



# Mississippi Department of Environmental Quality 2010 Annual Report



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**STATE OF MISSISSIPPI**  
HALEY BARBOUR, GOVERNOR  
**MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY**  
TRUDY D. FISHER, EXECUTIVE DIRECTOR

February 1, 2011

The Honorable Haley Barbour  
Governor, State of Mississippi  
Post Office Box 139  
Jackson, Mississippi 39205

Dear Governor Barbour:

I hereby submit to you the annual report for the Mississippi Department of Environmental Quality for the state fiscal year ending June 30, 2010, and additional information about the agency for calendar year 2010.

The programs and initiatives promulgated by the agency further our mission to protect human health and the environment. The staff at the Mississippi Department of Environmental Quality are committed to conserving and improving our state's abundant natural resources and will continue to work together to achieve our mission in spite of the state's revenue challenges. We are proud to be the steward of the state's air, land, and water which provide a multitude of benefits for our citizens.

The effective response by MDEQ and other state agencies to the Deepwater Horizon 252 oil spill in 2010 is a milestone for dedicated employees in the public sector. I am proud of our staff's work on behalf of our state and our state's beautiful Gulf Coast. We will strive to continue that protection and ensure proper restoration through the ongoing Natural Resource Damage Assessment process.

We appreciate your support and hope you find this report useful and informative.

Sincerely,

A handwritten signature in black ink, appearing to read "Trudy D. Fisher".

Trudy D. Fisher  
Executive Director

TDF:jar  
cc: Lieutenant Governor Phil Bryant  
cc: Members of the Mississippi Legislature

# Mississippi Commission on Environmental Quality

**Chairman:** Jack Winstead - 3rd District

**Vice Chairman:** Martha Dalrymple - 2nd District

R.B. (Dick) Flowers - 1st District

Charles Dunagin - 4th District

Howard McKissack - 5th District

Chat Phillips - At Large

W.J. (Billy) Van Devender - At Large



## Mission Statement

The mission of the Mississippi Department of Environmental Quality is to safeguard the health, safety, and welfare of present and future generations of Mississippians by conserving and improving our environment and fostering wise economic growth through focused research and responsible regulation.

## Values

- Truth is the foundation of everything we do.
- We vigilantly resist bias and prejudice.
- We respond promptly, courteously, and as completely as possible to every complaint question, or request for assistance.
- Inside the agency, we respect the capabilities, responsibilities, and contributions of every member of the MDEQ family. Outside the agency, we respect everyone, regardless of who they are or why we are brought together.
- We strive for a secure, stimulating, rewarding work environment in which all member of the MDEQ family are empowered and encouraged to reach their full potential.
- We are committed to the highest standards of performance in every aspect of our jobs.
- We are accountable, individually and collectively, for effective, efficient management and use of the resources provided to accomplish our mission.



## DEEPWATER HORIZON [MC-252] INCIDENT

The Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Department of Marine Resources (DMR) led the state response to protect the vital natural resources of Mississippi's Gulf Coast from the Deepwater Horizon [MC- 252] incident.

Immediately after the oil spill, MDEQ became a part of Unified Command (BP, U.S. Coast Guard, DMR, EPA, among others) and worked with the Governor's Office, local officials, and contractors to ensure Mississippi's natural resources and livelihoods were protected. This effort included creating several lines of defense, starting outside the barrier islands, continuing through the Mississippi

Sound, and ending with physical barriers in the most sensitive areas. Consistent with the area contingency plan, the first priority for protective boom was estuaries and marshes, which are the natural nursery areas for many kinds of marine



life including shrimp, crabs, oysters, and fish. MDEQ and DMR staff regularly checked the boom by air, with the assistance of the National Guard, and by boat for any problems or repair needs.



Other roles for MDEQ staff included regular aerial surveys, with the assistance of the Mississippi National Guard and the Civil Air Patrol, of oil materials in the Mississippi Sound and around the Barrier Islands, sampling of water and air, responding to questions and concerns from the public and local officials about immediate issues such as material spotted, odors, fish kills, or wildlife. Activities also included beach surveys and monitoring of beach cleanup activities, issuing advisories or closures for

beaches, and serving as members of Shoreline Cleanup Assessment Technique Teams. MDEQ also managed the use of skimmers leased and purchased by the State of Mississippi for use in state waters.

MDEQ and DMR biologists sampled multiple sites to document pre-spill conditions of the coastal ecology to provide a baseline of information to judge damages caused by the spill. MDEQ and DMR also conducted extensive environmental monitoring from May through September to document the condition of the state's coastal waters and search for the presence of oil and oil-related materials.



MDEQ monitored ground-level ozone continuously during the oil spill at its monitoring sites located in Waveland, Gulfport, and Pascagoula.

Fine particulate matter ( $PM_{2.5}$ ) was also monitored continuously at Waveland and Gulfport. MDEQ issued daily air quality forecasts and reported ozone and  $PM_{2.5}$  data to the EPA AIRNOW website. MDEQ cooperated with EPA to allow EPA to monitor Volatile Organic Compounds (VOCs) and Polycyclic Aromatic Hydrocarbons (PAHs) daily at the Waveland and Gulfport sites. In addition, EPA monitored  $PM_{2.5}$  continuously at the Pascagoula site. Although



there were reports of odors, the VOC and PAH data showed that levels remained well below chronic and human health screening levels. Also, ozone and PM<sub>2.5</sub> levels were elevated at times but remained below the National Ambient Air Quality Standards for both pollutants. MDEQ participated in frequent conference calls with EPA and the other oil spill states' environmental and health agencies concerning updates of air monitoring results, dissemination of air pollution information to the public, and oil spill response efforts.

Beginning August 17, MDEQ, in coordination with the Unified Incident Command in Mobile, launched an initiative to systematically sample for submersed oil in the Mississippi Sound. This intensive effort extended from Mobile Bay to the Louisiana stateline. This plan, employing Vessels of Opportunity and six of the state-owned skimmers, used three separate and unique tactics to investigate the existence of submersed oil in the Mississippi Sound. The sampling results have so far not shown any recoverable quantities of submersed oil.

Exhaustive sampling efforts by state and federal agencies began in May and continue today to ensure seafood safety and reassure the public. Results from hundreds of state samples and thousands of federal samples continue to indicate that seafood is safe for human consumption.

At the end of 2010, MDEQ continued to send staff to Gulf Coast-Incident Management Team in New Orleans and to the Coast for emergency response efforts, albeit at a reduced level. Cleanup activities continue on the Barrier Islands, managed by the National Park Service, and on Mississippi beaches removing existing oil and tar balls which continue to come ashore in small quantities.



## NATURAL RESOURCE DAMAGE ASSESSMENT

Natural Resource Damage Assessment (NRDA), is the legal process for identifying and quantifying damage to Mississippi's natural resources resulting from the Deepwater Horizon oil spill. The assessment provides the structure by which the state will plan and implement restoration of the Gulf Coast and compensation for the damages done to its natural resources. NRDA actions are designed to compensate the public for past injury, interim injury before the oil was contained, and residual harm to natural resources after containment.



Mississippi Department of Environmental Quality Executive Director, Trudy Fisher, has been appointed as the state's natural resource trustee by Governor Barbour, and has the authority to assess damages to natural resources and to collect compensation on behalf of the State of Mississippi.

Using a team of scientists and other subject experts, MDEQ is working with local governments, state and federal agencies, residents, industry, business owners, and responsible parties to develop a comprehensive, data-driven assessment of the type and extent of damage to assess the damages and to calculate injuries to wildlife, habitat, and lost human use of those resources. MDEQ will also determine the appropriate restoration and compensation for damage or lost use and will implement a comprehensive restoration plan.



Establishing a comprehensive restoration plan involves compiling all the data to determine case-specific needs and details. Once all data is compiled, a draft restoration plan will be developed and offered for public review and comment. Upon approval of the plan, a claim will be made for funds from the responsible parties. These funds will be used to implement projects designed to both restore and compensate for the injured natural resources as well as the human use losses associated with public lands.

More information about MDEQ's role in the NRDA process can be found at [www.deq.state.ms.us/nrda](http://www.deq.state.ms.us/nrda).



## MISSISSIPPI GULF REGION WATER AND WASTEWATER PLAN

During 2006, the Mississippi Department of Environmental Quality developed the Mississippi Gulf Region Water and Wastewater Plan (Plan) as directed by Governor Barbour in response to Hurricane Katrina. This plan recommends approximately \$600 million to fund water and wastewater projects in Pearl River, Stone, Jackson, Harrison, and Hancock Counties, to (1) support existing and future growth patterns, particularly as realized through new housing construction, (2) promote economic development, and (3) emphasize the regional concept for infrastructure management. The funding is provided by the U.S. Department of Housing and Urban Development (HUD) through Disaster Recovery Community Development Block Grants (CDBG).



Final engineering designs and all clearances for the Environmental Review Records have been completed for all projects. Significant progress has been made with land acquisition in obtaining the necessary parcels and easements for the projects.



Environmental permits necessary for construction have been issued including: National Pollutant Discharge Elimination System (NPDES); State of Mississippi Water Pollution Control Operating; COE's 404 wetlands; 401 water quality certifications; and groundwater withdrawal permits.

All projects have been advertised, received construction bids, and commenced construction. It is anticipated that 40 projects will be substantially complete by the end of 2010, and 59 complete by July 2011. The remaining few projects are projected to extend into 2012.

The projects being constructed include 17 wastewater treatment facilities, 32 water wells, 32 elevated storage tanks, 50 sewage pumping stations, and over 500 miles of water and sewer mains.

MDEQ has reimbursed approximately \$400 million in project related expenditures through the end of 2010. The County Utility Authorities (CUAs) averaged incurring approximately \$15 million per month on construction related expenditures during 2010.

Next year, 2011, will be another busy year for construction. With upwards of \$200 million in 2011 in completing the CDBG Gulf Region water and sewer infrastructure projects. Many projects will begin the closeout process next year as well; and grants with some of the CUAs and cities will be closed out.





## AIR QUALITY

### Air Quality Standards and Planning

Mississippi has historically attained all federal ambient air quality standards. However, new, more stringent federal standards for ground-level ozone, nitrogen dioxide, sulfur dioxide, lead, and visibility recently promulgated by the U.S. Environmental Protection Agency (EPA) are jeopardizing the track record. Increased planning and monitoring efforts will continue for several years because of these changes.



Emissions reductions in Mississippi and adjoining states, as well as favorable meteorological conditions, resulted in a recent downward trend in ozone concentrations culminating with all Mississippi counties being designated by EPA as attainment with the ozone standard of 84 parts per billion (ppb) in 2004. In 2008, EPA issued a new ozone standard of 75 ppb. However, in January 2010, EPA proposed a range of 60-70 ppb. If the standard is lowered, several counties in Mississippi may be designated as nonattainment with the new standard. Final designations for the new standard will be made in December 2011.

MDEQ is continuing a voluntary ozone precursor air pollution control program in partnership with governmental and business leaders on the Coast and in DeSoto County in efforts to prevent or mitigate future nonattainment.



In 2008, EPA issued new lead standards that will require MDEQ to monitor for lead starting in 2011 to determine if the state will meet the new standards. In addition, EPA has proposed new standards for nitrogen dioxide and sulfur dioxide. Nitrogen dioxide designations will be made by January 2012 and sulfur dioxide designations are due by June 2012. These new standards will also require additional monitoring of nitrogen dioxide and sulfur dioxide by January 2013. Proposed standards for particulate matter and carbon monoxide will be issued in early 2011.

MDEQ issues daily air quality forecasts for the Mississippi Gulf Coast from April through October each year. Also, MDEQ, in association with the Memphis-Shelby County Health Department, issues air quality forecasts for DeSoto County. Starting in April 2011, MDEQ will issue daily air quality forecasts for the Jackson Metropolitan Area. These forecasts are made available through e-mail as well as the MDEQ website. The purposes of these forecasts are to keep the public informed about the status of air quality, to issue health advisories when needed, and to notify the members of the respective ozone precursor reduction programs when they should implement their emissions reduction plans.

### Southeast Modeling, Analysis, and Planning (SEMAP)

Mississippi is working with nine other southeastern states to address the many new air quality standards that have or will come out in a more efficient and effective way. The SEMAP group, which several MDEQ staff members are part of, is addressing the new standards from a regional perspective. This is necessary because air emissions from Mississippi may impact other states' air quality and other states' can impact Mississippi's air quality. It is also more efficient and cost effective because the group can hire contractors to help develop inventories and perform air quality modeling and analysis for much less than each state trying to do the work on their own. The group is currently working on the air emission inventory necessary for the modeling and analysis that will be done during the 2011 calendar year.



## Greenhouse Gas Regulation

In December 2009, EPA found that elevated atmospheric concentrations of six well mixed greenhouse gases (GHGs) taken in combination, endanger both public health and welfare (“the endangerment finding”). The Environmental Protection Agency has since promulgated several new regulations relating to Greenhouse Gases. These new regulations will trigger large stationary sources to be subject to GHG permitting requirements beginning January 2, 2011. MDEQ adopted EPA’s tailoring rule, which set thresholds for Greenhouse Gas (GHG) emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities. Without this tailoring rule, PSD and Title V permitting would be triggered at the threshold level of 100/250 tons per year for GHGs which would require millions of new permits nationwide. The tailoring rule increases the GHG applicability threshold so that only the larger emitting sources will be subject to regulation. The GHG regulations will be implemented in two initial phases. Step 1, which occurs from January 2, 2011, to June 30, 2011, and Step 2 which begins July 1, 2011, will for the first time trigger permitting for GHGs alone.

## Air Support Branch

### Emission Inventories

The Air Division develops an inventory that quantifies the air emissions from various sources each year. Every third year EPA requires a complete inventory that quantifies emissions from all major Title V sources on a detailed level and estimated emissions from smaller stationary and mobile sources. Calendar year 2008 was a year that required a complete submittal which was due June 1, 2010. This work involves gathering the emissions data from the sources, quality assuring it, and submitting it to EPA in a prescribed format. The 2008 inventory was particularly challenging because of changes to the EPA inventory system that we submit to and an increase in the degree of detail that was required for hazardous air pollutants (HAPs). For 2008 EPA changed their inventory system and prepopulated it with historical facility data. In order to successfully submit emissions data, MDEQ updated the information in the EPA system with current facility information. This required training on the new system and a significant amount of work. MDEQ were also requested to submit information on HAPs on a more detailed level. This increased the amount of information that had to be gathered from the sources and verified prior to submittal. MDEQ successfully submitted the Mississippi inventory prior to June 1, 2010.

### The Mississippi Diesel Emissions Reduction Project

The Air Division began the Mississippi School Bus Retrofit Project in the spring of 2009. Utilizing Diesel Emission Reduction (DERA) State Grant funds from EPA’s Clean Diesel Campaign and Supplemental Environmental Projects, MDEQ initially planned to retrofit approximately 225 public school buses. With an additional \$1.7 million from the American Recovery and Reinvestment Act (ARRA), MDEQ expanded the project to over 1750 buses across Mississippi. MDEQ paid for the installation of diesel oxidation catalysts (DOC) on public school buses built from 1998 to 2003. DOCs are an EPA verified technology, built into a new muffler, which use a chemical process to break down pollutants in the exhaust stream into less harmful components. The addition of DOCs can remove up to 40 percent of the PM, 70 percent of the VOC, and 40 percent of the CO from the tailpipe emissions. Installation of the DOCs began in July of 2009. By November 30, 2010, over 1750 buses were retrofitted in 100 school districts. This successful project has been particularly beneficial to the school children that ride the buses everyday. In conjunction with this program, the Air Division has been working with



the Department of Education to reduce the amount of time that school buses idle unnecessarily which will further reduce exhaust emissions.

### **Mississippi Auxiliary Power Unit Purchase Assistance Project**

In 2010, MDEQ used Diesel Emission Reduction (DERA) State Grant funds to create an Auxiliary Power Unit Purchase Assistance Project to assist the owners of 65 heavy duty diesel vehicles purchase EPA/CARB certified auxiliary power units (APU). An APU reduces emissions from heavy duty vehicles by providing electrical power for the heating and cooling of the cab, decreasing the need to idle the vehicle. By reducing idle time it will also results in fuel savings. MDEQ paid fifty percent, up to a maximum of \$4,000 per unit, for the purchase and installation of EPA/CARB certified APUs on trucks authorized by MDEQ.

### **Mississippi Diesel Emissions Reduction Project State Grants**

MDEQ will use Diesel Emission Reduction (DERA) State Grant funds in 2011 to fund a competitive sub-grant program in which entities apply for funding by submitting an application following a request for proposals. Entities will propose diesel emission reduction strategies and will be encouraged to provide matching funds for their projects. Projects that can be funded include engine repowers, engine upgrades, engine replacement, retrofitting of equipment, cleaner fuels, or idle reduction technologies. Successful diesel emission reduction project applicants will propose to implement projects that are the most cost-effective and beneficial for air quality. Eligible entities for this project include universities, private organizations, non-profit organizations, businesses, and any county, city, and other local governments.

### **Air Monitoring**

During Fiscal Year 2010, MDEQ operated a network of automated continuous air analyzers and 24-hour manual samplers for the purpose of measuring ambient air levels of ozone, particulate matter, sulfur dioxide, and nitrogen oxides.

This monitoring network serves many purposes to:

- Determine attainment and nonattainment areas for ground-level ozone and particulate matter.
- Generate data to assist in determining methods to reduce visibility obscuration.
- Support ozone reduction programs and hazardous air pollutant programs.
- Determine general air quality trends.



### **Asbestos**



MDEQ implements regulations to protect against the harmful hazardous air pollutant asbestos, which is a known human carcinogen. The regulations apply to most non-residential building demolition and renovation operations and require work practices designed to prevent air emissions of asbestos. Implementation activities primarily involve communicating the requirements of the regulations, educating home owners for safe activity, and inspection of building demolition and renovation projects to monitor compliance with the regulations.

The agency implements regulations that require accredited training of individuals who perform asbestos abatement activities. Such individuals are issued MDEQ certification for their qualifying asbestos abatement work discipline. Also, MDEQ works to protect school

children and school employees from unsafe conditions by performing inspections and ensuring that school asbestos management plans, and school operations conform to the requirements of the regulations. During 2010, MDEQ inspected 379 demolition and renovation operations and investigated 42 complaints. There were also 1319 applicants who received certification to perform asbestos abatement and asbestos management plan inspections were performed at 42 schools.



