OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Annual Evaluation Summary Report

for the

Regulatory and Abandoned Mine Lands Reclamation Programs

Administered by the State

of

ALABAMA

for

Evaluation Year 2002

October 1, 2001 to September 30, 2002

October 2002

EXECUTIVE SUMMARY

During the 2002 Evaluation Year (EY), the Office of Surface Mining (OSM), Birmingham Field Office (BFO), conducted oversight evaluations of the Alabama Surface Mining Commission (ASMC) and the Alabama Department of Industrial Relations (ADIR), the State coal mine regulatory and abandoned mine lands (AML) program agencies, respectively. The oversight studies focused on the success of these agencies in meeting the Surface Mining Control and Reclamation Act's goals for environmental protection and prompt, effective reclamation of land mined for coal. An evaluation (performance) plan for each agency was cooperatively developed by the BFO and the State to tailor the oversight activities to the unique conditions of each 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 programs.

In support of OSM's national initiatives, studies were conducted in the areas of offsite impacts, reclamation success, and customer service.

- The offsite impacts study indicated that 91 percent of Alabama's inspectable units were free from offsite impacts. The number of offsite impacts has continued to decline with 51 offsite impacts identified during Evaluation Year 2000, 39 in 2001, and 27 in 2002. Data on offsite impacts were collected during BFO inspections and from State inspection reports and Notices of Violation.
- The BFO's review of 41 bond release actions demonstrated that ASMC continues to follow all program requirements for releasing bonds.
- The BFO's customer service review, which concentrated on citizen input on bond releases, analyzed 21 bond releases processed by the State during the evaluation year. The BFO review indicated that ASMC was handling citizen input on bond releases according to the regulations by notifying all required entities and persons of the proposed releases, advising owners of the opportunity to participate in the bond release inspection, and conducting informal conferences and subsequent administrative reviews as necessary.

General oversight topic reviews were conducted for both the State regulatory and abandoned mine lands programs.

- A study was conducted to evaluate ASMC's performance concerning the administration, inspection, and enforcement of regulatory standards on sites covered by notices of intent to explore (NOI). The NOI study determined that, in the main, ASMC is processing, monitoring, and enforcing performance standards on the exploratory operations that fall in the NOI category. However, the study results indicated that several actions needed to be taken to strengthen ASMC's program in the area of NOI administration.
- The MCRCC, in support of the BFO's oversight studies, performed a review of ASMC's bonding procedures and bonding calculations. Two samples were used for the study – a sample of five permits issued between October 1, 1999, and September 30, 2001, and a sample of seven permits bond forfeited and reclaimed during the same time period. The

study concluded that overall the bond program is sufficient; however, some recommendations were made to strengthen the program.

- Forty-nine (49) revisions were reviewed to evaluate ASMC's performance relative to applications for permit revisions. Based upon this review, it appears that overall the ASMC is following their guidelines for determining whether a revision is significant or insignificant. During this study, the ASMC implemented a change in the revision checklist that will help to insure that notifications to coordinating agencies are processed and will most likely assure the integrity and validity of the data in the ASMC database.
- The BFO conducted a study that placed an emphasis on specific performance standards in joint oversight inspections with the ASMC. The BFO collected data from 63 joint inspections between October 15, 2001, and August 15, 2002. The joint oversight inspections reviewed all performance standards pertinent to the minesite, but placed an emphasis on the re-certification of impoundments, the permittee's compliance with the terms and conditions of the permit, contemporaneous reclamation, and the repair of lands in the shadow area in regards to material damage on the surface and to occupied dwellings above underground mining. In most cases, the permittee was found to have complied with the reviewed performance standard, however, a few permits were found to have areas of non-compliance. ASMC took enforcement action in these instances.
- A review of the partnerships associated with the AML Program for the time period of 1997 through 2002 was conducted by the BFO. This review identified financial partnerships, research partnerships, Clean Water Action Plan partnerships, coordination and information exchange partnerships, technical assistance partnerships, and partnerships with watershed groups.
- The BFO conducted an evaluation of ADIR's adherence with the National Pollutant Discharge Elimination System (NPDES) general stormwater permit requirements. The study also evaluated whether Best Management Practices used by ADIR on AML projects were successful in preventing environmental damage from erosion/sedimentation or from toxins during reclamation. The study concluded that ADIR complies with on-the-ground NPDES general stormwater permit requirements and operates an AML program that stabilizes the affected project areas prior-to, during, and after construction.
- A study to evaluate the cost effectiveness and the efficiency of the Walker County Soil and Water Conservation District Board (Board) was conducted by the BFO. This study provided insight into the benefits of the cooperative agreement between ADIR and the Board, and areas that ADIR may want to re-evaluate in future years.
- The BFO developed a report that characterizes Alabama's successes in the area of the Clean Streams Initiative including the number and types of projects, water quality improvements, and funding. Information regarding BFO efforts to quantify current conditions at 81 previously identified AMD sites is also provided.

In addition to national initiative reviews and topical studies, the BFO engaged in a number of assistance activities during the review period. Each assistance activity was identified during joint State/BFO meetings and was performed in full cooperation with the associated State agency.

- The BFO provided ADIR with descriptions and evaluations of reclamation methods and reference studies to assist them in exploring revegetation methods which could increase initial success of vegetation cover and reduce subsequent maintenance costs on coal refuse reclamation projects and reclamation sites in the Tuscaloosa formation. This formation in the Warrior Coal Field has poor water retention qualities, is highly erodable, and is highly acidic. The coal refuse is acidic and contains toxic forming materials presenting various vegetation and erosion control problems.
- ASMC water monitoring procedures on permitted sites were examined. The procedures followed in Alabama were found to be consistent with those followed in other MCRCC states.

TABLE OF CONTENTS

LIST OF ACRONYMS USED IN THE REPORT

ADIR - Alabama Department of Industrial Relations
AMD - Acid Mine Drainage
AML - Abandoned Mine Lands
AOC - Approximate Original Contour
ASMC - Alabama Surface Mining Commission
BFO - Birmingham Field Office
BMP - Best Management Practice
Board - Walker County Soil and Water Conservation District Board
Corps - Army Corps of Engineers
EY - Evaluation Year
FY - Fiscal Year
MCRCC - Mid-Continent Regional Coordinating Center
MSHA - Mine Safety and Health Administration
NAAMLP - National Association of Abandoned Mine Land Programs
NEPA - National Environmental Protection Act
NOI - Notice of Intent to Explore
NOV - Notice of Violation
NPDES - National Pollutant Discharge Elimination System
NRCS - Natural Resources Conservation Service
OSM - Office of Surface Mining
PA - Problem Area
Rules - Rules of the Alabama Surface Mining Commission
SMCRA - Surface Mining Control and Reclamation Act
TDN - Ten-Day Notice

I. INTRODUCTION

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining (OSM) in the U.S. Department of the Interior. SMCRA provides authority to OSM to oversee the implementation of and provide Federal funding for State regulatory and abandoned mine lands programs that have been approved by OSM as meeting the minimum standards specified by SMCRA. This report contains summary information regarding the Alabama Regulatory and Abandoned Mine Lands (AML) Programs and the effectiveness of the Alabama programs in meeting the applicable purposes of SMCRA as specified in section 102. These programs are administered by the Alabama Surface Mining Commission (ASMC) and the Alabama Department of Industrial Relations (ADIR). This report covers the period of October 1, 2001, to September 30, 2002. 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 ALABAMA COAL MINING INDUSTRY

Alabama ranks 15th in coal production among coal-producing States. The majority of Alabama's coal is ranked high-volatile A bituminous. Moderate amounts of low and medium-volatile A bituminous coal also exist. The coal is generally of good quality, and most beds have low percentages of sulfur and ash.

