

**OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT**

**Annual Evaluation Summary Report**

**for the**

**Regulatory Program**

**Administered by the State**

**of**

**MISSISSIPPI**

**for**

**Evaluation Year 2005**

**July 1, 2004 to June 30, 2005**

**July 2005**



## EXECUTIVE SUMMARY

During the 2005 Evaluation Year, the Office of Surface Mining (OSM), Birmingham Field Office (BFO), conducted oversight evaluations of the Mississippi Department of Environmental Quality (MDEQ), Office of Geology, the State coal mine regulatory authority. The oversight studies focused on the success of Mississippi in meeting the Surface Mining Control and Reclamation Act's (SMCRA) goals for environmental protection of land mined for coal. An evaluation (performance) plan was cooperatively developed by the BFO and the State to tailor the oversight activities to the unique conditions of the state program. The purpose for the oversight activities was to identify the need for and then provide financial, technical, and other program assistance to the State to strengthen its program.

In support of OSM's national initiatives, the BFO conducted studies in the areas of offsite impacts and customer service. OSM's national initiative on reclamation success was not reviewed because Mississippi has not processed any bond release actions since its first mining permit was issued on August 25, 1998.

- The offsite impacts study demonstrated that no offsite impacts had occurred on the Red Hills Lignite Mine during the review period. No offsite impacts have been identified on the coal mining permit since mining commenced in 1998.
- To evaluate the effectiveness of Mississippi's customer service, the BFO evaluated the Office of Geology's processing of citizen complaints. No citizen complaints were received by the State during the review period. The review revealed that the Office of Geology has procedures and coal mining regulations in place to address and respond to citizen complaints should such complaints be received.

The BFO performed evaluations of two general oversight topics as follows:

- The BFO reviewed the State's procedures for coordination with the U. S. Fish and Wildlife Service (USFWS) on permitting actions. The Office of Geology made written findings that no threatened or endangered species existed in the project area, and that the mining operation would not result in the destruction or adverse modification of their critical habitat. Based on information contained in the permit application, no additional notification was provided to the USFWS prior to the issuance of permit MS-002. In response to this review, the Office of Geology developed procedures insuring that all actions required by the State's coal mining regulations would be completed before permit approval. Included in these procedural guidelines are requirements for public participation and consultation with the USFWS and other Federal agencies.
- The BFO reviewed the recently approved use or placement of Coal Combustion By-Products (CCB's), or coal ash, at the Red Hills Mine. There are no specific or specialized regulations addressing the use and disposal of CCB's in coal mines.

CCB's are currently addressed through the State's solid waste disposal programs and the general hydrologic protection and other requirements of SMCRA.

On September 2, 2003, the Director of MDEQ approved the limited use of 67,000 cubic yards or 70,000 tons of CCB's for stabilizing dragline benches, truck backfill areas, and haulroads on the mine site. The State reviewed and modified the limited use plan submitted by the permittee. The plan was evaluated within the context of the original permit findings by MDEQ, and it determined that the limited scope and use of CCB's did not change any of the permit findings.

The Mississippi Lignite Mining Company requested and received approval to use up to 648,863 tons of ash for beneficial uses at the mine site. The current uses of CCB's and the amounts exceed the scope and intent of the Director of MDEQ's previously approved coal mine permit revision.

In April 2005, the company submitted a revision package to the Office of Geology to amend the surface coal mining permit. As a result of the initial review of the new revision package, the Office of Geology will conduct a thorough review including all aspects of coal ash use at this time. The Office of Geology is reviewing its internal monitoring and compliance protocols in relation to all requirements and conditions established in the approved permit. The Office of Geology is working to improve the communications and coordination between other offices or branches within MDEQ in relation to coal mining permit review and decision-making processes.