## **Air Toxics**

Many facilities are regulated for air emissions that may cause acute or chronic health conditions. These hazardous air pollutant (HAP) emissions are primarily controlled or reduced under what is known as maximum achievable control technology (MACT) standards. Facilities typically must install additional control equipment and/or change process equipment or materials in order to reduce HAP emissions and comply with the standards. There are 174 such standards affecting the larger emission rate (major source) facilities. Also, for the smaller HAP emission rate facilities, there are another 70 area source standards that may apply. MDEQ implements these regulations to approximately 200 major sources and thousands of area sources. The types of affected facilities range from large chemical plants and petroleum refineries to small dry cleaners, gasoline stations, and auto body shops.

Air toxic activities also include the implementation of accidental release prevention regulations. Certain chemicals used by facilities in communities across Mississippi could become very dangerous should there be an uncontrolled release. The regulated facilities are evaluated for appropriate measures to prevent releases and also for their preparedness to minimize the consequences of a release should one accidentally occur. These facilities are required to have an active risk management program and must submit a summary of that program call a risk management plan (RMP) for MDEQ review. Inspections are also performed to review and monitor facility compliance with the regulations. During 2010, there were 142 active regulated facilities and 18 facility inspections performed.

## **Title V Program**

Mississippi received full approval from EPA in January 1995 to administer the Title V Air Operating Permit program. This program originated in the amendments to the Clean Air Act enacted in 1990. Each major source of air pollution is required to obtain a Title V Operating Permit which sets out all air requirements applicable to the source and specifies the methods by which the source must demonstrate compliance. All aspects of Title V permitting are handled by the Environmental Permits Division, while all compliance certifications and demonstrations are handled by the Environmental Compliance and Enforcement Division.

The Air Division meets regularly with the Advisory Council to keep them updated with the Title V work and the level of effort. The Air Division evaluates the annual revenue and expenditures and the Air Advisory Council uses this data to recommend the Title V fee for the next year. The revenue needs are reported to the Commission on Environmental Quality so that the appropriate fee rate can be adopted prior to the September 1 annual fee payment date. The Air Division also handles the collection of emissions information from fee-subject sources and provides this fee-assessment information to the MDEQ Office of Administrative Services which handles fee billing and collection.

## **Lead-Based Paint Program**

The Lead-Based Paint Program's scope establishes procedures and requirements for the accreditation of lead-based paint activities training programs, procedures and requirements for certification of inspectors, risk assessors, project designers, supervisors, workers, renovators, dust sampling technicians and firms engaged in lead-based paint activities and work practice standards for performing such activities. These regulations are applicable to all persons engaged in lead-based paint abatement and renovation activities in target housing and child-occupied facilities.

### Lead-Based Paint:

- Lead is a heavy metal which is believed to have been a serious public health problem for centuries. This problem is especially serious for the children that are six years of age and under. This problem is also serious for a developing fetus.
- Lead from paint, dust and soil can be dangerous if not managed properly.
- Even children that seem healthy can have high levels of lead in their bodies.
- People can get lead in their bodies by breathing or swallowing lead dust, or by eating soil or paint chips with lead in them.

### Certification:

No person may engage in lead-based activities unless they hold a valid certificate from the Commission on Environmental Quality. No firm shall employ any person on lead-based paint activity who does not possess a current certificate issued by the Commission.

During the FY 2010, the MDEQ Lead-Based Paint Section performed 41 inspections and certified 330 individuals and firms (174 abatement, 156 renovation) involved in lead-based activities.

Another important step in the goal to eliminate childhood lead poisoning by 2010 was taken with the publishing of EPA's Renovation, Repair, and Painting final rule in the Tuesday, April 22, 2008, publication of the Federal Register (Vol. 73, No. 78). The rule addresses lead-based paint hazards created by renovation, repair and painting activities that disturb lead-based paint in target housing and child-occupied facilities. The rule establishes requirements for training renovators, other renovation workers, and dust sampling technicians; for certifying renovators, dust sampling technicians, and renovation firms; accrediting providers of renovation and dust sampling technician training; for renovation work practices; and, for record keeping. It also includes requirements for a pre-renovation education program and includes provisions to allow states to seek delegation of the federal program. After passing enabling legislation and with Commission approval, the State applied for and received delegation of the federal program from the EPA effective April 9, 2010.



Lead-based paint inspection and removal.

## **WATER RESOURCES**

### **Total Maximum Daily Loads**

A total maximum daily load (TMDL) is the greatest amount of a pollutant that a water body can accept and still meet water quality standards for protecting public health and maintaining the designated beneficial uses of those waters for drinking, fishing, swimming, and recreation. A TMDL specifies how much of that pollutant can come from point sources, such as industry and communities, and nonpoint sources, such as storm water runoff from urban areas or agriculture. The TMDL provisions require states to identify and list water bodies that are not meeting water quality standards and provide direction for restoring the nation's waters.

Under Section 303(d) of the Clean Water Act (CWA), states are required to develop a list of waters that are not in compliance with water quality standards and establish a total maximum daily load (TMDL) for each pollutant causing the impairment. MDEQ, biennially, creates a list of these impaired waters called the 303(d) List of Impaired Waters. MDEQ's 2010 list is pending approval from EPA.

As of July 2009, MDEQ fulfilled a federal consent decree requirement that mandated 2700 TMDLS be completed by 2009. Because MDEQ is no longer under this consent decree, expanded efforts for more accurate data collection have been underway. In 2008, the Mississippi Benthic Index of Stream Quality (M-BISQ) was recalibrated using data and information collected from 2001-2006. Under the guidelines of this updated biological monitoring methodology,

MDEQ continues to sample biological communities to provide an indicator of instream water quality. In addition to the biological sampling, the TMDL program has conducted more in depth diel sampling (24 hour data measurements) of several water quality parameters. By utilizing these combined data collection efforts, MDEQ has been able to better identify the overall health of several water bodies.



Airboat on Pearl River Study

### **Review of Mississippi's Ephemeral Streams**

As part of MDEQ's review of water quality standards, Mississippi studied the streams that make up the Ephemeral Streams Classification. Prior to this year, Mississippi had 31 water body segments classified as Ephemeral Streams. Based on this year's study, MDEQ is upgrading 11 water body segments currently classified as Ephemeral Streams to the Fish and Wildlife Classification. Nine of the water body segments were confirmed to be Ephemeral Streams and will maintain the current designation. The 11 remaining water body segments will undergo more in-depth study to determine the correct classification. Mississippi is developing a methodology to determine ephemeral stream classification in Mississippi. The first pilot study for the methodology was completed in 2010 and further improvement is anticipated in the next round of sampling in 2011.

### **Mississippi's Numeric Nutrient Criteria Development Activities**

In 2010, MDEQ continued development of numeric nutrient criteria for Mississippi's various water body types. MDEQ's mission is to develop scientifically defensible criteria that are appropriate and protective of Mississippi's waters. The criteria for each water body type will be coordinated with other water body types to ensure consistency across the state and protection from downstream impacts. Highlights of MDEQ's numeric nutrient criteria development efforts

within 2010 include:

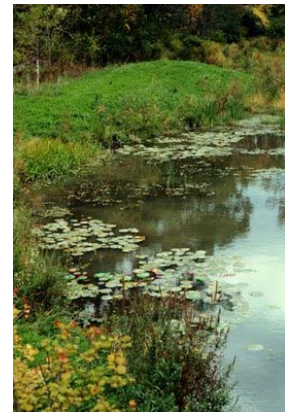
- MDEQ established the Mississippi Nutrient Technical Advisory Group (TAG). The mission of the TAG is to provide technical expertise and regional knowledge to MDEQ for the development of scientifically defensible numeric nutrient criteria. The TAG consists of over 30 members representing multiple state and federal agencies, and four of Mississippi's universities. The Mississippi TAG will meet quarterly throughout the criteria development process to help MDEQ meet the timeline and schedule of Mississippi's Nutrient Criteria Development Plan.
- The Mississippi Nutrient TAG held three meetings in 2010. These meetings focused on providing technical input on developing nutrient criteria for Mississippi's Wadeable Streams and Mississippi's Lakes and Reservoirs. Data analyses efforts by MDEQ are underway based on recommendations from the TAG.
- Mississippi's Nutrient Criteria Development Plan was updated in 2010. This plan outlines the process and timeline the state intends to follow to numeric nutrient criteria. This plan was mutually agreed upon by the state and EPA in October, 2010. Nutrient criteria are being developed based on water body type and are divided into the categories of (1) wadeable streams, (2) non-wadeable streams, (3) MS Delta waters, (4) lakes and reservoirs, and (5) coastal waters.
- Mississippi continues to lead the Nutrient Priority Issue Team (PIT) of the Gulf of Mexico Alliance. The Gulf Alliance is a partnership between the states of Alabama, Florida, Louisiana, Mississippi, and Texas working to address the priority issues related to the ecological health of the Gulf of Mexico. The Nutrient PIT is providing a collaborative approach to build and evaluate tools needed to reduce excess nutrients and restore coastal waters that have been negatively impacted by nutrients. The four action areas for the Nutrient PIT are (1) nutrient characterization, (2) supporting state efforts to develop nutrient criteria, (3) hypoxia, and (4) nutrient reduction strategies.



## Storm Water Regulations

Implementation of Mississippi's Storm Water General Permits and regulations continued in Fiscal Year 2010.

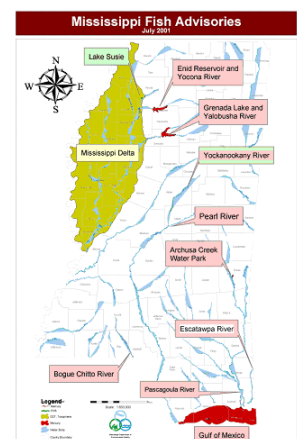
- The Environmental Permits Division (EPD) issued permit coverage for 208 large construction projects (five acres or greater).
- EPD issued permit coverage and/or recoveage to 78 regulated industrial facilities.
- EPD issued permit coverage and/or recoveage to 92 mining operations.
- EPD reissued the Baseline Storm Water Permit for Industrial Activities on September 29<sup>th</sup>, 2010 and issued recoveage to recoveage to 58 facilities.
- In addition, EPD received 67 "No Exposure Certifications" from potentially regulated industrial facilities. Facilities that certify "no exposure" of industrial activity to storm water are not required to obtain storm water coverage.
- MEDQ reviewed the new federal guidelines for construction storm water discharges from construction sites and has modified the State's Large Construction Storm Water General Permit for Land Disturbing Activities of five or more acres. This General Permit went to public notice on December 2, 2010.
- MDEQ continues to follow the federal storm water regulations as they apply to oil and gas-related construction activities. Construction activities associated with oil and gas exploration, production, processing and treatment, and transmission facilities that are defined in the following North American Industrial Classification System (NAICS) codes and titles: 211-Oil and Gas Extraction, 213111-Drilling Oil and Gas Wells, 213112-Support Activities for Oil and Gas Operations, 48611-Pipeline Transportation of Crude Oil and 48621-Pipeline Transportation of Natural Gas, are generally exempt from state NPDES construction requirements. However, MDEQ strongly encourages voluntary application of construction best management practices in order to minimize the discharge of pollutants in storm water runoff.
- EPD worked with several consulting groups and MDEQ's Nonpoint Source Education group to update the state's Planning and Design Manual for the control of erosion, sediment, and stormwater.



## Fish Tissue Monitoring Program

In addition to water, soil, and waste, MDEQ's Lab also monitors fish tissue for contaminants that could be harmful to people that eat fish from the state's waters. MDEQ's lab provides the fish tissue data that is used by a multi-agency task force to recommend fish tissue consumption warnings or advisories for the state. Presently, there are advisories for mercury, DDT, Toxaphene, and PCBs.

During 2010, fish tissue monitoring efforts were focused on the waterbodies where existing advisories are in place, primarily for Mercury in freshwater streams and lakes, to determine if these advisories should remain in effect or if they could be lifted due to a reduction in contaminant levels in fish. Our monitoring efforts on marine fish were postponed due to the oil spill. Existing data on pesticides in the Mississippi Delta fish were evaluated in anticipation of the Fish Advisory Task Force Meeting. These data will be provided to the Fish Advisory Task Force for use in evaluating the state's advisories in 2011. For more information on these advisories, visit MDEQ's website [www.mdeq.state.ms.us](http://www.mdeq.state.ms.us), or call the MDEQ Laboratory at 601-961-5701.



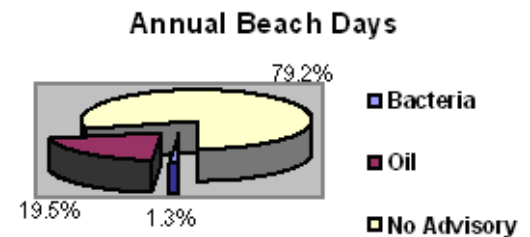


## Coastal Beach Monitoring Network

MDEQ's Coastal Beach Monitoring Program, operated in conjunction with the University of Southern Mississippi's Gulf Coast Research Laboratory (GCRL), conducts routine bacteria and water chemistry sampling at 22 beach stations located along Mississippi's Gulf Coast. MDEQ is a partner within the multi-agency Beach Monitoring Task Force composed of the EPA Gulf of Mexico Program, the Mississippi Department of Marine Resources, GCRL, and the Mississippi State Department of Health. This Beach Monitoring Task Force oversees the program and issues beach advisories when needed. MDEQ and the Beach Monitoring Task Force rely on data collected under this program to assess health and safety issues for users of Mississippi's recreational beaches. When *Enterococcus* bacteria concentrations reach unsafe levels, beach advisories are issued. In addition, the monitoring data provide information concerning the seasonal water quality conditions of the immediately accessible waters along the public bathing beaches. Beach water quality conditions are made available to the public via a Beach Monitoring webpage developed by GCRL that can be accessed on the MDEQ homepage.



During 2010, a total of 17 advisories were issued for elevated bacteria with nine advisories issued as a result of rainfall in April and two advisories as a result of known sewage bypass events. The 17 bacteria advisories covered 104 beach days or 1.3 percent of the 8030 beach days available in the year. The MC252 oil spill had a much greater impact this year as 16 of the 22 stations were placed under an oil impact advisory for 98 days accounting for 19.5% of the annual beach days and 33 percent of the contact season beach days



## Mississippi Benthic Index of Stream Quality (M-BISQ)

In 2001, MDEQ developed the *Mississippi Benthic Index of Stream Quality, Development and Application of the Mississippi Benthic Index of Stream Quality (M-BISQ)* (MDEQ 2003b). This index of biological integrity (IBI) is used to assess all wadeable non-tidal streams in Mississippi with the exception of wadeable streams located in the Mississippi Alluvial Plain. Monitoring efforts completed as part of this effort have greatly increased the number of biological assessments conducted on state waters. The M-BISQ sampling program and the established sampling and analytical methodology contained therein now serves as the foundation for routine biological monitoring in MDEQ's statewide Ambient Monitoring Network. This index was originally developed using biological and environmental data collected from 463 stream locations. In 2010, MDEQ collected biological data at 86 sites.



To date MDEQ has completed ten phases of M-BISQ monitoring for a total 1112 biological samples at 848 sampling locations. Results from the M-BISQ effort are being used to assess the health of wadeable streams and to steer future biological monitoring and assessment activities. Much of the basis for Mississippi's §305(b) water quality assessment is from data collected and analyzed from the M-BISQ monitoring project. Approximately 100 sites have been scheduled for M-BISQ monitoring in 2011.

## Mississippi Alluvial Plain Monitoring

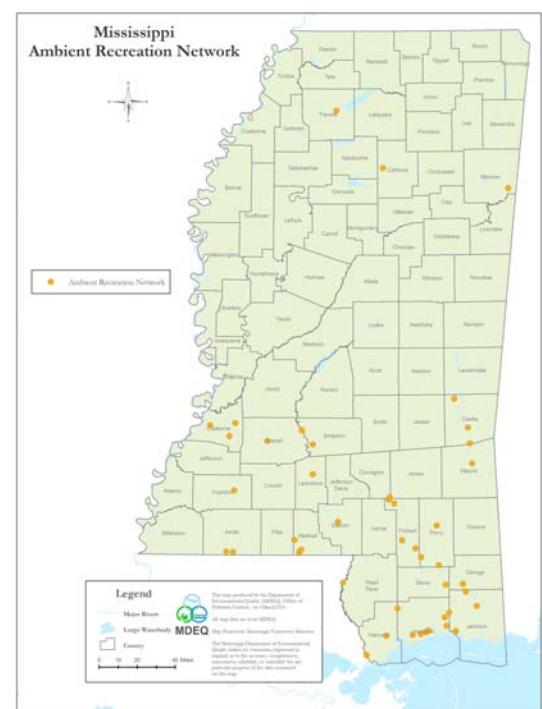
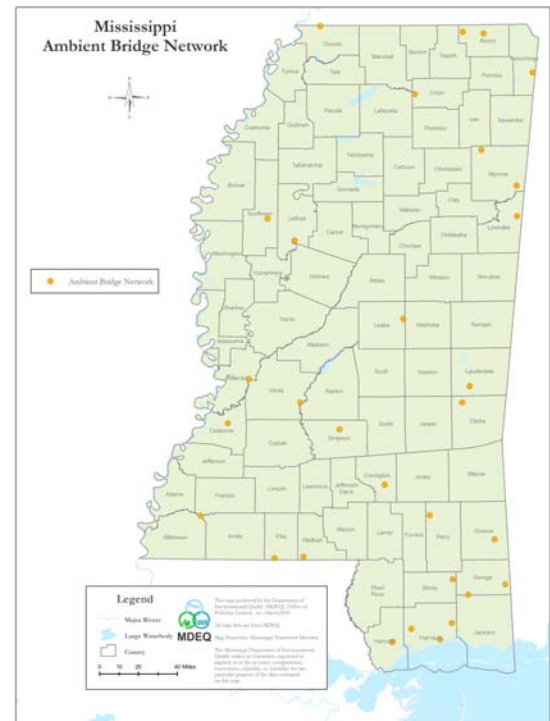
In 2002, MDEQ began collecting biological community, physical, chemical and habitat data on wadeable streams in the Mississippi Alluvial Plain, commonly referred to as the Mississippi Delta. These data, along with historical monitoring in the Mississippi Alluvial Plain will be used to develop an index of biological integrity for the Mississippi Delta. In addition, the data collected are also being used to evaluate the dissolved oxygen levels in the Delta as well as support nutrient criteria development. With each new set of data collected annually during September – October, the index will be refined and when finalized, biological monitoring in the Mississippi Delta will be incorporated into MDEQ’s Ambient Monitoring Program. In 2010, biological and chemical data were collected at 28 monitoring locations in the Mississippi Delta. To date, a total of 96 sites have been monitored. The effort to develop an index of biological integrity for the Mississippi Alluvial Plain is an ongoing effort with the USGS.

