

Mississippi Department of Environmental Quality 2009 Annual Report



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

February 1, 2010

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, 2009, and additional information about the agency for calendar year 2009.

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.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Trudy D. Fisher".

Trudy D. Fisher
Executive Director
Mississippi Department of Environmental Quality

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

Charles Dunagin - 4th District

Howard McKissack - 5th District

Chat Phillips - At Large

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

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



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.



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, 404, 401 water quality certifications, and groundwater withdrawal permits.

All projects have been advertised, received construction bids, and commenced construction. It is anticipated that the majority of projects will finish construction by the end of 2010 with the remaining to be completed by the end of 2011.

The projects being constructed include 17 wastewater treatment facilities, 34 water wells, 34 elevated storage tanks, 58 sewage pumping stations, and over 600 miles of water and sewer mains.

MDEQ has reimbursed the local authorities a total of approximately \$180 million in project related expenditures through the end of 2009.



Groundbreaking ceremony in Long Beach

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, fine particulate matter, and visibility recently promulgated by the U.S. Environmental Protection Agency (EPA) may affect Mississippi. 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 September 2009, EPA announced it would reconsider the 75 ppb standard. 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 August 2011.

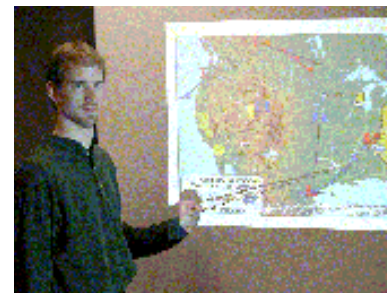
MDEQ is continuing a voluntary ozone precursor air pollution control program in partnership with governmental and business leaders on the Coast and in DeSoto County in efforts to prevent or mitigate future nonattainment.



EPA has designated all Mississippi counties as attaining the annual and 24-hour fine particulate matter standards. 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.

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. These forecasts are made available through e-mail as well as the MDEQ web site. 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.



Regional Haze Rule

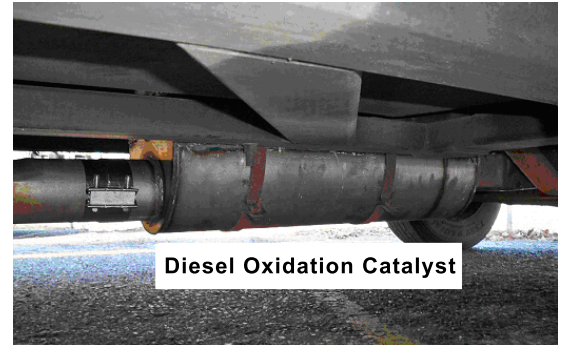
In 1999, EPA promulgated the Regional Haze Rule (RHR) to improve visibility in designated national parks, wildlife refuges and wilderness areas referred to as Class 1 areas. While there are no Class 1 areas in Mississippi, there are three in surrounding states that emissions sources in Mississippi could impact. They are the Breton Wildlife Refuge in Louisiana, the Sipsey Wilderness Area in North Alabama, and the Caney Creek Wilderness Area in Arkansas.

Mississippi and nine other Southeastern states have been working together in a collaborative effort since 2001 to determine the sources and potential solutions to improve visibility in these areas. This effort required the development of new modeling and analytical techniques that in addition to addressing visibility will be beneficial to future air quality planning efforts. In 2008, the State Implementation Plan (SIPs) was finalized. Mississippi submitted the final SIP to address Regional Haze in September of 2008. The rule requires the states to review and submit progress reports

every five years and submit a SIP every ten years to further address visibility and bring the areas to what is considered “natural background” conditions by 2064.

Mississippi School Bus Retrofit Project

The Air Division began the Mississippi School Bus Retrofit Project in the spring of 2009. Utilizing EPA grant money from the Clean Diesel Campaign and Supplemental Environmental Projects, MDEQ planned to retrofit approximately 225 public school buses. With an additional \$1.7 million from the American Recovery and Reinvestment Act (ARRA), MDEQ was able to expand the project to approximately 1700 buses across Mississippi. MDEQ is paying for the installation of diesel oxidation catalysts (DOC) on public school buses built from 1998 to 2006 that do not have more stringent existing diesel emission controls. DOCs are an EPA verified technology, built into a new muffler, which uses 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, and will continue into May 2010. By December 31, 2009, approximately 750 buses have been retrofitted in 42 Mississippi counties.



There will be a particularly beneficial impact to the school children that ride the buses everyday. The participating school districts were selected in collaboration with the Mississippi Department of Education and the American Lung Association of Mississippi. 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 unnecessarily idle which will further reduce exhaust emissions.

Air Monitoring

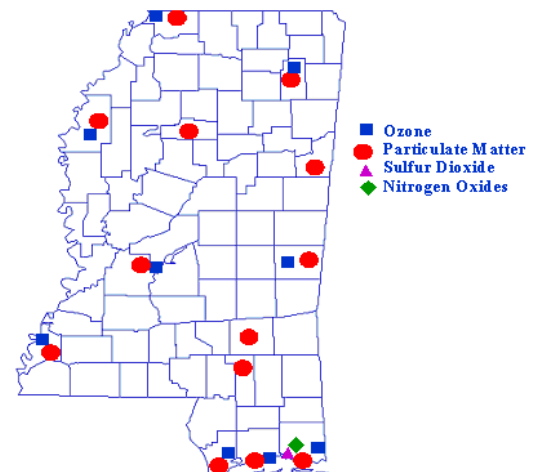
During Fiscal Year 2009, MDEQ operated a network of automated continuous air analyzers and 24-hour manual samplers for the purpose of measuring ambient air levels of ozone, particulate matter, sulfur dioxide, and nitrogen oxides.

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.



2009 Mississippi Ambient Air Quality Monitoring Sites



Asbestos

Asbestos is present in many building materials and could become dangerous during the course of demolition or renovation activity. The agency works with regulated project owners and operators so that they may be fully aware of the requirements and take appropriate actions. MDEQ also helps individual home owners safeguard against asbestos hazards by providing information and guidance.



The possibility of asbestos pollution is an important consideration in most building demolitions and renovations due to the presence of asbestos in many building products and materials. The Asbestos Section operates to ensure proper work practices by providing guidance and assistance for the requirements of regulations, visiting sites to ensure that safe and regulation compliant procedures are being performed, and by responding with an immediate investigation of any complaint. The agency also ensures that individuals who perform asbestos abatement work are properly trained through an asbestos abatement personnel certification program. Additionally, MDEQ works to ensure asbestos-safe conditions in schools by reviewing asbestos management plans that are required of schools and by performing school inspections to verify compliance with the regulations.

During 2009, MDEQ inspected 482 demolition and renovation operations and investigated 24 complaints. There were also 1422 applicants who received certification to perform asbestos abatement and asbestos management plan inspections were performed at 30 schools.

Air Toxics

Many sources or facilities are regulated for air emissions of chemicals and compounds that may cause acute or chronic health conditions. These toxic air emissions are called hazardous air pollutants (HAPs), and they are controlled or reduced under what is known as maximum available control technology (MACT) standards. These standards often require facilities to install additional control equipment and/or change process equipment or materials. The major source standards apply to facilities identified in one of 174 source categories while the area source standards apply to facilities identified in one of 70 source categories. MDEQ implements these regulations to approximately 200 major sources and thousands of area sources in Mississippi. The types of affected facilities range from large chemical plants and petroleum refineries to small dry cleaners, gasoline stations, and auto body shops.

Another focus of the agency's HAP control program concerns facilities that use, or have in storage, certain chemicals that could be dangerous if released. The agency works with facilities to see that appropriate measures are in place to prevent releases of dangerous chemicals and also to insure that facilities are prepared to minimize the consequences of a release should one accidentally occur. Regulated facilities must have an active risk management program and are required to submit a risk management plan (RMP) for MDEQ review. MDEQ routinely performs facility inspections in order to verify that the regulated entities have active risk management programs. During Fiscal Year 2009, MDEQ inspected 32 of the 148 active regulated facilities for compliance assurance purposes.

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 Environ-

mental 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 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 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.



Lead-based paint inspection and removal.

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 FY2009, the MDEQ Lead-Based Paint Section performed 13 inspections and certified 108 individuals and firms involved in lead-based paint 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. The rule also includes requirements for a pre-renovation education program. This rule also includes provisions to allow states to seek delegation of this federal program. If the state does not obtain delegation, then a federal program will be implemented in state on April 22, 2010. MDEQ is currently working on seeking delegation of the renovation rule. In preparation for submitting an application for program authorization from EPA, enabling legislation has been passed and required regulations have been approved by the Commission. Work on the application for program authorization is presently in progress and will be submitted in early 2010.

WATER RESOURCES

Total Maximum Daily Loads

Total Maximum Daily Loads (TMDLs) are a requirement of the Clean Water Act to provide direction for restoring the nation's waters. TMDL reports provide an analysis of the ability of a water body to assimilate pollutants from point sources, such as industry and communities, and nonpoint sources, such as storm water runoff from urban areas or agriculture.

The Clean Water Act requires TMDLs for every impaired water body in the state. Every two years MDEQ creates a list of these impaired waters called the Section 303(d) List of Impaired Waters. MDEQ's 2010 list is currently in development.

A federal consent decree required EPA to complete the 2,700 TMDLs shown on the 1996 Section 303(d) List of Impaired Waters by 2009. MDEQ took the lead in addressing these TMDL requirements. MDEQ sampled the biological community in over 1000 streams since 2001 to provide an indicator of instream water quality. By utilizing the biological sampling effort and completion of TMDL reports (144 in 2009, 1391 in total), MDEQ has addressed all of the TMDLs required by the 1996 list and completed the TMDL consent decree requirements statewide in all of the basins.



MDEQ continues identifying the stressors that are causing biological impairment prior to completing the TMDLs. MDEQ completed 13 stressor identification reports in the Pearl River and South Independent Streams Basins in 2009.

Now that the consent decree requirements are completed, MDEQ is transitioning to managing the TMDL Program to coordinate with other surface water programs. The TMDL program will focus not only on the development of accurate and meaningful TMDLs, but also on the implementation of TMDLs to produce measured improvements in water quality throughout the state.

During the last few years, MDEQ's Office of Land and Water Resources Surface Water Division staff have made over 800 streamflow measurements to assist in the studies of water quality in Mississippi's streams.

2009 Triennial Review of Water Quality Standards

The Clean Water Act requires all states to develop, review, revise, and adopt water quality standards. States are required to review their water quality standards every three years in a process known as the triennial review. As part of the 2009 triennial review process, MDEQ is considering the following::

- Updating human health criteria based on revisions to EPA's recommended methodology;
- Establishing a site-specific dissolved oxygen criterion based on natural background conditions for a portion of the Escatawpa River;
- Completing a review of Mississippi's ephemeral streams;
- Adding a reference to the newly established Antidegradation Implementation Methodology that is now included in MDEQ regulations; and,
- Where appropriate, adding waters within the state classified as recreational waters.

The 2009 triennial review is scheduled for completion during the first quarter of 2010. This will include a public comment period including a public hearing. The modifications will be presented to the Commission for adoption and then submitted to EPA for approval.

