Pittsburgh Field Division – Harrisburg Office
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2006 Pennsylvania Annual Evaluation Report

Office of Surface Mining Reclamation & Enforcement
U.S. Department of the Interior

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Annual Evaluation Report

for the

Regulatory and Abandoned Mine Land Reclamation Programs

Administered by the Commonwealth

of

Pennsylvania

for

Evaluation Year 2006

(July 1, 2005 to June 30, 2006)

TABLE OF CONTENTS

The cover photograph shows the Albert F. Stiffler Government Financed Construction Contract (GFCC) Project that is discussed on page 18 and 19.

I. Introduction

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSM) in the Department of the Interior. SMCRA provides authority to OSM to oversee the implementation of and provide Federal funding for State regulatory programs that have been approved by OSM as meeting the minimum standards specified by SMCRA. This report contains summary information regarding the Pennsylvania Program and the effectiveness of the Pennsylvania Program in meeting the applicable purposes of SMCRA as specified in Section 102. This report covers the 2006 evaluation year, from July 1, 2005, to June 30, 2006. Detailed background information and comprehensive reports for the program elements evaluated during the period are available for review and copying at OSM's Harrisburg Office of the Pittsburgh Field Division (PFD).

The OSM Harrisburg Office develops an annual work plan in conjunction with the Pennsylvania Department of Environmental Protection (PADEP), to review and assess Pennsylvania's administration of its approved Abandoned Mine Reclamation, and Coal Mining Regulatory programs. The work plan also focuses on technical and program assistance activities jointly undertaken by OSM and PADEP staff to improve the effectiveness of Abandoned Mine Lands (AML) and Acid Mine Drainage (AMD) reclamation, and coal mining regulatory programs. A copy of the 2006 work plan is available from the OSM Harrisburg Office.

A list of acronyms used in this report is located in Appendix A.

II. Overview of the Pennsylvania Coal Mining Industry

The coal geology of Pennsylvania is dominated by the Appalachian Mountains running northeast to southwest and dividing the State into two distinct coal regions. The western bituminous region of the State, where the majority of mines are located, is characterized by mountains and gently rolling hills. Areas within this region containing acidic overburden often require special reclamation efforts. The bituminous coal seams underlay about 12,000 square miles in 28 counties of the State. The coal is found in four fields; the Main Bituminous Field in the southwest counties; the Georges Creek Field in the southern counties; the Broad Top Field in the south-middle counties; and the North-Central Field in the north-central counties of the State.

The anthracite coal region is located in the northeast quarter of Pennsylvania and covers approximately 3,300 square miles. The coal is found in four fields; the Northern Field; the Eastern-Middle Field; the Western-Middle Field; and the Southern Field. The Southern Field has the greatest amount of reserves that can be mined. The coal lies almost entirely in synclinal basins oriented in a general direction of N 70 degrees E. The more than 20 different coal seams vary in thickness from a few inches to 50 or 60 feet. The anthracite region is characterized by steeply pitching seams, some with dips in excess of 60 degrees. Such seams require highly specialized mining techniques, and present unique challenges for solving problems such as mine subsidence associated with abandoned anthracite mines.

For more than a century, coal has played a major role in the economic and industrial development of Pennsylvania, particularly the steel making industry, and has historically employed thousands of workers. Although Pennsylvania has experienced a decline in coal production over the past decade, it continues to be a leading coal producing State, due to its estimated bituminous reserves that total 23 billion tons, or 5.3 percent of U.S. reserves, and anthracite reserves that total 7.1 billion tons, or 97 percent of U.S. anthracite reserves.

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Anthracite coal mine permit

In calendar year 2005, Pennsylvania produced approximately 70.6[1] million tons of bituminous and anthracite coal on surface and underground mines, which is a 3% decrease over last year. Of the total coal production, bituminous mining accounted for 68.5 million tons, and the remaining 2.1 million tons were mined in the anthracite region. In addition, refuse reprocessing mine sites were responsible for producing 8.8 million tons of coal of which 4.6 million tons were reported on thirty (30) sites in the bituminous region and the anthracite region reported 4.2 million tons of production on 38 mine sites.

1. This figure represents a PADEP compilation based on several reporting efforts by OSM Denver Financial Office; PADEP, and Mine Safety Health Administration (MSHA).