## Ambient Bridge Network

This network of statewide stations provides systematic water quality sampling at regular intervals and uniform parametric coverage to monitor water quality status and trends over a long-term period. Sampling is carried out by MDEQ FSD scientists from each of three regional offices (northern, central, and southern regions). Each office is responsible for the stations in its region and there are currently 10 stations per region for a total of 30 stations statewide. In 2010, 30 stations were sampled every month. Laboratory analyses for the samples are carried out by MDEQ’s laboratory located in Pearl, Mississippi. Several stations in the sampling network are historical stations that have monitoring dating back to the 1970’s. Figure 13 shows the locations of the bridge stations.

## Ambient Recreational Monitoring Network

MDEQ maintains a monitoring network for flowing waters in the state that are used for primary contact recreation. A listing of these waters can be found in Mississippi’s WQS. These sites are located on the recreational water bodies to monitor fecal coliform for the safety of Mississippi citizens that use these waters for recreational purposes. Monitoring is done at these locations in order to collect 5 samples within a 30-day period. This sample frequency allows for the calculation of a geometric mean for the fecal coliform data. In 2010, 45 stations were monitored for recreational purposes in the state. Each location is monitored in both the contact (May-October) and non-contact (November-April) seasons. Figure 15 shows these monitoring locations.



## Coastal Monitoring

MDEQ participated in the EPA National Coastal Assessment (NCA) Program from its inception in 2000 thru 2006. When EPA suspended funding for the NCA program, MDEQ partnered with the Gulf Coast Research Lab and the Mississippi Department of Marine Resources to continue a very similar sampling program, termed the Mississippi Coastal Assessment (MCA) Program. This monitoring was planned to help evaluate long term coastal water quality conditions, and was particularly valuable after Hurricane Katrina and during the rebuilding efforts. This data will also be utilized to help examine long term environmental impacts following the Deepwater Horizon Oil Spill in April 2010.



MCA monitoring is conducted during the late summer index period (July-September) and includes biological, chemical and physical sampling. Sites are selected using a probabilistic site selection methodology. At the end of a five year cycle, a total of 125 sites will be sampled for the coastal monitoring program.

## Assessment and Study of Water Resources

The abundant water supplies in Mississippi constitute one of the most important and valuable natural resources in the state. These resources attribute directly to the quality of life and economic prosperity of the state. However, the water resources available in areas of the state can vary significantly depending on various hydrogeologic conditions that may affect baseflow in streams, water quality and quantity, as well as the prolificacy of local aquifers. The highly variable nature of these resources means that a concerted effort must be maintained to collect related groundwater and surface water data that will allow proper decisions to be made regarding the management and development of the state's water resources.

During 2009 and 2010, work continued to measure water levels in several hundred wells that are screened in seven aquifers that are primary sources of water supplies in 21 counties of northeastern and northern Mississippi in an area that extends from Kemper County to the Tennessee border.

In the spring of 2010, the staff of the Office of Land and Water Resources (OLWR) completed work on the development of a numerical ground-water flow model of the Mississippi River valley alluvial aquifer (MRVA) of the Delta of northwestern Mississippi. This aquifer is the primary source of water to support large-scale agricultural activities and aquaculture in that region and the model can be utilized to better understand the ground-water flow system and the potential effects of variations in pumping patterns. The model can be utilized to evaluate the effects of variations in withdrawal of water from the aquifer and to gain additional insight regarding the ground-water flow system.

## Water Resource Issues in the Mississippi Delta

The economy of the Delta is dependent to a large extent on the availability of suitable water supplies from an estimated 16,000 large-capacity irrigation and aquaculture wells used throughout the region. Most of the water used for these beneficial purposes in the Delta is obtained from the shallow Mississippi River Valley alluvial aquifer (MRVA). With an average withdrawal of approximately 1.5 billion gallons of groundwater pumped per day, the pumpage demand has exceeded the recharge to the MRVA resulting in notable water-level declines in the aquifer. The impacts are much more pronounced in the central portion of the Delta, but the trends indicate that a Delta-wide initiative to conserve water and to balance water use between surface water and groundwater is needed to stabilize the trend. Progress continues to be made on water conservation efforts that began a few years ago, to the point that today, it is widespread throughout the region. To help alleviate extremely low flows in the upper reaches of the Sunflower River, the Yazoo- Mississippi Delta

Joint Water Management District maintains a low-flow augmentation project on this stream during dry times of the year. OLWR will continue its effort to learn more about the saturated thickness of the alluvial aquifer in the central Delta.

Also an effort is being made by OLWR staff to study recharge to the alluvial aquifer. A project to investigate the influence of the Mississippi River on the MRVA began this fall in northern Bolivar County. Another project that is underway is an investigation of the recharge from the bluff hills to the MRVA. This project involves collecting water level data in alluvial wells along the entire reach of the Tallahatchie River to determine the connection, if any, between the River and the aquifer. It will also include drilling stratigraphic holes and installation of observation wells between the hills and the Tallahatchie River.

### **Source Water Protection**

The OLWR staff continued its efforts to protect the drinking water supplies of the 1,300 public water systems operating in the state as part of activities related to the Source Water Assessment/Protection Program. This program focuses on the proper siting of new wells and addressing potential sources of contamination identified in the vicinity of drinking water supplies. Staff worked closely with the Mississippi State Department of Health's Water Supply Division to assist in the implementation of the EPA's new Groundwater Rule.

### **Mississippi Agricultural Chemical Groundwater Monitoring Program**

The Mississippi Agricultural Chemical Groundwater Monitoring Program is an on going program initiated in March, 1989, for the purpose of determining if the use of agricultural chemicals is impacting groundwater quality in Mississippi. During the calendar year 2010, samples have been collected from a total of 43 wells. Included in this total were five private drinking water wells sampled throughout the state and 38 high volume irrigation and fish culture wells located in the highly agriculturalized Mississippi Delta. Three of these drinking water wells and nine of the high volume wells were re-sampled to determine if water quality had changed during the year. In addition to these well samples, four samples were collected from surface water sources in support of groundwater activities. Analyses of these 59 samples did not detect any agricultural chemicals or other organic compounds exceeding Federal Primary Drinking Water Standards and/or State of Mississippi Groundwater Standards.

In addition to simply monitoring groundwater, the AgChem Program actively participates in other programs involved in protecting groundwater in Mississippi. One of these programs is the Mississippi Pesticide Container Recycle Program. During the calendar year 2010, a total of seven days have been spent out of the office in field activities related to this program. Although complete amounts are not yet available, it is estimated that a total of over 600,000 pounds of plastic pesticide containers will be recycled during this calendar year.

Another area in which the AgChem Program participates is the Mississippi Waste Pesticide Disposal Program. During the calendar year 2010, three days were spent in field activities related to this program through which a cumulative total of more than 300,000 pounds of waste pesticides have been collected.

In the southern third of Mississippi, sand beds of the Catahoula, Hattiesburg, Pascagoula, and Graham Ferry Formations form the main aquifers that are primary sources of water supplies. These formations contain numerous interbedded layers of sand and clay. The complexity of these sediments has made it difficult to map the surface geology and delineate the aquifers in the subsurface. The MDEQ Office of Geology and OLWR continued their work in this area to map the surficial geology and construct geologic cross-sections across the area. The objectives of this effort are to identify and protect the recharge areas of the aquifers that are sources of water in this region and to correlate and determine the extent of the sand intervals that form these aquifers in the subsurface.

## Dam Safety

During 2010, the Dam Safety Division completed a reorganization of work. The state was divided into territories and each territory was assigned to an individual staff member. Each staff member is responsible for keeping up with the dams in their territory and have divided their workload into quarters so as to better manage inspections and keeping track of the status of High and Significant Hazard dams. The number of High Hazard dams in the state inventory currently stands at 254, while the number of Significant Hazard dams currently stands at 80. The number of Low Hazard dams on state inventory is currently 3414. Mississippi is fifth in the nation for number of dams on inventory. Eighty-seven dams were inspected during 2010.



The information produced by these inspections has resulted in dam owners beginning repairs or rehabilitation on 11 dams. Shifting responsibility for inspections to the owners of dams has permitted staff to devote more time to review designs for new High Hazard and Significant Hazard dams as well as reviewing designs for repairs or modifications to existing dams and to inspect dams during critical stages of construction and to perform critical engineering analyses. In 2010, three new High Hazard dams were authorized for construction and 10 new Low Hazard dams approved for construction. There are now 142 emergency action plans (EAPs) approved and on file. This is an increase of 14 since 2009.

The Dam Safety Division's goal is to have the owners of all High Hazard dams submit EAPs for review and approval. The approval process includes review and approval at the county level by the local Emergency Management Agency and all first responders that would be required to implement the plan. This procedure has extended the anticipated schedule for completing the documents, but the involvement of local agencies in the plan development greatly enhances the value of the plans in safe-guarding lives and property in the event of a dam failure.



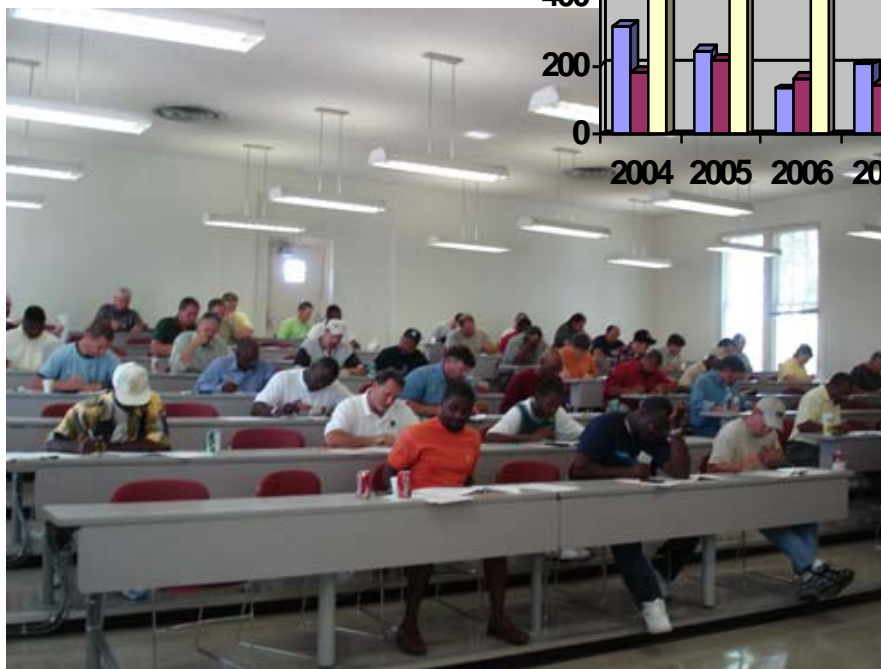
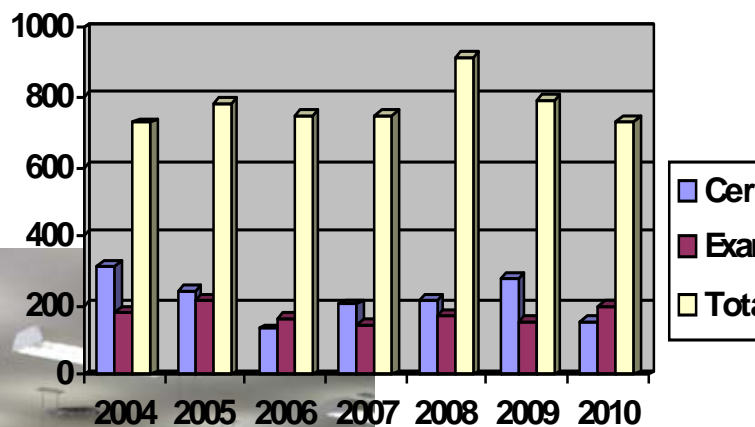
Staff members have responded to several dam emergencies and were able to successfully handle each emergency and prevent damage to downstream properties.

## Environmental Operator Training

The 2010 training calendar included 48 days of Agency sponsored training classes. The Agency continued its relationship with the three wastewater related associations in the state (MS Water and Pollution Control Operator's Association, MS Water Environment Association and MS Rural Water Association) by cosponsoring and participating in 24 days of training activities. Attendance at Agency sponsored sessions totaled 964 operators, utility managers and engineers. Certification exams were administered to 203 prospective operators with 47 new and 109 renewal certificates issued. There are currently 730 certified pollution control operators in the state.

The Environmental Training section also conducted special training for the MDEQ Engineering staff, MDEQ Field Services Division and MS Dept. of Wildlife, Fisheries and Parks personnel.

The training staff also provides on-site technical assistance to municipal, commercial and industrial wastewater facilities. This assistance program is aimed at providing no cost assistance in returning to or maintaining compliance with their wastewater permit. In 2010, the staff conducted 41 compliance assistance facility visits and 72 outreach visits.



## OFFICE OF GEOLOGY

### Surface Mining and Reclamation of Surface-Mined Lands

MDEQ continued to regulate all non-coal surface mines in the state as provided for in the Mississippi Surface Mining and Reclamation Act of 1977. This includes: (1) issuing surface mining permits and notices of exempt operations, (2) inspecting permitted areas and inspecting complaints, (3) overseeing the reclamation done by operators, and (4) enforcing the law as per the promulgated Rules and Regulations and Commission orders. Coal and lignite mines are regulated under the Mississippi Surface Coal Mining and Reclamation Law of 1979, with oversight of the program by the federal Office of Surface Mining.

During Fiscal Year 2010, some 882 inspections were performed, 39 permits were issued, and 72 Notices of Exempt Operations (operations less than four acres in size) were issued. A total of 1,551 exempts are on file, covering approximately 6,200 acres, and 1,289 acres were completely reclaimed as a result of the Mining and Reclamation Division's efforts to oversee reclamation. The state currently has 693 permits covering 31,200 acres.

The Mining and Reclamation Division continued to update the mining database to provide data to the MDEM program. This database provides valuable mining information in a GIS format so that mining sites can be located and viewed by anyone on the internet. More work will be done during the coming fiscal year to add new data to the database.

The Mining and Reclamation Division continued to provide the required Mine Safety and Health Administration (MSHA) training for mining operations in the state. MSHA regulations require an 8-hour refresher training course be taught to all mine workers. In Fiscal Year 2010, division staff provided training to 380 miners and 87 contractors working in the mining industry.



Mississippi joined the ranks of the coal-producing states in 2002. The Coal Mining Division was established during Fiscal Year 2007 to focus on the complexities of coal mine regulation. The Mississippi Lignite Mining Company is mining lignite, a low-grade coal, at their Choctaw County Red Hills Mine to supply fuel for an adjacent 440 MW mine-mouth power plant. The mine produces over 3.5 million tons of lignite per year and has permitted 5,904 acres. This permit was initially issued in 1998, and was renewed in February 2008 for its third five-year term. The planned life of the permit is 30 years. Staff inspections of the Red Hills Mine are conducted at least monthly. One or more joint inspections with the federal Office of Surface Mining are conducted annually.

Staff are meeting with the applicant, Liberty Fuels, LLC, in preparation of an application for Mississippi's second lignite mine, which is planned to be in Kemper and Lauderdale counties. This mine is planned to cover approximately 18,200 acres for a forty-year life. The application is anticipated to be received in January 2011. The planned, first-of-its-kind, adjacent power plant would produce 550 MW of electricity and would be fueled by gas produced on-site from the lignite. Environmental and archeological data gathering is under way in preparation for the mining permit application submittal. An Environmental Impact Statement has been completed by the U.S. Department of Energy and the U.S. Army Corps of Engineers, using much of the information collected for the mining permit. The Department of Energy's Record of Decision was issued in August 2010.

Mississippi's Abandoned Mine Land Program was approved by the federal Office of Surface Mining in September 2007, with the initial biennial grant approved in October 2007. Work under this new program to identify and locate abandoned historic coal mines in Mississippi has been completed. All parts of the state have been included in the

search for abandoned historic coal mines. Four sites were found, two in Choctaw County and one each in Winston and Lauderdale counties. All of these sites are believed to have been active sometime in the period from the mid-late 1800s to the late 1920s. The landowner of each of these sites has been contacted to tell them of the discovery of the sites and to determine their preferences concerning the reclamation of each site. Three of the sites have been determined to be a physical threat to public safety and well being; none has been determined to have any acid mine drainage or to be an environmental hazard.

## Geological Data Collection Activities

The department's geologic mapping program for Fiscal Year 2010 was funded in part by a federal STATEMAP 2009 grant of \$95,670 and an NCRDS grant of \$13,000. Deliverables for the STATEMAP grant include the Cascilla, Holcomb, Avalon, Jefferson, and Tie Plant 7.5-minute geologic quadrangle maps in Tallahatchie, Grenada, Leflore, and Carroll counties in north-central Mississippi and the Collins, Hot Coffee, Williamsburg, and Seminary 7.5-minute geologic quadrangle maps in Covington, Jones, and Jefferson Davis counties in south-central Mississippi. These maps were published in color at a scale of 1:24,000 as Open-File Reports OF 231-239. Fiscal Year 2011 proposed work for federal STATEMAP 2010 grant was awarded funding of \$101,319 and an NCRDS grant of \$15,000. This work included Four Corners, Plattsburg, Pearl River and Edinburg 7.5-minute geologic quadrangle maps in Attala, Winston, Leake, and Neshoba counties in central Mississippi and the Soso, Moss, Laurel West, and Hebron 7.5-minute quadrangles in Smith, Jasper, and Jones counties in south-central Mississippi. The 2010 STATEMAP deliverables are due at the end of April 2011. Geologic units mapped in north-central Mississippi in FY2009 and 2010 include the Tusahoma, Hatchetigbee, Tallahatta, Winona, Zilpha, and Kosciusko formations of Eocene age, Pleistocene loess and Prairie Formation, and Holocene alluvium and alluvial fan deposits. Geologic units mapped in southern Mississippi in FY2009 and 2010 included the Vicksburg Group of Early Oligocene age and the Catahoula and Hattiesburg formations of Miocene age, and Holocene alluvium.

Nine test holes were drilled in FY2010, including the (1) #1 Malmaison in Grenada County to a TD of 340 feet, (2) #2 Malmaison in Grenada County to a TD of 350 feet, (3) #1 Wal-Mart in Lauderdale County to a TD of 263 feet, (4) Plum Creek #4 Covington County to a TD of 440 feet, (5) Plum Creek #5 Covington County to a TD of 340 feet, (6) #1 Kendall S&G in Tallahatchie County to a TD of 440 feet, (7) #2 Kendall S&G in Tallahatchie County to a TD of 140 feet, (8) #1 P. C. L. Leake in Leake County to a TD of 500 feet, and (9) #2 P. C. L. Four Corners in Winston County to a TD of 300 feet. Twenty-three



papers were published, including 17 articles in *Environmental News*, one article in *Mississippi Archaeology*, one article in the 2009 Mississippi Water Resources Conference, 3 abstracts in the *Journal of the Mississippi Academy of Sciences*, and a book entitled *Just Geology 2008-2009*. Nine geologic quadrangles were published, including the Cascilla, Holcomb, Avalon, Jefferson, Tie Plant, Collins, Hot Coffee, Williamsburg, and Seminary 7.5-minute quadrangles.