Alabama has four coalfields that are part of the great Appalachian coal basin - the Plateau field, the Warrior field, the Cahaba field, and the Coosa field. Alabama's total coal reserves have been estimated at 4.8 billion tons. A total of 3.1 billion tons is estimated as recoverable reserves (.73 billion ton is recoverable by underground mining, i.e., overburden of greater than 120 feet; and 2.4 billion tons are recoverable by present strip mining techniques, i.e., overburden less than 120 feet). A total of 9,700 square miles of the State is underlain by coal. Coal is the most abundant and important mineral resource in the Warrior, Cahaba, and Coosa fields. The great majority of coal mined today is in the Warrior field. The Plateau field, with a greater area than all the other coalfields combined, has attracted little commercial mining. The coal mined in Alabama is used principally for electric power generation. Other uses include methane gas recovery and coke production.

Lignite also occurs in the Coastal Plain of Alabama in irregularly-shaped deposits that may be discontinuous and highly variable in thickness. Deposits of lignite have been identified from Sumter and Choctaw Counties in the west to Barbour and Henry Counties in the east. Lignite has potential use as an industrial fuel, fuel for steam electric generating facilities, and for gasification. There is no current lignite mining in the State.

Coal is recovered by both surface and underground mining techniques. Surface mining in Alabama includes auger, contour, and area methods. Room and pillar and longwall methods are used for underground mining. Prior to 1986, surface mining predominated; since that time, underground mines have accounted for the majority of the coal recovered. For calendar year 2001, approximately 78 percent of the coal mined was by underground mining (tonnage recovered by underground mining – 15,206,000; tonnage recovered by surface mining – 4,083,000; see Table 1). Underground mining operations employed 2,491 people while surface mining operations employed 552 people as of September 30, 2001.

As of September 30, 2002, 27 permitted surface mines, nine (9) permitted underground mines, and four (4) preparation and loading facilities were actively producing coal in Alabama. Production reports show that bituminous coal was produced in nine (9) Alabama counties: Bibb, Cullman, Jackson, Jefferson, Marion, Shelby, Tuscaloosa, Walker, and Winston. Approximately 80 percent of the mine sites are located in Jefferson, Tuscaloosa, and Walker Counties.

III. OVERVIEW OF PUBLIC PARTICIPATION OPPORTUNITIES IN THE OVERSIGHT PROCESS AND THE STATE PROGRAMS

Opportunities for public participation occur at significant points in the Alabama regulatory program and involve the ability of the public:

- To initiate rulemaking;
- To initiate civil suits;
- To request that areas be designated as unsuitable for mining;
- To review permit and revision applications;
- To object to proposed bond releases; and,
- To request an inspection of a mine site.

Monthly meetings of the Alabama Surface Mining Commission are open to the public.

Opportunities for public participation in the Alabama AML Program occur at the time of:

- Project selection;
- Consultation under the National Environmental Policy Act (NEPA);
- Grant application review;
- Obtaining right of entry documents;
- Management and disposal of land acquired by the AML Program;
- Obtaining a stormwater drainage permit; and,
- Securing amendments to the State Reclamation Plan.

On July 17, 2001, letters were sent to 20 Federal and State agencies and environmental organizations to alert the public to the opportunity for involvement in the BFO's oversight process. In the letter, recipients were asked to provide the BFO with any questions, issues or concerns that could be addressed in oversight studies. No responses

to these letters were received. On July 25, 2002, the BFO conducted a field trip of AML sites in the Five Mile Creek watershed with the OSM-funded Appalachian Clean Streams Initiative intern and the Black Warrior Riverkeeper. The BFO used this opportunity to inform the participants of the opportunity to propose oversight studies for Evaluation Year (EY) 2003.

IV. MAJOR ACCOMPLISHMENTS/ISSUES/INNOVATIONS IN THE ALABAMA PROGRAM

Alabama Regulatory Program

ASMC continued to successfully administer its regulatory program during EY 2002 to achieve the goals identified in section 102 of SMCRA. The BFO conducted regulatory program studies and engaged in assistance activities to characterize the success of the State's program and to provide assistance in specific areas.

During the evaluation year, ASMC issued nine (9) new permits and three (3) permit renewals. Fifty-eight (58) permit revisions and one (1) incidental boundary revision were approved. Five (5) permit transfers were submitted, and two (2) approved. ASMC processed 22 notices of intent to explore. A total of 3,015 inspections were conducted, including 2,588 complete inspections and 427 partial inspections. Fifty-five (55) Notices of Violation (NOV), representing 75 violations, and three (3) Cessation Orders, with a total of four (4) violations, were issued (not including vacated violations).

OSM and ASMC continued efforts to obtain reclamation at four illegal mining sites operated by Mr. Johnny Cupps. On April 12, 2002, the United States presented evidence at a contempt hearing before the U.S. District Court for the Northern District of Alabama that showed that Mr. Cupps had failed to comply with the orders of the Court to reclaim his illegal mining operations at three sites, conducted illegal mining operation at a fourth site, and had impeded and threatened enforcement agents. The Judge ruled from the bench and ordered Mr. Cupps' incarceration. The written order, issued on April 18, 2002, required that Mr. Cupps remain incarcerated until he furnished ASMC with engineered reclamation plans for the four sites and mobilized the necessary equipment to commence reclamation on the first site, the Elvester Church site. Mr. Cupps was released from incarceration on July 2, 2002, after demonstrating some compliance with the court orders. On September 26, 2002, the U.S. District Court ordered Mr. Cupps to show cause why he should not be held in contempt for the fifth time. This action was taken because reclamation of the Elvester Church site had begun, but with much delay. In addition, the reclamation plan for the fourth site was not developed, as required. After the hearing had commenced and some testimony had been given, the Judge met with the attorneys and suggested that a settlement agreement, covering all outstanding issues, be developed. A settlement agreement requiring reclamation of all four illegal minesites was signed on September 26, 2002. Failure to adhere to the settlement agreement will most likely subject Mr. Cupps to further incarceration.

On December 2, 2001, OSM received an application for review under CFR Part 865 from Mr. Marshall Bussey, alleging discrimination by his employer for participation in protected activities. Mr. Bussey's employer was Johnny Cupps, and Mr. Bussey stated that Mr. Cupps had harassed and threatened him, withheld back pay from him, failed to pay medical bills accrued as the result of a work-related injury, and was unlikely to employ him in the future. Mr. Bussey believed that these actions occurred because he provided information on Cupps' unpermitted mining operations to OSM and ASMC, and testified before the ASMC Division of Hearings and Appeals on a matter related to Mr. Cupps' unpermitted mining operations. The BFO conducted an investigation of Mr. Bussey's application for review and determined that a violation of 30 CFR Part 865 had probably occurred. The results of this investigation were furnished to the Office of Hearings and Appeals. A hearing on the matter has been scheduled.

The BFO has continued to collect information on ASMC's bonding activities to provide an overall general picture of how successfully reclamation is staying current with mining in the State. Through EY 2002, 108,176 acres had been bonded in Alabama for the purpose of coal mining; 73,965 acres had received a Phase I bond release; 49,178 acres had received a Phase II bond release; 47,682 acres had received a Phase III bond release; and, bonds had been forfeited on 10,212 acres.

