

Office of Surface Mining

**Grants and Oversight Team
Mid-Continent Regional Coordinating Center**

Annual Evaluation Summary Report

for the

Regulatory and Abandoned Mine Land Programs

Administered by the Land Reclamation Program

of

Missouri

for

Evaluation Year 2004

July 1, 2003 to June 30, 2004

July 2004

EXECUTIVE SUMMARY

During the 2004 Evaluation Year (EY), the Office of Surface Mining (OSM), Grants and Oversight Team (GOT) conducted oversight evaluations of the Missouri Department of Natural Resources, Land Reclamation Program (MLRP) Regulatory and Abandoned Mine Land (AML) programs. The oversight studies focused on the success of the MLRP in meeting the Surface Mining Control and Reclamation Act of 1977 (SMCRA) goals for environmental protection and prompt, effective reclamation of land mined for coal. A Partnership Plan in the form of a Performance Agreement (PA) was cooperatively developed by the GOT and the MLRP to tailor the oversight activities to the unique conditions of the State program. The purpose of the oversight activities was to identify the need for financial, technical, and other program assistance to strengthen the State program.

The Missouri State Legislature provided only partial funding for the State's Title V program for EY 2004. As a result, OSM assumed inspection, enforcement, and permitting responsibilities for the active mine sites in the State, while the MLRP retained responsibility for surety reclamation and bond forfeiture sites.

In support of OSM's national initiatives, the following studies were included in the EY 2004 Performance Agreement:

OFF-SITE IMPACTS - Data on off-site impacts were collected during Federal and State inspections. Twelve off-site impacts were identified, four less than last year. No off-site impacts were identified at the 25 active units where OSM assumed inspection and enforcement responsibilities. Three off-site impacts existed at surety reclamation sites, and nine existed at bond forfeiture sites. Approximately 85 percent of the 47 Inspectable Units (IU's) in the state were free from off-site impacts. Three previously identified off-site impacts were eliminated during EY 2004. Off-site impacts are being eliminated as surety and bond forfeiture reclamation is completed.

RECLAMATION SUCCESS – Along with enforcement of the approved State Program at active mine sites, OSM also assumed responsibility for processing bond release requests and performing bond release inspections. Recommendations for the actions to be taken on the release requests were then presented to the Missouri Land Reclamation Commission (MLRC) for final action. During EY 2004, OSM processed and submitted positive recommendations on 12 release requests during the evaluation year. In each instance, the MLRC released the bond as requested. Totals for the acreage released were: Phase I = 309.2 acres, Phase II = 165.5 acres, Phase III = 344.0 acres, and Complete/Undisturbed = 178.5 acres (Table 5). Three active inspectable units were completely released from bond and removed from the Inspectable Units list during EY 2004. In addition, the State released 214.0 acres of Phase I bond and 46.5 acres of Complete/Undisturbed at a surety reclamation site. OSM issued one new permit covering 344.0 bonded acres during the year, and 20 additional acres were bonded at a previously

permitted mine. All of these actions resulted in a net decrease of 205.0 bonded acres in EY 2004. The State also released liability on a 60.0 acre bond forfeiture site that was removed from the Inspectable Units list.

CUSTOMER SERVICE: PUBLIC PARTICIPATION IN THE PERMITTING PROCESS – OSM planned to conduct a review of this topic in EY 2004, but because the State Legislature did not fully fund the State’s Title V program, OSM assumed permitting responsibilities during the evaluation year. As a result, the study was not conducted.

General oversight topic reviews were conducted for both the State Regulatory and AML programs. The following reports were completed:

BOND FORFEITURE RECLAMATION – Reclamation planned for six mines during calendar year 2003 actually occurred at only four mines, and L.B. Mines was the only site that received liability release out of the four mines scheduled for release. The MLRP should continue its reclamation efforts at bond forfeiture sites at an accelerated pace. The Missouri Bond Forfeiture Reclamation Plan needs to be updated to show the latest projected dates for initiation and completion of reclamation and liability release. Reclamation priorities should be established for the next several years.

AML CUSTOMER SERVICE (OUTREACH) – Missouri is following the State Reclamation Plan and all other regulatory requirements related to solicitation and consideration of Federal, State, and local agencies and public input to the AML reclamation program.

AML INFORMATION/ACCOMPLISHMENT TRACKING – The State updates the AMLIS when projects are funded and again when each project is completed. New problems that develop in previously identified problem areas are added to the AMLIS, and new problem areas are added as they are identified.

AML ON-THE-GROUND RECLAMATION - Missouri designs and constructs projects that specifically and appropriately address priority 1 and 2 problems. Completed AML projects routinely address problems associated with dangerous embankments, dangerous highwalls, hazardous water bodies, and vertical mine openings. Reclaimed sites meet stated goals and objectives outlined in environmental analysis documents and project proposals without significant or unnecessary consequences.