Proposed work for the STATEMAP 2011 grant includes eight geologic quadrangle maps. These are the Deemer, House, Union East, and Post quadrangles in Neshoba, Kemper, Newton, and Lauderdale counties in east-central Mississippi and the Lanham, Strengthford, Ovet, and Rhodes quadrangles in Jones, Wayne, Forrest, and Greene counties in south-central Mississippi.

The Environmental Geology Division gathers, studies, and archives subsurface geological and geophysical data for its ongoing projects and other studies within the Mississippi Department of Environmental Quality. Focused research is being done with regard to groundwater and other environmental issues. The division also provides support to other state agencies and academia. The Environmental Geology Division also answers requests for information on ground-



water availability, depth of wells, and potential yield of wells. In some cases, quality of groundwater is critical and this information is sometimes available through data searches. These requests come from water well contractors, engineering firms, consultants, and private individuals.

The Mississippi Office of Geology continues to be very involved in the eight CUSEC states work in disaster planning regarding the New Madrid earthquake zone. Northwest Mississippi is at risk of significant damage from a seismic event along this active fault zone. Geologists from the Office of Geology met with other CUSEC scientists to plan future projects over the next few years.

The Environmental Geology Division's geologist and technicians worked on numerous drilling and sampling programs in the state. Drilling, sampling and well construction activities were performed for the Surface Geology Division's STATEMAP program, the Office of Land and Water Resources water project in the Mississippi Delta, and the Mississippi Mineral Resources Institute (MMRI) at the University of Mississippi. During FY2010, the division's drill crew drilled a total of nine test holes in support of the STATEMAP grant. Two holes each were drilled in Covington, Grenada, and Tallahatchie counties. One hole each was drilled in Lauderdale, Leake, and Winston counties. Total footage cored or sampled was 3,113 feet. These samples were saved and archived in the Office's core and sample library. Four test holes and/or monitor wells were drilled for the Office of Land and Water Resources for their geologists studying the effects of groundwater withdrawal in the Mississippi River Alluvium. One other core hole was drilled for MMRI in support of their studies in north Mississippi. The agency's drill crew had a busy year completing fourteen holes during FY2010.

Environmental Geology's geologists and technicians wireline logged a total of 63 test holes in 34 counties throughout the state. Total footage logged was 39,739 feet or approximately 7.5 miles. Clients included fourteen water well contactors, one environmental firm, and three state agencies. The shallowest well logged during FY2010 was for the Quincy Water Association in Monroe County, 140 feet, drilled by Donald Smith Company, Inc. located in Shannon, Mississippi. By contrast, the deepest log run was for the Mount Comfort Water Association in Calhoun County. Total depth of the hole was 1,980 feet. This deep hole was drilled by Mid-South Water and Machine Works located in Cleveland, Mississippi. FY2010 was much like the year before. Only five test holes logged were for home wells. The rest were all water utilities, except the fourteen drilled for state agencies.

The staff pulled and re-filed oil and gas cores and samples for numerous scientists in other state agencies and oil and gas explorationists. A total of 206 boxes of cores and samples were examined during FY2010. Sample splits were done on seventeen boxes of cuttings and technicians shipped thirty boxes of samples and cores for testing and observation. The division's technicians also re-boxed 954 boxes of samples and cores.

The Geospatial Resources Division focused its emphasis on remote sensing (RS) and geographic information systems (GIS) activities. The division manages the Mississippi Flood Map Modernization Initiative (MFMMI). This program is creating new county-wide digital flood insurance rate maps (DFIRMs) for 80 of Mississippi's 82 counties, pending continued funding by the Federal Emergency Management Agency (FEMA). These resulting DFIRMs and supporting digital data will be available on the Web. The new digital format, using modern technology including RS and GIS, promises to make a new map that will convey more information in an easy-to-use format. As of September 2010, current FEMA funding of MFMMI county-wide DFIRM flood mapping projects is \$24.5 million since the beginning of the program in 2003.

Another assignment for this division is to act as staff for the Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems. The Council exists to set policies and standards that will promote the sharing of information, as well as facilitate the cost-sharing potential. The Council is also charged with oversight of the development of the Mississippi Digital Earth Model (MDEM). The Office of Geology is responsible for MDEM's development, and it is the Geospatial Resources Division that handles the assignment. MDEM consists of developing digital

geographic information that will serve as the state base map. MDEM consists of seven layers of digital information that will be available on the Web: (1) geodetic control, (2) elevation and bathymetry, (3) orthoimagery, (4) hydrography, (5) transportation, (6) government boundaries, and (7) cadastral.

The division is also responsible for the management and monitoring of MDEM data development contracts and the QA of the MDEM mapping products that result from this work. Products from this work may be used by state and local governments, engineering firms and construction companies involved in planning, development, construction or regulatory work throughout the state.

In FY2010 the Geospatial Resources Division dealt with the Mississippi Flood Map Modernization Initiative, the GIS Council, MDEM and other GIS data development or collection.

Working with FEMA and MEMA, the division continued work on the county-wide flood mapping DFIRM projects. As of September 30, 2010, under FEMA's MAP MOD Program, new preliminary DFIRM flood maps for 79 of Mississippi's 82 county-wide DFIRM projects had been delivered to the counties and communities in those counties. One additional county was scheduled to be delivered but has been delayed until January 2011 because of levee certification issues. Also as of September 30, 2010, 42 countywide DFIRMs had become effective for the National Flood Insurance Program. In January 2010, the pre-scoping and scoping of 7 counties funded by FEMA in FY2009 was completed for flood map maintenance work. The final county scoping reports were submitted to FEMA Region IV in late February and approved in late April. A part of the scoping process is the holding of "Countywide Scoping Meetings" with the county officials and officials from each of the incorporated towns or cities located in that county.



In 2010, the division hosted four GIS Council meetings and supported the Council's work in developing an updated strategic / business plan. During the past year the division continued work with the Mississippi Department of Information Technology Services (ITS), supporting the updating and development of the Mississippi GIS Clearinghouse / Portal Project. The Portal houses and distributes all digital MDEM data for the state. The division will continue this work activity into the foreseeable future.

During 2010, the division continued monitoring and managing contractors completing work on different MDEM data sets. These data included road centerlines, hydrography, and elevation / topography data in different areas of the state. In particular, the division completed work in the Mississippi Gulf Region. The Gulf Region Water and Wastewater Plan project is an overall plan to identify water, wastewater, and storm water infrastructure needs in the five Gulf Region counties of Hancock, Harrison, Jackson, Pearl River and Stone. The purpose of the Plan is to provide infrastructure for long-term growth and recovery from Hurricane Katrina in these counties. The one foot and six inch orthophotography and planimetrics developed are of MDEM quality and will be made available for distribution through the Mississippi Geospatial Clearinghouse web site at: [www.gis.ms.gov/Portal](http://www.gis.ms.gov/Portal). New MDEM projects begun or completed during 2010 include attribution (road names) of the Gulf Region road centerlines, large-scale hydrography for several HUC 8 river sub-basins in northwest and central Mississippi, and development of MDEM attributed road centerlines over a large area in the Mississippi Delta covering 13 counties.

The division maintains three web sites. For an information-rich site for oil and gas related information: [www.library.geology.deq.state.ms.us](http://www.library.geology.deq.state.ms.us). Another has a wealth of coastal data as a result of our twelve years of active research: [www.geology.deq.state.ms.us/coastal](http://www.geology.deq.state.ms.us/coastal). The division continues to maintain a web site for the Mississippi Flood Map Modernization Initiative (MFMMI): [www.geology.deq.ms.gov/floodmaps](http://www.geology.deq.ms.gov/floodmaps). By visiting this site the public and local government officials are able to learn the current status of their county's DFIRM mapping project. Also, when a county's new preliminary flood maps are available, the public and local government officials will be able to download and review individual DFIRM map panels.

## ENVIRONMENTAL PERMITTING

The professional staff of MDEQ spends thousands of hours each year developing various types of environmental permits which are then presented to the Environmental Quality Permit Board for issuance. The Permit Board issues, reissues, modifies, denies, transfers, and revokes Mississippi permits and certifications administered under the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Surface Mining Control and Reclamation Act, state mining laws, and state water resource control laws.

MDEQ's Environmental Permits Division's (EPD) functions include reviewing the majority of the permit related issues, including permit applications, meeting with the permit applicants, reviewing permit renewal and modification applications, and making recommendations to the Permit Board. Currently there are over 15,000 sites in the permitting universe. Many of these sites have permits that by state and federal regulation expire every five years and have to be re-issued. As new companies come into the state and existing companies have changes or modifications, these activities also require permitting actions. The Environmental Permits Division works closely with Mississippi Development Authority (MDA) in helping site these new industries to Mississippi. EPD believes that a key element in effectively addressing environmental issues surrounding greenfield projects is early interaction between the proposed company and the MDEQ. EPD offers and encourages pre-application meetings. Time spent in refining the information needed for permit applications at the front end of a project typically reduces the overall time to bring a project and permitting to a decision point. Other MDEQ offices that work with permitting matters are the Office of Geology and the Office of Land and Water Resources. EPD is responsible for most environmental permitting done for the Office of Pollution Control, including:

- Air Construction and Air Operating
- Air Title V Operating
- Wastewater-State No Discharge
- Wastewater-National Pollutant Discharge Elimination System
- Wastewater - Pretreatment
- Storm Water Construction and Operating
- Solid Waste
- Hazardous Waste
- Tire Programs
- Wetlands Impacts - 401 Water Quality Certifications

### Performance Improvements

In 2010, the Environmental Permits Division continued to issue timely air, wastewater, and solid waste permits while maintaining low permit backlog. Great effort has been expended by staff to incorporate Total Maximum Daily Loads (TMDLs) into NPDES wastewater discharge permits. New and reissued NPDES permits that contain TMDL related requirements will assist in restoring respective receiving streams to protective water quality.



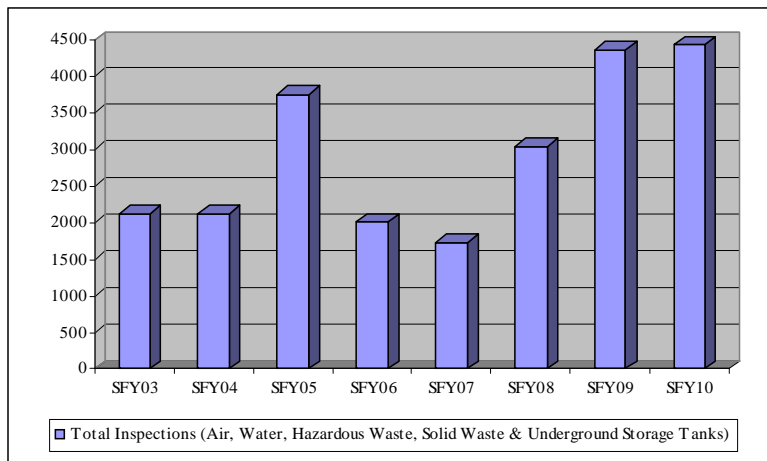
EPD continued to partner with the Data Integration Division of MDEQ in the development of new functionality for the agency's enterprise-wide data management system – *enSite*. *enSite* has become the agency's primary electronic storage database for information. This has made it possible for the department to provide much more information over the internet to the regulated community, other state agencies, EPA, and citizens. MDEQ continues to look for opportunities to make more environmental data available to stakeholders. This year a webpage was designed for notification of upcoming public hearings. Also, *enSite* also allows supervisors and upper management to be more knowledgeable about sites and more easily track and retrieve information. This is due primarily to effective staff training and e-business improvements.

## ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT

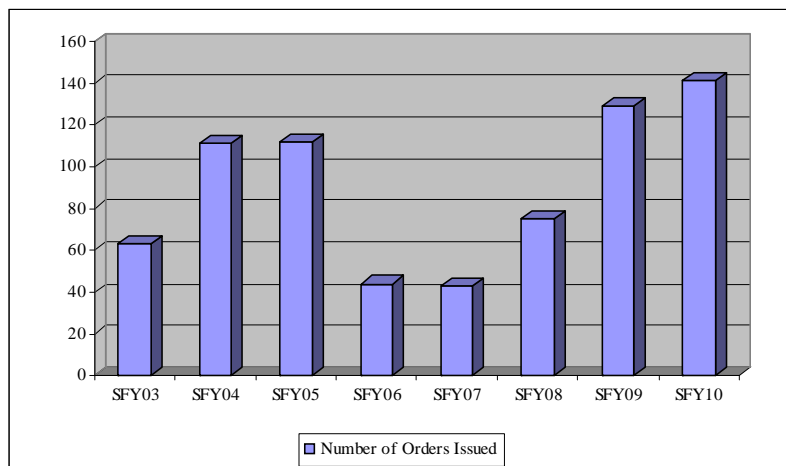
The Environmental Compliance and Enforcement Division (ECED) implements and oversees the majority of the compliance and enforcement programs for MDEQ. ECED is responsible for the regulation of over 15,000 sites for compliance with applicable air, water, hazardous waste, and non-hazardous waste permits and regulations. The goal is for continuous compliance with all the appropriate environmental laws, regulations and standards. Staff assists Mississippi businesses, industries, and farms with this activity. When a site fails to comply with the permit(s) or regulations, appropriate enforcement action is taken to promptly return the site to compliance.

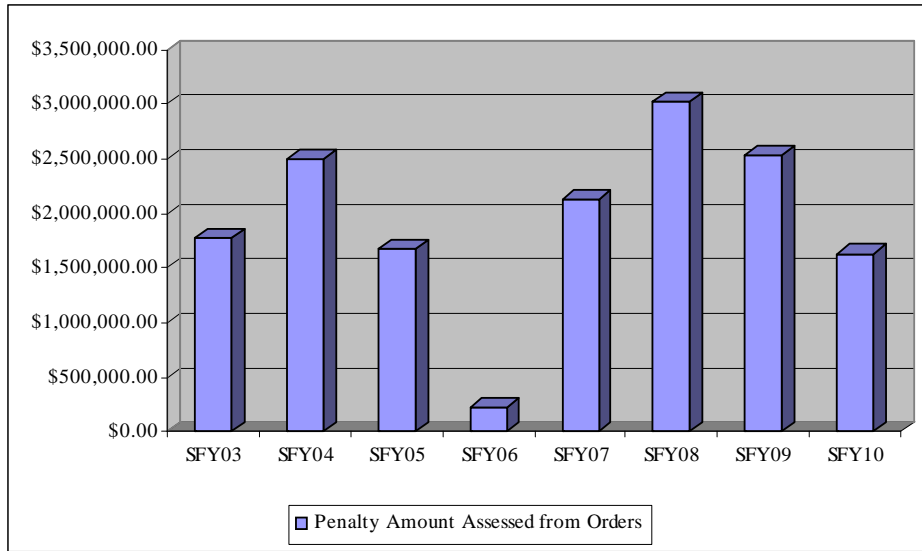
During Fiscal Year 2010, the following numbers of on-site inspections were performed by ECED and the Field Services Division:

- 204 for compliance with air pollution regulations/permits
- 1993 for compliance with water pollution regulations/permits
- 100 for compliance with hazardous waste regulations/permits
- 879 for compliance with solid waste regulations/permits
- 1259 for compliance with underground storage tank regulations/permits

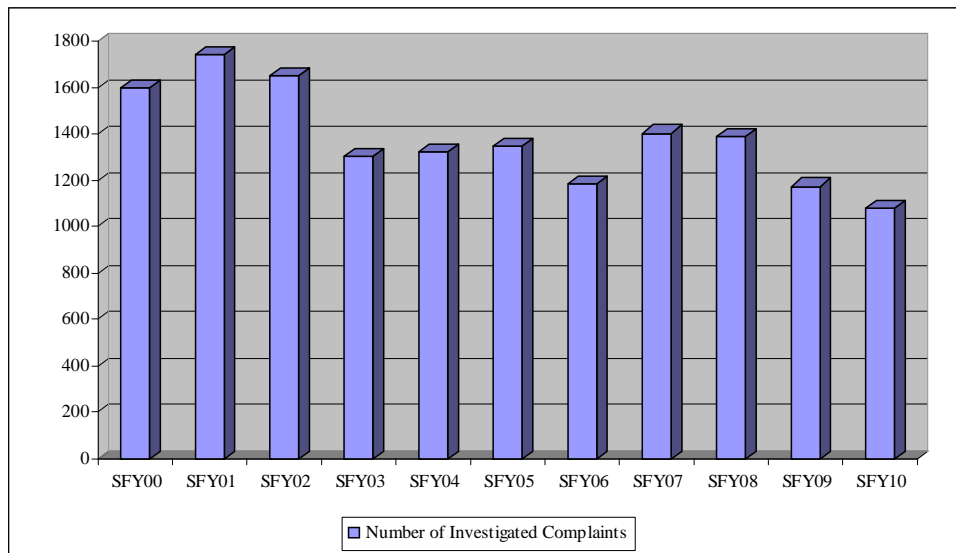


During Fiscal Year 2010, ECED actions resulted in 141 Orders being issued for non-compliance with air, water, solid waste, and/or hazardous waste regulations/permits. Ninety-four of these Orders contained provisions for a penalty with a total assessed penalty amount of \$1,631,660.83. When appropriate, MDEQ allows the use of Supplemental Environmental Projects (SEP), projects that go beyond what is required to comply, to offset a portion of the cash penalty. Fourteen Orders allowed the use of a SEP.





ECED, in conjunction with the Field Services Division, is also responsible for responding to citizen complaints regarding air, water, solid waste, and hazardous waste matters. During Fiscal Year 2010, the Office of Pollution Control received 1,078 complaints related to air, water, solid waste, and/or hazardous waste matters. When citizens report an environmental problem, they are asked to explain the nature of the problem and give the location of the problem, including directions to the site. A name is not required; however, if a name and contact information is provided, MDEQ either contacts the complainant during the investigation or provides the results of the investigation after the investigation is complete. Staff endeavor to investigate every complaint.