Mississippi's Nutrient Criteria Development Activities

In 2009, MDEQ actively continued working towards developing scientifically defensible numeric nutrient criteria that are appropriate and protective for Mississippi's various water body types. Mississippi's current Nutrient Criteria Development Plan states that nutrient criteria will be developed for each of the various water body types in the state including:

- Lakes and Reservoirs,
- Wadeable Streams (outside the Mississippi Delta Region),
- Non-Wadeable Streams (outside the Mississippi Delta Region);
- Delta Region Water bodies; and,
- Estuaries and Coastal 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. MDEQ is currently working to collect additional data, perform analyses, and develop additional tools to aid in the development of these criteria.

In support of both the development of nutrient criteria and the reduction of nutrient impacts to Mississippi's waters, MDEQ is actively involved in the following additional efforts:

- MDEQ is leading the Gulf of Mexico Alliance Nutrient Priority Issue Team that is working with the five Gulf States (AL, FL, LA, MS, and TX) to understand nutrients, their impacts, and work to reduce the impacts to Gulf waters;
- MDEQ worked on a Nutrient Reduction Strategy for the Delta with resource agency partners and local stakeholders;
- MDEQ is reconstituting the Nutrient Task Force in 2010. The NTF set the plans in motion to monitor the state's waters for nutrients in 2005. The new task force will help MDEQ review the data and establish the nutrient criteria.
- MDEQ is studying pilot nutrient criteria for a Mississippi Estuary with a grant awarded by EPA Gulf of Mexico Program.

Mississippi State Aquatic Invasive Species Management Plan

Aquatic invasive species pose serious threats to Mississippi's waters, the fish and other wildlife species that inhabit them, and the economy that depends upon these aquatic resources. Invasive aquatic plants such as Giant Salvinia, Hydrilla, and Water Hyacinth crowd out native species and can choke waterways, inhibiting navigation, interfere with recreation and increase the potential for flooding. Dense growths of the invasive Zebra Mussel can clog water lines and intake structures, causing millions of dollars in damage to water and wastewater infrastructure. Silver Carp are rapidly spreading throughout Mississippi water bodies, competing with more desirable native species and endanger boaters with their propensity to jump several feet out of the water when disturbed by boat motors. Invasive fish pathogens threaten both native and farm raised populations of fish.



Silver Carp in Mississippi River Oxbow

To help focus the state's efforts to address the issue of aquatic invasive species, the Mississippi Aquatic Invasive Task Force was formed. The Mississippi Department of Environmental Quality was named to lead this group, which consisted of other state and federal agencies, public and private universities, trade industries and other interested groups. The Mississippi Aquatic Invasive Species Task Force has developed "The Mississippi State Management Plan for Aquatic Invasive Species" and will release this plan for public comment in early 2010.



Storm Water Regulations

Implementation of Mississippi's Storm Water General Permits and regulations continues in Fiscal Year 2009.

The Environmental Permits Division (EPD) issued permit coverage for 348 large construction projects (five acres or greater).

EPD issued permit coverage and/or recoverage to 85 regulated industrial facilities.

EPD issued permit coverage and/or recoverage to 129 mining operations.

EPD reissued the Small Municipal Separate Storm Sewer System (MS4) General Permit on January 5, 2009 and issued recoverage to 18 MS4s.

EPD reissued the Ready-Mix General Permit on April 1, 2009 and issued coverage and/or recoverage to 152 facilities.

EPD reissued the Hot Mix Asphalt General Permit on November 1, 2009 and issued coverage and/or recoverage to 41 facilities.

In addition, EPD received 50 "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.

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 in developing training for municipalities and contractors in storm water sediment and erosion control and management.

MDEQ personnel have collaborated to develop guidelines for inspecting storm water controls at sites covered by the Small Construction General Permit. This is part of an ongoing effort to increase the quantity and quality of storm water inspections performed by MDEQ scientists, and should decrease impacts from sediment-laden storm water across the state.

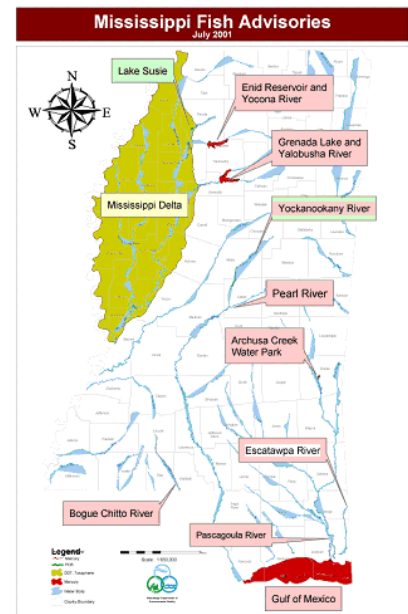
Fish Tissue Monitoring Program

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. For more information on these advisories, visit MDEQ's website www.mdeq.state.ms.us, or call the MDEQ Laboratory at 601-961-5701.

During 2009, fish tissue monitoring efforts were focused on the waterbodies where existing advisories are in place to determine if these advisories should remain in effect or if they could be lifted due to a reduction in contaminant levels in fish. These data will be provided to the Fish Advisory Task Force for use in evaluating the state's advisories in 2010.

MDEQ Laboratory Increases Metals Analyses Capabilities

Recently regulations and guidance from the EPA have created a need for labs to be able to detect lower concentrations of certain metals such as mercury in the environment. During 2009, the MDEQ Laboratory increased its capability to analyze mercury and other metals by acquiring new instruments using funding from federal grants. Among these instruments are a specific Mercury Analyzer which will analyze water samples as low as the part per trillion level; a Direct Mercury Analyzer, that provides fast and accurate results for soil and fish tissue samples with greatly reduced time and expense for sample preparation; and an Inductively Coupled Plasma – Mass Spectrometer (ICP Mass Spec) that will be used to analyze the other metals that we regulate at the new low levels. These instruments improve MDEQ's ability to protect human health and the environment by being able to accurately measure these contaminants in the environment.



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 20 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 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 2009, sampling at one additional site was discontinued and a new site established based on a change in beach use by the public. A small number of scattered advisories were issued in the first 11 months primarily as a result of rainfall events. In December, a week long 12+ inch rainfall event and subsequent sanitary sewer overflows prompted the agency to issue an advisory on 17 of the 20 stations. Data indicates the bacteria levels dropped rapidly after the rains ceased.

Recalibration of Mississippi's Benthic Index of Stream Quality (M-BISQ)

In 2000, MDEQ began to develop a biological assessment tool for wadeable streams and rivers in Mississippi. A statewide biological monitoring project was implemented with two main objectives: to obtain monitoring data from §303(d) listed wadeable streams and rivers and to assess these data using an Index of Biological Integrity (IBI). With input from state and federal biological experts, MDEQ re-designed its biological monitoring program, incorporating the IBI to produce high quality, scientifically defensible data. This new monitoring program included the adoption of new biological field and laboratory methods, and a new index period (December - February) was selected for benthic sampling. Rigorous protocols were also employed including development of a comprehensive Quality Assurance Project Plan with detailed standard operating procedures, revisions to data entry and biological database management procedures, and documentation of data quality characteristics throughout the entire data collection and assessment process.

To date MDEQ has completed eight phases of M-BISQ monitoring for a total 1040 monitored sites. The eighth phase was used to recalibrate the M-BISQ tool. Recalibration is required every 5 years. The ninth phase is comprised of 99 sites that will be used to further refine the tool. Results from the M-BISQ effort are being used to assess the status of §303(d) listed water bodies and to steer future biological monitoring and assessment activities for wadeable streams and rivers. Much of the basis for Mississippi's §305(b) water quality assessment is from data collected and analyzed from all phases of the M-BISQ monitoring project.

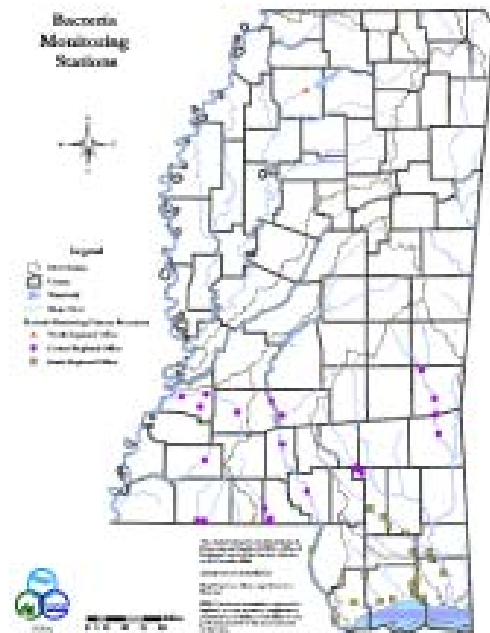
Bacteria Monitoring and Assessment

Beginning in the summer of 2007, MDEQ implemented a new monitoring program that collects bacteria samples at approximately 42 sites on flowing waters statewide. These sites were selected for monitoring because the waters are designated as primary contact recreational waters in Mississippi's Water Quality Standards. Waters are designated for recreational use where the public enjoy water sports such as swimming and skiing. Specific water quality

sampling methods, field data collection activities and laboratory analyses are described in the *Mississippi Department of Environmental Quality Quality Assurance Project Plan for the §106 Monitoring Network in the State Surface Water Monitoring and Assessment Program* (MDEQ 2007). This QAPP was used to ensure that the data collected, compiled and/or generated for these projects were complete, accurate, and of the type, quantity, and quality required for its use.

Coastal Monitoring

MDEQ has participated in the EPA National Coast Assessment Program from its inception in 2000 thru 2006. Although EPA suspended funding for the NCA program, MDEQ has 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 Program. This monitoring is important to help evaluate coastal water quality conditions after Hurricane Katrina and during the rebuilding efforts. Coastal assessment monitoring is conducted during the late summer index period (July-September). Sample 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.



Bacteria Monitoring Sites

Assessment and Study of Water Resources

The abundant supplies of surface water and groundwater in Mississippi constitute one of the most important natural resources in the state. Both quality of life and economic prosperity are closely tied to the availability of water of good quality. Because of natural conditions that vary from one location to another, water is not available in equal amounts in every area of the state and base flow to streams, water quality, or water level issues may locally affect the development of water supplies. These conditions require that water resources cannot be simply taken for granted. Information regarding availability of water must be collected and kept up to date to allow wise decisions to be made concerning long-term development of the state's water resources.

During 2009, a summary of groundwater resources in Itawamba, Prentiss, and Tishomingo Counties was prepared at the direction of the Three-County Water Management Plan Committee of the Tombigbee River Valley Water Management District. In support of this work, water levels were measured in wells in a total of ten counties in northeastern Mississippi.

In the Delta of northwestern Mississippi, staff continued to investigate recharge mechanisms to the Mississippi River Valley alluvial aquifer (MRVA) by gathering geologic information from bluffline boreholes drilled by the MDEQ Office of Geology with assistance from Office of Land and Water Resources, (OLWR) staff. The OLWR staff set up a system of stations for measuring stage elevations on streams throughout the bluffline area and conducted quarterly measurements. The Mississippi State University Department of Geology and Geography very kindly shared their extensive rainfall data sets with OLWR. These rainfall estimates provide the most detailed information ever available for application to assessment of recharge and variations in rates of pumping for irrigation from the MRVA. Estimates of pumping of water from the MRVA were refined with the assistance of crop water use estimates and water level data from YMD and with USDA-NASS crop distribution data sets that were used to approximate the location and acreage of major crops.

Sand beds of the Catahoula, Hattiesburg, Pascagoula, and Graham Ferry Formations form the main aquifers in the southern third of Mississippi. 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.

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.