On June 19, 2003, Larry Coen, Staff Director for the MLRP, informed OSM that the State Fiscal Year budget for the Department of Natural Resources (DNR) included funding only for the bond forfeiture portion of the MLRP’s approved coal regulatory program. Subsequently, Stephen Mahfood, Director of the Department of Natural Resources, informed all departmental staff via electronic mail on June 22, 2003, that 54 positions would be lost in the Department and there would be elimination of general revenue funding for the coal program with coal regulatory personnel either being reassigned or released as of July 18, 2003. The message also stated, “The

intent of the Senate was to return the coal program to the Federal government.” As a result of the Missouri State Legislature’s actions, OSM completed a 30 CFR 733 action in EY 2004, and temporarily assumed responsibility for enforcement of the Missouri state regulations, as well as permitting and bond release activities, at Missouri’s active mine sites. The MLRP continued its jurisdiction over bond forfeiture and surety reclamation sites. Thus, the information presented in this evaluation report differs from previous reports in that it must cover the activities of both the State and OSM. The report follows the normal format for the evaluation of the State’s bond forfeiture program. However, in order to provide the required statistical information presented in the tables included in the report, it was necessary to describe OSM’s activities which generated the information for all but the forfeiture table. This approach will assure that all of the required statistical information will appear in a single report for use in OSM’s current reporting system.

OSM will generate a second more detailed report on its activities following the format used by OSM in Federal Program States.

For EY 2005, the Missouri Legislature is again providing only partial funding for the Title V program. The MLRP will continue to have jurisdiction over bond forfeiture sites and surety reclamation sites, while OSM will maintain its responsibility for enforcement and permitting at active mine sites for the next year.

OSM did not award Missouri a Title IV fiscal year 2003 grant, but did extend Missouri’s Title IV fiscal year 2002 grant to June 30, 2005, with no additional funding, to allow the State to continue its AML program to the end of EY 2005. OSM also continues to provide Missouri funding for its AML Emergency Program.

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2004 MISSOURI ANNUAL EVALUATION REPORT

I. Introduction

The SMCRA created 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 approved by OSM as meeting the minimum standards specified by SMCRA. This report contains summary information regarding the Missouri Program and the effectiveness of the MLRP in meeting the applicable purposes of SMCRA as specified in Section 102. The evaluation period covered by this report is July 1, 2004, through June 30, 2004.

The primary focus of the OSM oversight policy for EY 2004 is an on-the-ground results oriented strategy that evaluates the end result of State program implementation; i.e., the success of the State program in ensuring that areas off the mine site are protected from impacts during mining and that areas on the mine site are contemporaneously and successfully reclaimed after mining activities are completed. The policy emphasizes a shared commitment between OSM and the States to ensure the success of SMCRA through the development and implementation of a performance agreement. Also, the policy encourages public participation as part of the oversight strategy. Besides the primary focus of evaluating end results, the oversight guidance makes clear OSM's responsibility to conduct inspections to monitor the State's effectiveness in ensuring compliance with SMCRA's environmental protection standards.

To further the idea that oversight is a continuous and ongoing process, this annual report is structured to report on OSM's and Missouri's progress in conducting evaluations and completing oversight activities and on their accomplishments at the end of the evaluation period. Background information and finding reports for the program elements evaluated during the period are available for review and copying at OSM's Mid-Continent Regional Coordinating Center (MCRCC) at 501 Belle Street, Alton, Illinois, 62002.

The following acronyms are used in this report:

| | |
|--------|---|
| ACSI | Appalachian Clean Streams Initiative |
| AMD | Acid Mine Drainage |
| AML | Abandoned Mine Land |
| AMLIS | Abandoned Mine Land Inventory System |
| AVS | Applicant/Violator System |
| BTU | British Thermal Unit |
| CERCLA | Comprehensive Environmental Response Liability and Compensation Act |
| DNR | Missouri Department of Natural Resources |
| EPA | Environmental Protection Agency |
| EY | Evaluation Year |
| GOT | Grants and Oversight Team |
| GIS | Geographic Information System |

| | |
|-------|--|
| IU | Inspectable Unit |
| MCRCC | Mid-Continent Regional Coordinating Center |
| MLRP | Missouri Land Reclamation Program |
| MLRC | Missouri Land Reclamation Commission |
| MoDOT | Missouri Department of Transportation |
| MOU | Memorandum of Understanding |
| MSHA | Mine Safety and Health Administration |
| NEPA | National Environmental Policy Act |
| NRDAR | Natural Resource Damage Assessment and Restoration |
| PA | Performance Agreement |
| PSD | Program Support Division |
| OSM | Office of Surface Mining |
| SMCRA | Surface Mining Control and Reclamation Act of 1977 |
| TIPS | Technical Innovation and Professional Services |
| USGS | United States Geological Survey |

II. Overview of the Missouri Coal Mining Industry

Missouri's coal ranges from lignite to high volatile A bituminous. The demonstrated coal reserve base is estimated to be six billion tons, or 1.26 percent of the United States' coal reserves. The coal-bearing areas cover about 23,000 square miles, or 33 percent of the State. Twelve of the 20 coal seams have been actively mined. The coal has a high heat value averaging 22 million British Thermal Units (BTU) per short ton. The sulphur content of 95 percent of Missouri's reserves is relatively high, greater than 2.5 pounds of sulphur per million BTU and averaging four percent by weight. Economics generally limit production to coal seams greater than 28 inches thick. Coal production is currently confined to the southwest portion of the State.