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## **LIST OF ACRONYMS USED IN THE REPORT**

BFO - Birmingham Field Office  
CCB's - Coal Combustion By-Products  
CFB - Coal Fluidized Bed/Boiler  
CHIA - Cumulative Hydrologic Impact Assessment  
EY - Evaluation Year  
MDEQ - Mississippi Department of Environmental Quality  
MLMC - Mississippi Lignite Mining Company  
OPC - Office of Pollution Control  
OSM - Office of Surface Mining Reclamation and Enforcement  
PHC - Probable Hydrologic Consequences  
RHGF - Red Hills Generating Facility  
RHPP - Red Hills Power Project  
SMCRA - Surface Mining Control and Reclamation Act  
USFWS - U. S. Fish and Wildlife Service

## **I. INTRODUCTION**

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSM) in the Department of the Interior. SMCRA provides authority to OSM to oversee the implementation of and provide Federal funding for State regulatory programs that have been approved by OSM as meeting the minimum standards specified by SMCRA. This report contains summary information regarding the Mississippi Regulatory Program and the effectiveness of the Mississippi Program in meeting the applicable purposes of SMCRA as specified in section 102. The Mississippi Department of Environmental Quality (MDEQ), Office of Geology, administers the program. This report covers the period of July 1, 2004, to June 30, 2005. Detailed background information and comprehensive reports for the program elements evaluated during the period are available for review and copying at OSM's Birmingham Field Office (BFO), 135 Gemini Circle, Suite 215, Homewood, AL 35209.

## **II. OVERVIEW OF THE MISSISSIPPI COAL MINING INDUSTRY**

The State of Mississippi was one of the first States to be awarded primacy to regulate coal mining within its borders after passage of SMCRA in August, 1977. For a number of years after primacy was awarded, no serious interest surfaced for mining the lignite deposits found in Mississippi. Exploratory drilling throughout the Mississippi lignite fields began in the mid-1970's and culminated in the issuance of a permit to mine lignite in Choctaw County in August, 1998.

Coal is present in Mississippi in the form of lignite, a brownish black coal that is intermediate between peat and bituminous coal. The lignite found in Mississippi is part of a band of lignite that extends from south Texas through Louisiana, Arkansas, Tennessee, Mississippi, and into central Alabama. Essentially all of the economically significant lignite in Mississippi is found in the Eocene Wilcox and Claiborne groups, which come into the state just east of Memphis, Tennessee and proceed through the state in a shallow eastern-progressing curve, exiting into Alabama approximately midway down the State. Typically, lignite beds or seams that can be mined for economic purposes range from two to nine feet in thickness. The 1978 estimates of the total lignite resources for the State in lignite beds two feet thick or greater and less than 200 feet in depth were 5 billion tons. Mississippi lignite resources equal about 13 percent of the total U.S. lignite resources of 40 billion tons. For the foreseeable future, lignite will primarily be used for the generation of electricity.

The Red Hills Power Project (RHPP) in Choctaw County developed as a result of an initiative by the Tennessee Valley Authority to explore options for additional power generation. The generation facility, with a net output of 440 megawatts of electricity, was estimated to consume about 3 million tons per year of lignite from the Mississippi Lignite Mining Company (MLMC), Red Hills Lignite Mine. The lignite mine is located between the generation facility and the Natchez Trace Parkway near the town of Ackerman, Mississippi. It is projected that, over the 30-year life of the 5,809-acre mine,

about 4,700 acres will be disturbed, 1,400 acres by mine development activities and 3,300 by lignite removal operations. The remaining 1,109 acres will be used for buffer zones. Lignite will be mined from six seams.

Mine development began in September, 1998 with construction of access roads, mine support facilities, a lignite handling facility, temporary stream diversions, a stormwater runoff control pond, and sedimentation control ponds. Overburden removal began in 1999 with actual lignite mining beginning in 2000. The power plant became fully operational on February 28, 2002. The mine plans to supply the RHPP with approximately 3.3 to 3.6 million tons of lignite per year through 2030.

The second permit for the MLMC, MS-002, was approved on February 11, 2003. The new application requested to permit 3,901 new acres plus the original 1,908 acres permitted under MS-001 (a total of 5,809 acres). Of the 5,809 acres, 3,625 acres are bonded. As of June 30, 2005, 1387.7 acres of the Red Hills Lignite Mine had been disturbed. The disturbance includes the completely revegetated excess spoil piles.