At present, the forty-four bituminous underground mining operations, producing 55.0 million tons of coal, accounted for about 78% of the total 431 active coal producing mines. These operations vary in size and complexity, and most employ long wall mining methods. Of the fifteen underground coal mining companies, five accounted for approximately 40.2 million tons or seventy-three percent (73%) of the total underground production. The remaining underground mines are sprinkled across nine other western counties. Conversely, three-hundred eighty eight bituminous surface mining operations produced 13.5 million tons of coal. The largest surface coal production of 3.2 million tons occurred in Clearfield County with Somerset County in a close second, reporting 3.0 million tons.

Anthracite mining production increased slightly during this period, reporting 2.1 million tons of coal produced on 66 mine sites. Of these sites, .2 million tons were produced at 17 underground mine sites, while 90% of the coal production occurred on 49 surface mines, reporting 1.9 million tons.

III. Overview of the Public Participation Opportunities in the Oversight Process and the State Program

During this evaluation period PADEP and OSM continued several ongoing initiatives that provided opportunity for public involvement.

A. Public Involvement in PADEP's Regulatory Process

Citizens Advisory Council

PADEP solicits and/or receives public input on proposed changes to the Pennsylvania mining program from the Citizens Advisory Council (CAC). The Council consists of eighteen appointed citizen volunteers who serve staggered three year terms. These members are appointed by the Governor, the Speaker of the House of Representatives and the President Pro Tempore of
the Senate. No more than half of the appointees are from the same political party. Since its creation in 1971, the CAC has been actively involved in Commonwealth environmental issues. The Council is the only legislatively mandated advisory committee with the comprehensive charge to review all environmental legislation, regulations and policies affecting PADEP.

During this evaluation year, the CAC conducted ten meetings and provided comments to PADEP on a number of issues. The Council provided comments on a revised draft version of a report submitted by the California University of Pennsylvania to examine the effects of underground bituminous coal mining. This report (Act 54, 5-Year Report) is required in accordance with Section 18.1 of the Pennsylvania Bituminous Mine Subsidence and Land Conservation Act (BMSLCA).

The Council reviewed and commented on a revised draft legislation to address the elimination of the hazards posed by existing abandoned mine lands and mine pools. In response to past abuses,

Federal and State laws require coal operators to pump and treat the polluted drainage from the mines, however, many operators are struggling to meet these demands. The concern of operators abandoning their environmental obligations has become a priority, since an estimated 28 billion gallons of acid drainage is released annually. To address these issues on the abandoned mine lands and waters, the Council has concluded it would be advantageous to extend the concepts of the very successful Brownfields Program which is otherwise known as "grayfields" to include abandoned mine lands and waters.

Mining and Reclamation Advisory Board

The Mining and Reclamation Advisory Board (MRAB) was created in 1984 by Act 181, the Surface Mining Conservation and Reclamation Act (SMCRA), of the Pennsylvania General Assembly. The board's purpose is to assist and advise the Secretary of the Pennsylvania Department of Environmental Protection on all matters pertaining to mining and reclamation. The advisory role of the board also covers Title IV of the Federal SMCRA, relating to abandoned mine land reclamation issues. The MRAB is comprised of the Citizen Advisory Council, the coal industry, county conservation districts, and the Pennsylvania General Assembly. The full board meets four times per year and the subcommittees meet regularly to address a number of coal program areas each year. The meeting minutes, handouts, and MRAB's annual report are available on the PADEP website.

The Board conducted four meetings during this evaluation year. Topics addressed at these meetings included: proposed blasting regulations, issues regarding the payment of operation and maintenance costs of replacement water supplies, bond rate guidelines, and conventional bonding program evaluation.

The board reviewed and commented on two proposed rules. The first proposal pertained to changes in the blasting regulations to address problems resulting from air blasts at mine sites. The proposed changes balance the protection of public safety and the safety of the workers. The board also reviewed and provided comments on a proposed technical guidance document (TGD) for the regulation of above ground storage tanks located on permitted coal mine sites. The guidance sets guidelines to assist in tracking the location of the tanks and their contents, as well as assuring their safe operation and maintenance. The second proposed rulemaking package concerned several issues to include changes to the regulations governing the reclamation of bond forfeiture sites at 25 Pa. Code §86.187 through §86.190, as well as changes to the remining and reclamation incentives regulations at §86.283. These changes were previously directed by the Office of Surface Mining in a final rule published in the Federal Register. Subsequent changes to 25 Pa. Code §86.17, deleting the permit and reclamation fee, were included in this package.