Agricultural Chemical Groundwater Monitoring Program

The Mississippi AgChem Monitoring Program is an on-going program initiated in March 1989, for the purpose of determining if the use of agricultural chemicals is adversely impacting groundwater quality in Mississippi. Sampling initially was conducted on shallow drinking water wells located in areas of highest pesticide usage before expanding into other regions of the state. Later, program sampling was increased to include other types of wells such as high-capacity irrigation and fish culture wells in the Mississippi Delta.

Through December 31, 2009, a total of 1,533 wells have been sampled in this program with all 82 counties of the state being represented. Of this total, 706 have been drinking water wells and 827 were high-capacity irrigation and fish culture wells in the Delta. Based on the results to date of these sampling activities, there is no evidence that agricultural chemicals are significantly impacting the quality of groundwater in Mississippi.

Dam Safety

During 2009, the Dam Safety Division completed a comprehensive file review and current hazard evaluation of all High Hazard dams on their inventory. As a result of these evaluations, the number of High Hazard dams in the state inventory currently stands at 252, a slight decrease since 2007. The decrease resulted from owners choosing to remove or modify their dams so as to not present a threat to downstream lives and property, or changes to downstream development such as owner purchase and removal of threatened structures, or engineering analysis which proved that downstream structures wouldn't be threatened by a failure of the dam. Ninety-two dams were inspected during 2009. The information produced by these inspections has resulted in dam owners beginning repairs or rehabilitation on 13 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. In 2009, one new High Hazard dam and one new Significant Hazard dam were authorized for construction and 10 new Low Hazard dams approved for construction. Comprehensive inspections have been completed for all 20 state-owned High Hazard dams.



There are now 128 emergency action plans (EAPs) for High Hazard dams approved and on file, an increase of 51 since 2008. 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 safeguarding lives and property in the event of a dam failure.

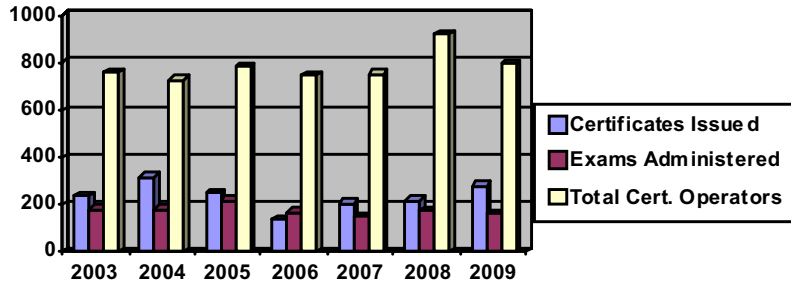


The Dam Safety Division staff is continuing to work with dam owners in establishing acceptable schedules for compliance with the regulation provided the dams are structurally sound and well maintained. Several dams have been placed under reservoir level restriction until repairs or modifications are completed to bring their dams into compliance with current safety standards. It is anticipated that additional owners may be required to lower the water levels in their lakes and maintain the lower levels until they comply with the regulations.

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 Operator Training program began in 1969 to provide instruction and technical assistance to municipal and domestic wastewater personnel and facilities. The training, provided at no cost to the operator, was initially associated with



a voluntary certification program offered by the Mississippi Water and Pollution Control Operator's Association. Administration of the certification program was transferred to the agency in 1987 when the Mississippi Legislature mandated certification of all municipal and domestic wastewater operators. The certification regulations include a requirement for continuing education during each three year certification period.

The 2009 training calendar included 48 days of agency sponsored training classes. The agency continued its relationship with the three wastewater related associations in the state (Mississippi Water and Pollution Control Operator's Association, Mississippi Water Environment Association and Mississippi Rural Water Association) by cosponsoring and participating in 24 days of training activities. Attendance at agency sponsored sessions totaled 914 operators, utility managers and engineers. Certification exams were administered to 157 prospective operators with 47 new and 248 renewal certificates issued. There are currently 795 certified pollution control operators in the state.

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

The training staff also provides on-site technical assistance to small municipal systems through the EPA 104(g) grant program. This assistance program is aimed at providing small communities with no cost assistance in returning to or maintaining compliance with their wastewater permit.



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 2009, some 900 inspections were performed, 31 permits were issued, and 84 Notices of Exempt Operations (operations less than 4 acres in size) were issued. A total of 1,479 exempts are on file, covering approximately 5,900 acres, and 1,139 acres were completely reclaimed as a result of the Mining and Reclamation Division's efforts to oversee reclamation. The state currently has 702 permits covering almost 31,000 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 2009, division staff provided training to 411 miners and 192 contractors working in the mining industry. The Legislature in 2009 authorized MDEQ to collect fees for this training. Another amendment to the law exempts mines from needing a permit if the material is used on the same property.

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 1997, and was renewed in February 2008, for its third five-year term. The planned life of the permit is 30 years.

The Red Hills Mine was awarded the Department of the Interior, Office of Surface Mining 2009 Excellence in Surface Mining Reclamation Award (Gold) for Landowner and Community Outreach. The Gold Award is given for the highest achievement in this category in national competition. This is the second award the Red Hills Mine has received in this annual competition, which is a considerable achievement since the Red Hills Mine was not eligible for an award until reclamation after mining was completed over a part of the permit site in 2004-2005.



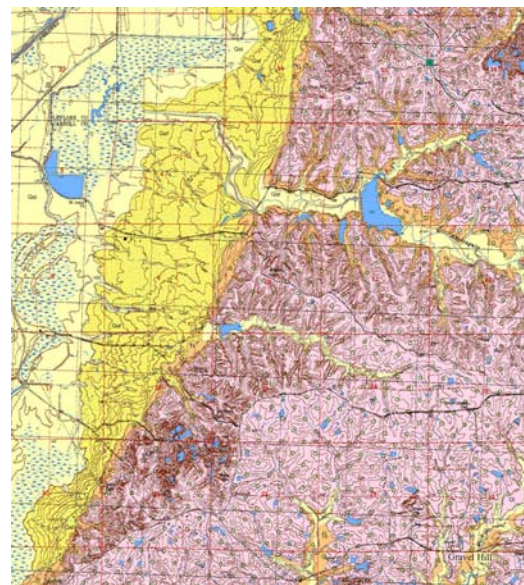
Staff are preparing for the possibility of an application for Mississippi's second lignite mine, which would be in Kemper and Lauderdale Counties. This mine is tentatively planned to cover approximately 30,800 acres for a forty-year life. The planned, first-of-its-kind, adjacent power plant would produce 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. A Draft 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 Record of Decision is anticipated in the second quarter of 2010.

Mississippi's Abandoned Mine Land Plan 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 is nearly completed. Although at least eight small surface and underground mine sites are known from publications of the Office of Geology or its predecessors, only four sites have proven to be locatable. All of these known sites are believed to have been active sometime in the period from the mid-late 1800s to the late 1920s. They are spread around the state in Lauderdale, Holmes, Choctaw, Winston, Tallahatchie, and Carroll Counties. All parts of the state have been included in the search for abandoned historic coal mines.

Geological Data Collection Activities

The department's geologic mapping program for Fiscal Year 2009 was funded in part by a federal STATEMAP 2008 grant of \$87,217 and an NCRDS grant of \$13,000. Deliverables for the STATEMAP grant included the Browning, North Carrollton, Gravel Hill, and Coila 7.5-minute geologic quadrangle maps in Leflore and Carroll Counties in north central Mississippi and the Moselle, Ellisville, Eastabuchie, and Barrontown 7.5-minute geologic quadrangle maps in Jones and Forrest Counties in south central Mississippi. These maps were published in color at a scale of 1:24,000 as Open-File reports OF 223-230. Fiscal Year 2010 proposed work for federal STATEMAP 2009 grant was awarded funding of \$95,670 and an NCRDS grant of \$13,000. This work included the Cascilla, Holcomb, Avalon, Jefferson, and Tie Plant 7.5-minute geologic quadrangle maps in Tallahatchie, Grenada, Leflore, Carroll, and Montgomery Counties in north central Mississippi and the Collins, Hot Coffee, Williamsburg, and Seminary 7.5-minute geologic quadrangle maps in Covington and Jones Counties in south central Mississippi. The 2009 STATEMAP deliverables are due at the end of April 2010. Geologic units mapped in north-central Mississippi in Fiscal Year 2008 and 2009 included the Tusahoma, Hatchetigbee, Tallahatta, Winona, and Kosciusko formations of Eocene age and Holocene alluvium. Geologic units mapped in southern Mississippi in FY2008 and 2009 included the Vicksburg Group of Early Oligocene age, the Chickasawhay Limestone and Paynes Hammock Formation of Late Oligocene age, and the Catahoula and Hattiesburg formations of Miocene age, and Holocene alluvium.



Twelve test holes were drilled in Fiscal Year 2009, including the (1) Plum Creek #1 Jones County to a TD of 350 feet, (2) Plum Creek #2 Jones County to a TD of 260 feet, (3) Plum Creek #3 Jones County to a TD of 350 feet, (4) Plum Creek #4 Jones County to a TD of 330 feet, (5) Plum Creek #5 Jones County to a TD of 400 feet, (6) Plum Creek #6 Jones County to a TD of 350 feet, (7) Plum Creek #7 Jones County to a TD of 360 feet, (8) Plum Creek #8 Jones County to a TD of 180 feet, (9) Plum Creek #9 Jones County to a TD of 70 feet, (10) MOG #1 Denver Fraley in Covington County to a TD of 480 feet, (11) MOG #2 Plum Creek in Covington County to a TD of 400 feet, and (12) MOG #3 Plum Creek in Covington County to a TD of 420 feet. Thirty-four papers were published, including 15 articles in the Mississippi Department of Environmen-

tal Quality's newsletter *Environmental News*, one abstract in the Gulf Coast Association of Geological Societies Transactions, 4 abstracts in the Mississippi Academy of Sciences Journal for 2009, 6 geologic maps and charts published on the Mississippi Department of Environmental Quality web page, and 8 geologic quadrangle maps as Mississippi Office of Geology Open-File Reports 223-230. Also, a film by Mississippi Public Broadcasting entitled *Simply Science at the Fossil Road Show*, which featured geologists with the Surface Geology Division, was nominated for an Emmy Award in 2009.



Proposed work for the STATEMAP 2010 grant includes eight geologic quadrangle maps. These are the Four Corners, Plattsburg, Pearl River, and Edinburg 7.5-minute quadrangles 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 STATEMAP 2010 proposal was recently awarded \$101,319 in federal funds.



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 geology and environmental issues. This division also provides support to other state agencies and academia. The Environmental Geology Division answers requests for information on groundwater availability, depth of wells, potential yield of wells and in some cases, quality of water. These requests come from engineering firms, water well contractors, consultants, and private individuals.

Correlation of subsurface wireline logs continued during Fiscal Year 2009 on the Moodys Branch study. Geological points have been corrected to sea level and structure mapping has begun in several counties of central Mississippi. It is anticipated with the start of the new school year, several monitor wells will be completed along trend to study and document basic chemical changes in water quality and production characteristics of the potential aquifer for monitoring purposes.

The Office of Geology continues to be active 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 this year to plan future projects for the next few years.