Alabama Abandoned Mine Lands Program

ADIR successfully administered the AML Program during EY 2002 as outlined in the AML Reclamation Plan and policies and procedures established in the annual AML grant. The AML Program completed 17 projects (including six emergency projects) during the evaluation year. Pothole subsidence events were the predominant emergency project problem. Reclamation achieved by non-emergency activities included 14,300 linear feet of dangerous highwall, a 15-acre dangerous impoundment, 6.1 acres of clogged streams, 3 portals, and 400 feet of dangerous piles and embankments. Two projects involving acid mine drainage remediation were also completed. The data presented in Table 6 characterizes the status of AML reclamation in Alabama. The data is presented by problem type, showing reclaimed versus unreclaimed figures.

Alabama hosted the winter meeting of the National Association of Abandoned Mine Land Programs (NAAMLP) on March 3-5, 2002. William C. Guyette, Director, State Programs Division of ADIR, who was elected President of the NAAMLP in 2001, moderated the meeting.

ADIR continues to augment its partnershipping activities to effect more abandoned mine land reclamation while stretching the finite fiscal resources of the Abandoned Mine Lands Program. A discussion of partnershipping activities for the period of 1997 – 2002 can be found under General Oversight Topic Reviews, Program Evaluations of the State Abandoned Mine Lands Program.

Alabama's nationally recognized program for the reforestation of reclaimed abandoned mines was highlighted at a May 15-17, 2002, symposium entitled, "Market-Based Approaches to Reforestation of Abandoned Mine Lands." Over 7 million trees have been planted by ADIR during its 25 years in the reclamation business.

Work was completed to treat acid mine drainage (AMD) being discharged from a 240-acre abandoned surface mine into Weldon Creek, a tributary of Hurricane Creek in Tuscaloosa County. This project was unique because a new technique was used to treat the AMD by placing alkaline kiln dust, or crushed limestone in a pit through which the headwaters of the creek flowed. The cost of the project was shared by the Alabama Rivers Alliance through OSM Watershed Cooperative Agreement Program funding, the City of Tuscaloosa under a Supplemental Environmental Project initiative, and ADIR.

An ADIR staff member presented a case study on the AMD remediation work accomplished at the Cane Creek AMD Remediation Project during a workshop in Columbia, Missouri, on May 21 – 24, 2002. The workshop was held to develop a comprehensive training course that would address the array of complex acid-forming materials found at AML sites.

The Alabama AML Program completed its 100th emergency project on May 13, 2002, in the city of Carbon Hill. At that point, 83 subsidence emergencies, seven (7) airshafts, four (4) gob fires, three (3) slides, and three (3) mine portals had been treated under the emergency provisions of Alabama's AML Program.

The Blue Creek Gob AML Project in Jefferson County was nominated for a national reclamation award. The project successfully met the challenge of correcting an assortment of public safety hazards and environmental problems stemming from 40 acres of abandoned coal refuse or gob at a remarkedly low cost. This was accomplished under the AML Enhancement Rule by allowing the contractor to extract and sell marketable coal from the refuse in return for grading the site at no cost to 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 reviews and public participation evaluations are being collected for a national perspective in terms 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. 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 ASMC's regulatory program in protecting the environment and the public from offsite impacts resulting from surface coal mining and reclamation operations. Offsite impact data is 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 negatively affects resources (people, land, water, structures). The impact must also be regulated or controlled by an applicable State program, must be coal mine related, and must occur outside the area authorized by the permit for conducting mining and reclamation activities. For EY 2002, offsite impact data was collected for the period of October 1, 2001, through September 30, 2002, during the BFO's field inspections and file reviews of State inspection reports, NOV actions, bond releases, and a special emphasis study of certain performance standards.

The field and file reviews were conducted to determine if the State properly recorded offsite impacts for the inspectable units reviewed by the BFO. BFO inspections of these units occurred throughout the evaluation year, beginning in October 2001, and ending in September 2002. Of the 19 inspections performed for the reclamation success study, no offsite impacts were identified. Two (2) offsite impacts were identified during the special emphasis study. Of the 75 complete inspections performed, five (5) offsite impacts were identified. All of these offsite impacts had been identified and cited by the State. The examination of the State NOV database and associated hard-copy State NOV's identified an additional 20 offsite impacts not associated with the BFO studies.

Twenty-seven (27) offsite impacts were identified on 20 inspectable units. Effects on resources were determined to be major in eight (8) cases, moderate in three (3) instances, and minor in 17 cases (See Table 4). The impacts were associated with failure to meet effluent limitations (3), uncontrolled run-off (8), failure to construct or properly maintain diversions (1), failure to build or maintain basins (5), encroachment (8), failure to blast within limits or formula (1), and hydrology – other (1).

Offsite impacts associated with Alabama mine sites numbered 51 in EY 2000 and 39 impacts in EY 2001. Offsite impacts occurred on 20 inspectable units in EY 2002. Alabama's inspectable units as of September 30, 2002, totaled 211. Therefore, offsite impacts occurred on a small percentage (9%) of the inspectable units.

Remediation and prevention were addressed for each of the seven (7) offsite impacts identified during BFO inspections by determining what could have been done to prevent the impact and what was done on the ground to correct the problem. The following was noted:

- The off-site impacts involving the failure to meet effluent limitations were remediated by treating the water to raise the pH to meet effluent limits. Prevention of this category of offsite impacts could be accomplished by a

monitoring and maintenance program designed to identify and treat low pH/high iron/high sediment water before it is released into the environment, the establishment of adequate vegetation, and maintenance of basins and diversions.

- The off-site impacts involving uncontrolled drainage were remediated by constructing sediment basins, redirecting runoff into sediment basins, and repairing and maintaining sediment basins and diversion ditches. Prevention of this category of offsite impacts could be accomplished by observing permit requirements and performing monitoring and maintenance of sediment ponds and drainage structures.

- The off-site impacts involving failure to bond all disturbed acreage and failure to obtain a permit were remediated by bonding disturbed areas and by the permittee obtaining a permit. These violations appear to be due to negligence on the part of the operator. Prevention of these categories of offsite impacts could be accomplished by observing requirements that do not allow disturbing areas unless a bond and permit are obtained.

- The off-site impact involving blasting was remediated by lowering the noise levels of the blasts. To prevent the offsite impact, the blasts should be reduced. The operator worked with ASMC on a new blasting plan for the affected permit.

While the occurrence of offsite impacts is beyond the control of ASMC, the BFO has concluded from this review that the State is operating its inspection and enforcement program in a manner that discourages offsite impacts and is employing diligence in discovering and citing violations involving offsite impacts as they occur. No instances were noted in which the State inspector failed to take proper enforcement action.

B. Reclamation Success:

ASMC's effectiveness in ensuring successful reclamation through compliance with performance standards relative to bond release was evaluated. A sample of bond releases reviewed by ASMC after October 1, 2001, was selected for this evaluation. The bond releases reviewed encompassed 17 permitted sites. This sample included Phase I, II, and III bond releases. The field reviews occurred throughout the evaluation year. All of the sites were reviewed prior to ASMC's approval/denial of the bond release request.

The following parameters were evaluated through field observations and/or review of the State bond release files:

, Phase I - Approximate Original Contour (AOC) achievement
  - Evaluation Method - Onsite inspection

, Phase II - Replacement of soil resources, vegetation stability
  - Evaluation Method - Onsite inspection and permit file review

, Phase III - Postmining land uses, successful revegetation, surface water quality and quantity, restoration of ground water recharge capacity, comparison of premining to postmining surface water quality and quantity restoration

- Evaluation Method - Onsite inspection and permit file review

Phase I

The BFO inspected and conducted permit file reviews on 14 increments requested for Phase I bond release, totaling 484 acres. These increments were field inspected for AOC achievement, toxic material coverage (where indicated), and the removal of temporary structures and equipment. When indicated, water discharge was tested, toxic material coverage was measured, and topsoil variance compliance was analyzed. A permit file review was conducted to determine the premining/postmining surface/ground water quality comparison and compliance of National Pollutant Discharge Elimination System (NPDES) monitoring points.