The board also reviewed the submission of discussions regarding the payment of operation and maintenance costs of replacement water supplies, as these replacement obligations are not specifically addressed by the coal mining statutes, regulations or case law. The discussions resulted from feedback during outreach meetings with the citizen's and industry.

Lastly, study results of bond rate guidelines were presented to the board for recommendations. The bond rate guideline numbers are reviewed presently on a yearly basis, however, the board

recommended that DEP review, and revise as necessary, the bond rate guideline numbers on a more frequent basis.

Environmental Hearing Board

The Environmental Hearing Board (EHB) is an independent quasi-judicial agency that includes a Chairman and four members. Members are administrative law judges with a minimum of five years of relevant legal experience. The EHB has the sole power to hear and decide appeals of PADEP's actions. Litigants have the right to appeal EHB decisions to the Commonwealth Court. During this evaluation period, the EHB issued a number of decisions pertaining to the approved state program. Opinions were rendered in seven coal mining related cases as indicated below.

The Board issued one petition for stay, motion for sanction, motion for summary judgment, and four motions to dismiss.

The board issued an opinion in an ongoing case concerning *Fred W. Lang, Jr, Joyce E. Schuping, Delores Helqist and Sherry L. Wissman v Commonwealth of Pennsylvania Department of Environmental Protection and Maple Creek Mining, Inc, Permittee,* EHB Docket No. 2003-145-R (Opinion issued July 21, 2004). Judge Renwand held that in a third party appeal, the Board has the power and authority to vacate all or part of a consent order and agreement (CO&A) or to amend its terms where it finds that the Department's entry into an agreement is an abuse of discretion. The judge explained that if the board finds that any of the terms of the CO&A constitute an abuse of discretion by the Department, the board may substitute its discretion for that of the Department and either vacate or change the terms thereof. In terms of this case, the Board agreed with the Appellants and denied the summary judgment. An adjudication was issued on January 12, 2006 which was appealed by both the Appellants and Maple Creek and held that underground mining conducted by Maple Creek had caused the Lang pond to be diminished. Maple Creek was ordered to pay for the increased cost of operating and maintaining the pond by either issuing a lump sum payment to the landowners, representing the present value of the increased operation and maintenance costs in perpetuity, or by developing a financial vehicle, acceptable to the Board, to compensate the landowners for the yearly increased operation and maintenance costs. The adjudication denied a portion of the appeal, asking that further repairs be made to the pond and requiring Maple Creek to install a de-chlorination system. Judge Renwand granted the mining company's petition for stay while the appeal is pending before the Commonwealth Court. However, the mining company was ordered to continue to pay the cost of maintaining the Lang pond and was required to post an appeal bond in the amount of $30,000.

In *Peter R. Swistock, Jr. v Commonwealth of Pennsylvania Department of Environmental Protection and Amfire Mining, Co., Permittee*, EHB Docket No. 2005-158-MG, the EHB dismissed the appeal of a pro se appellant because the pattern of the appellant's failure to respond to discovery requests and abide by orders of the Board evidenced a refusal to comply with the appeals process before the board. On June 29, 2006, the motion for sanctions filed by Amfire mining Company was granted.

In *Robert Barra and Robert Ainbinder v. Commonwealth of Pennsylvania Department of Environmental Protection and White Ash Land Association, Intervenor,* EHB Docket No. 2003-038-L (Opinion issued April 24, 2006), a third-party appeal from the Department's forfeiture of surface mining bonds was dismissed where the appellants' only challenge to the Department's action was that the Department should have accepted the third parties' proposal to perform reclamation in lieu of forfeiture.

In the three cases of : *Mon Valley Transportation Center, Inc v Commonwealth of Pennsylvania Department of Environmental Protection,* EHB Docket No. 2005-049-R (Opinion issued August 12, 2005); *Energy Resources, Inc v Commonwealth of Pennsylvania Department of Environmental Protection,* EHB Docket No. 2005-054-R (Opinion issued January 9, 2006); *Maple Creek Mining, Inc. v Commonwealth of Pennsylvania Department of Environmental Protection,* EHB Docket No. 2005-038-R (Opinion issued December 22, 2005) the Department's motion to dismiss, treated as a motion for summary judgment, was granted. Although the Department's letter to a permit applicant appears to indicate that the permit would be denied if the bond requested by the Department was not submitted, a further review of the permitting process revealed that the bond calculation is not final at this stage and may still be revised. Therefore, the board determined that the Department's letter to the permit applicant was not an appealable action.