The Environmental Geology Division's geologists and technicians worked on numerous geological projects throughout the state. Drilling, sampling, and well construction activities were performed for the Surface Geology Division's STATEMAP program and for the Office of Land and Water Resources. Twelve test holes were drilled in support of the STATEMAP program in central Mississippi. Nine of these holes were drilled in Jones County and three were drilled in Covington County. Cumulative footage drilled and/or cored and wireline logged totaled 3,950 feet. Samples were saved and archived in the Office's core and sample library. A total of fourteen test holes were completed for the Office of Land and Water Resources; this drilling activity was carried out in the Mississippi Delta and in Smith County in southeast Mississippi. Average depth of the test holes was 300 feet. Fiscal Year 2009 was one of the most prolific years for the agency's drill crew. As evidenced



above, a total of 26 test holes were drilled and /or cored for the Office of Geology and its sister Office of Land and Water Resources.

Environmental Geology's technicians and geologists wireline logged a total of 79 test holes in 31 counties throughout the state. Total footage logged was 50,883 feet or 9.6 miles of subsurface data. Clients included 15 water well contractors and the Office of Geology. The shallowest water well logged during the report period was 294 feet deep in Franklin County, drilled by Easley Plumbing and Drilling of Brookhaven, Mississippi. The deepest test hole logged was for Oktoc Water Association in Oktibbeha County, drilled by Parks and Parks Drilling Service from Houston, Mississippi; total depth was 1,540 feet. Fiscal Year 2009 was somewhat remarkable inasmuch as this was the lowest total of test holes wireline logged in recent memory. Moreover, it was unusual because of the distribution of wells. Only ten (12.6 %) of the 79 test holes were drilled for private homeowners. The balance was water associations, industrial, or irrigation wells.



The staff pulled samples and cores for 11 oil and gas exploration companies, scientists and consultants. Cores and samples were made available for research and observation in our in-house laboratory facilities on a number of exploratory wells. A total of 127 boxes of cores and samples were pulled on 18 wells. Twenty-four boxes of cores and samples were shipped to out of state facilities for detailed analysis. These wells were located in almost all of Mississippi's oil and gas producing areas. In addition to those visitors to our facility, staff shipped sample splits on four wells to out of state

labs for further testing and evaluation. Office of Geology technicians also reboxed cores and cuttings on 57 wells in the inventory. This project resulted in 1,751 boxes of cores and 52 boxes of cuttings being reboxed and archived. This project was needed to make room for future samples and cores expected in the coming years. Interest in our archived cores and samples remains strong and is a direct result of new oil and gas plays being extended into the state, and re-evaluation of older areas of interest.



Geospatial Resources

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 2009, current FEMA funding of MFMMI county-wide DFIRM flood mapping projects is \$22.04 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.

In early 2009, the division continued being responsible for monitoring planimetric mapping contracts for the Gulf Regional Base Mapping Program. Products from this work will be used by local governments, engineering firms and construction companies involved in the Gulf Region Water and Wastewater Plan. This project, which is managed by MDEQ, is an overall plan to identify water, wastewater, and storm water infrastructure needs in the 5 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 1-foot and six-inch orthophotography and planimetrics developed is of MDEM quality and will be made available for distribution through the Mississippi Geospatial Clearinghouse web site at: www.gis.ms.gov/Portal.

The division maintains three web sites. For an information-rich site for oil and gas related information: 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. The division has added a web site for the Mississippi Flood Map Modernization Initiative (MFMMI): www.geology.deq.ms.gov/floodmaps. By visiting this site the public and local government officials will be 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 down-load and review individual DFIRM map panels.

In Fiscal Year 2009 the Geospatial Resources Division dealt with MDEM, the GIS Council, the Mississippi Flood Map Modernization Initiative, and managing the development of planimetric and topographic GIS data from 2007 1-foot and 6-inch color orthophotography covering the 5 Mississippi coastal counties. The division began reviewing planimetric mapping data deliveries through most of 2009.

Working with FEMA, the division updated the state's 2009 flood mapping business plan and work continued on the county-wide flood mapping DFIRM projects. As of September 2009, new preliminary DFIRM flood maps for 44 of Mississippi's 82 county-wide DFIRM projects had been delivered. Sixteen additional counties are expected to have their preliminary DFIRMs delivered before yearend 2009. In September and November, 2009, the pre-scoping and scoping of 7 counties was begun and completed with the final county scoping reports being submitted in December to FEMA Region IV. A part of the scoping process is the holding of "Countywide Scoping Meetings" with a particular county's officials and officials from each incorporated town or city in that county. These meetings were usually located at the county courthouse or emergency operations center for the county.

In 2009 the division hosted three GIS Council meetings. During the past year the division continued work with the Mississippi Department of Information Technology Services (ITS), supporting the design 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.

The geologic quadrangles and other publications that result from Office of Geology data collection activities are available for sale in the Map and Publication Sales Office on the ground floor of the 700 North State Street building. Also available are copies of all topographic map products for Mississippi that are produced by the U.S. Geological Survey.

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 applicant, reviewing permit renewal applications, and making recommendations to the Permit Board. Currently there are over 15,000 sites in the permitting realm. 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 company and the Mississippi Department of Environmental Quality. EPD offers and encourages pre-application meetings. Time spent in refining the information needed for applications at the front end of a project typically reduces the overall time to bring a project 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
- Air Title V
- Wastewater-State No Discharge
- Wastewater-Federal National Pollutant Discharge Elimination System
- Wastewater Pretreatment
- Storm Water
- Solid Waste
- Hazardous Waste
- Tire Programs
- Wetland 401 Water Quality Certifications

Performance Improvements

In 2009, 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 staff has exhausted great resource to administer a timely and efficient permitting process for any project in the coastal counties associated with funding under Mississippi Gulf Region Water and Wastewater Plan.



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 agencies 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. *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 training and e-business improvements.

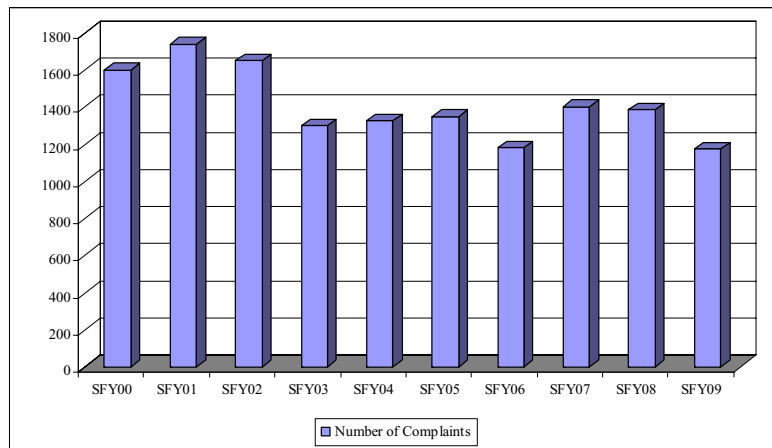
Environmental Assistance

EPD continues to provide environmental assistance when requested. Based on the surveys conducted in 2007 and requests from small businesses in Mississippi, the Assistance program developed a new series of Assistance programs focused on federal programs. Specifically, the Assistance program focused on the National Environmental Policy Act (NEPA), the Toxic Substances Control Act (TSCA), and the Emergency Planning Community Right-To-Know Act (EPCRA). These federal programs were chosen to address the needs of small businesses in understanding both state and federal regulatory requirements which may impact their businesses. MDEQ staff developed brochures providing a brief overview of each of these topics and provided contact information regarding the programs. MDEQ staff intends to work with business organizations and associations to provide information and assistance specific to these topics through training and seminar opportunities.



COMPLIANCE AND ENFORCEMENT

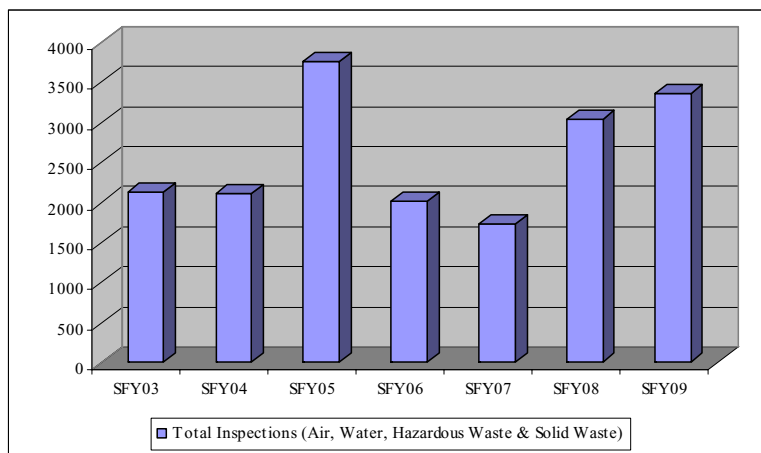
The Environmental Compliance and Enforcement Division (ECED) implements and oversees the majority of the compliance and enforcement programs for MDEQ. ECED is responsible for the regulation of over 15,000 sites for compliance with applicable air, water, hazardous waste, and non-hazardous waste permits 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. ECED, in conjunction with the Field Services Division, is also responsible for responding to citizen complaints regarding air pollution, water pollution, solid waste issues, and hazardous waste issues.