All 14 of these increments were determined to have met the requirements for Phase I bond release. These increments had achieved AOC, and toxic material had been covered when applicable. The permit files reflected a comparison of premining/postmining surface/ground water quality, compliance records of NPDES monitoring points were on file, and documentation reflected that temporary structures and equipment had been removed.

OSM agreed in all cases with ASMC's approval of the Phase I bond release requests.

Phase II

The BFO inspected and conducted permit file reviews on six (6) Phase II increments representing 224 acres. Onsite inspections were conducted to determine the presence of topsoil or suitable soil replacement, to verify the establishment and presence of approved vegetation, to determine that vegetative success standards (80% cover) were met, and to ensure site stabilization. A determination was also made that lands were not contributing suspended solids off the permit and that removal of temporary ponds and diversions was completed. The permit files were reviewed to determine acres of basins approved as permanent water impoundments, the applicability of prime farmland productivity, and the presence of topsoil waivers.

All six (6) increments met the requirements for a Phase II bond release. These increments reflected suitable soil replacement, adequate and approved species of vegetative cover, and site stabilization. All temporary ponds and diversions had been appropriately removed, remaining basins were approved as permanent water impoundments, and reclamation did not contribute to suspended solids off the permit.

OSM agreed in all cases with the ASMC's determination of approval of these Phase II bond release requests.

Phase III

The BFO inspected and conducted permit file reviews on 21 increments, totaling 689 acres, for a Phase III bond release. These sites were field inspected for the achievement of postmining land use and successful vegetative cover. The permit files were reviewed to determine the approved postmining land use, the monitoring of the quality of the water, groundwater recharge capabilities, and compliance with surface water discharge effluent limits. The permit files were also reviewed to determine that the appropriate liability periods had been met.

All 21 increments were determined to have met the requirements for a Phase III bond release. These increments had achieved postmining land use, vegetative success, and met water quality standards. Permit files reflected that water leaving the mine site was comparable to or better than pre-mining conditions (where applicable), that ground water recharge capabilities had been tested, and that compliance with surface water discharge effluent limits had been verified. In all cases, the liability periods had been met.

OSM agreed in all cases with ASMC's approval of the Phase III bond release requests.

The BFO determinations were consistent with ASMC's actions on Phase I, II, and III bond releases on sites inspected in this sample. Based upon this review, the BFO has determined that ASMC's decisions on approving bond release requests met the requirements of the approved Alabama surface mining program. The table below shows figures for acres bonded, released, and forfeited from 1983 – 2001 and for 2002. The bond release and forfeiture figures for 2002 are also shown in Table 5.

Fiscal Year	Acres Bonded	Phase I Release Acres	Phase II Release Acres	Phase III Release Acres	Bond Forfeiture Acres
1983 – 2001	105,820	71,153	47,064	43,155	8,795
2002	2,356	2,812	2,114	4,527	1,417
TOTAL	108,176	73,965	49,178	47,682	10,212

C. Customer Service:

For EY2002, the procedures concerning public notice and the opportunity of the public and other interested parties to respond to bond release decisions were selected for review.

This review included a determination of timeliness, accuracy, completeness, and appropriateness of State actions.

The Rules of the Alabama Surface Mining Commission (Rules) at Subchapter 880-X-9D-.02 outline ASMC's procedures concerning public notice and the opportunity of the public and other interested parties to respond to bond release decisions.

The population for the study was bond releases processed during EY 2001. A sample of 21 was selected from this population for review. Included in the study was a review of follow-up actions taken on citizen complaints received by the BFO that concerned bond releases and were then forwarded to ASMC through the Ten-Day Notice (TDN) process. The BFO processed one (1) such TDN.

The sampled bond releases were reviewed to determine: (1) that applications were filed at times or seasons that allowed ASMC to properly evaluate the reclamation operations; (2) that applications included copies of letters sent to all entities listed in Rule 880-X-9D-.02(1)(b); (3) that each application file contained proof of publication; (4) that any written objections had been properly processed; (5) that surface owners had been allowed the opportunity to accompany ASMC during the bond release inspections; (6) that informal conferences had been conducted as prescribed by the State regulations; (7) that any interested party was notified in writing concerning ASMC's decision on the release; and (8) that any administrative review or public hearing had been conducted as prescribed in the State regulations.

The review of the 21 bond release files revealed the following:

- All applications were filed at a time or a season that allowed the ASMC to properly evaluate the reclamation.
- All applications included copies of letters that were sent to applicable entities listed in Rule 880-X-9D-.02(1)(b).
- Each application contained proof of publication of the required notice.
- No written objections were received on any of the 21 bond releases reviewed.
- All applicable surface owners were allowed the opportunity to accompany ASMC during the bond release inspections.
- One (1) informal conference was requested by a landowner. The conference between the landowner and ASMC was held prior to the bond release and was conducted as prescribed by the State's regulations.
- All adjacent and local landowners, utility companies, and local agencies were notified in writing concerning ASMC's decision on the release.
- One (1) administrative review was conducted. The review was conducted as prescribed by the State regulations.

The BFO found that ASMC was handling citizen input on bond releases according to the regulations.

VI. OSM ASSISTANCE

OSM's oversight role has shifted to focus more on on-the-ground reclamation success and end results than on processes. OSM's changing role now emphasizes assisting the State in improving its regulatory and abandoned mine lands programs by identifying program needs and offering financial, technical, and programmatic assistance as necessary to strengthen the State programs. The BFO routinely provides information to ADIR and ASMC regarding new policy guidelines and procedures as well as changes in existing guidelines and procedures.

A. Assistance to the State Regulatory Program

Monitoring Water Quality

Rule 880-X-8E-.06(j) describes the requirements of the surface water monitoring plan that should be included in the permit application. This regulation requires that all surface water monitoring locations that are discharging and impacted by mining are monitored for total dissolved solids or specific conductance corrected to 25 degrees centigrade, total suspended solids, pH, total iron, total manganese, and flow. Point source discharges should be monitored following standards required by the NPDES permitting authority. Each complete inspection requires the testing of sediment pond discharges on the permit, and the parameters listed above should be addressed.

The BFO reviewed the manner in which ASMC conducted water monitoring on permitted sites. Through interviews with the ASMC, the BFO found that ASMC gathers baseline hydrological data before the mine commences operations. At each inspection, the inspector notes the historical hydrological data of the particular mine that is being inspected and checks the characteristics of each basin. If there is any indication that there is a metals problem or suspended solids problem, the inspector will gather a sample and transport it directly to the hydrologist or the hydrologist will go on-site to retrieve a sample. The ASMC inspector tests the discharges from any pond during a complete permit inspection for pH and will test for iron on any new permit issued. A grab sample may be taken to test for manganese and will be brought to the hydrologist to be lab tested. Water discharge samples are also tested for total suspended solids or total dissolved solids on an as needed basis. ASMC uses the NPDES reports that the permittee submits to ASMC each quarter to analyze possible hydrological problems on a permit.

Each parameter mentioned in Rule 880-X-8E-.06(j) is tested during the life of the mine; however, only pH is routinely tested when sediment pond discharges are sampled during complete inspections. Iron, manganese, and total suspended solids are tested on an as needed basis when there is an indication, either visually or historically, of a problem. The procedures followed in Alabama are consistent with those followed in other Mid-Continent Regional Coordinating Center (MCRCC) States.