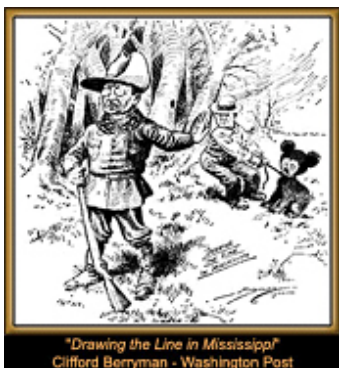


## CLEAN UP OF CONTAMINATION

Accidents, spills, leaks and past improper disposal and handling of hazardous materials and waste have resulted in a number of sites that have contaminated land, water, and air. Through five programs, the Brownfields Program, the Uncontrolled Sites Program, the Voluntary Evaluation Program (VEP), the CERCLA Program, and the Underground Storage Tanks (UST) Program, the staff of the Groundwater Assessment and Remediation Division (GARD) is responsible for the protection of human health and the environment by overseeing the assessment and remediation of contaminated sites in Mississippi.

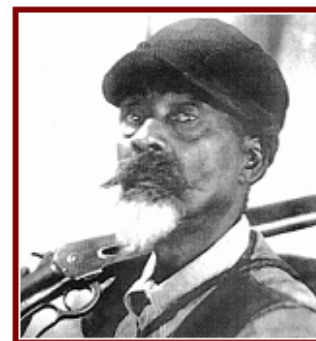
### Brownfields

The highly visible Red Barn on U.S. 61 south of Rolling Fork, has been selected as the site of the \$6 million Holt Collier Environmental Interpretative and Education Center. Because of its proximity to the Holt Collier and Theodore Roosevelt bear hunting site in Sharkey County, the site was selected by local stakeholders through a site selection process developed by the U.S. Army Corps of Engineers (USACE). Roosevelt hunted the Mississippi Delta at least twice, with one occasion giving rise to the Teddy bear after a newspaper cartoon depicted Roosevelt declining to shoot a cub. Collier, a former slave, Confederate soldier, and a noted outdoorsman, guided the president on the hunt.



Through the environmental assessment process, minor levels of petroleum hydrocarbons were found near the refueling area of the Red Barn. With the leadership of MDEQ staff, the property owner, and the USACE worked through the environmental concerns which lead to a Brownfield Agreement between the property owner and the Commission on Environmental Quality on April 22, 2010.

The 33-acre Rolling Fork site contained a Native American village during the 1300s and 1400s. In May 2010, the Army Corps of Engineers purchased the Red Barn on Highway 61 in Rolling Fork from the Deaton family, longtime owners of the barn. According to the Deer Creek Pilot, the terms of the transaction have not been released. The Holt Collier Interpretive and Educational Center will be constructed on the 33-acre plot and is scheduled to open in the first part of 2012. While \$6 million will be invested into the Holt Collier Center, the Red Barn will not be incorporated into the Center nor will "Rolling Fork's most iconic landmark" be restored.



Holt Collier



## **Underground Storage Tanks**

The goal of the Underground Storage Tanks Program is to protect groundwater from leaking underground storage tanks. To meet this goal there is a two-pronged approach. First, a compliance program inspects UST facilities in order to ensure the systems do not leak. In Mississippi, the UST compliance personnel are responsible for ensuring approximately 8,562 tanks at 3,199 facilities have the appropriately maintained equipment in order to protect the groundwater. Secondly, in the event of a release, there is a fund available for eligible tank owners to help in the assessment and cleanup resulting from leaking USTs. The Mississippi Groundwater Protection fund began in 1987 and has committed \$144 million to eligible tank owners for the assessment and cleanup of sites contaminated from leaking underground storage tanks. The average fund commitment per site has been \$145,800. At the end of 2010, the Mississippi Groundwater Protection Trust Fund had assessed 990 sites, completed assessment and/or remediation of 778 sites, and had 212 active sites. This past fiscal year \$6.96 million were reimbursed to eligible tank owners. Also, this year 22 new sites were assessed and 24 sites were closed.

Additionally, using the Leaking Underground Storage Tanks Trust Fund (LUST)/American Recovery and Reinvestment Act (ARRA) funds in 2010 the staff assessed and/or remediated another 46 sites and closed out 18 sites. State fiscal year expenditures were \$1.3 million.

The program also continued to do work utilizing the LUST Katrina Supplemental Funds to continue the assessment and/or remediation of sites directly impacted by Hurricane Katrina. The staff continued work on 13 of these sites and closed out an additional two sites. With the LUST Katrina Supplemental Funds the program has expended \$824,000 in state FY 2010.

## **Uncontrolled Sites**

Over the past 12 months, GARD actively oversaw 173 sites. During that same timeframe, the number of sites brought to GARD's attention was 18, bringing the total number of sites in MDEQ's public record to 1,722 sites. Also, MDEQ issued "State No Further Action" (SNFA) letters for nine of these sites that were evaluated and remediated to levels protective of human health and the environment. In addition, MDEQ issued Restrictive Use Agreed Orders for three sites, thereby allowing the sites to be reused with certain activity and use limitations. The staff continues to respond expeditiously to requests from other governmental agencies for the review of environmental assessments and remediation of contaminated sites and those sites with economic development potential.

## **Voluntary Evaluation Program**

The Voluntary Evaluation Program (VEP) offers participants an opportunity to receive an expedited review of site characterization and remediation plans and reports for uncontrolled sites that they have an interest in. The VEP is funded entirely by these participants who pay for MDEQ's oversight costs. Typically, individuals involved in property transfers find the VEP attractive because of the expedited review process. There were 14 new VEP sites that joined the program this fiscal year.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Oversight of the site assessment and restoration of hazardous waste sites at federal facilities continues to be a large portion of the CERCLA Program. Oversight is conducted at seven Department of Defense Sites, a Department of Energy Site (Salmon Test Site), a NASA facility (Stennis Space Center), and several formerly used defense sites. MDEQ is funded for this oversight work through agreements with the Department of Defense, Department of Energy, and NASA. Through the grants from the Environmental Protection Agency, CERCLA staff performed preliminary assessments, site investigations and site inspections at hazardous waste sites for National Priority List (NPL) consideration, coordinated with EPA on emergency/removal projects at the Southern Pine Wood Preserving Site, Wiggins and the Southeastern Wood preserving Site, Canton, and assisted the Environmental Protection Agency with the oversight of the assessment and future remediation of four Superfund Sites in the State—Sonford Products, Flowood; Davis Timber, Hattiesburg; American Creosote, Louisville; and Wood Treating, Picayune. At the present time it is estimated that the remediation costs for these four sites is approximately \$76 million. The state will ultimately have to pay 10 percent of these

remediation costs. In addition, Red Panther Chemical, Clarksdale and Kerr-McGee (Tronox), Columbus, are being considered and evaluated for NPL proposal for FY 2010, however, there has been no estimation of remedial costs to date.

## Emergency Response

During Fiscal Year 2010, the Emergency Services Branch continued to respond to emergencies all across the state. Expenditures for clean ups exceeded \$600,000 while the response staff dealt with approximately 1,400 calls for assistance or to reported emergency releases.

Emergency Services staff also provided Hazardous Materials Awareness Training with the Mississippi Bureau of Narcotics, the Law Enforcement Training Academy at Mississippi Delta Community College, and with the State Fire Academy as well as participating in numerous exercises and drills with state, federal and local counter parts and companies such as pipelines and refineries that operate in the state.

Homeland Security remains a top priority for training and planning. The Emergency Services staff continues to work with numerous agencies including fire, police and emergency management at the local level, other state agencies, EPA, U.S. Coast Guard, F.B.I., and other federal agencies to conduct well coordinated responses, in order to protect Mississippi's citizens and environment.

MDEQ's four-man Emergency Response Team is on-call statewide 24 hours a day, seven days a week. MDEQ and the Mississippi Emergency Management Agency (MEMA) work together to provide effective around-the-clock spill response. MEMA is notified of emergencies by calling 1-800-222-6362. They in turn contact MDEQ personnel who provide on-site response and technical assistance.





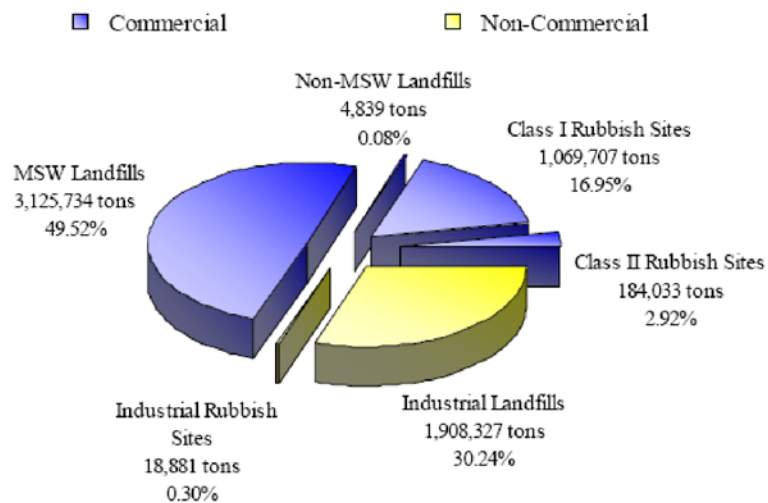
## SOLID WASTE MANAGEMENT

The Solid Waste Management Programs at MDEQ worked on numerous solid waste issues, projects and programs throughout 2010 to ensure the proper management of solid wastes, to promote the reduction and recycling of solid wastes, and to plan for the future solid wastes management needs of the state. The following information represents a summary of the work conducted as well as the solid waste management conditions in the State of Mississippi over the past year.

### Solid Waste Annual Report

MDEQ is charged with collecting information and data to measure the status of solid waste disposal, recycling and waste reduction in the state each year. Each year, MDEQ collects an annual report from the owners of permitted solid waste management facilities on solid waste disposal information for the preceding calendar year. Solid waste management facilities that report to MDEQ include commercial and non-commercial landfills, commercial and non-commercial rubbish disposal sites, composting facilities, and land application sites.

In 2010, MDEQ developed a report on solid waste disposal activities conducted during Calendar Year 2009. This report indicated that over 6.3 million tons of wastes were disposed at permitted landfills and rubbish sites in Mississippi. Approximately 49.60 percent (3,130,573 tons) of the total waste was disposed at commercial landfills, 30.24 percent (1,908,327 tons) at non-commercial landfills, 19.86 percent (1,253,740 tons) at commercial rubbish sites, and 0.30 percent (18,881 tons) at non-commercial rubbish sites (see Figure 1 below).



**FIGURE 1**

About 4.4 million tons of solid wastes were disposed at commercial disposal facilities and the remaining 1.9 million tons of wastes were disposed at noncommercial disposal facilities. Mississippi received a total of 710,300 tons of solid waste from out-of-state sources representing approximately 11.25 percent of the total solid waste that was disposed during 2009. In addition, a total of approximately 29,000 dry tons of wastes were applied at the permitted land application sites.

### Recycling Status Report

MDEQ also develops an annual status report that addresses the progress of recycling and waste reduction in the State of Mississippi. In early 2010, MDEQ also developed this status information on recycling and waste reduction for 2009 as required by state law. This report included the results of a survey of local governments throughout the state on

the recycling services offered to their citizens and presented these findings for the consideration of the Legislature.

The status report indicated a slight decrease in the percentage of the state's population that had access to municipal waste recycling services down from 46.5 percent to 44.7 percent - a decrease of around 1.8 percent of the state's population. Approximately 25 percent of the state's population had access to curbside recycling programs and some 19.7 percent had access to drop-off recycling programs. The decline in 2009 of recycling access can be attributed primarily to the tremendous economic decline that occurred in the late part of 2008. The reduction in economic conditions resulted in a lower demand for both raw materials and recyclable content. MDEQ is in the process of compiling and submitting a supplemental status report on recycling and waste reduction for calendar year 2010. This report will be finalized in early 2011.



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### **Solid Waste and Waste Tire Grants Programs**

The Solid Waste Programs also continued the management and dispersal of various grant program funds. Through the Solid Waste Policy, Planning and Grants Branch, MDEQ awarded over \$2.3 million in Fiscal Year 2010 for solid waste management and recycling projects, solid waste planning projects and waste tire projects across the state. Of that total, over \$1.6 million was awarded in Solid Waste Assistance Grants to local governments. These grants are used by local governments to clean up illegal dumps, establish collection programs for bulky wastes and recyclables, fund the hiring of a local solid waste enforcement officer, for household hazardous collection days/programs, for public information efforts on solid waste and recycling programs, and for other waste management activities at the local level. These funds were awarded through two different categories of grants: Non-competitive (or allocated) grants and competitive grants.

#### **Solid Waste Assistance Grants – Fiscal Year 2010**

\$785,604 - Total Non Competitive Grants  
76 Counties Received Non Competitive Grants

\$876,136 Total Competitive Grants  
37 Municipalities and Counties Received Competitive Grants

The MDEQ Solid Waste Programs also provide planning grants to local governments to assist in the development of long-range plans and goals for solid waste management and recycling in the state. Planning grants totaling \$96,750 were awarded to Kemper and Hancock Counties in Fiscal Year 2010 to develop and update comprehensive solid waste management plans for their communities.

In addition, the Solid Waste Policy, Planning and Grants Branch continued in 2010 to develop and implement the state's strategy to achieve statewide recycling of waste tires. During Fiscal Year 2010 the recycling rate for waste tires processed in the state was over 90 percent of the tires collected. In addition, 15 new waste tire grants totaling \$658,079 were awarded to local governments to fund local waste tire collection and clean up programs during FY 2010. These new waste tire program grants along those tire grants previously awarded assisted local governments across the state in the proper collection and disposal of over 640,000 passenger tire equivalents in calendar year 2009.

## ***Waste Tire Grants – Fiscal Year 2010***

\$658,079 - Total Waste Tire Grants Awarded  
640,000 - Waste Tires Collected

Counties receiving waste tire grants during FY10 included: Leflore, Kemper, Humphreys, Sunflower, Grenada, Stone, Issaquena, Yazoo, Forrest, Washington, Desoto, Panola, Walthall, and Harrison, Counties, and the Three Rivers Solid Waste Management Authority.

In addition, during 2010, the MDEQ finalized grants guidelines and regulations for two new recycling grants programs. One program involves the distribution of grant funds made through the Department of Energy to the State of Mississippi through the American Recovery and Reinvestment Act of 2009. MDEQ received Energy Efficiency and Conservation Block Grant funds in the amount of \$600,000 from the U.S. Department of Energy through the Mississippi Development Authority, (EECBG Grants). EECBG grants are made available to eligible local governments to fund certain costs associated with local recycling efforts. MDEQ has awarded grant funds totaling \$420,324 to Calhoun County, the City of Oxford, the City of Pearl, the City of Quitman, the City of Pascagoula, and the City of Starkville to make improvements to their recycling programs that will allow them to increase recycling in their communities. The funding is being administered through a cooperative agreement between the Mississippi Development Authority and the Mississippi Department of Environmental Quality.

Also, MDEQ worked on developing and adopting regulations to govern the distribution and funding of grants from a new fund the State Legislature created in the 2009 session. The legislation required that approximately 10 percent of the funds in the Corrective Action Trust Fund be set aside for making grants to non-profit cooperative organizations of local governments to assist local governments in the collection and marketing of recyclable materials. The Commission on Environmental Quality adopted the Mississippi Recycling Cooperative Grant Regulations in August of 2010 and it is hopeful that some portion of the program can be started in the current state fiscal year.

### **Solid Waste Planning**

The MDEQ Solid Waste Programs work with local governments around the state to develop and implement long range solid waste planning. Each local government in Mississippi is required by state law to develop and implement a comprehensive local, solid waste management plan for a 20-year period. In 2010, MDEQ worked with several communities to complete the development of updated and amended local solid waste plans. The counties and organizations for which updated comprehensive solid waste plans were finalized included: Hinds County and the cities of Bolton, Clinton, Edwards, Raymond, Terry, and Utica; the Solid Waste Management Authority of Marshall County (which includes the Marshall County Board of Supervisors and the cities of Byhalia, Holly Springs and Potts Camp; the Three Rivers Solid Waste Management Authority (which includes: Calhoun County and the cities of Calhoun City, Bruce, Pittsboro and Vardaman, Itawamba County and the City of Fulton, Lafayette County and the City of Oxford, Lee County and the cities of Tupelo and Slatton, Monroe County and the Cities of Aberdeen and Amory, Pontotoc County and the City of Pontotoc, and Union County and the City of New Albany. In addition, the development of comprehensive, updated solid waste management plans continued in 2010 for the City of Jackson, Kemper County, Lamar County, Newton County, Sunflower County, Tallahatchie County, Wilkinson County and the Pine Belt Solid Waste Management Authority.

In addition to the development of comprehensive updated plans, MDEQ also worked on the review and finalization of certain amendments to existing plans to assure adequate disposal services and capacity for various jurisdictions throughout the state. These amendments were often conducted to add new disposal facilities locally or to make other changes to local solid waste plans in the manner that solid wastes were being managed. Communities that completed modifica-

tions to their local solid waste plans in 2010 (in the order of completion) include: Alcorn County, Grenada County, Kemper County, Jackson County, Rankin County and Wayne County. These planning amendments were important to assist local governments with providing needed disposal capacity and services for management of solid wastes.

## **Waste Tire Management Program**

In 2010, the MDEQ Waste Tire Management Program experienced continued success in achieving significant recycling of waste tires in the state. This success was reflected in the annual program information collected from Calendar Year 2009 indicating that the overall waste tire recycling rate for Mississippi in 2009 was close to 96% and the recycling rate for those tires generated in Mississippi was close to 92%. It is anticipated that the state's waste tire recycling and reuse rates for waste tires will continue to meet or exceed the current national average of approximately 90%.



MDEQ conducted compliance assurance activities at approximately 150 local government waste tire collection sites, 10 commercial waste tire processing and collection facilities, and numerous tire retail businesses.

Additionally, MDEQ managed the permitting and reporting activities of more than 110 registered waste tire haulers in 2009. Also about 80 complaints involving the mismanagement or unauthorized dumping of waste tires were reported to and investigated by the MDEQ at sites across the State. MDEQ also manages a Waste Tire Abatement Program which provides assistance for the clean-up of unauthorized tire dumps throughout the State of Mississippi. Through the abatement program, MDEQ has cleaned up approximately 3 million waste tires that had been illegally dumped around the state over the past several years since the program was started. In 2010, approximately 6,000 passenger tire equivalents were removed and recycled through the MDEQ waste tire abatement program. In addition, the Waste Tire Management Program reviewed or otherwise handled the processing of various applications for waste tire management permits and authorizations for waste tire processing facilities, collection sites and disposal facilities. Finally, MDEQ continued work on other waste tire program improvement efforts which include continued work to attract new waste tire recycling businesses to south Mississippi and the development of electronic reporting and record keeping for waste tire processing and collection facilities in the state.