In *UMCO Energy (UMCO), Inc. v Commonwealth of Pennsylvania Department of Environmental Protection,* EHB Docket No. 2004-140-L (Opinion issued April 28, 2006) the Department's motion to dismiss the appeal docketed at EHB Docket No. 2004-140-L as moot, is denied. On May 20, 2004, the DEP ordered UMCO to restore portions of a stream overlying a long-walled panel at UMCO's High Quality Mine in Washington County. The stream is alleged to have suffered adverse effects from subsidence. The referenced Docket No. 2004-140-L is UMCO's appeal from the restoration order. The board determined that an appeal from an order to restore a stream is not moot where one of the restoration methods required by the order, continuous flow augmentation from alternate water sources, is being employed on an ongoing basis.

Environmental Quality Board

The Environmental Quality Board (EQB) is a 20 member independent board that adopts all PADEP Regulations. The Board, which is chaired by the Secretary of PADEP, includes members from 11 state agencies, the CAC and the State Senate and House of Representatives. PADEP, through the EQB, requests comments on all proposed regulations and holds public hearings or public meetings to provide citizens with the opportunity to provide input. The EQB addresses all comments received on proposed rules in the preamble of the final rules that are published in the *Pennsylvania Bulletin* and are available for public review on the PADEP Internet site. As part of the development of the regulations required by statute or by regulatory initiatives, PADEP holds outreach discussions or other public meetings to explain regulatory initiatives, where there is significant public interest.

During this evaluation year, the EQB approved two proposed regulatory packages pertaining to coal mine reclamation fees and reclamation of bond forfeiture sites, as well as changes to the

blasting regulations. These packages were forwarded to the Independent Regulatory Review Commission (IRRC) and will be published in the Pennsylvania Bulletin for comment. Both regulatory packages are discussed in greater detail in the program amendment update section of this report.

Public Comment in Permit Review Process

PADEP received 570 applications for permitting related actions that provided for public comment. The applicant is required to publish notice of the permit application in the local newspaper. PADEP publishes notices of permit applications and major permit revisions in the *Pennsylvania Bulletin*; notifies local municipal governments of permit applications; and holds public meetings with citizens to discuss pending applications.

PADEP Electronic Mail (E-Mail) Notice

PADEP provides electronic notification to residents when new permit applications are received for review. After registering their e-mail addresses with PADEP, citizens receive e-mail notices of all permit applications received by PADEP. The citizens can limit their notices to selected geographic areas, specific application types, etc. Additional notices are also sent at other important milestones in the review process. In the fall of 2003, the e-mail notice system was expanded to provide citizens with electronic notification of environmental regulations under consideration in the Commonwealth. Similar to the permit applications notice, citizens can receive notice of up to ten specific milestones in the regulatory process.

Public Comment in the Bond Release Process

PADEP received 927 annual bond calculations and completion report applications during the past year. As part of the required annual bond calculation report, each permittee must notify every property owner of how much of the property owner's land has achieved Stage I, II and III standards during the preceding year. This required notice to the property owner also includes who in the Department to contact if the property owner disagrees with the adequacy of reclamation.

The permittee must publish each bond release application in a local newspaper once a week for four consecutive weeks. This advertisement must include permittee name, and permit number, precise location and number of acres, total amount of bond and amount of requested release, summarize the reclamation, and state where written comments should be filed. The permittee must also provide proof of notification to surface owners, adjacent property owners, local government bodies, planning agencies and sewage and water treatment facilities. At any time, a citizen may file a complaint with the local PADEP Mining District Office about the adequacy of reclamation or about mining activities. The local PADEP office will contact the complaint within two days and complete the investigation within the next two weeks unless additional time is needed for analysis. See Section V. C. Customer Service, for additional information on public participation in the bond release activity.