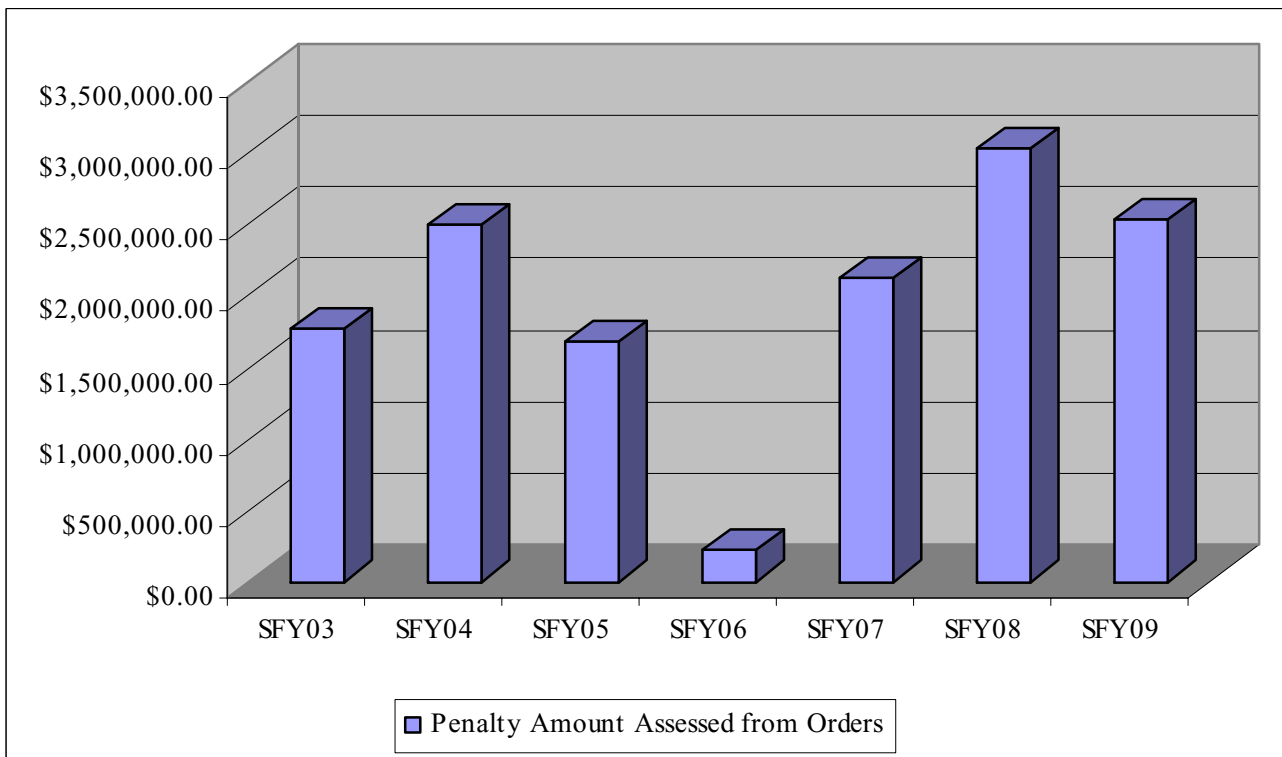
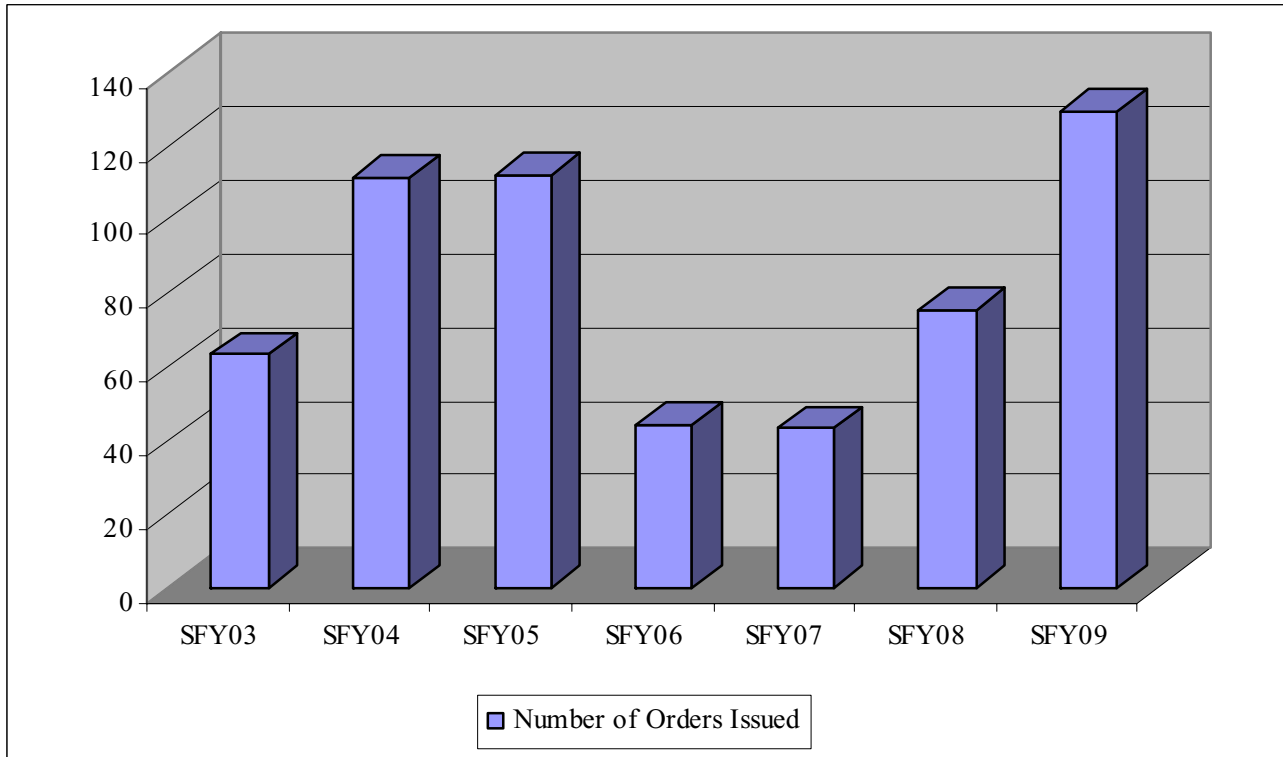
During Fiscal Year 2009, the Office of Pollution Control received 1,175 complaints related to air pollution, water pollution, solid waste issues, and/or hazardous waste issues. When citizens report an environmental problem, they are asked to explain the nature of the problem and give the location of 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. OPC staff endeavor to investigate every complaint. (See Chart)

During Fiscal Year 2009, the following numbers of on-site inspections were performed by ECED and the Field Services Division:

- 222 for compliance with air pollution regulations/permits
- 2010 for compliance with water pollution regulations/permits
- 90 for compliance with hazardous waste regulations/permits
- 2038 for compliance with solid waste regulations/permits



During Fiscal Year 2009, ECED actions resulted in 129 Orders being issued for non-compliance with air, water, solid waste, and/or hazardous waste regulations/permits. Of the 129 Orders issued during 2009, 106 contained provisions for a penalty with a total assessed penalty amount of \$2,530,224. When appropriate, MDEQ allows the use of Supplemental Environmental Projects (SEP), which are projects that go beyond what is required to comply, to offset a portion of the cash penalty. Nine of the Orders allowed the use of a SEP.



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

During 2009, the Mississippi Department of Environmental Quality (MDEQ) experienced continued interest in the Brownfields Program. This interest has been attributed to the efforts to educate parties about risk-based remediation and liability protection, as well as effective outreach. In 2009, MDEQ reached one new Brownfield Agreement, and the total number of Brownfield Agreements obtained to date stands at fourteen. Also, in 2009, MDEQ received applications from two new sites.

The partnership between the City of Tupelo and MDEQ was highlighted in November at the National Brownfield Conference in New Orleans with national recognition for the redevelopment of contaminated property at the old fairgrounds in Tupelo. The regional Phoenix Award was presented to the Downtown Tupelo Main Street Association and MDEQ for their efforts to transform the area around a former dry cleaner into the popular downtown Fair Park District. The Phoenix Awards Institute recognizes groups that remediate and redevelop brownfield sites and represents the industry's highest honor.



In 2000, during the acquisition of property that included the former Long's Laundry, the City of Tupelo learned from environmental studies that the soil and groundwater beneath the site had been contaminated by chlorinated solvents. The project stalled until 2003, when the Downtown Tupelo Main Street Association applied for Targeted Brownfield Assessment assistance through MDEQ. "We were dead in the water until the brownfield folks at MDEQ came to us

and helped. Up to that point, the city had spent close to \$200,000 dollars in environmental studies with no clear end point in sight," says Debbie Brangenberg, Director of Main Street.

With a clear understanding of the intended future use of the property and the city's objectives for redevelopment, MDEQ was able to develop a strategy for the environmental assessment to be completed, for liability protection to be secured, and for the site to be redeveloped in a manner that was protective of human health and the environment. In 2004, demolition of the former dry cleaner began, and the transformation of the properties into "Fair Park" had begun. Liability protection was secured for the Tupelo Redevelopment Agency through a Brownfield Agreement with the Mississippi Commission on Environmental Quality in 2006, and the city saved approximately \$87,000 in planning and assessment services provided by MDEQ to address the environmental conditions at the site.

After all the landscaping activities at the redeveloped site were completed, an environmental contractor, selected by MDEQ, completed the groundwater investigation. Liability protection was secured for the current property owner, the Tupelo Redevelopment Agency, through a Brownfield Agreement with the Mississippi Commission on Environmental Quality (MCEQ) in 2006. Today, the Fair Park District includes the Renasant Center for Ideas, serving the community as a regionally-based business incubator; the Tupelo Automobile Museum; City Hall, serving as the centerpiece of Fair Park; City Park with its dancing fountain that attracts children and families from all over, and a variety of upscale retail and small businesses that blend modern amenities with the architectural character and scale of a traditional small city.

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 8,646 tanks at 3,203 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 \$137 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 \$141,600. At the end of 2009, the Mississippi Groundwater Protection Trust Fund had assessed 968 sites, completed assessment and/or remediation of 754 sites, and had 214 active sites. This past fiscal year \$6.7 million were reimbursed to eligible tank owners. Also, this year 29 new sites were assessed and 23 sites were closed.

Additionally, using the Leaking Underground Storage Tanks Trust Fund (LUST) in 2009 the staff assessed another 35 sites and closed out 33 sites.

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 17 of these sites and closed an additional 5 sites. With the LUST Katrina Supplemental Funds the program has obligated \$860,800 and has expended \$685,800.

Uncontrolled Sites

Over the past 12 months, GARD actively oversaw 177 sites. During that same timeframe, the number of sites brought to GARD's attention was 44, bring the total number of sites in MDEQ's public record to 1,693 sites. Also, MDEQ issued "State No Further Action" (SNFA) letters for 14 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 five 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 four 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 were responsible for 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 between \$70 to \$75 million. The state will ultimately have to pay 10 percent of these remediation costs. In addition, Red Panther Chemical, Clarksdale and Southeastern Wood Preserving, Canton, are being prepared for NPL proposal for FY-2010, however, there has been no estimation of remedial costs to date.

Emergency Response

During Fiscal Year 2009 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.

Following Hurricanes Katrina and Gustav, the Emergency Services staff continued collecting and disposing of numerous small containers and drums through November of 2009.

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 programs at MDEQ worked on numerous solid waste issues, projects and programs throughout 2009 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.

Solid Waste and Recycling Status Reports

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. MDEQ also develops an annual status report that summarizes this information for presentation to the Governor, the State Legislature, and other interested stakeholders. 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 2009, MDEQ developed a report on solid waste disposal activities conducted during Calendar Year 2008. This report indicated that over 7.5 million tons of wastes were disposed at permitted landfills and rubbish sites in Mississippi. Approximately 47.6 percent (3,573,522 tons) of the total waste was disposed at commercial landfills, 32.7 percent (2,456,335 tons) at non-commercial landfills, 19.5 percent (1,462,264 tons) at commercial rubbish sites, and 0.3 percent (20,123 tons) at non-commercial rubbish sites (see Figure 1 below).

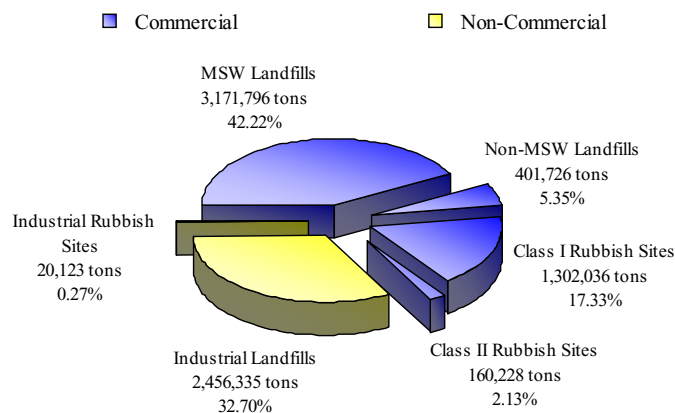
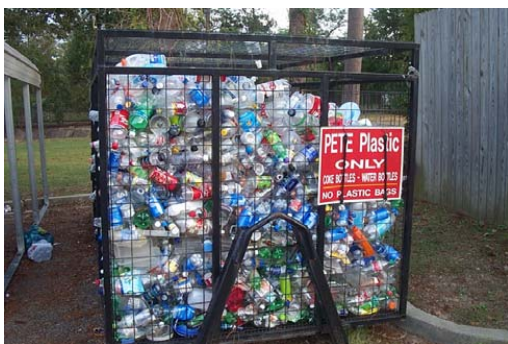


FIGURE 1

About five million tons of wastes were disposed at commercial disposal facilities and the remaining 2.5 million tons of wastes were disposed at noncommercial disposal facilities. Mississippi received a total of 932,041 tons of solid waste from out-of-state sources representing approximately 12.41 percent of the total solid waste that was disposed during 2008. In addition, a total of approximately 30,000 dry tons of wastes were applied at the permitted land application sites.