Missouri was the first state west of the Mississippi River to produce coal for commercial use. Coal deposits were first mined in the late 1840's. Most of the early coal mines in the State were underground. Surface mining began in the mid 1930's, and has accounted for virtually all the coal produced in the State since the 1960's. Approximately 67,000 acres were affected by coal mining in 48 Missouri counties before enactment of the SMCRA.

Missouri's coal production has declined since reaching peak production of nearly seven million tons in 1984. A sharp decline to 627,774 tons occurred in 1993, down from the 1992 production level of 2,908,012 tons, after the State's largest operator ceased production in early 1993. Since then, annual production has fluctuated. The two mines that were actively producing coal in Missouri in 2003 produced 533,444 tons that calendar year. Missouri supplies coal to the Midwestern market for blending with western coal. The current primary use of the coal is for power generation.

III. Overview of Public Participation in the Program

Missouri and OSM consider the bi-monthly MLRC public meetings the principal forum for participation from industry, landowners, citizen groups, and other interested parties. Throughout the year, Missouri Land Reclamation Program (MLRP) personnel attended and set up displays explaining MLRP's responsibilities and accomplishments at public gatherings and conferences. Press releases are completed for larger abandoned mine land projects. This year, the MLRP held two public AML stakeholder meetings and issued a press statement about the importance of the AML program to Missouri's citizens.

The State continues to maintain its part in AMLIS. Funded and completed project data are entered at appropriate times. New problem sites are entered into the database as they are identified. Missouri maintains internal systems to track contract obligations and expenditures, public inquiries and project ranking data. In EY 2004, the State received numerous inquiries from the public related to the AML program. All inquiries were handled and addressed in a timely and professional manner. About 200 contacts were made with the public, other state and federal agencies, industry and landowners of abandoned mine lands.

IV. Major Accomplishments/Issues/Innovations

Abandoned Mine Land Program

Missouri has been an active participant in the Appalachian Clean Streams Initiative (ACSI). To date, Missouri has expended \$694,861 of ACSI grant funds to mitigate acid mine drainage (AMD) at four abandoned mine land (AML) sites including Upper Cedar Creek, Old Bevier Wetland Remediation, Gans Creek and Perche Creek. All of these projects are complete except for the Perche Creek Project, which is ongoing.

Construction began on the Perche Creek AML Reclamation Project in the summer of 2003. The site is located two miles east of Harrisburg, Missouri, on private property, in rural Boone County. The MLRP proposes to reclaim 40 acres of barren and eroding mine spoil in three adjacent work areas that presently releases acid mine drainage and acid forming sediments into Perche Creek via an unnamed intermittent stream. Barren, acidic mine spoil will be graded to a gentle slope and revegetated with native grasses and trees. Three wetlands, approximately 3.4 acres in area, will be constructed, located in low-lying portions of the barren spoil. These wetlands will also passively treat acid mine drainage. Three ponds will be constructed totaling 6 acres to control storm water, provide a dilution source for acid mine drainage and collect sediments during and after construction, prior to effective revegetation. Two of these ponds are located on adjacent, unmined land that has been heavily disturbed by mining impacts. A small coal waste pile will be removed and an abandoned, crumbling cistern will be closed within the city limits of Harrisburg on Highway F, just north of the cemetery. The coal waste will be encapsulated and buried in the backfilled mine spoil. Total bid cost was \$545,000. Project completion is scheduled for the fall of 2004.

The Gans Creek AML Reclamation Project was completed in the summer of 2003. The project site is located approximately 1.5 miles southeast of Columbia in Boone County, Missouri.

Eroding, acid-forming minespoil entered a tributary of Gans Creek, which resulted in localized impairment of Gans Creek approximately ½ mile downstream. Gans Creek is home to the Topeka Shiner, a fish on the federal list of endangered species. Construction funds for the Gans Creek Reclamation Project were obtained under the Appalachian Clean Streams Initiative in the FY2001 federal appropriation. The Boone County Soil and Water Conservation District, the Missouri Department of Conservation and the USDA Natural Resource Conservation Service were agency partners with the MLRP. Reclamation consisted of eliminating 0.82 acres of spoil and coal waste associated with abandoned surface coal mining operations. Barren spoils were graded, heavily limed and covered with 18-24 inches of glacial till. The glacial cover material was excavated in an adjacent hillside. The borrow pit was converted into a small ¼ acre farm pond with an added subsurface livestock water source. Disturbed areas and the pond were fenced to exclude livestock and seeded with a cool-season wildlife mixture. Total cost for the project was \$20,042.57.

Numerous other regular and emergency AML projects were also worked on and/or completed in EY 2004.