B. Assistance to the State Abandoned Mine Lands Program

AML Enhancement Rule Projects

During development of the EY 2002 performance agreement, ADIR indicated that they needed assistance in responding to inquiries about AML Enhancement Rule projects (i.e., potential AML projects considered under the revised government-financed regulations that permit the removal of incidental coal associated with an approved AML project). A team of BFO and ADIR staff members determined that guidance needed to be developed that would assist prospective applicants in understanding the AML Enhancement Rule parameters and would guide them in supplying appropriate information, so that ADIR could evaluate the merits of the potential project. The team developed two products: an AML Enhancement Rule Project Questionnaire and AML Enhancement Rule Project Criteria. The Questionnaire was designed to be used as a mail-out to prospective applicants interested in an AML Enhancement Rule project or to be hand carried by ADIR to the applicant during the field visit to the site. The Questionnaire would provide the applicant with a complete listing of the information needed for an AML Enhancement Rule Project. It would give the prospective applicant an instant look at the types of projects approvable and unapprovable and the types of cost and background information required. The Criteria would provide a prospective applicant with an abbreviated list of the relevant items that are essential for any project.

These documents were developed to simplify and clarify the information exchange with prospective applicants early on in the process and to relieve ADIR of the need to enumerate aspects of the AML Enhancement Rule on each inquiry.

Alabama Acid Mine Drainage Inventory

The identification/quantification of AMD sites began in EY 1998. The BFO entered into an Appalachian Clean Streams Initiative agreement with ADIR to provide technical assistance toward developing an inventory of potential Clean Streams Initiative projects. The BFO used the listing of 81 AMD-impacted abandoned mine land sites, which was developed in July 1996, to provide the population for the field review. Water quality data was last collected on all but five of these problem areas (PA's) during the early 1980's. The BFO agreed to assist in quantifying current conditions at the 81 sites identified as being sources of AMD and provide updated information.

The first phase of the study was to screen each of the 81 sites by testing pH and total iron to determine if the definition of AMD (pH < 6 and/or total iron =/> 10 mg/L) was met. Field investigations were performed during high and low flow conditions. The screening portion of the study was completed in Fiscal Year (FY) 2001.

As a result of the completed water testing screening of the original 81inventory site, 34 sites were identified with AMD problems. Also, 8 other sites were added as a result of OSM field visits and citizen inquiries. All 42 sites were tested during EY 2002.

Nineteen (19) of the 42 sites exhibited AMD conditions. Three (3) other sites that did not meet the definition of AMD exhibited high specific conductivity. The sites that did not exhibit AMD will be tested under low flow condition in FY 2003. ADIR was provided with the data collected on each site.

Follow-up AMD testing/sampling training was provided to the BFO and ADIR by MCRCC. The training, involving both classroom and field sessions, was conducted on February 26 - 27, 2002.

Revegetation of Coal Refuse Reclamation Projects and Projects Located in the Tuscaloosa Formation

Coal refuse reclamation projects and sites reclaimed in the Tuscaloosa formation usually require extra effort in the initial revegetation process, subsequent revegetation process and erosion control maintenance. ADIR's goal is to release stable projects, following post-construction maintenance, two years after completion of the project. In the case of projects reclaimed in the Tuscaloosa formation and the reclamation of coal refuse material, post-construction maintenance is usually continued for at least four years due to problems with establishing permanent vegetation. ADIR requested that the BFO assist them in exploring revegetation methods, including species to be planted, to increase the initial success of vegetation cover and to reduce subsequent maintenance costs.

The Tuscaloosa formation, located in the Warrior Coal Field, typically consists of light-colored irregularly bedded sands, clays and gravels. This formation has poor water retention qualities and is highly erodable due to the highly porous and poorly consolidated nature of the soil. Another characteristic of the soil that lends to the difficulty in revegetating the area is the highly acidic nature of this formation.

Coal refuse material presents various vegetation and erosion control problems. Coal refuse is acidic and contains toxic forming materials. It has high porosity and permeability resulting in low water retention qualities. Coal refuse is composed of high amounts of coal and shale and is typically dark in color. The dark color of coal refuse absorbs sunlight resulting in very high soil temperatures.

After reviewing various research articles, processes of neutralization, fertilization, and planting that offer methods that may lead to an increase in the success of the initial planting of the permanent vegetation cover and reduce subsequent maintenance costs, descriptions and evaluations of the reclamation methods and the referenced studies were furnished to ADIR.

Other Assistance Activities

On February 26 - 27, 2002, MCRCC personnel provided an AMD water sampling and testing workshop for the Alabama AML State Program staff and the BFO staff. A total of eight State and BFO students attended the class.

The MCRCC staff is continuing to assist ASMC in the review of an experimental practice proposal to retain a permitted slurry pond as a permanent impoundment.

VII. GENERAL OVERSIGHT TOPIC REVIEWS

A. Program Evaluations of the State Regulatory Program

Notices of Intent

The BFO conducted a study to evaluate ASMC's performance concerning the administration, inspection, and enforcement of regulatory standards on sites covered by notices of intent to explore (NOI's). When a person plans to conduct coal exploration operations outside a permit area during which 250 tons or less of coal will be removed and less than one-half (1/2) acre disturbed, he must file a notice of intent to explore (NOI) with ASMC prior to beginning operations. State coal mining regulations at Rule 880-X-8C-.04 describe the contents of the required notice, while Rule 880-X-8C-.08 discusses coal exploration compliance duties and ties the operations to the performance standards in Subchapter 880-X-10B and the inspection and enforcement constraints of Chapter 880-X-11. Rule 880-X-8C-.09 allows the removal of coal during exploration operations for testing purposes only.

Twenty-five (25) NOI's were reviewed for the study, which covered all NOI's received by ASMC from October 1, 2000, through December 11, 2001. The study included two major portions – a review of each NOI submitted to ASMC to determine if the information provided on the form was complete and correct and a field review to determine the location, extent of disturbance, and success of reclamation. A form was developed to facilitate the review.

The study concluded that, in the main, ASMC was processing, monitoring, and enforcing performance standards on the exploratory operations that fell in the NOI category. Sites were inspected on a monthly basis throughout the exploration period until revegetation was successfully established. A large majority of the sites were mined and reclaimed according to regulatory standards, and were environmentally sound. Three recommendations came from the study: (1) ASMC needed to strengthen the environmental practices information provided by the operator; (2) enforcement actions needed to be issued as soon as violations were discovered on the sites, and discussions with operators to prevent violations were encouraged; (3) regardless of the size of the disturbance, an operator performing exploration without submitting a notice should be issued a notice of violation.

Adequacy of Bonds

MCRCC, in support of the BFO's oversight studies, performed a review of ASMC's bonding procedures and bonding calculations. Two samples were used for the study – a sample of five permits issued between October 1, 1999, and September 30, 2001, and a sample of seven permits bond forfeited and reclaimed during the same time period. The State regulations applicable to this study are found in Subchapter 880-X-9B. They outline ASMC's requirements and responsibility for calculating performance bonds for permits and address factors to consider in calculating the bond, the period of liability, and subsequent adjustments to the bond amount. File and field reviews of the 12 permits were conducted.

The study concluded that:

- The bond amounts calculated by ASMC are sufficient for third party reclamation of the site under the State's rules for bonding.
- ASMC makes appropriate changes to their bonding program when a deficiency is identified.
- The ability to determine whether a surface feature, such as an impoundment or road, is temporary or permanent is difficult under the present permitting procedures. Permit applicants are not required to make definitive statements regarding the permanency of every structure.
- The bond assessed for removing a temporary structure is usually lower than that calculated by the operator in the reclamation plan, submitted with the permit application, and similar calculations in the OSM Bonding Handbook.