Mississippi has a small inventory of abandoned lignite mines. Nine sites have been identified in five counties. All of the sites for which acreage was available were listed as less than one acre in size. Three of the sites involved the underground mining of lignite. The lignite was typically used for blacksmithing and home heating. An effort to identify other sites will be made as a part of the Mississippi abandoned mine land program.

### **III. OVERVIEW OF THE PUBLIC PARTICIPATION OPPORTUNITIES IN THE OVERSIGHT PROCESS AND THE STATE PROGRAM**

Opportunities for public participation occur at various points throughout the Mississippi regulatory program. They include the ability of the public:

- to request that areas be designated as unsuitable for mining;
- to notification by advertisement of permit application receipt;
- to review permit and modification applications;
- to request a formal hearing concerning actions of the Mississippi Environmental Quality Permit Board;
- to request an inspection of a mine site;
- to object to proposed bond releases;
- to initiate citizen suits; and
- to petition to initiate rulemaking.

By letter dated May 13, 2004, the BFO sought public comment from four organizations/agencies on OSM's 2005 evaluation year (EY) oversight process and the State regulatory program. These were the Mississippi Wildlife Federation, the Sierra Club, the National Park Service, and the U.S. Fish and Wildlife Service (USFWS). The four entities were requested to contact the BFO if they had any questions, issues or concerns that the BFO's oversight studies could address. No responses were received.

**IV. MAJOR ACCOMPLISHMENTS/ISSUES/INNOVATIONS IN THE MISSISSIPPI PROGRAM**

The State is implementing the coal mine regulatory program in an effective manner. Inspections were conducted as required, and conditions on the mine site were thoroughly documented. No violations of the Mississippi surface mining law or regulations were noted during the year.

On September 2, 2003, the Director of MDEQ approved the limited use of 67,000 cubic yards of coal combustion by-products (CCB's) for stabilizing dragline benches, truck backfill areas, and haulroads at the Red Hills Mine. The current uses of CCB's and the amounts exceed the scope and intent of the Director of MDEQ's previously approved coal mine permit revision. An amendment to the mining permit to expand the use of CCB's at the mine is being reviewed. The modification necessitates, at a minimum, a change to the operations plan, submission of data and discussions on new probable hydrologic consequences (PHC), and the preparation of a cumulative hydrologic impact assessment (CHIA) by the State.

**V. SUCCESS IN ACHIEVING THE PURPOSES OF SMCRA AS DETERMINED BY MEASURING AND REPORTING END RESULTS**

To further the concept of reporting end results, the findings from performance standards and public participation evaluations are collected for a national perspective. For the majority of primacy States, these findings include descriptions of the number and extent of observed offsite impacts, the number of acres that have been mined and reclaimed and which meet the bond release requirements for the various phases of reclamation, and the effectiveness of customer service provided by the State. Since there have been no requests for bond release by the Mississippi Lignite Mining Company, only the evaluations of offsite impacts and customer service apply. Individual topic reports are available in the BFO that provide additional details on how the following evaluations and measurements were conducted.

A. Offsite Impacts:

OSM annually evaluates and reports on the effectiveness of State regulatory programs in protecting the environment and the public from offsite impacts resulting from surface coal mining and reclamation operations. Data are gathered nationwide in order to portray the on-the-ground success of State programs in preventing or minimizing offsite impacts.

An offsite impact is defined as anything resulting from coal mining that causes a negative effect on resources (people, land, water, structures). The impact must also be regulated or controlled by the State regulatory program. The impact must be coal mine related and must occur outside the area authorized by the permit for conducting mining and reclamation activities.

The BFO conducted two joint inspections of the mine site during EY 2005. No offsite impacts were identified during these inspections. No offsite impacts were noted on any of the 13 inspection reports prepared by the Office of Geology. No enforcement actions were taken by the Office of Geology during the evaluation period. The mine site in Mississippi was free of offsite impacts.

B. Reclamation Success:

The first coal mining permit ever issued in the State of Mississippi was issued on August 25, 1998. The second permit, which incorporates the first, was issued on February 11, 2003. The company has not requested that any bonds be released since the start up of the mine. Therefore, no bond release actions were processed during the review period.