The Mindenmines Highwall AML Emergency Project consisted of backfilling a dangerous highwall near Mindenmines in Barton County. A coal strip mine highwall bordering the north side of Highway 160 just west of the city limits was actively eroding and slumping toward the highway shoulder in several places along its 2,700 ft. length. It was threatening to take out the electric, telephone and water service lines that are located between the highway and the highwall face. The necessary NEPA consultations were completed and the Categorical Exclusion documents were prepared and submitted to OSM on January 27. Aerial photography and mapping for the site was obtained in late-February and the project design was completed and approved in mid-March. The contract was awarded to the low bidder in the amount of \$268,400. The proposed action called for grading the adjacent strip mine spoils to completely backfill the highwall and its associated pit, thereby eliminating the slumping problem. The slumping portions of the highwall were backfilled during the summer of 2003, abating the emergency early on in the construction contract. The 35-acre project was originally scheduled for completion by October 1, 2003. Due to an earthwork balancing problem, approximately 2.5 acres of additional clearing and grading was required and the contract completion date was extended. The project was completed and accepted as final in April 2004, at a final cost of \$293,266. Final seeding was performed in early June 2004, under a separate contract at a cost of \$21,325.

The Lyday Subsidence AML Emergency Reclamation Project was located within the city limits of Mindenmines in Barton County where a single-family residence was actively subsiding. According to the homeowners and city officials, approximately 12 years ago a coal mine subsidence hole opened up under the east end of the house. A bedroom and part of the bathroom on the northeast corner of the house actually broke off and fell into the mine void. The homeowners reported that it took 33 large dump truck loads of rock and gravel to fill the hole. They then rebuilt the northeast corner of the house over the filled area. The same area of the house began experiencing settlement problems during the summer of 2003. The foundation cracked at two points and two subsidence depressions formed under the east end of the house. The largest depression was approximately 5.5 ft. deep and 5-6 ft. in diameter and was located

adjacent to one of the foundation cracks. The roof-line was also sagging and the interior walls were separating from the floor on the east end of the house. After obtaining OSM concurrence, the MLRP began a drilling/grouting project to determine the nature and extent of the problem and to grout any mine voids under the house foundation. Based on extensive drilling around and beneath the house foundation the MLRP concluded that the mine voids did not extend much beyond the area filled after the initial subsidence event. The recent foundation settlement was primarily due to loose fill slumping in the mostly filled mine voids. The work was performed under MLRP's "standing" drilling/grouting contract at a final cost of \$14,396.

The Pope Pb/Zn Shaft Project reclaimed a zinc mine shaft or pit located west of the City of Joplin in Jasper County. The mine opening was apparently covered over several years ago when the abandoned mine site was graded and revegetated for property development. During the summer of 2003, the unknown shaft or pit suddenly reopened beneath a parked and anchored mobile home, creating an extremely dangerous falling hazard. The subsidence hole was drilled and grouted to stabilize the fill material in the shaft. The work, performed under the MLRP's "standing" drilling/grouting contract, was completed in August 2003, at a final cost of \$21,724.07.

The Modine Pb/Zn Shafts Project closed two extremely dangerous vertical mine openings located on the Modine Manufacturing plant property on the west side of Joplin in Jasper County. The shafts were successfully plugged in late January 2004, at a cost of \$14,500.

The Taylor Pb/Zn Shafts Project closed two extremely dangerous vertical mine openings located just outside the boundary of the George Washington Carver National Monument near the city of Diamond in Newton County. The shafts were successfully filled and plugged during early February. The final cost was \$19,280.

The Jasper County Pb/Zn (Phase III) Project closed 13 extremely dangerous vertical openings on the east side of Joplin and between Carterville and Dunweg. The construction contract was awarded to the successful bidder, Terradyne Ltd., of Kansas City, MO in the amount of \$88,884. Twelve openings were included in the original contract. During construction, another extremely dangerous vertical opening was discovered in the immediate project area and it was added to the scope of work by change order. Work began in mid-April and the last opening was successfully closed on June 22, 2004. The final cost was \$98,884.

Under the Highway T Subsidence AML Emergency Project, the MLRP conducted exploratory drilling and pressure grouting under a portion of State Highway T, approximately 0.75 miles south-southwest of the town of Ardmore in Macon County. According to Missouri Department of Transportation (MoDOT) officials, Highway T near Ardmore has been experiencing coal mine settlement problems over the past several years and the situation continued to worsen. Due to concern over road safety and high road maintenance costs, MoDOT closed Highway T during the fall of 2003 and conducted exploratory drilling work to determine the nature and extent of the mine voids. The resulting drilling report, prepared for MoDOT by the MO Geologic Survey Program, concluded that the road settlement problems were in fact due to the presence of a shallow underground coal mine. Drilling results revealed that the mine ceiling was actively

migrating toward the road surface. In a separate letter dated December 5, 2003, MoDOT stated that their agency lacked the funding to address the problem and they requested assistance from the MLRP. Upon review of the drilling report, it was apparent that two short sections of Highway T required immediate action and they were the focus of the emergency abatement project. At these two locations, large mine voids were discovered at such shallow depths, or with so little roof rock remaining, that it was reasonable to expect that a serious road collapse could occur at any time. The scope of work included conducting exploratory drilling with a 4" diameter air rotary, truck-mounted drill rig and pressure grouting the mine voids to provide structural support for the road surface. MoDOT temporarily closed the road and provided the necessary signage to ensure that the work was conducted safely and efficiently. A total of 1,018 c.y. of grout was pumped, stabilizing a 550 ft. section of the road. The final cost was \$131,285.