The study recommended that:

- Prior the release of the Phase I or II bonds, ASMC analyze the site and document that the remaining bond is sufficient to accomplish the remaining reclamation.
- ASMC continue to periodically review the cost components of bonds related to blasting. The cost of Workman's Compensation insurance for blasting crews is increasing and could cause the associated costs to rise, rendering the bonds insufficient on permits that will require highwall elimination.
- ASMC require that applicants provide the locations of all permanent structures, if known at the time of permit application. ASMC must assume that all other structures are temporary and provide in the bond the means to remove those structures.
- ASMC revisit the methodology used to calculate the cost of temporary impoundment reclamation.

ASMC, in its exit conference with the BFO, agreed with the conclusions and recommendations of the report.

Special Emphasis Study

The BFO conducted a study that would place an emphasis on specific performance standards in joint oversight inspections with the ASMC. The joint oversight inspections reviewed all performance standards pertinent to the minesite, but placed an emphasis on

these four standards: 1) the re-certification of impoundments; 2) the permittee's compliance with the terms and conditions of the permit; 3) contemporaneous reclamation; and, 4) the repair of lands in the shadow area, concerning material damage on the surface and to occupied dwellings above underground mining. The BFO collected data from 63 joint inspections between October 15, 2001, and August 15, 2002. The findings are as follows:

1) *Re-certification of Impoundments, Rule 880-X-10C-.20 (1)(j)(k)*

This performance standard requires each impoundment to be certified after construction by a qualified, registered professional engineer. The impoundment must then be re-certified annually until it is removed. An impoundment that is considered a Mine Safety and Health Administration (MSHA) impoundment, subject to 30 CFR 77.216, must be examined according to regulations in 30 CFR 77.216-3.

Re-certification was provided for the impoundments located on 51 permits. Seven (7) permits did not have to provide re-certifications at the time of inspection. Five (5) permits had failed to provide the annual re-certification for one or more of the impoundments located on the permit. All five permits were issued notices of violation for non-compliance with re-certification requirements. All of the impoundments inspected had detailed information concerning the stability and dimensions of the impounding structure. In one case, a breach in a slurry impoundment was found before the oversight inspection was conducted. A notice of violation was issued by ASMC for this offsite impact.

Eight permits had impoundments that were subject to 30 CFR 77.216. All of the impoundments had been certified, re-certified, and examined at least quarterly by a qualified, registered professional engineer

2) *Permittee's Compliance with Terms and Conditions of the Permit, Rule 880-X-8B-.04*

This performance standard requires all surface coal mining and reclamation operations to comply with the terms and conditions placed on that permit during ASMC's permit application review. Sixty-one permits were in compliance, while two permits were not in compliance with the terms and conditions of the permit.

One permit was found to not be in compliance due to disturbing more acreage than allowed in its permit conditions. The State issued a notice of violation for the non-compliance. Another permit was not in compliance with its terms and conditions, because the discharge from Basin 002 was beyond the effluent limitations for iron. The high iron content of Basin 002 was already covered by an enforcement action.

3) *Contemporaneous Reclamation, Rule 880-X-10C-.51*

This performance standard requires the permittee to reclaim all land that is disturbed by surface mining activities as contemporaneously as practicable with mining operations. Reclamation of the disturbed land includes, but is not limited to, backfilling, grading, topsoil replacement and revegetation. Sixty-two permits had been reclaimed contemporaneously, while one permit had not reclaimed disturbed areas as contemporaneously as practicable. ASMC took appropriate enforcement action to require the site to be reclaimed.

4) *The Repair of Lands in the Shadow Area and to Occupied Dwellings Above Underground Mining, Rule 880-X-10D-.58 (3)(a)(b)*

This performance standard requires the permittee to repair any land damage that occurs above underground mining – including the area designated as the shadow area. The land is to be repaired to a condition capable of maintaining its value and use before subsidence occurred. If damage occurs to a non-commercial building or occupied dwellings over underground mining, the permittee has to repair or compensate the owner for any damages that take place due to subsidence.

Eight inspections were conducted on underground mining operations. Four of the eight inspections were performed on mines using room and pillar extraction. The subsidence section of each permit indicated that subsidence was not planned over these mines.

Four underground mines, utilizing longwall mining as a means of extracting coal, had up-to-date subsidence plans located in the permit files. Three of the four underground mines did not have any subsidence-related issues noted during the oversight inspections that took place during the study period.

One of the four underground mines utilizing longwall mining did cause some subsidence related land damage on surface land above two adjacent panels. The area was repaired and restored according to prime farmland soil standards. Another area of land adjacent to this panel was damaged due to subsidence. This area did not have prime farmland soils associated with it. The permittee had not repaired the area before the inspection and was allowing two weeks for the damaged area to fully settle before repaving the road and repairing the cracks in the land adjacent to the road.

Conclusions

In most cases, the permittee complied with the performance standard reviewed. In conducting joint oversight inspections and concentrating on specific performance standards for this study, a few permits were found to have areas of non-compliance. Each permit that had not complied with a specific performance standard in this study was issued a notice of violation by the State inspector. Any issue in question was handled immediately by the State.

Permit Revisions

This area was considered for review in order to evaluate ASMC's performance relative to applications for permit revisions. There were a total of 79 permit revisions issued during the period October 1, 2000, to September 30, 2001. Of these revisions, 65 were classified as insignificant, 12 were classified as significant, and two (2) were classified as incidental. Eleven (11) significant revisions were reviewed, and 38 insignificant revisions were reviewed.

In accordance with Rule 880-X-8M-06, ASMC issued revised guidelines on September 16, 1987, that outlined parameters to determine if a revision is considered a significant or insignificant revision. This guidance lists examples of various reasons a revision may be determined significant or insignificant. The nature and complexity of a revision request also determines whether the revision is considered significant or insignificant, and ASMC retains the discretion to make this determination. This does allow for some subjectivity in the determination. Based on these guidelines, ASMC determined that 12 of the 79 revisions contained significant alterations in the operations or conditions described in the original permit. Each significant permit revision was reviewed in order to document that the following opportunities for public participation had occurred:

- Advertisement was posted in a local newspaper of general circulation in the locality of the surface coal mining at least once a week for four consecutive weeks;
- A copy of the revision was available for public inspection at the courthouse of the county where the mining was proposed to occur or an alternate accessible public office approved by ASMC; and
- Written notification was issued to local governmental agencies with jurisdiction over or an interest in the area of the surface coal mining and to all Federal or State governmental agencies which have authority to issue permits and licenses applicable to the proposed surface coal mining and reclamation operation and which are part of the permit coordinating process.

All of the reviewed significant revision files indicated that a copy of the revision was available for review at a courthouse or other approved public office. Most revision files contained a copy of an affidavit from a librarian stating that the notice was available at

the local library while some of the applications only indicated that the revision was available at a designated approved public office for review.

A standardized notice of request for revision is usually mailed by ASMC to nine (9) various agencies for significant revisions. Four (4) significant revision files did not contain these standardized notices although there was correspondence in some of the revision files indicating that some of the agencies had been notified. ASMC stated that the relevant agencies were notified.

Thirty-eight (38) of the 65 insignificant revisions issued during this timeframe were reviewed. Although not required by the Rules, the opportunity to allow for public participation was made available for several of the insignificant revisions.

Although ASMC utilizes a routing form for processing revisions, the routing form does not address citizen participation requirements, notification of proposed revision to other agencies, or whether the revision is considered significant or insignificant. This led to several of the insignificant revisions being entered into the ASMC database as significant due to the lack of designation and the appearance of a correlation between the processing fee and the designation of whether the revision was considered significant or insignificant as outlined in the ASMC guidelines. ASMC has since enhanced the routing form to include the "significant" or "insignificant" designation, as appropriate.