C. Customer Service:

For EY 2005, the BFO evaluated the Office of Geology's processing of citizen complaints to determine the effectiveness of its performance regarding customer service. The Office of Geology has regulations and procedures for processing citizen complaints. These procedures address when a citizen may request an inspection of a mine site and the procedures to follow on how a citizen may request confidentiality, the timing of notification of the citizen if an inspection is conducted, right of entry of the citizen, timing and notification of the citizen of the action taken, and the citizen's right to appeal the action taken.

No citizen complaints were received by the State during the period of October 1, 2002, through January 31, 2005. No ten-day notices were issued to the Office of Geology by OSM during the study time period.

The review determined that the Office of Geology has procedures in place to address citizen complaints. The BFO concluded that the Mississippi coal mining regulations provide adequate procedures for the processing and response to citizen complaints submitted to the State should such complaints be received.

**VI. OSM ASSISTANCE**

The focus of OSM's oversight role has shifted to on-the-ground reclamation success and end results rather than on processes. OSM's changing role now emphasizes assisting the State in improving its regulatory program by identifying program needs and offering financial, technical, and programmatic assistance as necessary to strengthen the State program. The BFO routinely provided information to Mississippi regarding new policy guidelines and procedures, as well as changes in existing guidelines and procedures. Three assistance activities were performed by OSM during this review period. The Office of Geology requested assistance with the review of a revision to its current mining permit, MS-002 and with its upcoming mid-term review of the same permit. MDEQ does not have a soil scientist on staff and has lost its only experienced hydrologist. Mississippi requested assistance in the specific area of soils (including test

plot information) and assistance in the determinations of PHC's, CHIA's, and other related hydrology information as part of the mid-term review. The technical staff of the Mid-Continent Regional Office initiated action to provide the requested assistance. A joint OSM / Office of Geology site visit was conducted in June.

## **VII. GENERAL OVERSIGHT TOPIC REVIEWS**

### ***Coordination with the U.S. Fish and Wildlife Service***

The BFO reviewed the Office of Geology's procedures for coordinating with the U.S. Fish and Wildlife Service. Under the Mississippi regulations each surface mine permit must include pre-mining environmental resource information that will allow evaluation of important habitat for fish and wildlife. A Fish and Wildlife Plan is required that provides fish and wildlife resource information and a protection and enhancement plan that minimizes disturbance and adverse impacts on fish and wildlife resources. The State must provide written notification to State and Federal fish and wildlife agencies. A written finding that the issuance of the permit would not affect the continued existence of endangered and threatened species or result in the destruction or adverse modification of their habitat as determined under the Endangered Species Act must be made before permit issuance.

Prior to the approval of the first coal mining permit, MS-001, initial baseline flora and fauna survey data were collected and evaluated for the entire permit area and for several thousand acres surrounding the permit. A complete fish and wildlife survey was performed by qualified personnel; at that time no threatened or endangered species or their critical habitat were identified in the project area. The permit submittal included a Fish and Wildlife Plan and a Stream and Wetland Reconstruction Plan. In addition, the company and the Office of Geology solicited comments and addressed any concerns raised by the USFWS, the Mississippi Natural Heritage Program, the Mississippi Department of Wildlife, Fisheries and Parks, the Nature Conservancy, the Audubon Society, and the Sierra Club. The Office of Geology made written findings that no threatened or endangered species existed in the project area and that the operation would not result in the destruction or adverse modification of their critical habitat.

As part of the application submittal for MS-002, the Red Hills Mine submitted an updated Fish and Wildlife Plan and a revised Pre-Construction Stream and Wetland Reconstruction Plan. The company checked for any new threatened or endangered species for the area, using the USFWS listing for Mississippi.

Permit findings that no Federal or State endangered or threatened species or their critical habitat were known to occur within the permit area or adjacent areas were made by the State based on the natural resource information provided as part of the application for MS-001 and on the updated Fish and Wildlife Plan submitted as part of the application for MS-002. Mississippi did not provide written notification to the USFWS, as required for MS-002.