The Miller's Creek AML Reclamation Project is located in Callaway County. The project calls for the neutralizing and de-watering of two acid impoundments and grading 30 acres of acidic mine spoil which will eliminate two dangerous highwalls. The acid spoil will be treated with lime so that pasture vegetation can be established. Off-site sediment will be removed from affected acreage to the west and placed, graded, and treated on the mined acreage. The process of de-watering must meet compliance with NPDES permit parameters and will involve pumping and/or the elimination of the spillway, water treatment, and discharge into an unnamed tributary of Miller's Creek. The project was bid in June 2004 and the work is expected to be complete by the fall of 2004.

Regulatory Program

OSM conducted a field review of bond forfeiture and surety reclamation sites in EY 2004 to determine the status of the sites and to document recent reclamation efforts. The May 1, 2002, Missouri Bond Forfeiture Reclamation Plan, A and B Bond pool Summary, agreed to by the MLRP and OSM, made projections for six mines regarding dates reclamation would begin and be completed, and when liability would be released. OSM's review found that reclamation activities planned for six mines during calendar year 2003 actually occurred at only four mines, and that L. B. Mines was the only site that received liability release out of the four mines scheduled for release. Recommendations resulting from the review were as follows:

- The MLRP should continue at an accelerated pace with reclamation of the bond forfeiture mines as prioritized in the Missouri Bond Forfeiture Reclamation Plan.
- After reclamation activities are completed, timely maintenance should be conducted as needed until liability is released.
- Release of liability should be requested for currently eligible permits and for other permits as soon as they become eligible.
- The Missouri Bond Forfeiture Reclamation Plan should be updated to show the latest projected dates for initiation and completion of reclamation and liability release.

Reclamation priorities should be established for EY 2005 and also EY 2006 in anticipation of the MLRP resuming full control of the Regulatory Program.

- To facilitate total liability release of forfeiture sites, off-site impacts should be eliminated through appropriate reclamation activities.

The MLRP's bond forfeiture reclamation activities during the EY 2004 evaluation period consisted of re-evaluating the priority projects, conducting field reconnaissance of bond forfeiture projects, and development of specific project plans. The State released liability on the L.B. Mines site (60 acres), in the fall of 2003. State reclamation projects under some form of completion include: Missouri Mining, Inc., Pit 8A, Pit 12, Pits 14N and 14S, Pit 15, and Pit 17, and Universal Coal & Energy, Inc., Pit 4 maintenance, Pit 7 maintenance and Pit 51 maintenance. Work on surety sites included plan review and approval of the Midwest Coal, LLC, Tiger Mine and the Riedel Energy, Inc., Perry Mine reclamation plans. Additional maintenance was also performed by the respective sureties at North American Resources, Inc., Silver Creek Mine, North American Resources, Inc., Foster Mine, and Universal Coal and Energy, Inc., Renick Mine.

This year, OSM assumed the responsibility for inspection and enforcement at active mines, while the MLRP retained inspection responsibilities at forfeiture and surety reclamation sites. As with previous evaluation periods, the MLRP did not meet the inspection mandate for EY 2004. Three forfeiture sites were not inspected, and complete inspections were not conducted at 12 of the 15 forfeiture sites. In the EY 2004 Performance Agreement, Missouri agreed to perform 12 inspections at each surety reclamation site during the year. The required number of inspections was not conducted at any of the surety sites. This is an issue both OSM and the MLRP are committed to resolve.

During EY 2004, OSM conducted 233 regulatory inspections, including 71 complete and 162 partial inspections, and the MLRP conducted 117 regulatory inspections, including 20 complete and 97 partial inspections. However, many of the MLRP's inspections were not documented by inspection reports. This also is an issue that needs to be resolved.

V. Success in Achieving the Purposes of SMCRA as Determined by Measuring and Reporting End Results

To further the concept of reporting end results under Title V of SMCRA, the findings from performance standard and public participation evaluations are being collected for a national perspective in terms of the number and extent of observed off-site impacts, the number and percentage of inspectable units free of off-site impacts, the number of acres that have been mined and reclaimed and which meet the bond release requirements and have been released for the various phases of reclamation, and the effectiveness of customer service provided by the State.