In addition to the report on waste disposal, MDEQ submitted the agency's annual report on the status of recycling and pollution prevention in Mississippi to the Legislature in January 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 that approximately 46.5 percent of the state's population (or 1.355 million people) had access to municipal waste recycling services. This percentage was up 1.8 percent from the previous year's percentage with access of 44.7 percent. Approximately 20 percent of the state's population had access to curbside recycling programs (up from 15 percent from the preceding year) and some 26.5 percent had access to drop-off recycling programs. The report also included a summary of recycling conditions for calendar year 2008 for white goods, yard wastes, waste tires and other large volume waste streams in the state. MDEQ is in the process of compiling and submitting a supplemental status report on recycling and pollution prevention in early 2010 updating the information in the 2009 status report.

Solid Waste Planning

The MDEQ Solid Waste Programs also 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 2009, 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: Claiborne County and the City of Port Gibson; Franklin County and the Cities of Bude, Meadville and Roxie; Lincoln County and the City of Brookhaven; Pike County and the Cities of Magnolia, McComb, Osyka, and Summit; Walthall County and the City of Tylertown.

Comprehensive, updated solid waste management plans were conditionally approved for the following counties or organizations: Lawrence County and the cities of Monticello, New Hebron, and Silver Creek; the Solid Waste Management Authority of Marshall County (including the county and the cities of Byhalia, Holly Springs and Potts Camp); and the Three Rivers Solid Waste Management Authority (including the counties of Calhoun, Itawamba, Lafayette, Lee, Monroe, Pontotoc, and Union and the municipalities located within those counties).

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 modifications to their local solid waste plans in 2009 (in the order of completion) include: DeSoto County, the Harrison County Utility Authority, Hinds County, Jackson County, Lawrence County, Marion County, and the Northeast Mississippi Solid Waste Management Authority. These planning amendments were important to assist local governments with providing needed disposal capacity and services for management of solid wastes.

Solid Waste and Waste Tire Assistance 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 \$3 million in Fiscal Year 2009 for solid waste management and recycling projects, solid waste planning projects and waste tire projects across the state. Of that total, over \$1.7 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 2009

\$795,016 - Total Non-Competitive Grants
78 Counties Received Non Competitive Grants

\$969,104 - Total Competitive Grants
42 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 \$74,971 were awarded to Jefferson and Lamar Counties in Fiscal Year 2009 to develop and update comprehensive solid waste management plans for their communities.

In addition, the Solid Waste Policy, Planning and Grants Branch continued in 2009 to develop and implement the state's strategy to achieve statewide recycling of waste tires. During Fiscal Year 2009 the recycling rate for waste tires processed in the state was over 90 percent of the tires collected. In addition, 35 new waste tire grants totaling \$1,260,378 were awarded to local governments to fund local waste tire collection and clean up programs during FY 2009. 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 720,000 passenger tire equivalents in calendar year 2008.

Waste Tire Grants – Fiscal Year 2009

\$1,120,378 - Total Waste Tire Grants Awarded
720,000 - Waste Tires Collected

Counties receiving waste tire grants during FY09 included: Amite, Bolivar, Carroll, Claiborne, Clarke, Copiah, Franklin, Greene, Holmes, Humphreys, Jackson, Jefferson, Jefferson Davis, Kemper, Madison, Marion, Montgomery, Neshoba, Pearl River, Quitman, Rankin, Smith, Sunflower, Tallahatchie, Tate, Tunica, Wayne, Wilkinson, Yalobusha and Yazoo Counties and the Cities of Jackson and Canton and the Pine Belt, Three Rivers and South Central Solid Waste Management Authorities.

In addition, during 2009, the MDEQ worked on the development of 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. The funding will be administered through a cooperative agreement between the Mississippi Development Authority and the Mississippi Department of Environmental Quality. In addition, MDEQ worked on developing regulations to govern the distribution and funding of grants from a new fund the State Legislature created in the 2009 session of the Legislature. 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. MDEQ expects that the guidelines and regulations for these two programs will be finalized in early 2010.

Waste Tire Management Program

In 2009, 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 for 2008 indicating that the overall waste tire recycling rate for Mississippi processors in 2008 was close to 95 percent and the recycling rate for those tires generated in



Mississippi was close to 90 percent. It is anticipated that the state's waste tire recycling and reuse rates for waste tires will continue to exceed the current national average of 80 percent.

MDEQ conducted compliance assurance activities at approximately 150 local government waste tire collection sites, 12 waste tire processing and commercial collection facilities, and dozens of tire retail businesses and managed the permitting and reporting activities of more than 100 registered waste tire haulers in 2009. Also just under 100 complaints involving the mismanagement or unauthorized dumping of waste tires were reported to and investigated by the MDEQ at sites across the State of Mississippi. 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 Wastes

Electronic wastes or "e-wastes" continue to be a problem waste stream for residents, businesses and government agencies and institutions. In 2009, MDEQ focused on various work initiatives to promote better management of e-wastes in the state. MDEQ has had a key role on the READ Legislative Study Committee in 2009 developing recommendations for the State Legislature to consider related to the management of obsolete electronics by state agencies and institutions. The READ committee was comprised of MDEQ, the Information Technology Services (ITS), the Office of the State Auditor and the State Department of Finance and Administration. The committee met numerous times throughout 2009 to evaluate the current methods of managing obsolete electronic items by State Agencies and Institutions. Through this committee process, a report recommending various best management practices and considerations has been published for the review of the state Legislature in this upcoming Legislative session.

In addition, MDEQ developed new electronic waste web resources with information for consumers, businesses and government to promote waste reduction and more effective recycling options of e-wastes. The new web page contains information on manufacturer and retail outlet take back programs, local government collection programs, private recyclers of e-waste and various EPA program and promotional efforts for electronics waste. The web page can be found at: 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. The event collected computers, televisions, cell phones, printers, fax machines and various other e-wastes. Ecovery, LLC of Loxley, Alabama worked with Chamber to assist in collecting and recycling of the materials.

Solid Waste Training, Certification and Outreach Programs

The MDEQ Solid Waste Programs 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. There are currently 39 certified commercial landfill operators in the state. In 2009, MDEQ issued three new certifications and six 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 an annual training and examination session for Class I rubbish operators on the February 11 and 12 of 2009 in Ridgeland at the Holmes Community College Branch facility in Ridgeland. There are currently 153 certified Class I rubbish site operators in the state. In 2009, MDEQ issued certificates from those training and testing events for 24 Class I rubbish site operators in the state. MDEQ also worked with the state SWANA chapter to provide CEU training opportunities through the SWANA organization's spring and fall conferences in Tupelo and Natchez.

MDEQ hosted its annual training event for local solid waste enforcement officers at the Cabot Lodge in Jackson on May 14, 2009. 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.

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 Mississippi Recycling Coalition, the Mississippi Association of Supervisors, the Mississippi Chapter of the Solid Waste Association of North America, Keep Mississippi Beautiful, the Mississippi Veterinary Medicine Association, the Jackson Metro Chamber Partnership and other state and local organizations and agencies. The Solid Waste Programs at MDEQ also participated in a series of workshops around the state with the Mississippi Development Authority on the grant funds for materials conservation programs from the Department of Energy described in the section on Solid Waste and Waste Tire Assistance Programs.

MDEQ also continued its partnership with the U.S. EPA promoting the use of landfill gas as an alternative energy source through the Landfill Methane Outreach Program (LMOP). In 2009, Mississippi had one new on-site landfill gas energy project implemented at the Prairie Bluff Municipal Solid Waste Landfill operated by Waste Management, Inc. near Houston. This new project used landfill gas generated by the Prairie Bluff Landfill to power an onsite evaporator system for the management and dissipation of the landfill's leachate. The project not only reduces the amount of landfill gas flared at the facility but also negates the continual trucking of the landfill leachate to the publicly owned treatment works (POTW). This project is in addition to the one currently operational landfill gas project at the Waste Management Pecan Grove Landfill located near Pass Christian. 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. It is also anticipated that new federal funding sources for alternative energy projects may assist in promotion of landfill gas energy projects in the near future providing needed environmental and economic benefits to the state.

3. Medical Sharps

In the 2008 Session of the Mississippi Legislature, legislation was adopted that required MDEQ to develop and implement 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. MDEQ spent much of 2009 developing and promoting management alternatives in the state for household sharps users as well as the outreach program for the household sharps management alternatives. MDEQ worked to develop a collection network in the state setting up drop-off locations at pharmacies and fire stations throughout the state for household sharps, delivering collection bins to those stations and acquiring the services of three of the state's medical waste service providers for collection of the sharps. Those medical waste service providers assisting in collecting the household sharps from drop off locations were: Enserv South Central, Inc. of Canton. Disposall Medical Waste Services of Brookhaven, MS and Clean Earth Medical Waste Services of Hattiesburg. MDEQ also acquired donated samples of medical sharps clips from BD Medical Supplies (Bechtel, Dickinson and Company) for dissemination in the state to household sharps users to promote the devices as a safer means of disposal.

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, and speaking and exhibiting at numerous stakeholder meetings across the state. On September 9, 2009, MDEQ held a public announcement ceremony with the Diabetes Foundation of Mississippi at their offices in Ridgeland. The medical waste service providers collecting the sharps as well as BD Medical Waste Supplies were recognized at the ceremony for their contributions to making the program successful. MDEQ is on target to meet the dates in the state law which requires the agency to have the educational program developed by no later than July 1, 2009, and have the program fully implemented no later than January 1, 2010.

Development of Solid Waste Regulations and Guidance Documents

MDEQ's solid waste programs have the responsibility to develop and administer state regulations and guidance on managing various types of solid waste. In 2009, the agency initiated efforts to develop and provide needed guidance on key solid waste management issues. MDEQ focused its efforts on developing guidance for issues including: electronics waste management, household sharps collection, pharmaceutical disposal, directional drilling muds disposal, drywall disposal, glass cullet recycling and reuse, biosolids management, disaster debris management, recycling grants programs, recyclable material data collection, and an update of the State's Guidance on the Development of a Comprehensive Local Solid Waste Management plan.

The MDEQ solid waste programs also continued the process to re-evaluate and amend the state's Nonhazardous Solid Waste Management Regulations for various standards and requirements on solid waste management facilities. This process will continue on into 2010 and will be concluded with a formal public participation and input process on the proposed regulatory changes.

Byproduct Beneficial Use Program

MDEQ continued efforts in 2009 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 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. There were two new beneficial use determinations issued final approval by MDEQ in 2009. In addition, MDEQ has been working with the Mississippi Department of Transportation to assist suppliers to that agency's construction contractors in the construction uses of by-product materials. MDEQ continues to work with the suppliers throughout the region who provide combustion by-products and other material for construc-

tion uses in the state of Mississippi to ensure that their products meet that of the Mississippi beneficial use regulations.

MDEQ also approved several beneficial use demonstration projects in 2009. 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.