## **Electronic Waste Management**

Electronic wastes or “e-wastes” is one of the fastest growing waste streams nationally and continues to present management and disposal problems for residents, businesses and government agencies and institutions. There have been significant changes in the e-waste landscape nationwide in 2010. The U.S. EPA recently transitioned the management of that agency’s Responsible Recycling (R2) certification standard to a new company, R2 Solutions. Additionally, the Basel Action Network has begun certifying recyclers in their e-Stewards program. As these changes have occurred, MDEQ has updated its electronics waste web page (<http://www.deq.state.ms.us/electronics>) to reflect these changes and make it easier for individuals, companies, and organizations to find electronics recyclers or “e-cyclers” that will handle their e-waste in a responsible manner.

Also, in early 2010, the State’s READ Study Committee (of which MDEQ was a member) released its Recommendations to the Office of the Governor and the Mississippi Legislature on the Recycling Electronics and Asset Disposition (READ) Services. The READ Study Committee was created by the 2009 Mississippi Legislature to address the

management and disposition of electronic wastes from state agencies and institutions. The committee was to develop recommendations to State elected officials that addressed the following goals:

1. Achieve the maximum possible benefit from use of state agency-owned electronic equipment;
2. Ensure a data security process that prevents inadvertent release of sensitive state-owned electronic information to unauthorized parties during the disposal process;
3. Achieve maximum benefit from the sale and/or recycling of surplus state agency electronic equipment; and
4. Protect the public health, safety and environment by mandating that steps be taken to address the solid waste management of electronic equipment and solid waste statewide.

The study committee began its work in the summer of 2009 and worked through the remainder of 2009 to develop its report and recommendations. The report was released to the State Legislature and the Office of the Governor in early 2010. A copy of the report and recommendations can be found on MDEQ's website at [www.deq.state.ms.us/electronics](http://www.deq.state.ms.us/electronics).

MDEQ has also helped to sponsor several e-waste collection day events with local governments for their residents through our solid waste assistance grants program. In addition, MDEQ grants continued to fund an ongoing e-waste collection program in the City of Jackson and a computer refurbishment program at Jackson State University through a grant to Hinds County. MDEQ also joined with the Jackson Metro Chamber Partnership and various other partners to host the first e-waste collection event for businesses in the state in November of 2009. Since then, MDEQ has joined the Jackson Metro Chamber Partnership and other partners to host two additional business e-waste collection events in April and October of 2010 which collected over 44,170 pounds of electronics for recycling. These events collected computers, televisions, cell phones, printers, fax machines and various other e-wastes. Advantage E-Cycling of Pearl worked with the Chamber to assist in collecting and recycling of the materials.



## **Medical Waste Management**

MDEQ's solid waste management programs are responsible for regulating the commercial management of medical wastes in the state. This responsibility includes medical wastes collected and transported from health care facilities, veterinary care facilities, medical wastes generated in home health care, medical wastes generated by emergency and trauma response, medical wastes generated by business and institutional clinics and medical wastes generated in private residences. In 2010, MDEQ has been working on the development of web-based resources that better communicate proper management conditions for various types of medical wastes. MDEQ expects these new web resources to be available in 2011.

In addition, MDEQ continued its work on the household medical sharps program. This program was developed by MDEQ in response to legislation passed in 2008. MDEQ has developed and implemented a statewide educational program to inform the public on the safe disposal of home-generated medical sharps to promote proper management and disposal of such household medical devices as syringes, needles, lancets and other similar items. In 2009, MDEQ worked to develop and promote management alternatives in the state for household sharps users. This work included developing a collection network in the state of community drop-off locations at pharmacies and fire stations for household sharps. MDEQ acquired the services of three of the state's medical waste service providers for collection of the

sharps initially on a voluntary basis. MDEQ also conducted a number of educational and outreach activities related to promotion of the household sharps program including the development of an educational brochure, development of an instructional card for distribution at drop-off stations, development of a web site at [www.deq.state.ms.us/medsharps](http://www.deq.state.ms.us/medsharps) and speaking and exhibiting at numerous stakeholder meetings across the state.

MDEQ was required by the legislation to have the household sharps educational program developed by no later than July 1, 2009, and to have the program fully implemented no later than January 1, 2010. MDEQ met both of these goals in implementing the program. In 2010, MDEQ worked to continue to grow the network of community drop-off locations and to continue to promote the program to the public through web resources, promotion through local officials, as well as through public service radio announcements. In addition MDEQ in 2010 also began to transition away from the voluntary collection efforts by the medical waste service providers and began to provide compensation to those service providers that had been providing the sharps collection services. It was expected that the voluntary efforts that initially helped get the program started would likely need to be replaced with fair compensation to the service providers who were traveling to numerous areas of the state to collect these sharps.

In addition, MDEQ is working to address one of the growing areas of environmental concern in the country and that is the management of pharmaceutical wastes. MDEQ is developing resources to encourage the proper management of pharmaceutical wastes and is discouraging flushing or washing medications down the toilet or sink. MDEQ worked with the Drug Enforcement Administration to promote collection events for obsolete pharmaceutical wastes in September 2010 sponsored by various law enforcement agencies throughout the State of Mississippi and the country. The primary goal of these programs is to prevent the illegal distribution and/or improper use of prescription and over the counter drugs. In addition, the collection efforts help to avoid discharge of these materials into the environment through wastewater systems around the state.

## **Disaster Debris Management**

In 2010, MDEQ's solid waste programs continued work with federal, state and local agencies and organizations regarding the management of disaster debris. The state saw significant tornado damage in the central part of Mississippi in late April 2010. MDEQ worked with various local governments, the Federal Emergency Management Agency, the U.S. Army Corps of Engineers and other stakeholders in the area to establish a total of 13 emergency debris management sites to deal with approximately 300,000 cubic yards of disaster related debris from that storm event. In addition, the MDEQ authorized two emergency debris management operations in north Mississippi to help manage debris related to a severe flooding and tornado event in that area of the state in early May 2010.

MDEQ's solid waste programs joined numerous other divisions of the agency to address the effects of the oil spill that occurred in April 2010 in the Gulf of Mexico. This oil spill resulted in the collection and clean-up of a large amount of oil-impacted soils, vegetation, and other debris that had to be removed from the environment. MDEQ worked with other local, state and federal agencies as well as BPC and its contractors to insure that these wastes were removed promptly and were disposed of properly. In addition, MDEQ worked through the Joint Central Command Center in Mobile, Alabama, to promote the recycling and recovery of some of the oil impacted wastes. In late 2010, demonstration efforts were conducted on the Mississippi Gulf Coast on beneficially using the oil impacted soils and other materials in asphalt production. MDEQ is continuing to work with various stakeholders on restoring the Mississippi Gulf Coast and assisting in the recovery of the area from the oil spill.

## **Solid Waste Training, Certification and Outreach Programs**

The MDEQ Solid Waste Program also administers training and certification programs for solid waste professionals in the state of Mississippi and conducts outreach efforts to the public and to stakeholders in the state through partnerships with various organizations.

## 1. Training and Certification

MDEQ partners with the state and national chapters of the Solid Waste Association of North America (SWANA) to provide training and certification to municipal solid waste landfill operators in the state. MDEQ worked with SWANA to provide training opportunities at state conferences in May and October. There are currently 39 certified commercial landfill operators in the state. In 2010, MDEQ issued one new certifications and ten renewal certifications for operators and provided continuing education training in partnership with the state SWANA Chapter at the chapter's Spring and Fall Conferences.

In addition, MDEQ hosted two training workshops and examination sessions for Class I rubbish operators in February and December 2010 in Jackson at the Cabot Lodge. There are currently 174 certified Class I rubbish site operators in the state. In 2010, MDEQ issued certificates of competency for class I rubbish site operators from the training and testing events held in the state.

MDEQ hosted its annual training event for local solid waste enforcement officers at the Cabot Lodge in Jackson on September 2010. For the first time, MDEQ conducted concurrent morning sessions with one session for new enforcement officers on the basics of solid waste regulatory and legal issues and the other session for experienced officers involving ethics, implementation of local ordinances, and dealing with wastes from methamphetamine labs. Over 60 officers from local governments around the state of Mississippi attended the training. These officers work for a variety of public agencies including police and sheriff's offices, zoning and code enforcement offices, and public works and solid waste management offices.



In May of 2010, MDEQ joined the Southeast Recycling Development Council and the Mississippi Recycling Coalition to host three workshops for recycling program coordinators as well as private recycling businesses and other interested persons. These workshops, entitled: "Boosting Recycling in Mississippi," were held to help communities learn how to connect recyclable materials with material markets and how to promote and grow their recycling programs in their respective communities. More than 200 persons attended the workshops.

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## 2. Education and Outreach

In addition to these training activities, MDEQ also partnered with various other organizations to provide outreach and education on a variety of solid waste management issues. Throughout the year, MDEQ's solid waste programs helped to organize and host conferences for the Mississippi Recycling Coalition and the State Solid Waste Association of North America. In addition, the Solid Waste programs participated in conferences, conventions and training sessions of various organizations, which included the Mississippi Municipal League, the MML's Annual Youth Leadership Conference, the Mississippi Association of Supervisors, the Mississippi Manufacturers' Association, the Pine Belt Mayors' Association, Keep Mississippi Beautiful, the Jackson Metro Chamber Partnership, and other state and local organizations and agencies.

MDEQ also continued its partnership with the U.S. EPA to promote the use of landfill gas as an alternative energy source through the Landfill Methane Outreach Program (LMOP). In 2010, two new landfill gas to energy projects began to develop at the Golden Triangle Regional Landfill and the Three Rivers Regional Landfill. These projects are in addition to the two currently operational landfill gas projects at the Waste Management Pecan Grove Landfill located near Pass Christian and the Waste Management Praire Bluff Landfill near Houston. Through LMOP, MDEQ has also identified several other landfills that appear to have good potential for future project development to generate close to

45 megawatts of energy. In late 2010, MDEQ's LMOP program began working with the Mississippi Development Authority on the possibility of providing grant funding for the support of a prospective landfill gas to energy project. The details of this possible grant support will continue to be explored in 2011 for the promotion of landfill gas energy projects in the state.

MDEQ's solid waste programs participated for the first year in WaterFest held at the Ross Reservoir. The Solid Waste programs sponsored a miniature golf course made out of recyclable materials. The score pad for the miniature golf course not only required that participants keep their putting scores but also required that the participants find the answers to questions about recycling on signage displayed around each putting green. MDEQ also launched a new initiative during National Compost Awareness week in May of 2010 to promote and encourage more home composting projects. The agency held a drawing and gave away three backyard composting bins to residents around the state. The agency also sent instructions to each person who registered for the contest on how to build their own backyard composting bin and on how to maintain a successful backyard composting program.

### **Byproduct Beneficial Use Program**

MDEQ continued efforts in 2010 to promote the beneficial use of nonhazardous by-product materials that would otherwise be disposed in landfills. The state's beneficial use regulations allow for industries to request that their nonhazardous industrial by-product materials be evaluated for use in the place of products or raw materials. If the MDEQ evaluation confirms that the material has suitable physical and chemical properties for the proposed use, then MDEQ issues a Beneficial Use Determination (BUD) on the material which means that the use of the material can be conducted in the state and will not be regulated as a solid waste. In early 2010, MDEQ collected information on the volume of materials distributed for use in the State of Mississippi in 2009. These reports indicated that BUD holders distributed approximately 600,000 tons of by products in the State of Mississippi, up from the 200,000 tons of by-products distributed for re-use in 2008. Approximately 95 percent of the by-products distributed were used for construction purposes while the remaining five percent was used in soil amendment applications.

In addition, during 2010 the MDEQ approved 18 new Beneficial Use Determinations (BUDs). Of these new determinations approved in 2010, 12 BUD's were approved for construction uses and six BUD's were approved for agricultural land application uses. MDEQ continues to work with the suppliers throughout the region who provide by-products and other material for construction uses and land application uses in the state of Mississippi. One way that MDEQ does this is through demonstration projects. A demonstration project is a key part of the beneficial use program that allows an industry or company to conduct a short term pilot project with the material to demonstrate the suitability of the material for a proposed use. Through the demonstration project the material and use are evaluated for both environmental and physical performance. The results of each demonstration project are submitted to MDEQ for further review and consideration.





## Recycling Education

The Recycling and Solid Waste Reduction Program at MDEQ is charged with working with local and state governments, private sector organizations, non-profit organizations, and the general public to increase recycling and solid waste reduction activities across the state. The program provides both educational and technical assistance to all groups in the state to increase the awareness and the importance of recycling and solid waste reduction measures.



The program partners with numerous organizations in the state including the Mississippi Recycling Coalition, Keep Mississippi Beautiful and its local affiliates, and the Beverage Association of Mississippi. In FY 2010 the Recycling and Solid Waste Reduction Program conducted site assistance visits, gave presentations to organizations and schools across the state, and provided recycling and solid waste information via exhibits at various events.

- Seven K-12 schools were visited.
- Three college and university programs were visited.
- Three state agency programs were visited.
- Seven presentations or exhibits were conducted for government organizations.
- Seven presentations or exhibits were conducted for community groups.
- Two presentations were conducted for industry group and associations.
- Five commercial recyclers were inspected.
- Four recycling programs for businesses other than recycling were inspected.

The program also utilized a recycling education display that was made available to libraries and other organizations across the state for exhibition to the general public.



## **POLLUTION PREVENTION**

The purpose of MDEQ's Pollution Prevention Program within the Environmental Permits Division is to:

- Provide pollution prevention information and technical assistance to local government officials, federal officials, industrial officials, consulting engineers, and system operators on hazardous and non-hazardous waste management and pollution prevention practices.
- Review, manage, and monitor the waste minimization plans, annual waste minimization certified reports, and the EPA/Mississippi Pollution Prevention (P2G) Grant.
- Coordinate/partner with both states and the federal government (e.g. DoD) and non-governmental entities to promote effective pollution prevention practices.

During FY 2010, the MDEQ Pollution Prevention Program accomplished the following program elements:

- Eleven P2 enHance site visits
- Reviewed and monitored 198 annual waste minimization certified reports
- Met all conditions of the 2009-2010 EPA/Mississippi Pollution Prevention (P2G) Grant
- P2 assistance was provided to two small businesses in 2 different SIC codes
- Four site visits and six presentations were conducted
- Permitting/reporting compliance assistance activities was provided to three (3) facilities in 3 different SIC Codes.

### **Key Pollution Prevention Activities from July 1, 2009 to June 30, 2010**

The Pollution Prevention Program coordinates multiple activities focusing on the reduction of waste streams that can impact the environment. Key programs include managing enHance, the Mississippi Department of Environmental Quality's environmental stewardship program, and directing energy efficiency efforts utilizing the EPA's Energy Star tools.

In its second year, enHance currently has eighteen members from industry, representing top environmental leaders in the state. The objective of this program is to promote pollution prevention efforts in the state, recognize environmental leaders, provide networking and training opportunities, and encourage the use of environmental management systems. Seven charter members were accepted in 2009 and eleven additional companies joined the program this year. These companies have demonstrated a commitment to a continuous improvement process for environmental management and implemented environmental enhancement projects. There are three levels of membership, Associate, Steward, and Leader. Nine of the eighteen members have obtained the top level of Leader. Five of these Leaders have agreed to serve as mentors for other facilities in the state. Members have implemented projects resulting in reduction in solid waste, hazardous waste, air emissions, energy use, and water use. A recognition luncheon was held in April to recognize the eleven new members and provide environmental training. The workshop, "Lean, Green, and Clean – Doing More Better with Less Materials, Energy & Waste," provided training on Lean Techniques for eliminating waste and practical solutions for improving energy efficiency. A Case Study on achieving Zero Landfilled Waste was presented by a new member. Over 100 attended the training session co-sponsored with the Mississippi Manufacturers Association. Efforts to further the outreach of this program to municipalities were initiated this year.

Several Energy Efficiency projects are underway. In an effort to lead-by-example, four MDEQ office buildings were benchmarked for energy usage and an action plan for implementing energy efficiency strategies in these buildings was begun. Efforts-to-date have resulted in a reduction in energy usage of more than 10 percent. A team approach, involving multiple state agencies and all employees in the buildings, is being used to manage this effort. Energy effi-

ciency assistance is being provided to schools as well. Through a coordinated effort with MDEQ and Nissan, three schools in the state obtained certification as Energy Star facilities. An Energy Star facility must meet strict energy performance standards set by EPA, including scoring in the top 25 percent+ based on EPA's National Energy Performance Rating System.

In the coming year, the Pollution Prevention efforts will continue to focus on E3 - Energy, Economy, and the Environment - utilizing Lean & Green Techniques and implementing Energy Efficient Strategies.

### **Toxic Release Inventory**

The Toxic Release Inventory is required under Section 313 of the federal Emergency Planning and Community Right-To-Know Act of 1986. This report is required to be submitted every year by facilities that utilize toxic substances in their manufacturing processes if the facility has in excess of 10 full-time employees and falls into certain Standard Industrial Classification codes as designated by the EPA. These facilities report how toxic substances are utilized in their manufacturing processes and how and to what media they are emitted to the environment. Every year, over 250 facilities from across the state submit over 1,000 reports to MDEQ, as required by federal law.

## GRANTS AND LOANS PROGRAMS

### Section 319 Nonpoint Source (NPS) Pollution Control Grants

MDEQ, in cooperation with numerous federal, state, and local stakeholders has been successful in developing a comprehensive statewide NPS pollution control program to help protect and restore our valuable water resources. The state's NPS Program fulfills the requirements of Section 319 of the Clean Water Act (CWA) and section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA), two federal laws with NPS pollution control provisions.

The MDEQ currently has six active grants, one of which (Grant Year 2005) will be closed out in 2010. Over these six grant periods, there have been 59 different projects. These include, but are not limited to: educational projects; water-quality monitoring projects; Best Management Practices (BMPs) demonstration projects; agricultural/chemical waste disposal; watershed protection and restoration; land-acquisition projects that focus on acquiring sensitive parcels of land for intercepting and/or buffering NPS pollution; five "Nutrient Reduction Watershed Management Plans" for various geographic areas across the state and two nutrient-reduction projects in the Delta using various BMPs.

In FY2010, MDEQ received approximately \$3.7 million in Section 319 Grant funds. Of this amount, four percent is allocated for administrative work, eighteen percent for assessment and monitoring, twenty-eight percent for program operation and statewide education and public outreach projects, and fifty percent for priority watershed restoration and protection projects primarily focusing on nutrient reduction.