The overall measure of excellence in the AML (Title IV) program is the degree to which states are successful in achieving reclamation goals. One of the primary goals of AML topical reviews, referred to as Enhancement and Performance Reviews, is to improve upon this success. These reviews document each state's ability to achieve desired outcomes. Emphasizing outcomes allows OSM to justify when the end result is not being achieved and establish a basis for reaching agreement with (and providing assistance to) a state to improve its program.

Individual topic reports that provide additional details on how the following evaluations and measurements were conducted are available at the MCRCC in Alton, Illinois.

A. Off-site Impacts

Pursuant to Directive REG-8, revised July 28, 1999, OSM annually evaluates and reports on the effectiveness of the MLRP's regulatory program in protecting the environment and the public from off-site impacts resulting from coal mining activities and reclamation operations. Off-site impact data are a measurement of the State's on-the-ground success in preventing or minimizing off-site impacts. The goal, however, is for each inspectable unit to have no off-site impacts.

An off-site impact is defined as anything resulting from a surface coal mining and reclamation activity or operation that causes a negative effect on resources (people, land, water, structures). The applicable State program must regulate or control the mining or reclamation activity or result of the activity causing an off-site impact. In addition, the impact on the resource must be substantiated as being related to a mining and reclamation activity and must be outside the area authorized by the permit for conducting mining and reclamation activities.

Because the Missouri State Legislature provided only partial funding for the State's Title V program in EY 2004, OSM assumed the responsibility for enforcing the State program on 25 active mine sites, while the MLRP retained inspection responsibilities on surety reclamation and bond forfeiture sites. OSM did not identify any off-site impacts at the 25 active sites during the mandated monthly inspections the agency conducted in EY 2004. In addition to the mandated inspections at active sites, OSM conducted 64 oversight inspections at bond forfeiture and surety reclamation sites, and checked for off-site impacts during each inspection. State inspection and enforcement files were also

reviewed to identify the existence of off-site impacts. Twelve off-site impacts were identified at seven of Missouri's 47 IUs (Table 4). For the 31 IUs considered to be active, a group including active and surety reclamation units, a total of three off-site impacts existed at two of the six surety reclamation sites. Twenty-nine, or nearly 94 percent, of the active IUs were free of off-site impacts. Nine off-site impacts were identified at five of the 16 IUs where bond had been forfeited. Eleven, or about 69 percent, of the forfeited sites were free of off-site impacts. In total, 40, or about 85 percent, of Missouri's IUs were found to be free of off-site impacts.

The types of impacts recorded included one land stability impact, one encroachment impact, and 10 hydrology impacts. Land and water resources were the resources most often affected by the off-site impacts. In one instance, a structure was affected. Most of the off-site impacts at both active and forfeiture sites were classified as moderate. Two impacts, both on bond forfeiture sites, were considered to have major effects on land resources. Seven of the impacts were identified prior to EY 2004. Three of these previously identified off-site impacts were eliminated prior to the end of the evaluation period. In total, four less off-site impacts existed at the end of EY 2004 than existed at the start of the review period.

The objective of this measurement is that the MLRP and OSM direct efforts to decrease the occurrence of off-site impacts. Both the State and OSM are working to achieve this objective, and it is addressed in OSM's PA with the State. Timely forfeiture and surety reclamation will eliminate many of the off-site impacts and prevent new impacts from occurring.

B. Reclamation Success

Along with enforcement of the approved State Program at active mine sites, OSM also assumed responsibility for processing bond release requests and performing bond release inspections. Recommendations for the actions to be taken on the release requests were then presented to the MLRC for final action. During EY 2004, OSM processed and submitted positive recommendations on 12 release requests during the evaluation year. In each instance, the MLRC released the bond as requested. Totals for the acreage released were: Phase I = 309.2 acres, Phase II = 165.5 acres, Phase III = 344.0 acres, and Complete/Undisturbed = 178.5 acres (Table 5). Three active inspectable units were completely released from bond and removed from the Inspectable Units list during EY 2004. In addition, the State released 214.0 acres of Phase I bond and 46.5 acres of Complete/Undisturbed at a surety reclamation site (Tables 5 and 7). OSM issued one new permit covering 344.0 bonded acres during the year, and 20 additional acres were bonded at a previously permitted mine. All of these actions resulted in a net decrease of 205.0 bonded acres in EY 2004. The State also released liability on a 60.0 acre bond forfeiture site and removed the site from the Inspectable Units list (Table 7).

There was no re-mining activity in Missouri in EY2004.

C. Customer Service

To evaluate the effectiveness of Missouri's customer service, a joint OSM/MLRP review was conducted in EY 2002 to measure the State's performance in providing customer service (i.e. public participation) in relation to its permitting process. The review found that the MLRP is adequately implementing most of the permitting regulations related to public notification and participation. However, the proper state, Federal, and local agency officials were not always notified when the MLRP received a complete permit application. Also, new permits and significant permit revisions were sometimes approved before the public comment period expired. These deficiencies were found to represent a program deficiency that the State needed to address. OSM planned to conduct another review of this topic in EY 2004, but because the State Legislature did not fully fund the State's Title V program, OSM assumed permitting responsibilities during the evaluation year.