Citizen Complaint Resolution

With respect to inspection, compliance monitoring and enforcement activity during the evaluation year, the public may submit both informal and formal complaints on ongoing and completed mining operations, and bond release requests. PADEP received 504 citizen complaints, of which 123 were referred to other agencies for action. Of the remaining 381 citizen complaints investigated, 339 were successfully resolved at the close of this evaluation year. PADEP also reports a significant amount of time dedicated to processing requests for informal reviews of its decisions. Complaints can be directed to many aspects of the mining activities including stream pollution from erosion and mine drainage, blasting effects on structures and water supplies, damage to public roads, mining off-permit, and dust.

B. Outreach by OSM

General Outreach

OSM continued interacting with citizens, industry and other State and Federal agencies on oversight and State program initiatives. The OSM attended the MRAB meetings to provide input on oversight initiatives and explain new OSM programs.

Throughout the Federal and State regulatory process, OSM's outreach to the public is very important in considering and implementing changes to the Pennsylvania Approved Regulatory Program.

OSM's Pittsburgh Field Division (PFD) publishes a quarterly electronic newsletter that covers Pennsylvania, Maryland and Ohio. The newsletter highlights proposed Federal regulatory changes and policy guidance, court and IBLA (Interior Board of Lands Hearings and Appeals) decisions, the status of state program amendments, findings from OSM oversight studies, interaction with watershed groups and other partners, discussions of AML and AMD reclamation projects constructed, and innovative activities that states are involved in. The PFD maintains a mailing list of interested Federal and State individuals and agencies, as well as industry staff, private consultants, foundations, non-profit organizations, and individuals interested in coal mining and reclamation and abandoned mine reclamation issues. This newsletter has been well received over the years it has been published.

Appalachian Clean Streams Program

OSM continues to provide assistance to PADEP and numerous local groups and associations in promoting the cleanup of AMD impacted streams through the Appalachian Clean Streams Program (ACSP). Since 1996, when the program was first funded, about $16.3 million in clean stream grants have been awarded to Pennsylvania. In Fiscal year 2006, $984,777 in ACSP funds were awarded to PADEP. PADEP has identified 57 projects across the coalfields of

Pennsylvania to receive this funding. So far, 26 projects have been completed, 13 are in construction, and 18 are in design. These projects are being accomplished in partnership with other agencies and watershed groups to maximize the effectiveness of the cleanup effort. Additional information about this program is located in Section VI. C.

Watershed Cooperative Assistance Program

The OSM Harrisburg Office staff attends workshops, and individual watershed meetings throughout the year in support of AMD clean-up efforts and PADEP programs. Also, under the umbrella of ACSP, OSM has budget authority to enter into project agreements with local non-profit watershed groups to remediate AMD. Under this program OSM has funded 67 Watershed Cooperative Assistance Program (WCAP) projects in Pennsylvania for a total amount of approximately 6.3 million dollars. The total contribution to these projects, from all partners, is $26.5 million with OSM contributing about 24 percent of the total costs. During the evaluation period, 4 new cooperative agreements were awarded in the total amount of $297,525. These projects involve multiple partners, providing financial and other assistance. To date in Pennsylvania there have been about 264 funding and in-kind partners involved in the WCAP. Partners are counted with each project in which they are participating. Therefore, the number of unique partners involved in the program is fewer. PADEP is providing financial and technical assistance on a significant number of these projects, and the OSM Harrisburg Office has noted a significant number of applicant referrals from Growing Greener watershed coordinators due to budget constraints and the requirement for funding partners.

The Harrisburg staff is also providing significant technical assistance to PADEP and watershed groups in characterizing the chemical properties of mine drainage, and providing possible treatment solutions. Additional information about this program is located in Section VI. D.

IV. Major Accomplishments and Innovations in the Pennsylvania Program

A. Surface Water Protection Guidance

The loss of water in intermittent, and perennial streams and springs, and pooling issues associated with underground coal mining using long wall mining techniques is a major issue of concern among citizens in southwest Pennsylvania. In response, PADEP extensively studied the issue, including monitoring selected streams as they were undermined. The result was a decision that its guidelines needed to be revised to better reflect laws and regulations regarding the protection of surface waters. On October 8, 2005, DEP released Technical Guidance 563-2000-655, which describes procedures for protecting perennial and intermittent streams and wetlands from potential adverse effects caused by underground bituminous coal mining operations. The guidance focuses on potential flow loss and pooling in streams and potential changes in wetland hydrology that can occur when underground mining takes place in certain hydrologic settings. It describes evaluations and demonstrations that must be made at the time of permit application and procedures for dealing with impacts that occur unexpectedly. It also establishes guidelines for

baseline data collection, demonstrations, monitoring programs and mitigation plans, which are proportional to the potential for impacts. Following release of the guidance, DEP held an outreach session with mining company representatives and their consultants and, in addition, conducted two field training exercises demonstrating the use of biological assessment methodologies outlined in the guidance. The guidance applies to all underground bituminous coal mines, but will most substantially affect longwall mining operations.