Based upon our review of significant and insignificant revisions, it appears that overall the ASMC is following their guidelines for determining whether a revision is significant or insignificant. In some situations, because the designations were not noted on the check off list, notifications to coordinating agencies were inadvertently overlooked. Changes made to the form already implemented by ASMC during this evaluation period should resolve the issue. We believe the continued use of the newly revised revision routing form that includes significant and insignificant designation will most likely assure the integrity and validity of the data in the ASMC database.

B. Program Evaluations of the State Abandoned Mine Lands Program

Adherence to NPDES General Stormwater Permits and Best Management Practices

The BFO conducted an evaluation of ADIR's adherence to the NPDES general stormwater permit requirements. The review also evaluated whether Best Management Practices (BMP's) used by ADIR on AML projects were successful in preventing environmental damage from erosion/sedimentation or from toxins during reclamation. The population for the study was all non-emergency AML projects completed during the period October 1, 2000, through November 30, 2001, and active projects constructed during the period December 1, 2001, through March 31, 2002. A sample of 18 projects was reviewed - ten completed projects and eight active projects. File reviews were conducted at ADIR's Birmingham Field Office in association with the field reviews.

ADIR obtained NPDES general stormwater permits on all projects five acres or more, unless otherwise directed by ADEM. Applications for the general stormwater permits are applied for far in advance of the planned construction start date. But, on three occasions, the permits were not issued by ADEM until after the start date of the project. Accounting problems resulting from the switch to electronic transfer of funds caused the delay. ADIR, without fail, incorporated the BMP's required by the stormwater permits into all project construction. But, according to the requirements of the grant agreements, ADIR should not begin project construction until all required permits are received. To ensure that construction does not begin prior to the issuance of the NPDES general stormwater permits, the contracts/reclamation plans should contain language prohibiting the start of construction until the permit is received.

ADEM is currently undergoing changes in their permit procedures, whereby authorization to proceed with reclamation would automatically be granted at the time they receive ADIR's application and permit fee. This will resolve the delays caused by waiting for the general stormwater permit issuance.

The consultation documents and general stormwater permits were provided to the Board and to the contractors with instructions to follow any prescribed procedures. The contracts and site plans contained specific BMP's for each contractor project. ADIR has many short-term and long-term BMP's that they use on their projects to reduce or eliminate the likelihood of erosion, off-site sedimentation, or damage to the environment from toxic materials. The BMP's selected assured successful on-the-ground results, long-term reclamation success, and stable construction sites. ADIR's post-construction monitoring and maintenance program provides for early identification of erosion and assures that the permanent BMP's are properly maintained.

ADIR complied with on-the-ground NPDES general stormwater permit requirements. An ADIR monitor was present on all active sites visited. The monitors oversee the installation and maintenance of BMP's to assure they are functioning properly. Rain gauges and oil and gasoline spill retention berms, as applicable, were present and functioning on active sites. Full implementation of prescribed BMP's was observed on both active and completed sites. All completed sites were planted with permanent vegetation.

ADIR operates an AML program not only that specializes in correcting health and safety problems, but in stabilizing the affected project areas prior-to, during, and after construction. They accomplish this by employing effective BMP's to reduce erosion, minimize sedimentation, and prevent contamination by organic compounds. The completed sites exhibited high-quality reclamation with permanent erosion and sediment controls. The completed sites were well vegetated with no active erosion. No offsite sedimentation was noted from any of the sampled, completed sites.

The Effectiveness and Efficiency of the Walker County Soil and Water Conservation District Board's Reclamation Activities

Under the provisions of a cooperative agreement between ADIR and the Board, the Board is charged with "start to finish" reclamation on selected projects, revegetation of both Board projects and contractor projects, required and scheduled maintenance on all projects, emergency reclamation, and tree planting on projects. The Board has operated on an average annual funding of $822,930 for fiscal years 1999 through 2001.

The BFO conducted a study to evaluate the cost effectiveness and the efficency of the Board. Data regarding reclamation costs was collected from ADIR project files, the Board's project files, and the Board's Annual Reports (FY 1999 through FY 2001). Interviews were also held with the Board, ADIR, and ASMC to further discuss grading and revegetation costs. The information collected was used to evaluate the Board's cost effectiveness for "start to finish" reclamation and revegetation (excluding tree planting).

The Board's costs per acre include a charge for overhead per acre. The overhead expense includes administrative cost and equipment costs. Administrative costs include the field supervisor's salary, the secretary's salary, employees' benefits, rent, telephone service, utilities, and other charges that cannot be directly charged to a project. Equipment costs include maintenance and repair costs not charged out to a project and also new equipment. Leased equipment and equipment use time on a project/job are directly charged to a job. The Board's overhead costs were $341.56 per acre for 1999, $283.69 per acre for 2000, and $262.13 per acre for 2001. The Board's prorated overhead costs are included in the BFO's calculations of the grading costs per acre.

Reclamation grading costs for the Board were compared with grading costs charged by AML contractors for similar highwall elimination projects. The sample consisted of similar highwall elimination projects completed during the period of September 1, 1999, through September 30, 2001, by the Board and by AML contractors.

The project grading costs for the Board (including overhead) were significantly less than the costs charged by AML contractors on a project – approximately half that charged by the contractors on similar highwall elimination projects as shown below:

	Costs Range/Acre	Average Cost/Acre
The Board	$2,682.36 to $5,705.51	$4,288.92
Contractors:	$5,987.81 to $9,771.27	$8,053.65

Revegetation costs for the Board were compared with revegetation costs charged by Title V Bond Forfeiture contractors. The costs for "start to finish" Board projects were also compared to the costs of the Board's revegetation of AML contractor projects. All computed costs included overhead costs.

The Board performs revegetation on all AML projects. The costs shown below do not include post-construction maintenance or tree planting costs. The costs per acre for revegetation are as follows:

- For "start-to-finish" Board projects, the Board reclaimed 65 acres at average revegetation costs of $627.83 per acre.

- The average cost per acre for revegetation by the Board on AML contractor completed projects was $1155.48 per acre.

- Information obtained from the ASMC, concerning cost per acre to revegetate bond forfeiture sites, revealed Title V contractor charges average $750 per acre.

Revegetation costs on "start to finish" Board projects (an average of $627.83/acre) are less than revegetation costs on Title V bond forfeiture sites (an average of $750/acre), yet the Board spends an average of $1155.48 per acre to revegetate AML contractor projects. The higher costs on AML contractor completed projects is in part due to the mobilization costs that are not incurred on the "start to finish" Board projects. The study concluded that ADIR might wish to reevaluate having the Board perform revegetation on AML contractor completed projects since the cost is higher than the cost spent by the Board on its "start-to-finish" projects.

The Board does high quality work. On-the-ground success and long-term reclamation success at completed projects validate the high quality reclamation performed by the Board. ADIR has realized other savings by working with the Board. The administrative costs of developing bid packages and obtaining bids for projects is eliminated since the "start to finish" projects constructed by the Board are assigned to them by ADIR and do not have to go through the bid process. Board projects do not require engineering plans for project construction or maintenance activities. In addition, less monitoring of the Board projects is required.

Partnerships in the AML Program

The advent of the Appalachian Clean Streams Initiative in 1994 created a climate in Alabama for the development of partnerships to facilitate the reclamation of abandoned mine lands – partnerships with a common goal of cleaning up Alabama streams polluted by acid mine drainage and of stretching the finite fiscal resources of the AML Program so that more on-the-ground work could be accomplished. During the evaluation period, the BFO conducted a review to enumerate and characterize the many partnerships that ADIR had engaged in during the time period of 1997 through 2002.