While MDEQ has not collected information on the volume of materials distributed for re-use in 2009, reports to the agency for Calendar Year 2008 indicated that over 200,000 tons of by-product materials were beneficially used in the State of Mississippi. Approximately 88.5 percent of the by-products distributed were utilized in construction related projects and the remaining 11.5 percent were used in soil amendment or soil conditioning activities. In addition, MDEQ continues to evaluate several beneficial use demonstration projects involving industrial by-product materials.

Disaster Debris Management

In 2009, 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 south central part of the state in early April 2009. MDEQ worked with various local governments in the area to deal with disaster related debris from that storm event. In addition, the agency also continued its work with FEMA and various local governments in southwest Mississippi to closeout debris issues from storm damage and Hurricane Gustav damage from 2008.

MDEQ also completed its planning work in 2009 with Gulf Coast communities to assess and plan for meeting waste disposal capacity needs and long term waste management needs in the aftermath of Hurricane Katrina. This Gulf Coast initiative addressed the needs and future plans of local governments on vegetative disposal needs, white goods, household hazardous wastes, electronics wastes and other waste problems that have been created or magnified by Hurricane Katrina. MDEQ also conducted an additional round of groundwater monitoring in early 2009 at the emergency debris sites on the Gulf Coast that received much of the mixed building and structural debris for disposal from Hurricane Katrina. The agency also continued its work to monitor the post-closure conditions and potential problems at the temporary emergency debris disposal sites created for the Katrina debris along the Mississippi Gulf Coast.

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 Mississippi Soft Drink Association. In FY2009 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.



- Nine K-12 schools were visited.
- Four college and university programs were visited.
- Two state agency programs were visited.
- Six presentations or exhibits were conducted for government organizations.
- Five presentations or exhibits were conducted for community groups.
- Two presentations were conducted for industry group and associations.
- Four commercial recyclers were inspected.
- Five 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 and non-governmental entities to promote effective pollution prevention practices.

During Fiscal Year 2009, the MDEQ Pollution Prevention Program accomplished the following program elements:

- Reviewed or approved 11 industry waste minimization plans
- Seven P2 enHance site visits
- Reviewed and monitored 198 annual waste minimization certified reports
- Met all conditions of the 2009 EPA/Mississippi Pollution Prevention (P2G) Grant
- P2 assistance was provided to two small businesses in two different SIC codes
- Four site visits and six presentations were conducted
- Compliance assistance was provided to nine small businesses in six different SIC Codes
- Permitting/reporting compliance assistance activities was provided to three facilities in three different SIC Codes

Key Pollution Prevention Activities

The Pollution Prevention Group targeted the following focus areas: development of enHance, a state-level Environmental Stewardship Program, reduction of mercury pollution through Mercury Minimization Planning for POTW's, and utilization of EPA tools for pollution prevention, specifically use of energy management tools for energy efficiency.

The Environmental Stewardship Program enHance is designed to promote pollution prevention efforts in the state, recognize environmental leaders, provide networking and training opportunities, and encourage the use of environmental management systems. Stringent membership requirements are defined. Members must demonstrate successful implementation of environmental enhancement projects and must operate under an environmental management plan for continuous improvement. The top level of membership, Leaders, must also promote environmental stewardship within their community or agree to serve as a program mentor. Seven charter members were accepted during the first year of the program; eleven additional applications were received during the second application period. A recognition luncheon was held in March in conjunction with a training workshop "Energy Management Tools for Sustainability – enHance the Environment and your Bottom Line." The workshop included information on energy efficiency technologies and energy management planning. Mentors have provided assistance through presentations and on-site assistance to facilities.

Mercury pollution continues to be an area of concern both nationally and in Mississippi. There are water bodies in the state where the mercury levels in fish tissue exceed the recommended levels. The pollution prevention group is working with publicly owned treatment works (POTW's) to develop mercury minimization plans to identify and implement best management practices to reduce mercury pollutant discharges to water bodies. Three POTW's have received direct assistance, and a Mercury Minimization Template was developed to address mercury contamination from potential sources such as laboratories, dental clinics, hospitals, other medical facilities, industries, and households. Work con-

tinues on the Mercury Switch Recovery Program, where mercury switches are removed from vehicles prior to crushing. This eliminates potential mercury contamination to the atmosphere during the metal recovery process.

Schools and hospitals have been assisted through utilization of EPA tools. The use of Energy Star Portfolio Manager for benchmarking energy usage and developing energy reduction strategies has been promoted through training sessions and presentations to associations. Twelve schools and one hospital have received benchmarking assistance.

Energy efficiency has been the primary area of focus during this year. Entities working with the Pollution Prevention Program have reported energy reductions of more than 23 million kBtu per year. Over 1100 tons of solid waste reduction has also been reported.

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.

MDEQ sponsored and USEPA conducted the 2009 T. R. I. Training Workshop for industry.

STATE AND FEDERAL GRANTS AND LOANS PROGRAMS

Section 319 Nonpoint Source (NPS) Pollution Control Grants

MDEQ in cooperation with a number of 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 2004) will be closed out in 2009. Over these six grant periods, there have been 59 different projects funded that include several different kinds of projects. These include, but are not limited to: educational projects; water-quality monitoring projects; demonstration projects of BMPs in watersheds; agricultural/chemical waste disposal; coastal streams basins restoration; a coastal, on-site waste disposal system project that assisted a utility authority re-establish wastes treatment in the aftermath of Hurricane Katrina; and land-acquisition projects that focus on acquiring sensitive parcels of land that can intercept or buffer NPS pollution.

In Fiscal Year 2009, MDEQ received approximately \$3.7 million in Section 319 Grant funds. Of this amount, four percent is allocated for administrative work, 17 percent for assessment and monitoring, 27 percent for program operation and statewide education and public outreach projects, and 52 percent is allocated for priority watershed restoration and protection projects primarily in the Pearl River Basin

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 2009, the American Recovery and Reinvestment Act of 2009 (ARRA), made “stimulus funding” available to the WPCRLF in the amount of \$35.3 million, which was awarded in the form of loan subsidies to communities throughout the state. By combining the ARRA subsidy funds with base WPCRLF loan funds, MDEQ was able to fund 21 new projects totalling \$65.4 million during and shortly after the end of 2009. 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 (WPCELFF) program provides loans to communities for the emergency construction, repair, or replacement of wastewater collection and treatment facilities. The WPCELFF has approximately \$2,300,000 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 WPCELFF loan recipients in the coastal counties to provide repayment forbearance periods when requested due to the impacts of the storm.

HURRICANE KATRINA YEAR FOUR REPORT

Four years after Hurricane Katrina devastated the Mississippi Gulf Coast, the aquatic resources in the area are doing well. The recreational beaches have been re-nourished and reopened, oyster reefs have been rebuilt and commercial harvest of oysters has resumed and a state record class speckled trout was captured and released by biologists from the Gulf Coast Research Laboratory. 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 .

- The commercial harvest of oysters in Mississippi was closed for portions of the season last spring, after several illnesses reported in Tennessee and Virginia were linked to oysters harvested in Mississippi. MDEQ worked with the Mississippi Department of Marine Resources, the Mississippi Department of Health and the U.S. Food and Drug Administration to investigate potential sources of contamination, and to educate utility authorities and wastewater plant operators on the importance of maintaining and operating their systems properly and the need to report any system malfunctions and bypasses promptly and thoroughly.

- Safe beaches are a major attraction to the Mississippi Gulf Coast, and MDEQ has an important role in ensuring the safety of the bathing public. As the swimming beaches were reopened after Katrina following debris removal, MDEQ with support from the Gulf Coast Research Laboratory and the Beach Monitoring Task Force, re-established the Beach Monitoring Program to advise the public of potential health risks when bacteria concentrations exceed State Water Quality Criteria. Heavy rains in December 2009 led to an unusually high number of beach advisories. Ocean Springs recorded over 15 inches of rain in December almost 11 inches more than normal. Similar amounts fell across the coast, resulting in over half of the beaches being under advisory.

- Fresh seafood is important to the economy of the coast, and to the health and quality of life of coastal residents and visitors. MDEQ helps to ensure the safety of this important resource by monitoring for contaminants in the tissues. Over the past two years, MDEQ and the Gulf Coast Research Laboratory have analyzed fish tissue samples from a wide diversity of fish collected from fishing tournaments and rodeos held across the coast, as well as from routine sampling conducted by state agencies. This effort has resulted in the analysis of approximately 75 different species of fish for mercury levels to evaluate potential health risks associated with eating these fish.

- 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. More than 80 percent of the air monitoring equipment needs in the Hurricane Katrina grant have been replaced, and sites are being strengthened for future storms.

- This Supplemental Air Monitoring Grant is also being 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 will be 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.

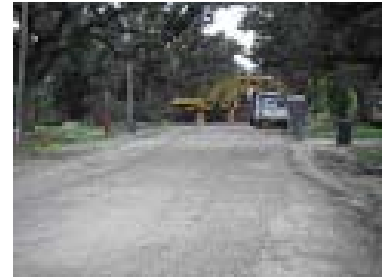
- Treatment of municipal wastewater is a vital element in the reconstruction of the Coast and in protection of the environment. The local communities continue to work with FEMA to repair and upgrade their wastewater treatment systems.

1. In the City of Waveland, Sewer system repairs consisted of two phases south of the railroad, which are complete, and one phase north of the railroad, which is under construction. In addition, all 32 pump stations have been rehabilitated.



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 area is approximately 95 percent complete, and Phase II is 100 percent complete. Phase III is now in construction and is approximately 40 percent complete. All but one pump station have been rehabilitated, and the final one will be upgraded by the city on their own.

3. The City of Long Beach completed all three phases of sewer line replacement along Beach Boulevard in 2009. Three additional phases of line replacement between the beach and the railroad are currently under construction and are approximately 30 percent complete. All temporary service lines south of the railroad have been removed.



4. The City of Biloxi has yet to begin construction on any of their 14 phases of collection system reconstruction. Design for all phases is 90 – 100 percent complete; however, FEMA is now requiring cleaning and T.V. inspection of all lines in these areas before final approval for construction can begin. This inspection work is now under way. Diesel bypass pumps remain in place at the larger stations on the beach front .

5. The Harrison County Utility Authority (HCUA) has recently completed permanent repairs at the Gulfport South, Long Beach/Pass Christian and D'Iberville Wastewater Treatment Plants (WWTP). The Authority also has two large pump station projects remaining, which have been awarded and will begin construction soon.

6. The Hancock County Utility Authority has completed their repairs with one small pump station item remaining.

7. The Jackson County Utility Authority and the municipalities in Jackson County have completed their storm related utility projects.

- 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.
1. 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.
 2. 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.
 3. MDEQ participated in the Hurricane Ulysses Disaster Drill to test preparedness on May 1, 2008.
 4. MDEQ has prepared FEMA trailers and equipment to serve as temporary housing and office space for staff when responding to incidents or disasters.
 5. 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.
 6. 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.
 7. 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

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 on an individual and watershed-wide basis. 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 plan can reduce the impacts of polluted runoff. During 2009, the show reached a total of about 12,500 students and adults.



2. Mississippi and Yazoo River Boat Tours for Students



A new NPS project to educate students about the Mississippi and Yazoo River watersheds began in the fall of 2008. During 2009, a total of 4,188 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. Test scores indicate an increased knowledge and awareness as a result of the tour. 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 "Dump No Waste, Drains to River." During 2009, volunteers glued the markers to 510 storm drains and distributed door hangers to homes in Ridgeland, Jackson, Hernando, Starkville, and at Alcorn State University. 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 2009, approximately 21 people attended the traditional two day workshop and 67 attended five 1 day workshops. A total of 250 students and adults participated in World Water Monitoring Day. Over 4,650 people were reached with the Adopt- A-Stream Pro-

gram statewide.