This guidance document was presented to the Stream Restoration Workshop, held in Pittsburgh in May 2006. This workshop, that was organized and sponsored by OSM as a part of its Technical Transfer Program, drew about 100 participants representing many eastern states concerned with stream impacts from underground mining activities. PADEP's presentation generated substantial interest and discussion because of its advancement in the recognition of the impacts that underground mining, especially long wall mining, can and does have on surface waters. The guidance document also establishes a level of pre-mining data collection regarding streams and springs and aquatic life, and protection and restoration requirements that exceeds that of other surrounding states. PADEP reported that implementation of the guidance document is underway, with the expected level of questions, and concerns from the coal industry. Development and implementation of this guidance document is a significant advancement in PADEP's coal mining regulatory program, that was initiated in recognition of an environmental problem identified by the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, various citizen and environmental interest groups and PADEP staff. OSM is very interested in this new guidance and will be monitoring its implementation in coming years.

In a related activity, PADEP has initiated a technical study to characterize the nature of stream dewatering above longwall mining panels. This study is being conducted to determine whether a list of predictive criteria can be developed so they can be appropriately considered and applied during subsequent permitting decisions.

B. Alternative Bonding System Bond Forfeited Permits with Post Mining Discharges

On June 5, 2003, PADEP submitted to OSM a document titled "Pennsylvania Bonding System Program Enhancements", jointly developed by the two agencies. This document addressed OSM's October 1, 1991, notice to PADEP under 30 CFR 732.17, that the Pennsylvania alternative bonding system (ABS)…[was] no longer in conformance with SMCRA (section 509) and Federal regulations [30 CFR 800.11 (e)] This document also addressed OSM's 1995 follow up notice. The enhancement document announced Pennsylvania's implementation of a revised conventional bonding system (CBS) for all active/inactive permits, which includes a full cost/conventional bond for land reclamation and a water treatment bond based on bond rate guidelines. The enhancement document also announced the conversion of all active permits and completing the conversion of inactive permits under the ABS to CBS. The enhancement document specifically addressed ABS bond forfeitures with discharges through the adoption of the **Alternate Bonding System Primacy Discharge Abatement Workplan**. One of the objectives of the Workplan is to develop an ABS bond forfeiture discharge abatement strategy.

Included in the June 2003 Pennsylvania Program Bonding Enhancements document was an initial inventory of pollutional discharges on sites forfeited under the ABS. At that time the

inventory identified 99 pollutional discharges on 63 surface mine permits. In developing the inventory, OSM and PADEP collected information on the characteristics of the discharge, whether the discharges had been subject to treatment, and information on their impacts to the environment. Over the intervening years the ABS Discharge Inventory has been modified to reflect the addition of new ABS bond forfeited discharges, and the disposition of others. The ABS Inventory is a dynamic tool, subject to updating with new site information, new discharges from ABS bond forfeited permits, and re-categorization of existing discharges.

It is an objective of PADEP to address the discharges on sites that were permitted under the Pennsylvania ABS but forfeited prior to the posting of a full conventional bond or other financial assurance to insure perpetual treatment of the discharge. It is also an objective of PADEP to expeditiously complete the abatement work in scheduled phases that take into account site priority, programmatic resources, Commonwealth watershed management objectives, and public involvement. However, these objectives are set in the context that there are individual discharges that will be evaluated and determined to be a low treatment value for of a variety of reasons including impact on the receiving stream, available treatment space, treatment technology limitations, or excessive operation and maintenance costs. Further, PADEP intends to apply "passive treatment" technologies to abatement projects when ever possible and reserve active treatment options for those situations where remediating the discharge will have a high value impact in the watershed, and a commitment of perpetual funding can be made.