### Water Pollution Control Revolving Fund



The Water Pollution Control Revolving Loan Fund (WPCRLF) program provides low interest loans to public entities in the state for construction, repair, or replacement of wastewater, storm water, and nonpoint source pollution projects. Funding for these projects comes from federal grants, state match, repayments, and interest on deposits. During 2010 MDEQ funded 11 new projects totalling \$25.4 million from the WPCRLF program. Since Hurricane Katrina, the department has been working with the WPCRLF loan recipients in the coastal counties to provide repayment forbearance periods when requested due to the impacts of the storm.

### Water Pollution Control Emergency Loan Fund

The Water Pollution Control Emergency Loan Fund (WPCELF) program provides loans to communities for the emergency construction, repair, or replacement of wastewater collection and treatment facilities. The WPCELF has approximately \$2,900,000 available for such emergency projects.

MDEQ encourages communities throughout the state to utilize this program whenever emergency wastewater projects are needed. After Hurricane Katrina, the department worked with the WPCELF loan recipients in the coastal counties to provide repayment forbearance periods when requested due to the impacts of the storm.

## HURRICANE KATRINA YEAR FIVE REPORT

Five years after Hurricane Katrina devastated the Mississippi Gulf Coast, the Deepwater Horizon 252 oil spill has made evaluating the continued recovery of aquatic resources in the area difficult to judge. However, prior to the spill, the resources were doing well. The recreational beaches have been re-nourished and reopened, oyster reefs have been rebuilt and commercial harvest of oysters has resumed. Following the storm, the Mississippi Department of Environmental Quality, along with its state and federal partners, worked hard to evaluate environmental conditions along the Coast. The results of multiple monitoring studies indicated very limited chemical contamination as a result of the hurricane; however, continued environmental monitoring of coastal Mississippi is still very important as the region rebuilds. MDEQ continues to lead this monitoring effort, and to work with federal, state and local officials to resolve problems as they arise.

- MDEQ has made great strides in rebuilding and improving air monitoring capabilities along the Mississippi Gulf Coast under the \$897,000 Post Hurricane Katrina Supplemental Air Monitoring Grant award from the U.S. Environmental Protection Agency. The air monitoring equipment needs identified in the grant have been addressed with the exception of continuous particulate monitors, and the sites have been strengthened against future storms.



- This Supplemental Air Monitoring Grant has been used to install and operate a rainfall monitoring station at the Grand Bay National Estuarine Research Reserve in Moss Point. Concentrations of mercury, methyl mercury, major nutrients and trace metals are measured weekly in rainwater collected at the station. The site has been accepted into two long established national monitoring networks, and the data will provide important information for understanding the cycling of mercury in the regional watershed.

- Building debris clean-up and reconstruction efforts along the Coast are causing very large numbers of building demolition and renovation operations that pose a concern for asbestos. MDEQ's Asbestos Section continues to be fully engaged with local officials, contractors, and the public so that they may be aware of asbestos control regulations and safety measures to follow. Education and assistance for the requirements of the regulations are a priority, and MDEQ maintains a presence in the area performing compliance assistance and compliance monitoring inspections and other outreach. The No Action Assurances that were negotiated with EPA were implemented through September 2007. The procedures that were set helped expedite the handling of residential property that had to be cleared for rebuilding and assured environmentally safe operations.

- Treatment of municipal wastewater is a vital element in the reconstruction of the Coast and in protection of the environment. Five local communities continue the work to repair and upgrade their wastewater treatment systems.

1. In the City of Waveland, sewer system repairs consisted of two phases full pipe replacement south of the railroad, which are complete, and one phase north of the railroad, which was completed in 2010. In addition, the city is currently rebuilding the last of its 51 pump stations. These rebuilds have included all new pumps and control panels.

2. Bay St. Louis is continuing to rebuild the utility infrastructure in the most devastated areas (Phases I- III). This work will replace all water and sewer lines in the area between the railroad tracks and the beach. The Phase I and Phase II areas are 100 percent complete with Phase III 95 percent complete. A fourth phase of point repair is under way and 55 percent complete. The last of the city pump stations will be completed in 2011. Bids will be received for the project in December 2010.

3. The City of Long Beach completed all three phases of sewer line replacement along Beach Boulevard in 2009. Of the four additional phases of line replacement between the beach and the railroad, two phases have been complete and the last two are approximately 90 percent complete.



4. The City of Biloxi has yet to begin construction on any of their 14 phases of collection system reconstruction. In 2010 design for all phases was suspended at 90 to 100 percent complete while the city worked to resolve issues with FEMA over the funding of the projects. In late 2010, FEMA agreed to approve the projects with a cap in funding at \$347 million. Two projects are expected to begin construction in early 2011 with the others to follow as engineering is completed.

5. The Harrison County Utility Authority (HCUA) is currently under construction on its final project to rebuild the large interceptor station located off Highway 90 serving west Gulfport.

- Federal funding for EPA's National Coastal Assessment (NCA) Program ended in 2006. This water quality monitoring program was the primary tool for evaluating the quality of Mississippi's coastal waters. MDEQ believed it was important to continue monitoring this valuable resource as coastal communities rebuild and grow following Hurricane Katrina, and as the Governor's Gulf Region Water and Wastewater Plan is being implemented. Beginning in 2008, MDEQ partnered with the Gulf Coast Research Laboratory and the Department of Marine Resources to implement a coastal water quality monitoring program, patterned after EPA's NCA program.



- MDEQ has taken an active role in supporting the Gulf of Mexico Alliance and its Governors' Action Plan for Healthy and Resilient Coasts. This plan is aimed at protecting and restoring water quality and habitats in the Gulf of Mexico and its estuaries, and improving public awareness of the Gulf through environmental education. The Alliance is devoted to accomplishing these goals through regional collaboration. Mississippi is the lead state for the Nutrient Reduction Priority Issue Team with the Alliance and is currently in the process of drafting action items that will be included in the next Governors' Action Plan. This plan has a five-year time frame.

- MDEQ has reestablished its ambient monitoring program for the state. A component of this program was to restore monitoring at some long term historical sites and to initiate sampling at new sites at the major freshwater inflows into coastal waters. This monitoring, which was suspended in 2000 due to other agency priorities, will build upon years of historical data to help MDEQ track long term trends in water quality in our coastal streams.

- The Emergency Response Branch continues to recover hazardous materials containers from woods and marshes in the coastal counties.

- MDEQ has also been active in strengthening its response capabilities in preparation for another natural disaster or security event.

- MDEQ has revised its Response Plan to improve the agency's ability to respond and to enhance coordination and communication with MEMA, FEMA, sister agencies, and local governments during emergencies.
- MDEQ has updated staff to be prepared to respond in a time of disaster. This training includes the National Incident Management System so efforts can be better coordinated with other agencies, and proper documentation of expenditures to ensure that state funds expended are eligible for reimbursement by FEMA.
- MDEQ participated in the Hurricane Ulysses Disaster Drill to test preparedness on May 1, 2008.
- MDEQ has prepared FEMA trailers and equipment to serve as temporary housing and office space for staff when responding to incidents or disasters.
- Federal grant funding was used to bolster the agency's ability to communicate and respond during a disaster. Satellite radios have been acquired to improve our ability to communicate within MDEQ and with MEMA, FEMA and other responding agencies.
- An emergency, backup generator system for MDEQ's laboratory was purchased. This will prevent the loss of valuable samples and evidence during a power outage, and allow mission critical laboratory operations to continue in most disaster situations. Installation of the generator was completed in December 2009.
- MDEQ purchased a mobile fuel tank that will be used to provide fuel for MDEQ emergency vehicles, improving our ability to function during times of critical fuel shortages.



## OUTREACH

### Office of Community Engagement

In May 2010, Executive Director Trudy Fisher, created the Office of Community Engagement. The mission of the Office of Community Engagement is to facilitate the use of environmental resources to support existing partnerships and engage new partners to contribute to the educational, social, and economic progress of the community, region, and state.



The office is responsible for facilitating, coordinating, and advancing agency wide community engagement. The office contributes to and supports the diversity outreach initiatives of the agency and builds effective relationships and partnerships with internal and external constituents to advance the mutual needs of the community and MDEQ.

Over the past seven months, the Office of Community Engagement held meetings in Copiah, Lowndes, Forrest, Adams, Harrison, Hancock, Hinds and Madison counties. It is expected that in the year 2011, more community meetings will be held to discuss issues concerning other environmental activities.

### Nonpoint Source (NPS) Pollution Education Programs

Nonpoint Source Pollution (NPS) is rainwater runoff that picks up and carries away a variety of pollutants as it flows over streets, parking lots, construction sites, or farm lands. The pollutants may then flow into rivers, oceans, and underground sources of drinking water. These pollutants include excess fertilizer, sediment, nutrients, pesticides, oil, grease, and bacteria from faulty septic systems. The primary objective of the NPS Educational Program is to increase public awareness of NPS pollution and to induce behavior changes that will reduce NPS pollution impacts, both from individuals and watersheds. The following is a descriptive list of the State's NPS educational and outreach accomplishments.

#### 1. Watershed Harmony Musical Puppet Theater



Watershed Harmony is a 30-minute musical production with seven songs, a multi-level stage, and 10 puppet characters. It is performed throughout Mississippi to teach audiences about responsible environmental stewardship of state waters and how Best Management Practices (BMPs) can reduce the impacts of polluted runoff. The show reached a total of about 8,500 students and adults during the year.



## 2. Mississippi and Yazoo River Boat Tours for Students



An NPS project to educate students about the Mississippi and Yazoo River watersheds began in the fall of 2008. During 2010, a total of 2,208 students and teachers toured the rivers on a river boat. They viewed land uses on the shore, water uses in the two rivers, and the industrial harbor that might impact water quality in the two watersheds. Pre-test/Post-test scores indicate an increased knowledge and awareness as a result of the tours. Students also gained a new perspective about water quality in their communities.

## 3. Storm Drain Marking

This program promotes awareness of the water-quality impacts of polluted runoff in urbanized communities. Small plastic disks are placed by local volunteers on storm drains with the message “No Dumping, Drains to River.” During 2010, volunteers glued the markers to 461 storm drains and distributed door hangers to homes in Hernando, Starkville, Columbus, and Cleveland. Students and scouts also talked with residents about storm- water runoff and the need to prevent pollutants from entering storm drains.



## 4. Adopt-A-Stream Program

Adopt-A-Stream is a program that promotes environmental stewardship by training volunteer citizens about stream ecology, aquatic life, and water chemistry. Volunteers attend a two-day, water-education workshop or a one-day workshop to learn how to monitor a stream, conduct a stream cleanup, or mark storm drains. In 2010, 12 people attended the traditional two day workshop and 114 attended seven one day workshops. Over 10,500 people were reached with the Adopt- A-Stream Program statewide through Envirothon Competition and scout training, large event venues, conservation field days with schools, and workshops.



## 5. Enviroscape and Groundwater Models

During 2010, MDEQ staff reached over 4,100 students, teachers, and the general public using presentations associated with water quality. Over 110 water models have been distributed through-out Mississippi to county Extension Service Offices, State Department of Health offices, Soil and Water Conservation Districts, Environmental Learning Centers, the Choctaw Indian Reservation, and other organizations.



## 6. Environmental Teacher Workshops and Student Environmental Camps

Over 912 educators attended 49 CEU-approved workshops conducted statewide during 2010. In addition, 10 student Environmental Day-Camp sessions were conducted with over 179 students in attendance.

## 7. Envirothon Competition for High School Students

This competition tests student knowledge about water, soils, forestry, wildlife, and current environmental issues. In 2010, there were 420 high-school students and 70 team advisors from 32 Mississippi counties who participated in the contest. MDEQ assists with sponsorship, Envirothon training, the steering committee, and the statewide competition.

## 8. Mississippi Environmental Education Alliance (MEEA)

MEEA featured “Estuaries. . . . Where the Land Meets the Sea” at the Fall 2010 Conference where 40 teachers and environmental educators completed the two-day long CEU-approved workshop which was held at the Grand Bay National Estuarine Research Reserve Center (NERR) near Mosspoint. MDEQ’s Nonpoint Source Pollution Education Administrator is currently serving as president of the statewide MEEA organization. MEEA is allied with the State and International Envirothon Competition coordinators. Envirothon is an environmental competition for high school students and the estuary theme was selected this year because it is the special topic for Envirothon in 2011. MEEA is also affiliated with the Mississippi Geographic Alliance, the Mississippi Natural Science Museum, the Mississippi Adopt-A-Stream Program, the Grand Bay NEER, Mississippi State University Extension Service, and other environmental learning centers in the state. MEEA is also affiliated with the North American Association of Environmental Educators.

## 9. Storm Water Workshops

In 2010, MDEQ participated in a Green Infrastructure Workshop held on the Barnett Reservoir at Holmes Community College. The purpose of the workshop was to develop a watershed conservation plan to increase the quality of life in a rapidly developing urban center in Mississippi. The workshop and plan were produced through the use of large, hard-copy maps with active participation from the Pearl River Water Valley Supply District, Rankin County Board of Supervisors, natural resource agencies, and consultants. In addition, green infrastructure workshops were held in Greenwood, the Upper Tallahatchie River Area and Corinth.

## 10. Rain Barrel Pilot Project

MDEQ, in partnership with North Central Mississippi Resource Conservation and Development Council, and Pontotoc County Soil and Water Conservation District (SWCD) conducted a rain barrel project primarily in the Chiwapa Creek Watershed in Pontotoc County. A total of 250 rain barrels were distributed through this project by two different methods: 1) Homeowners were taught how to make rain barrels and a total of 100 barrels were distributed at four workshops that included: the Pontotoc Rain Barrel Workshop; the Pontotoc Environmental Education Teacher Workshop; the DeSoto County SWCD Fish Pond/Rain Barrel Field Day; and the Tippah County Master Gardeners Event; 2) 150 rain barrels were distributed through the “Rain Barrel Homeowner Incentive Program”. An attractive Rain Barrel Brochure was developed called *Chiwapa Creek Rain Barrel Project*.

## 11. Other Educational and Outreach Events

- The ***Make-A-Splash Event*** was held during 2010 at the Mississippi Natural Science Museum where eight schools attended, two from the Pearl River Watershed and six from the Yazoo River Watershed of the Mississippi Delta region. A total of 495 students and 42 teachers attended this event.
- Mississippi **Urban Forestry Workshops** were held in 2010, one of which involved intensive training on green laws, ordinances, and stormwater retrofitting of parking lots and street-scapes. About 50 people attended the workshop which was held in Jackson, at the Natural Science Museum. MDEQ sponsored publications about Urban Forestry for the workshops. The publications guide communities in planning and managing urban forests and include: *Introduction to Urban Community Forestry*; *Urban Forestry, Mississippi Urban and Community Forestry Management Manual* (191 pages); *The Community Forest Booklet* and; *Preserving Trees in Construction Sites*. These are available from the Mississippi Forestry Commission.

## 12. Videos

- ***Reigning over Runoff*** video is a production of the Natural Resources Initiative of Mississippi. By using superb footage of select streams, rivers, wildflowers, and more, this short film focuses in a compelling way on a few practices that homeowners and communities can use to enhance water quality.
- ***Ross Barnett Reservoir Initiative, Rezonate*** - As part of the *Rezonate* project, MDEQ developed an Education and Development video that contains archival footage depicting the development of the Ross Barnett Reservoir its ecosystem, urban development, parks, and recreation. The video was created in 2010 as a public awareness tool to promote the preservation, protection, and improvement of water quality throughout the Ross Barnett Reservoir.
- ***Red Creek Video*** - an entertaining documentary film entitled “*The Search for Red Bluff*” was produced and widely distributed. This film includes a rich historical narrative of the watershed and describes the potential outcome of poor management of our natural resources and lack of proper BMP implementation.
- ***Protecting Our Waters - Reducing Nutrients in Mississippi*** was developed to tell Mississippi’s nutrient reduction story. The main purpose of developing this video is to communicate to federal/state/local government agencies, nongovernment organizations and other stakeholders across the nation with an interest in nutrient reduction:
  - To explain the problem of excess nutrients in water bodies and how it leads to hypoxia in the Gulf of Mexico;
  - To feature the regional and national leadership role that Mississippi is taking in solving the water quality problem from excess nutrients;
  - To showcase the development/implementation of nutrient reduction strategies in the Mississippi Delta;
  - To highlight the development /implementation of the Gulf of Mexico Alliance’s nutrient reduction strategy template for Mississippi’s coastal and upland watersheds; and
  - To educate the target audiences on the benefits of addressing the problems of excess nutrients.

## Water Events/Festivals/Exhibits

### ***Old Fort Bayou Blueway: Battle on the Bayou***

Held at the newly developed Old Fort bayou Blueway in Ocean Springs and Biloxi, it was a kick-off event for a paddling club (with regular e-mails and web-site updates) that holds weekly events in the coastal region of Mississippi, including the Barrier Islands. The paddling club is extremely popular and is an excellent way to educate the public about the importance of water quality, water resources, and wildlife.



### **Secchi Day 2010**

Various groups joined together in 2010 for Secchi Day on Pickwick Lake at J. P. Coleman State Park in Tishomingo County. Boaters attended a short training session before launching their boats and heading out on the lake. At the assigned site each team recorded the depth in the water at which the secchi disk seemed to disappear. This year 35 sites on Yellow Creek, Bear Creek and Pickwick Lake were tested. The secchi teams were happy to report that many of the locations had seen some improvement over last year. Resulting data were sent to Kent State University to be included in the data base of secchi readings for more than 10,000 lakes, rivers and streams across the country.



After a morning spent out on the lake collecting data, teams, their families, and the public enjoyed the many educational booths. Adding to the fun of the day, many also participated in a miniature golf tournament and a watermelon seed spitting contest. Estimated attendance was 150. The next Secchi

Day will be September 17, 2011, at J. P. Coleman State Park.

## WaterFest 2010

An exciting conservation event held each year at Lakeshore Park on the Ross Barnett Reservoir. The event highlighted the need to protect and improve water quality within the priority watershed. The event featured fun, educational/interactive activities, exhibits, food, music, demonstration areas and more.

This year's attendance tripled in participation from previous years making 2010 the festival's banner year. The official mascot was unveiled and "Mr. Whiskers" made his long-awaited debut. "Mr. Whiskers" is personified as a very wise and experienced catfish, who donated his time to posing for pictures the entire afternoon.

*Rezonate*, the Ross Barnett Reservoir Initiative, was also developed in 2010 by MDEQ and Pearl River Valley Water District as an environmental initiative designed to promote awareness of the importance of protecting and restoring the drinking water source for the City of Jackson and surrounding counties.