5. Enviroscape and Groundwater Model Distribution

During 2009, MDEQ staff reached over 6,500 students, teachers, and the general public using presentations associated with water quality. Over 110 water models have been distributed throughout Mississippi to county MSU Extension Service Offices, 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 1,112 educators attended 45 CEU-approved workshops conducted statewide during 2009. In addition, 10 student Environmental Day-Camp sessions were conducted with over 224 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 2009, there were 465 high-school students and 60 team advisors from 32 Mississippi counties active in the contest. MDEQ assists with sponsorship, Envirothon training, the steering committee, and the statewide competition.

8. Storm Water Workshops

In 2009, MDEQ participated in a Green Infrastructure Workshop held at the DeSoto County Convention Center. The purpose of the workshop was to develop a watershed conservation plan to increase the quality of life in Desoto County which is a rapidly developing urban center in Mississippi.

9. Sam E. Soil Activity Book and Sam E. Soil Coloring Story Book

MDEQ used a Nonpoint Source Pollution grant to print 85,000 copies of these books which were distributed statewide to students by the Mississippi Soil and Water Conservation Commission and the Mississippi Soil and Water Conservation Districts.

10. Videos

Gulf Islands National Seashore and *Turkey Creek* were completed. Mississippi Public Broadcasting aired the Gulf Islands video several times in 2009.



11. Water Events/Festivals/Exhibits

A Old Fort Bayou Blueway: MDEQ partnered with The Land Trust for the Mississippi Coastal Plain (LTMCP), Department of Marine Resources and the Ocean Springs Chamber of Commerce to officially “open” a new paddling trail on Old Fort Bayou on September 19, 2009. Blueways are created to promote ecological tourism and to filter pollutants and also provide a place for local people to enjoy the outdoors. The blueway offers over 13 miles of beautiful bayou vistas extending from Gulf Hills Hotel to The Preserve Golf Course.

B Secchi Day was held on Pickwick Lake in Tishomingo County in August 2009. The Secchi Disk is named for its designer Pietro Angelo Secchi who first used the disk more than 150 years ago. The depth the disk disappears is a measure of the transparency of water which can be impacted by the color of water, particles of silt and clay or algae. Over 175 volunteers participated in Secchi Day at Pickwick Lake and used Secchi Disks to take measurements at 30

pre-selected sites. The teams then returned to report their individual measurements, and join spectators for water quality education displays.

C The *Ross Barnett Reservoir WaterFest* 2009 was part of an ongoing environmental education campaign to bring attention to the need to reduce sedimentation in the Pearl River and Ross Barnett Reservoir.

D The *Mississippi Children’s Museum Event* which is entitled “Careers, Stay in School” was held in April 2009 where 800 students visited the MDEQ tents at the two day event.

E MDEQ helped sponsor the *Sustainable Choices Exhibit*, which was a traveling exhibit hosted in 2009 by the Mississippi Natural Science Museum.

F Four *Master Urban Forestry Training Workshops* were held in 2009 where the Urban Forestry Council used MDEQ sponsored publications about for the workshops.

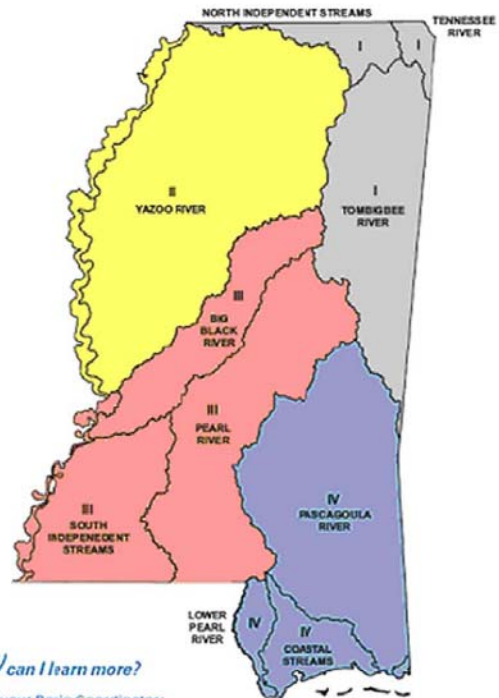


Basin Management Approach

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, nine 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.

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.

A nutrient reduction strategy has been recently completed for the Mississippi Delta, which is in Basin Group II and is the primary area of row-crop agriculture and aquaculture in the State. Numerous leveraged outputs are anticipated, including establishing a consistent, aligned process among state and federal agencies and stakeholders to reduce nutrient loadings from nonpoint and point sources, developing and implementing innovative management practices to reduce nutrient loadings, transferring innovative nutrient reduction approaches from other states, and developing appropriate nutrient criteria and nutrient reduction targets for TMDLs and regional models. The strategy will initially be implemented in at least six watershed projects in Basin Group II.



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

The Ross Barnett Reservoir, which is in Basin Group III, serves as the state's largest drinking water source. In addition to its use as a water supply source, the 33,000 acre lake is used extensively for recreation – primarily boating, fishing, and water skiing. The 105 miles of reservoir shoreline also serve as a catalyst for significant residential and commercial development in Rankin and Madison Counties. Due to its significant use as a water supply source and its prominent role in recreation and economic development, protection of the water quality of the Ross Barnett Reservoir is essential. The Ross Barnett Reservoir Initiative is ongoing in Basin Group III.

Turkey Creek is a Mississippi Gulf Coast community in Basin Group IV settled in 1866 by emancipated African-Americans. The community is a historic neighborhood defined by strong community ties, historic homes and landmarks, and an open space corridor around Turkey Creek, a brackish stream that flows northeast through the community. Over the last decades of development, Turkey Creek has experienced encroachment from all sides. Turkey Creek Community Initiatives (TCCI) is an innovative community development corporation engaged in the comprehensive revitalization of coastal Mississippi's low-income, historic, and environmentally challenged Turkey Creek community and watershed. The mission of TCCI is to conserve, restore and utilize the unique cultural, historical and environmental resources of the Turkey Creek community and watershed for education and other socially beneficial purposes. In 2003, TCCI partnered with the Land Trust for the Mississippi Coastal Plain (LTMCP) to develop a watershed implementation plan to protect and restore Turkey Creek. The Turkey Creek Watershed Implementation Plan was developed to serve as overall guidance for improving water quality in Turkey Creek by: (1) Creating a community greenway (2) Identifying and implementing ecological restoration projects; (3) Creating environmental education opportunities; (4) Building partnerships for implementing this plan.

Lead Outreach

During the reporting period, 120 daycare centers and 17 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 day cares spend many hours during a day in the centers. Many of the day cares are located in older houses, potentially containing lead-based paint hazards. Also, three education fairs and one health fair were attended and information pamphlets were also given to each student to take home to their parents. Approximately 21,613 pamphlets were distributed during the reporting period.



Air Quality Outreach

MDEQ conducted air quality and air pollution awareness outreach efforts throughout Mississippi during Fiscal Year 2009. However, most of the efforts were 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.



enSite - Improving Environmental Information Management

MDEQ completed testing of EPA's TRI-ME software in 2009. This application will eliminate the need for facilities submitting Toxic Release Inventory data to EPA through TRI-ME to provide MDEQ with a separate copy of this data. MDEQ continues to be a leading state in the National Environmental Information Exchange Network improving data exchanges between environmental partners at the state and federal levels.

enSite - Expansion to Field Services Division

MDEQ staff use enSite, a database and file-retrieval software, on a daily basis to write and track environmental permits and keep track of inspection reports and reports submitted by the regulated community. In 2009, the use of enSite was expanded to more fully include the three Regional Offices and the MDEQ Laboratory. This program enables FSD scientists to review past inspection reports and enables staff quicker access to Regional Office inspection reports. Expanding this program to include the Regional Offices has resulted in more in-depth inspections by Regional Office staff, and allows a quicker response by compliance enforcement staff when problems are discovered. The system also provides managers with data management tools to help plan sampling and inspections and to better track progress towards goals. This increased enSite usage has improved communication between Regional Office staff and Environmental Compliance & Enforcement Division and Environmental Permits Division personnel, and promoted greater efficiency and quicker response times throughout OPC. Electronic Discharge Monitoring Reports (eDMR) Over 33 percent of all Discharge Monitoring Reportings were submitted through MDEQ's eDMR module in 2009. MDEQ continues to encourage the regulated community to participate in this program. The program does not require any software to be downloaded or installed. As a result, facilities have the ability to access their DMRs from any computer with an internet connection. Facilities are able to open individual DMRs to review and/or enter data, save DMRs for completion at a later date, certify DMRs, and even correct previously entered or certified DMRs. Upon certification of a DMR with the program by the facility, the DMR is automatically submitted electronically to MDEQ. The facility receives an email confirming the certification for their records.

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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 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.

MDEQ Works The Fishing Rodeo

Fresh seafood is important to the economy of the coast as well as the health and quality of life of many coastal residents. MDEQ and USM's Gulf



Coast Research Laboratory for Fisheries Research (GCRL) have been working together to monitor mercury levels in marine and estuarine fish tissue in order to evaluate the health risks associated with eating these fish. Approximately 75 different species of fish



have been collected and analyzed for mercury. Many fish are collected throughout the year through routine monitoring conducted by GCRL and the Department of Marine Resources biologists.

However, many of the larger fish and deep water fish are primarily collected at the local fishing rodeos, where the biologists are welcomed and allowed to sample the fish. Thus far, approximately 75 different species of marine and estuarine fish have been collected with the highest concentration of mercury being observed in the blue marlin.

enHance

In January 2009, MDEQ announced the selection of the first class of members in the new enHance program. 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. The members of the first class of Leaders were:

- Baxter International – Cleveland
- Eka Chemicals – Columbus
- Haworth, Inc. – Bruce
- Hunter Douglas – Tupelo
- International Paper – Redwood
- Nucor and General Recycling - Flowood

One facility was chosen as a Steward:

- DTE Petcoke – Vicksburg





The Sixth Annual Fossil Road Show, Mississippi Museum Of Natural Science

The sixth annual Fossil Road Show was held at the Mississippi Museum of Natural Science on Saturday March 7. 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.



MDEQ Receives Keep Mississippi Beautiful Award

Mark Williams accepts a Partnership Award of behalf of MDEQ from Keep Mississippi Beautiful chairperson Stephanie Hutchins at their annual awards luncheon. MDEQ was recognized for its exemplary support of Keep Mississippi Beautiful and for cooperative efforts to encourage a clean, litter free Mississippi.



Earth Day 2009 Celebrated at Alcorn State University

Laura Beiser of the Surface Water Division celebrated Earth Day at Alcorn State University. The event entitled “The Green Generation” included an experts symposium on the environment, a public officials symposium, essay contests, a dirty sock contest, the collection of recycling items, a dormitory room clean-up by students, and the signing of Earth Day pledges.

MDEQ, Pearl River Valley Water Supply District, and Agencies Address Reservoir Issues

MDEQ Executive Director Trudy Fisher, Commissioner Jack Winstead, and other state and federal officials met with the Pearl River Valley Water Supply District to discuss issues concerning the Ross Barnett Reservoir. MDEQ has been active in various areas of the Reservoir including solid waste enforcement, stormwater compliance, and water quality.