It was observed that the company has provided several enhancements for wildlife, including nesting areas and boxes, riparian plantings along streams, retention of sediment ponds, forest openings with hardwood and wildlife forage plantings, and the set-a-side of land for offsite wetland mitigation (2 to 1 wetland mitigation ratio). The postmining land use is forest lands; therefore, the company plans to work with the landowners to preserve some fish and wildlife areas where possible. The State reviews the company's on-the-ground actions to address this plan during mine inspections.

The Office of Geology must coordinate with the USFWS prior to issuing a permit or permit modification. In response to this review, the Office of Geology developed procedures entitled, "Actions Required by the State of Mississippi Surface Coal Mining Regulations". Included in these procedural guidelines are requirements for public participation and consultations with the USFWS and other Federal agencies. The procedures include a listing of all agencies to be contacted during the permit or permit modification application review process.

### ***Utilization of Coal Combustion By-Products at the Red Hills Mine***

There are no specific or specialized regulations addressing the use and disposal of CCB's in coal mines in the surface mining regulatory program. The State's solid waste disposal programs and the general hydrologic protection and other requirements of the SMCRA regulatory program collectively govern and/or provide current guidance on CCB use and placement on coal mines.

Historically, the disposal of CCB's from all sources in Mississippi has been under the sole direction of the Office of Pollution Control's (OPC) Solid Waste Management Branch within the MDEQ, and has not involved disposal of CCB's on coal mine sites. Disposal of most, if not all, CCBs has been through the permitting of on-site excavated clay lined, or unlined, disposal cells at the source of the CCB production.

The MLMC operates a multiple seam lignite mine adjacent to the Red Hills Generating Facility (RHGF). The mine currently produces and supplies an average of 3.6 million tons of lignite annually to the power plant. The RHGF utilizes circulating fluidized bed/boiler (CFB) technology. This technology introduces limestone into the coal combustion process. The process results in the CFB ash (fly ash and bottom ash) being alkaline in nature. This is an advantage over those power plants producing CCB's using pulverized coal technologies which can be more acidic and/or toxic in nature. The pH of the CFB ash at RHGF generally ranges from 10.0 to 11.8. Approximately 670,000 tons of dry CFB ash is produced on an annual basis.

In April 2003, a permit change was submitted to the MDEQ for an experimental use to demonstrate "beneficial use" of CFB ash in its daily mine operations. MLMC's Beneficial Use Plan further stated that only small amounts of ash would be used, and the proposed uses were not intended as a means to dispose of large quantities of ash.

The Beneficial Use Plan stated:

- The proposed uses would involve only a very small quantity (67,000 cubic yards or approximately 70,000 tons) of the total ash produced by the RHGF.
- Beneficial uses are to include road stabilization, dragline bench stabilization, and truck mine pit backfill area stabilization.
- The ash generated at the RHGF consists of fly ash and bottom ash from a CFB process.
- Mineralogical analyses of the ash were provided. The results indicate that the ash from the RHGF contains no toxic levels of trace elements.
- Other environmental considerations including dust control, PHC, potential effect on the rooting depth of pine trees, and the effect on RHGF ash disposal space were also briefly discussed.

The Solid Waste Management Branch reviewed and approved the use of the CFB's as described in the Beneficial Use Plan, contingent upon the company's compliance with the following conditions:

- Construction activities would be restricted to the use of CCB's produced by the RHGF and only applied to the project area in the manner described in the approved proposal.
- MLMC would ensure the CFB ash was managed so that storm water discharge or washout of the material to State surface waters was prevented and that the project would not cause a violation of applicable State and Federal water quality standards.
- MLMC would maintain records listing the locations and quantity of ash applied to those locations.
- A beneficial use summary report would be provided to the MDEQ by July 1 of each year of the project life. The first report would be submitted July 1, 2004.
- A yearly analytical characterization of the CCB's would be conducted and submitted to the MDEQ by July 1 of each year and would require specific actions under certain circumstances.