D. Abandoned Mine Land Reclamation

The MLRP operates its approved AML program through policies and procedures established in Missouri's "Abandoned Mine Land State Reclamation Plan" section 884.13 (a) through (d), revised 1998. Under these procedures, during this evaluation period, Missouri abated health and safety problems on eight AML reclamation projects, four of which were declared emergencies. The MLRP investigated two additional subsidence complaints under its emergency program which were determined to be unrelated to coal mining.

Since the program was fully approved in 1982, Missouri has reclaimed 72,002 feet of dangerous highwalls, 35 portals, 161 vertical mine openings, approximately 4 acres of subsidence, 50 instances of polluted water, 1,598 acres that were contributing to 10.8 miles of clogged streams and 1,377 acres of mine spoils.

Missouri continues to design and construct AML reclamation projects in an effective and environmentally sound manner and in accordance with project approval documents. Missouri is a minimum program state, receiving \$1.5 million annually to operate this program. Since 1998, the State has also received additional funds for Appalachian Clean Streams Program projects. Projects are monitored and maintained to achieve long-term stability and eventual release from State management. Missouri continues to carry out its AML Reclamation Success Management process, initiated during EY 1996. In this process, the reclamation project goals are stated up-front in the environmental assessment. The process also provides new mechanisms for evaluating design changes and change orders against previously defined goals of the project. This process is a significant aid in assuring that reclamation projects achieve long-term success and stability.

VI. OSM Assistance

OSM provides technical assistance and technology support to state AML and regulatory programs at the individual state level on project specific efforts, and at the national level in the form of national meetings, forums and national initiatives. The MCRCC provides direct technical assistance in project and problem investigation, design and analysis, permitting assistance, developing technical guidelines and training and support. The MCRCC works with the national Technical Innovation and Professional Services (TIPS) Program to deliver state-of-the-art computer hardware, software, training and systems support for the state AML and regulatory programs. MCR also works on the development of regional and national forums, meetings and initiatives to ensure that interests and needs of individual states are considered and included in these events. During 2004, MCRCC initiated a regional Technology Transfer Team on which each state has a representative. Monthly meetings assess technology needs of the states, communicate information between states within the region, and provide an avenue for communication of technology needs and technology transfer opportunities between MCR states and the rest of the SMCRA community through the national Technology Transfer Team.

During EY 2004, OSM provided Missouri with the following assistance:

Title IV Assistance

Missouri Jasper County Mineshafts Geographic Information System (GIS) – Missouri asked the PSD to assist with creating a GIS layer of abandoned mine shafts that have been filled or are expected to be filled in the near future. PSD met with MLRP and Missouri Hazardous Waste staff in March 2004, and shared ideas on methods of collecting accurate mine shaft data from different sources and designing the format for a main database. Development of the database will continue through 2005.

Old Bevier Wetland Evaluation – PSD staff assisted the Missouri AML Program by designing a passive treatment system for an underground AMD discharge at the Old Bevier AML Project site. Missouri completed construction at the site in August 2001 and requested PSD to implement a monitoring program to determine project success and to help decide if the technology had application at other AMD discharge sites. In January 2004, Missouri requested assistance with stabilizing site water levels and with developing a simple monitoring tool so that project control can be turned over to the landowner for future management. PSD staff visited the site in June 2004, and conducted a round of water sampling and also some maintenance work around the wetland. Technical papers concerning this project are being prepared for presentation at conferences to aid OSM's technology transfer efforts.

Sugar Creek USGS Study – PSD is assisting Missouri and the United States Geological Survey (USGS) in a study of the AMD sources in the Sugar Creek Watershed of Randolph County, Missouri. Specifically, PSD will provide recommendations on water sampling and passive treatment techniques and on conceptual designs and reclamation costs for identified problem sites. PSD will also provide conceptual designs and reclamation costs for identified problem sites when the hydrology investigation is complete. The USGS is conducting a water quality assessment of AMD impacted

watersheds. Efforts under a contract between the State and the USGS continued during June 2004, and included a joint field investigation of the Huntsville Gob Project. In April 2004, USGS initiated drilling for three monitoring wells. Additional well drilling work continued through June 2004. OSM participation is planned for September 2004.

Missouri Otter Creek - PSD provided technical assistance to Missouri in developing possible AMD treatment options for the Otter Creek AML site. Based on the AMD characterization completed by PSD staff in 2002, and some additional water data obtained in 2003, PSD staff formulated a number of treatment options for the Otter Creek site. The resulting report was provided to the Missouri Department of Natural Resources in July 2003.

Tri-State Mining Natural Resource Damage Assessment and Restoration (NRDAR) Partnership Assistance – PSD staff members are providing ongoing technical assistance to a multi-state and multi-agency partnership involved in a NRDAR for the Kansas, Missouri, and Oklahoma Superfund mining sites under the Comprehensive Environmental Response Liability and Compensation Act (CERCLA). Staff members continue to work with the GIS committee to locate additional GIS resources for the Tri-State Mining District. The most recent meeting, held in June 2004, was attended by a PSD representative. PSD is working to bring the work of all parties involved in both the Superfund and NRDAR processes together in an interactive forum to begin writing the processes and improve the results of restoration efforts.

