures in order to reduce pollutants to the MS4.

Justification: The by-products of these County operations can have a significant effect on the quality of storm water. Improving the way these County operations are carried out can lead to fewer impacts on the storm water.