## Basin Management Approach

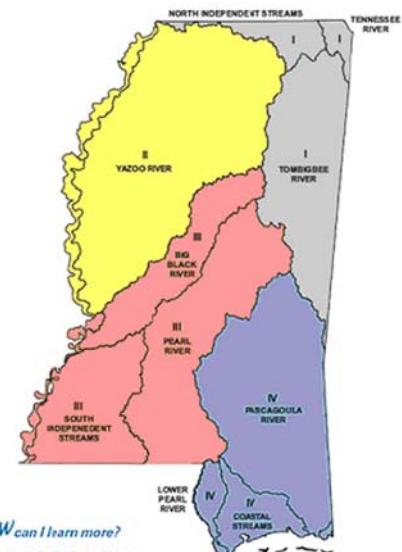
The mission of the Basin Management Approach is to foster stewardship of Mississippi's water resources through collaborative watershed planning, education, protection and restoration initiatives. To accomplish this, ten of Mississippi's major river basins have been organized into four basin groups (see map insert). Each basin group has a basin team of state and federal agencies and local organizations.

### 1. The Pickwick Reservoir Project

Is ongoing in Basin Group I and is designed to improve water quality by addressing sediment issues arising from erosion from agricultural and silvicultural practices and stream bank failure in the Pickwick and Bear Creek watersheds, primarily in Tishomingo County. In addition, a Source Water Protection Plan for the Short Coleman Water Association water intake on the Yellow Creek Embayment of Pickwick Reservoir will be developed. The project also provides for pollution prevention education and outreach to boaters, farmers, homeowners, timber landowners and others.

### 2. Nutrient Reduction Strategies

Mississippi's collaborative, leveraged approach to reduce excessive nutrients and their impacts focuses on the development and implementation of appropriate nutrient reduction strategies. During 2009, strategies were developed to reduce excessive nutrient loadings for the Mississippi Delta, the primary region of row-crop agriculture and aquaculture in the state. This



How can I learn more?

Contact your Basin Coordinator:

**Group I** North Independent Streams, Tennessee River & Tombigbee River  
Janet Chapman - 601-961-5266

**Group II** Yazoo River  
Pradip Bhowal - 601-961-5082

**Group III** Pearl River, South Independent Streams & Big Black River  
Donetta McCullum-Weatherspoon - 601-961-5348

**Group IV** Pascagoula River, Coastal Streams & Lower Pearl River  
Coen Perrott - 601-961-5374

Basin Management Branch Chief - Kay Whittington - 601-961-5729

effort was co-led by MDEQ and Delta F.A.R.M. (Farmers Advocating Resource Management). During late 2009, MDEQ working through the Gulf of Mexico Alliance's Nutrient Team facilitated the development of a common template for Gulf of Mexico states to encourage a consistent, aligned approach to reduce excessive nutrients regionally. This template is now being implemented in Mississippi and Louisiana as both states use it to guide them in developing state-specific nutrient reduction strategies for their coastal watersheds. In Mississippi, this effort is co-led by MDEQ and the Mississippi Department of Marine Resources. During September 2010, MDEQ working through the Hypoxia Task Force facilitated the development of a common framework for states within the Mississippi/Atchafalaya River Basin to reduce excessive nutrients and mitigate Gulf hypoxia. Additionally, Mississippi is currently developing nutrient reduction strategies for its upland areas.

The Delta, Coastal, and Uplands strategies will be consolidated to establish a comprehensive, state-level, approach to reduce nutrient loadings from nonpoint and point sources, whether in a predominately agricultural environment, areas of higher municipal and industrial uses, or more natural coastal environments. This state-level strategy will be completed in March 2011.

### **3. Implementing Nutrient Reduction Strategies and TMDLs**

Six watersheds have been identified for implementation of the strategies in the Mississippi Delta, which is in Basin Group II. These include two new projects in the Harris Bayou and Porters Bayou watersheds, and the expansion of four existing sediment reduction projects in the Bee Lake, Wolf/Broad Lake, Lake Washington, and Steele Bayou watersheds.

Potential watersheds have been identified in the North Independent Basin in Basin Group I for implementation of the uplands strategies. These are the Muddy Creek and Tarebreeches Creek watersheds. A potential watershed, Rotten Bayou, has also been identified in the Coastal Streams Basin in Basin Group IV for implementation of the Coastal strategies. Rotten Bayou is a tributary to St. Louis Bay, the site of a nutrients source, fate, and transport study facilitated by the Gulf Alliance's Nutrients Team.

Nutrient TMDLs have been developed in each of these watersheds and will be used for the load reduction targets in the each watershed implementation plan. Implementation will address both nonpoint and point sources. Key questions that implementation of the strategies will seek to answer are:

- What load reductions are achievable and when?
- What are the costs for these reductions?
- What are the environmental and socioeconomic benefits?
- How do we implement?

Pre- and post-implementation monitoring is being conducted and/or planned for the nutrient reduction watershed projects in an effort to quantify improvements in water quality. Using a tiered approach, attempts will be made to understand the impacts of various established and innovative best management practices (BMPs) and improvements in water quality on a landscape scale, a small watershed scale, and larger watershed scale. Temporal monitoring and assessment issues will also be addressed as resources permit. Costs will be documented and assessments will be made on a unit cost/water quality improvement basis. Additionally, environmental and socioeconomic benefits will be assessed using the concept of ecosystem services as data allows.

### **4. First Annual Mississippi Nutrient/Hypoxia Summit and Nutrient Reduction MOA Signing**

Mississippi is blessed with abundant water resources. Whether it is for consumption or recreation, clean water is one of the building blocks upon which our society is constructed. Accordingly, protection of these resources is essential to ensure sustainability of the state ecosystems and economies.

One of the biggest challenges for Mississippi's surface waters, the Mississippi River, and the Gulf of Mexico is the presence of excess nutrients in these waters. The Gulf of Mexico contains a hypoxic "dead zone" that is a result of nutrient-laden freshwater from the Mississippi River flowing into the Gulf.

Recently, MDEQ hosted a nutrient/hypoxia summit in Tunica to feature the regional and national leadership role that Mississippi is taking in solving water quality problem from excess nutrients. Trudy Fisher, MDEQ Executive Director, opened the summit by highlighting Mississippi's ongoing partnership efforts to reduce nutrient loading to the state waters. A video, titled "*Protecting Our Waters – Reducing Nutrients in Mississippi*," was premiered at the Summit to tell Mississippi's nutrient reduction story.

The participating federal/state/non-governmental agencies already agreed to formalize their working relationship to reduce nutrient loadings within the state and to the Gulf of Mexico through a Memorandum of Agreement (MOA). This MOA was signed at this Summit on October 1, 2010, by the following agencies/organizations:



*USDA Natural Resource Conservation Service; USDA Farm Service Agency; USDA Agricultural Research Service; USDA Rural Development; U.S. Geological Survey; U.S. EPA Gulf of Mexico Program Office; Mississippi Department of Environmental Quality; Mississippi Department of Marine Resources; Mississippi Soil and Water Conservation Commission; Mississippi Department of Agriculture and Commerce; Mississippi State University; University of Southern Mississippi; University of Mississippi; Mississippi Levee Board; Delta F.A.R.M.; Mississippi Farm Bureau Federation; Delta Wildlife; The Nature Conservancy; Delta Council; Gulf of Mexico Alliance; and Northern Gulf Institute.*

Among the activities underway in Mississippi to reduce excessive nutrient loadings are the development and implementation of comprehensive nutrient reduction strategies. Development and implementation of these strategies include significant contributions of resources from various State and Federal agencies and nongovernmental organizations in Mississippi.

These signatories will continue to work together to collaboratively support the development and implementation of nutrient reduction strategies to benefit the quality of in-state waters and the Gulf of Mexico. Additionally, these parties will work to identify and pursue opportunities to leverage available resources to implement these strategies, where possible.

## **5. Ross Barnett Reservoir**

The Ross Barnett Reservoir in Basin Group III is a vital resource to Central Mississippi. It is the largest source of drinking water in the state, supplying over 15 million gallons of water to local residents, businesses, and industries. The Environmental Protection Agency (EPA) has designated this area as a Priority Watershed. The Reservoir welcomes in excess of 2.5 million visitors annually, and many consider it the premier recreational water body in Mississippi. Since its development almost 50 years ago, it has provided immeasurable benefits to the local economy. Local communities are continuing to benefit from increased residential and commercial growth, largely attributable to the reservoir. This year, the Mississippi Department of Environmental Quality (MDEQ) and the Pearl River Valley Water Supply District (PRVWSD), have been working towards finalizing plans to restore and protect water quality within the Ross Barnett

Reservoir. This project, called *Rezonate*: The Ross Barnett Reservoir Initiative focuses on six priority issues in the watershed: 1) Reduce and control watershed erosion and sedimentation 2) Reduce and control pathogens 3) Reduce litter/trash in the reservoir and around the shoreline 4) Reduce and control nutrients/organic enrichment 5) Manage invasive species 6) Reduce and control pesticides.

As part of this initiative, MDEQ has developed a comprehensive watershed restoration and protection plan. This effort also included the development of a water quality monitoring plan, a source water protection plan (SWPP), and a comprehensive education and outreach plan for the reservoir. The watershed restoration and protection plan uses *EPA's Nine Key Elements of Watershed Protection* to identify potential pollutant sources in the watershed. The plan also recommends a set of conservation measures to address the priority pollutant issues and ensure that these measures are implemented. MDEQ and PRVWSD have developed these plans which incorporate workgroups that utilize technical expertise from various state agencies, local agencies, and local stakeholders.



Recently, MDEQ and PRVWSD announced the official founding of two organizations that will benefit the Ross Barnett Reservoir and have a positive impact to the areas surrounding the 33,000 acre lake. The “Ross Barnett Reservoir Foundation” was created on the concept of having input from citizens whom have an interest in providing support and guidance for future economic development needs. The foundation offers an excellent opportunity for community leaders, stakeholders, and the general public to have a voice on decisions being made by state agencies. The primary purpose of the “*Ross Barnett Reservoir Foundation*” will be to: 1) Promote public interest in the Ross Barnett Reservoir 2) Raise funds for projects, studies, designs and equipment 3) Preserve and enhance the water quality 4) Provide a vision for the future and address needs that will improve the quality of life for residents 5) Enhance recreational opportunities for visitors. Secondly, “Keep the Reservoir Beautiful” has officially become an active affiliate of Keep America Beautiful, the largest nationwide volunteer organization, which will help promote beautification efforts in and around the Ross Barnett Reservoir project area. The unique newly formed group, the only one of its kind that focuses on a waterbody, will be focusing on beautification and improvement of public places, waste reduction, and recycling in and around the Reservoir area. Training for this group will be provided by Keep America Beautiful and funding is being provided through a grant courtesy of MDEQ. Together, these two new foundation formations will aid in the preservation and restoration of the 33,000 acre reservoir.



## **6. Turkey Creek Watershed Team Receives EPA Regional Watershed Partnership Award**

On August 4, 2010, EPA Region 4 presented the first Annual Regional Watershed Partnership Award to the Turkey Creek Watershed Implementation Team (located in Harrison County). The Regional Watershed Partnership Award recognizes groups that have demonstrated inclusive governance, initiative, and results in leading watershed improvement efforts. The award was presented at the Gulf of Mexico Alliance Meeting in Biloxi. The meet-

ing was attended by over 400 people from the five U.S. Gulf Coast states and officials from Veracruz, Mexico. Eight members of the watershed team, representing seven different organizations (community groups, environmental groups, the local church, and city and county governments) received the award on behalf of the team.

Accomplishments of the watershed team include: development and implementation of a community plan and watershed plan to address environmental, housing, transportation, and cultural issues; upgrading of the water quality criteria for Turkey Creek to make it more protective of human health; implementation of restoration projects; education and outreach activities; completion of a 400-acre greenway, with an additional 450 acres currently being acquired; and 1,638 acres of priority land in the watershed to be acquired by the state and preserved as wetland for perpetuity. Use of the Turkey Creek Greenway is expected to benefit over 100,000 area residents with supplemental tourist usage.

The Turkey Creek Watershed includes portions of Gulfport and Long Beach and contains wetlands that have been identified by EPA as Aquatic Resources of National Importance. The watershed team is led by local leaders of the historic Turkey Creek and North Gulfport Communities, environmental justice neighborhoods settled in the 1800's by emancipated slaves. The Turkey Creek Watershed Team has repeatedly demonstrated their effectiveness at building coalitions and achieving consensus with partners to the benefit of their natural resources. Partners of the watershed team include representatives from national and local nonprofit organizations, churches, schools, state and federal government agencies, members of the state legislature, county and city elected officials, academia, and environmental consulting firms.



To support the ongoing efforts of the watershed team and local communities, Turkey Creek was also recently selected for EPA's Urban Waters Initiative and for a DOT-HUD-EPA Sustainable Communities Partnership project.



## Lead Outreach

During the reporting period, 180 daycare centers and 13 headstart centers were visited to make the daycare centers and headstart centers aware of the state's lead-based paint regulations and the hazards associated with lead-based paint. Information pamphlets and a copy of the state's regulations were given to the centers' directors and staff attending the meetings. Information pamphlets were also given to each student to take home. Outreach activities directed to daycare centers are very important since children in daycares spend many hours during a day in the centers. Many of the daycares are located in older houses, potentially containing lead-based paint hazards. Also, outreach booths were manned at several statewide organizational annual conferences to educate the attendees on the hazards associated with lead-based paint and the state's lead regulations. Over 2,000 one-on-one contacts were made at the conferences. Approximately 12,000 pamphlets were distributed at the outreach activities during the reporting period.

## Air Quality Outreach

MDEQ conducted air quality and air pollution awareness outreach efforts throughout Mississippi during Fiscal Year 2010, with most of the efforts concentrated on the Mississippi Gulf Coast and DeSoto County. These areas were chosen because of the probability that EPA may designate these areas as nonattainment with the ground-level ozone standard. Outreach efforts consisted of giving interactive presentations in fun and informative ways about air quality and air pollution to school children at various fairs and festivals in addition to classrooms. Also, public outreach efforts were conducted at these fairs and festivals for adults. In addition, MDEQ participated in meetings with city, county, and state government officials, industry, and business representatives concerning air quality.



## Improving Environmental Information Management

MDEQ continued to expand the use of enSite within the agency in 2010, further integrating regulatory programs across the organization and streamlining business processes through increased automation of business functions. In 2010, facilities submitting Toxic Release Inventory Data to EPA through EPA's TRI-ME software no longer have to submit a hard copy report to MDEQ. TRI data flows from EPA to MDEQ through the National Environmental Information Exchange Network (EN). MDEQ received two EN grant awards in 2010 from EPA to improve the management and flow of water quality and TMDL data to EPA, and to modify a multi-state e-government portal for compliance with EPA's Cross Media Electronic Reporting (CROMERR) rule. MDEQ's Data Integration Division and Information Management Systems were used to support MDEQ staff in the Deepwater Horizon Oil Spill Incident.

## Environmental Resource Center

### *Environmental Assistance - A Priority*

The Mississippi Department of Environmental Quality is dedicated to providing statewide focused, collaborative, and coordinated environmental assistance, as a priority, to increase environmental awareness and compliance, and to protect the environment for all Mississippians. MDEQ's assistance vision and ethic incorporates and implements the theme "Environmental Assistance – A Priority." Assistance in the form of workshops, seminars, training sessions, and on-site technical assistance is provided through the Environmental Resource Center (ERC). MDEQ assistance activities are developed and implemented in an agency wide perspective incorporating input from all MDEQ offices, divisions, programs, and across environmental media.

MDEQ and ERC has provided workshops, seminars, assistance, and training session activities including the following: Collision Repair: The ERC organized information and training workshops for the Collision Repair Industry. The workshops were conducted in conjunction with I-Car, O'Reilly Auto Parts and other industry sector partners. These workshops were held in Jackson, Tupelo and Southhaven. The ERC attended the 2010 "Crusin The Coast" and appeared on television news shows on the Gulf Coast to provide information to the Collision Repair industry on how to comply with regulations currently being implemented.



Topics and issues: solid waste planning, solid waste enforcement officer training, surface mining laws and regulations, high hazard dam regulations, dam safety, solid and hazardous waste recycling, small business technical assistance, dry cleaner assistance, toxic release inventory training, storm water regulations, pollution prevention, paint spray operations, compliance assistance, coating operations, city and county seminars and conferences, wastewater compliance, basin management, watershed implementation, and water quality.

The ERC continues to provide one on one assistance activities to a variety of Small and Less than Large Businesses.

The ERC serves as the central point for receiving citizen complaints and Public Information Requests

The MDEQ Diversity Initiative continues to maintain relationship with Historically Black Colleges and Universities attending Career day at Alcorn State University, Mississippi Valley and Jackson State Universities.



## The Fossil Road Show, Mississippi Museum Of Natural Science

The Fossil Road Show was held at the Mississippi Museum of Natural Science. MDEQ staff who helped with this event were David Dockery and James Starnes of the Office of Geology and Robert Seyfarth of the Office of Pollution Control.



## Office of Geology Rocks the Show

Staff from the Office of Geology were present at the Mississippi Rock, Gem, Mineral, and Fossil Show in Jackson. They answered questions from the public and presented the multifaceted work of the Office of Geology.

## Geology Field Trip

Millsaps Geology Department students and professors on a field trip to the Birmingham Ridge Lime Quarry in Lee County, Mississippi, a field trip led by David Dockery, April 1, 2010.



## enHance

In January 2009, MDEQ announced the selection of the first class of members in the enHance program and another class was accepted in 2010. enHance is a voluntary state incentive program that encourages environmental stewardship and recognizes environmental leaders. The program showcases the environmental leaders who make a commitment to promote and implement practices that reduce waste, conserve resources, and strive for environmental excellence through continuous improvement.

enHance participants may choose to apply as an Associate, a Steward, or a Leader.

### Leaders

- Baxter International – Cleveland
- Eka Chemicals – Columbus
- Haworth, Inc. – Bruce
- Hunter Douglas – Tupelo
- International Paper – Redwood
- Nucor and General Recycling - Flowood
- Caterpillar High Performance Extrusions – Oxford
- Naval Construction Battalion Center – Gulfport
- Southern Natural Gas - Pickens Station – Pickens

### Stewards

- DTE Petcoke – Vicksburg
- Columbus Brick – Columbus
- Leaf River Cellulose, LLC – New Augusta
- Northrop Grumman Shipbuilding – Gulfport
- Northrop Grumman Electronic Systems – Ocean Springs
- Northrop Grumman Shipbuilding – Pascagoula

### Associates

- GDF Suez Choctaw Gas Generation – Ackerman
- GDF Suez Red Hills Power Plant – Ackerman
- Gulf States Manufacturers - a Nucor Co. – Starkville