The Director of MDEQ's approval letter, dated September 2, 2003, further required the installation of additional groundwater monitoring wells in the lower Wilcox aquifer. Permit findings stated that the limited use of CFB's on an experimental basis did not require changes to any of the original permit findings, nor did it require changes in the reclamation plan. The approval stated that, because of the limited nature of the changes to the mining operation, these changes could be formally classified as an insignificant permit revision. This change to the permit was designated Permit Revision 2.

On June 22, 2004, the permittee submitted the required Beneficial Use Summary Report. The report, which provided information for the period July 2003 through July 2004, indicated that MLMC had not used ash to stabilize the dragline bench, had used ash for in-pit fill areas, and that 88,678 tons of ash were used on the permit area. The report included a request to use ash for in-pit fills and to increase the amount of beneficial ash use to 806,000 tons, for the period of July 2004 through July 2005.

OPC reviewed the summary report and agreed to the continued use of ash on the mine area. However, it did not approve the use of ash for in-pit fills. OPC approved an increase in the use of ash to 348,863 tons for the upcoming year. In response, MLMC proposed an alternative use for in-pit fills and requested approval for an additional 300,000 tons of ash. Both requests were approved by the OPC in March 2005.

The current uses of CCB's and the amounts exceed the scope and intent of the Director of MDEQ's previously approved surface mine Permit Revision 2, which was based on limited use. As such, additional reviews of and changes to the permit findings should have been considered and addressed. The permit was not properly amended, as required within the framework of the approved coal mining regulatory program.

After obtaining OPC's March 2005 approval, MLMC submitted a revision package to the Office of Geology to formally amend the permit. The revision package contains information on a number of requested permit changes. One part of the multi-topic revision request is MLMC's *Request for Beneficial Use of the RHGF Ash within the Red Hills Mine*. Information submitted for review and approval include:

- Description of Beneficial Use
- Dragline Bench Stabilization
- Truck Mine Pit Backfill Area Stabilization
- RHGF Ash Chemical Characterization (includes laboratory analyses)
- Environmental Considerations
- Federal Regulatory Perspective on Mine Placement of CCB's
- Prior approvals by OPC for CCB use on the permit. Also included is the Director of MDEQ's approval for Permit Revision 2.

As a result of the initial review of the revision package and in conjunction with the current request to amend the permit, the Office of Geology responded to MLMC with the following comments:

- Beneficial use of CCB's on the mine site will be reviewed as Modification 1 (significant changes) to Permit MS-002.
- The Office of Geology's review will include all aspects of coal ash use at this time.
- The review will include, but is not limited to, reviews of: PHC, ground and surface water monitoring, landowners' consent and leases, postmining land use, approximate original contour, beneficial use, the potential use of essentially 100 percent of available ash, ash composition, and ash use and placement.
- The MDEQ will review the CHIA. A surface and groundwater sampling, testing, and reporting program will be coordinated with the OPC and the Office of Land and Water Resources within MDEQ.
- An ash composition sampling and testing program and ash placement monitoring program will be coordinated with the OPC.
- The company should submit any additional material on the ash use by June 10, 2005, that might be beneficial to the review.

The Office of Geology is reviewing its internal monitoring and compliance protocols in relation to all requirements and conditions established in the approved permit. Simultaneously, the Office of Geology is working to improve the communication and coordination between other offices or branches within MDEQ in relation to the coal mining review and decision-making processes. This is essential for proper permit findings to be made, proper environmental safeguards to be identified, specific monitoring, adequate reporting, and compliance protocols to be established in a timely and orderly manner.



## **APPENDIX A**

### **TABULAR SUMMARY OF CORE DATA TO CHARACTERIZE THE PROGRAM**

*The following tables present data pertinent to mining operations and State regulatory activities within Mississippi. They also summarize funding provided by OSM and Mississippi staffing. Unless otherwise specified, the reporting period for the data contained in all tables is the same as the evaluation year. Additional data used by OSM in its evaluation of Mississippi's performance is available for review in the evaluation files maintained by the Birmingham OSM Office.*



## **APPENDIX B**

### **STATE COMMENTS ON THE REPORT AND RESPONSES TO COMMENTS**