Missouri AML Public Meeting – PSD assisted the Missouri AML Program with conducting public meetings to educate the public on the impacts of losing the state Title IV AML Program if the legislature does not fund the state Title V Regulatory Program. PSD prepared informational materials and made presentations at three public meetings in January 2004.

MCRCC/MLRP Reforestation Workshop – PSD worked jointly with the MLRP on presentation of a Midwest Reforestation/Tree Planting Workshop held in Columbia Missouri, on October 28 and 29, 2003. PSD sent invitations, arranged for a hotel and transportation from St. Louis for attendees, and provided per diem for State participants. Missouri provided the primary instructor and prepared all field site activities to make the event a success. The two-day workshop, attended by 19 people from six state mining and reclamation agencies and the Missouri Department of Transportation, covered aspects of acid forming materials, soil development, tree planting, tree stock and species selection, and enhancing tree survival on mined lands.

Title V Assistance

Missouri Mining Pits 3 & 12 Assistance – PSD assisted with data collection for the design of Missouri Mining Pits 3 and 12, bond forfeiture reclamation projects. Real Time Kinematic survey equipment was used to collect topographic data and other data regarding the project sites. The data were sent to Missouri during the summer of 2003

for the State to use in project design.

Missouri Tiger Mine Surety Reclamation Plan – The MLRP requested assistance from OSM in reviewing the hydrological aspects of the surety reclamation plan for Midwest Coal - Tiger Mine, Permit 1997-02. Progress toward approving the plan stalled after the second round of review comments. The sticking point is over a water-monitoring plan for solutes leached from coal combustion by-products. The surety's consultant, through the state, asked for an assessment of how this utility waste buried at Tiger Mine might already have affected local water resources. The OSM report, completed on June 18, 2004, will factor into the surety's decision whether to modify the reclamation plan and once again seek state approval, or abandon the plan and pay the state the bond money.

TIPS Assistance

The MCRCC loaned an HP slide/photo scanner to the MLRP so the State could move 300 slides/pictures into a digital format.

VII. General Oversight Topic Reviews

The following oversight topics were reviewed during EY 2004. The detailed finding reports are available at the MCRCC office in Alton, Illinois.

A. Bond Forfeiture Reclamation

The projected reclamation dates for forfeiture sites, agreed to by the MLRP and OSM, are not always being met. The MLRP should continue its reclamation efforts at bond forfeiture sites at an accelerated pace. After reclamation is completed, necessary maintenance should be conducted in a timely manner until liability is released. Release of liability should be requested when reclamation success is evident. The Missouri Bond Forfeiture Reclamation Plan needs to be updated to show the latest projected dates for initiation and completion of reclamation and liability release. Reclamation priorities should be established for the next several years.

B. AML Customer Service (Outreach)

The MLRP maintains a computer based citizen inquiries tracking system that is an essential component of the Missouri AML program. The database is used to track public requests for investigation, assistance, specific information, public meetings, and general outreach canvassing. Local, state, and federal agencies are contacted in writing and given the opportunity to provide comments on AML reclamation projects as required by state regulations.

C. AML Information/Accomplishment Tracking

Information in the AMLIS was compared with field conditions at a sample of AML

projects, including one project that had received an authorization to proceed but had not started, two active projects, two sites completed for one year, and two sites completed for three years. The review found that the MLRP updates the AMLIS as required. State staff members update AMLIS when projects are funded and again after project completion.

D. AML On-the-Ground Reclamation

This field review was conducted to assess both the short and long-term effectiveness of the State's AML reclamation. A representative sample of six AML projects was chosen for the study. The sample included two active projects, two projects completed within the last two years, and two projects completed within the last four years. The review found that Missouri designs and constructs projects that specifically and appropriately address priority 1 and 2 problems. Sites are reclaimed in accordance with the approved project scope of work, and mitigation and protection actions, outlined in environmental documents, are implemented in accordance with National Environmental Policy Act (NEPA) requirements. Post-construction monitoring and maintenance activities are performed to ensure that land stability is achieved. Eventual release from State management is attained following long-term revegetation success. Once completed, projects produce stable site conditions, land use enhancement, and abatement of all AML hazards

Appendix A: Tabular Summaries of Data Pertaining to Mining, Reclamation, and Program Administration

These tables present data pertinent to mining operations, State and Federal regulatory activities, and the reclamation of abandoned mines within Missouri. They also summarize funding provided by OSM and Missouri staffing levels. Unless otherwise specified, the reporting period for the data contained in all tables is July 1, 2003, to June 30, 2004. Additional data used by OSM in its evaluation of Missouri's performance is available for review in the evaluation files maintained by the MCRCC office in Alton, Illinois.

**Appendix B: State Comments on the Report
and
OSM's Responses**

See attached e-mail correspondence