1) Financial Partnerships

- ADIR received $60,000 from the Alabama Department of Environmental Management under its Section 319(h) Grants Program to implement best

management practices on an abandoned mine site in the Black Warrior River watershed. The Barney AMD Project, funded through the Clean Streams Initiative, was the recipient of the funding. The project was reclaimed in 2002.

- ADIR engaged in a partnership with the BFO, the City of Tuscaloosa, ADEM, and the State Attorney General's office, to funnel almost $250,000 in environmental fines to the Hurricane Creek AMD Remediation and the Cypress Creek Projects.
- A similar consent decree with the City of Troy and Alabama's Attorney General provided $41,000 was used by ADIR to reclaim an 8-acre iron ore strip pit, abandoned since the 1950's, in Pike County, Alabama.
- ADIR entered into a cooperative agreement with the USDA Natural Resources Conservation Service (NRCS) to utilize $77,000 in unused Rural Abandoned Mine Program funds to (1) construct, equip and maintain the ECOBUS, a mobile training facility designed to improve public awareness of water quality issues; (2) to improve AMD remediation at the Cane Creek Project and add more sedimentation controls at the Cypress Creek Project; and (3) continue a study on aquatic communities below the Cane Creek Project by Auburn University.
- A cooperative agreement between ADIR and the USX Corporation provided $244,058 from USX to ADIR for reclamation of a 56-acre AML site.
- On July 19, 2002, ADIR provided the U.S. Army Corps of Engineers (Corps) with a letter supporting reclamation of the Edgewater Gob site. Once approved, the Corps and ADIR will share the cost of executing the reclamation plan.
- ADIR has been involved in the development of the Marvel Slab Removal Project, a joint effort between the Cahaba River Society and the Corps.

2) *Research Partnerships*

- In a cooperative partnership with OSM and Clark Atlanta University, ADIR constructed a demonstration bioremediation pond at the Cane Creek AMD Remediation Project and purchased two 100-gallon tanks to be used for mixing and culturing bacterial strains. Students and staff from the University traveled to the site at prescribed intervals to monitor the water chemistry of the effluent exiting their system. The experiment was completed June 20, 2000, and was found to be successful in elevating the pH and removing metals.
- ADIR provided funding for a unique research study on the "Effects of Reclamation on Aquatic Communities" at the Cane Creek AMD Project site.
- ADIR assisted Auburn University as a sponsor in developing a Rapid BioAssessment Technique for evaluating acid mine drainage impacts on aquatic communities at abandoned coal mine sites.

3) *Clean Water Action Plan Partnerships*

ADIR has been an active partner with OSM in the implementation of the Clean Water Action Plan. OSM is responsible for two goals under Key Action #31: (1) increasing by 50% the number of cooperative acid mine drainage (AMD)

projects,; and, (2) continuing to work with key local stakeholders, including watershed associations, state and tribal agencies, and local units of government. These goals mesh cleanly with OSM's objectives under the Clean Streams Initiative. To date, three projects have been completed by Alabama under ACSI – the Cane Creek AMD Remediation, Acmar Washer AMD Remediation, and Barney AMD Remediation Projects. The Peabody Washer AMD Remediation Project is in the design phase. ADIR is considering the Nyota East Gob Pile Project for its 2002 ACSI project. ADIR is continually seeking partners from local stakeholders to promote the reclamation of AMD-impacted sites.

4) *Coordination and Information Exchange Partnerships*

- ADIR and the BFO presented facts on the ACSI and the AML Programs and described opportunities for reclamation partnerships in a meeting concerning the Bear Creek Reservoir watershed. The meeting was sponsored by the Tennessee Valley Authority and the NRCS.
- ADIR provided information to the U.S. Fish and Wildlife Service and the Nature Conservancy concerning AML issues on the prospective Cahaba River National Wildlife Refuge in Piper, Alabama.

5) *Technical Assistance Partnerships*

- ADIR is an active member in the Hurricane Creek Stakeholders Group, an organization formed to track watershed problems in the Hurricane Creek watershed and develop solutions to water quality in the Creek. ADIR provided AML inventory data to show the extent of abandoned mine lands in the watershed and used the newly-developed Geographic Information System mapping capabilities of OSM's Abandoned Mine Land Inventory System to produce a map of the delineated watershed.
- ADIR assisted the U. S. Geological Survey (USGS) in its technical review of arsenic gob piles and streambed sediments in Alabama. In the summers of 1999 through 2000, the USGS with ADIR's assistance conducted extensive water quality and soils sampling in the Black Branch and Cane Creek watersheds.

6) *Partnerships with Watershed Groups*

- ADIR solicited input from watershed groups to aid them in prioritizing projects and planning reclamation efforts. ADIR met with the Alabama Rivers Alliance (ARA) on September 8, 1999, to discuss the Non-Fuel Surface Mining and AML Reclamation Programs. ADIR later contacted ARA concerning candidate reclamation projects.
- On July 30, 2001, ADIR and the ARA engaged in an agreement whereby ADIR would be responsible for the design, contstruction and monitoring of the Hurricane Creek AMD Remediation Project, as well as the post-reclamation maintenance.

Appalachian Clean Streams Initiative

The State of Alabama is an active participant in the Clean Streams Initiative. Since the inception of the Initiative, Alabama has conducted reclamation and AMD remediation on three CSI projects - the Cane Creek, Acmar, and Barney AMD Remediation Projects. The fourth project, the Peabody Washer AMD Remediation project, was approved in 2001 and is in design.

Project Funding

Project Name	Clean Streams Initiative	AML Reclamation Grant	Natural Resources Conservation Service	ADEM – 319 Program
Cane Creek	$402,210	$90,951	$27,000	
Acmar Washer	$247,537	$39,295		
Barney AMD	$259,269			$60,000
Peabody Washer	$290,000			

ADIR under a contract with the Alabama Rivers Alliance performed project design and planning, site monitoring, and maintenance for the Hurricane Creek AMD Remediation Project, the first watershed cooperative agreement project in Alabama. ADIR also provided the contractor for the project through its cooperative agreement with the Walker County Soil and Water Conservation District Board (Board), who constructed the project. In addition to project work, the BFO and ADIR have worked cooperatively in the development of an Alabama AMD inventory. Eighty-one sites were initially identified as having been associated with AMD problems in the State. The BFO agreed to assist in quantifying current conditions at the 81 sites and provide ADIR with updated information. The BFO visited each site during both high and low flow conditions and conducted chemical screenings of the discharges to identify which sites continued to produce acid mine drainage. The initial screening, which began in 1998, consisted of testing for pH and total iron to determine if the discharge met the EPA definition for AMD (pH < 6 and/or total iron > 10 mg/liter). Thirty-four sites were identified as exhibiting AMD. Eight additional problem areas were added to the list after October, 2001, because they exhibited “yellow boy” or testing had been requested by a local watershed group. During EY 2002, the BFO conducted extensive water quality testing on the 42 sites under high flow conditions. Twenty sites continued to meet the definition of AMD. Low flow testing is planned during EY 2003 to determine if the remaining sites exhibit AMD during low flow conditions. The problem area that showed the worst water quality (pH of 2.12), Nyota East, is being considered by ADIR as its fifth CSI project.

APPENDIX A

TABULAR SUMMARY OF CORE DATA TO CHARACTERIZE THE PROGRAMS

The following tables present data pertinent to mining operations and State and Federal regulatory and abandoned mine lands activities within Alabama. They also summarize funding provided by OSM and Alabama 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 Alabama's performance is available for review in the evaluation files maintained by the Birmingham Field Office.

APPENDIX B

STATE COMMENTS ON THE REPORT