In EY 06, PADEP and OSM established a joint team of program and inspection staff with the assignment to continue implementation of the ABS Primacy Discharge Abatement Work Plan. PADEP's team members were assigned from DMO and BMR, reflecting transfer of the primacy bond forfeiture reclamation program from BAMR to DMO. The team developed a new data collection form and has been updating the data base of discharges, by having each site revisited to collect current water quality and quantity information. Prior water analysis was several years old, and it was thought conditions and impacts may have changed in the intervening years. Information is also being collected on the watershed in which the discharge is located so the discharge can be considered in the context of other problems, projects, and activities. This updated and new information will be used by the team to group the sites into High, Medium and Low value problems so decisions can be made regarding treatment type, funding options, and scheduling. The team is also working on an Abatement Strategy, providing specific guidelines for problem selection. When ready, the Abatement Strategy and the updated data base will be available through PADEP and OSM. PADEP and OSM will continue to visit the discharges at least annually to update information on the data base. The team will also meet periodically to review the information and, if appropriate, reassess the priority grouping of discharges to reflect new information.

C. Data Management

PADEP's decision to include off-site impact and acres reclaimed information in its data management system will greatly improve the quality of information used to assess program performance in OSM's reports. OSM oversight of State Regulatory Programs, requires a yearly evaluation of the success of mining and reclamation as determined by the number and severity of impacts outside of the mining permit boundary, and the success of reclamation as determined by the number of acres successfully reclaimed to Stage I, II and III standards. This information is part of OSM's GPRA (Government Performance Results Act) program performance measures. Off-Site impact information is presented in Table 4 and Reclamation Success information is presented in Table 5 of this report.

In previous years, off-site impact data was collected by OSM by visiting each district office, and reviewing compliance orders. However, in 2004, The Department of the Interior's Office of Inspector General issued a report to OSM regarding the collection of off-site impact information that resulted in an agreement with PADEP that it would modify its data collection to record off-site impact information using eFACTS. eFACTS (environment, Facility, Application, Compliance Tracking System) provides PADEP, OSM, and the public with a complete picture of coal mining permits, including information on permits, licenses, and approvals issued by PADEP and the status of pending applications, as well as the history of compliance actions.

PADEP began collecting off site impact data through eFACTS in August of 2005 and in the spring of 2006, PADEP completed an enhancement of eFACTS to create a separate screen to record off-site impacts. District Mining Offices are now able to directly record off-site impact information in the same format used by OSM to generate Table 4.

Similarly, PADEP has modified eFACTS to track acres reclaimed as reported by permittees in the Annual Bond Calculation Summary Report and Coal Completion Report. These reports were modified in 2004 to identify acres reclaimed to Stage I, II, and III standards, and the information is input to eFACTS by District Office staff as the reports are received from the operators. EY 06 is the first full year in which information for Table 5 of this report was compiled using reporting functions of the eFACTS system.

The use of eFACTS to collect off-site impact and acres reclaimed data is a significant advance in PADEP's program, and will greatly streamline the collection and evaluation of this data, and improve OSM's compliance with GPRA standards.

D. Amendments to the Pennsylvania Approved Regulatory Program

During this evaluation year, several changes to the Pennsylvania coal mining program were initiated and completed as a result of a cooperative effort by the PADEP and OSM staff. Under this team approach, OSM and PADEP staff analyze legislative and regulatory requirements, solicit comments from citizen and industry representatives, and prepare joint proposals consistent with both agency goals and with Pennsylvania and Federal laws. This is accomplished within existing Pennsylvania and Federal rulemaking requirements to improve

public commenting opportunities and to simplify and shorten the process for modifying the approved Pennsylvania program. The Pennsylvania regulatory process can take up to twenty-four months until changes are finalized and published in the Pennsylvania Bulletin.

As mentioned in the 2005 report, OSM issued a final rule on May 13, 2005 (70 FR 25472-25491-PA853.32) approving, in part, statutory and regulatory changes (by Act 173/43) regarding bonding, remining and reclamation, postmining discharges, and water supply protection and replacement issues. OSM approved these changes with the understanding that Pennsylvania will follow through and promulgate these provisions. However, as of the end of this evaluation year, the changes have not yet been finalized. PADEP will continue to involve OSM in the process, and the progress of this amendment will be reported in the next evaluation year.

During 2005, OSM approved a second program amendment which was also discussed in detail in the 2005 annual report. This amendment contained changes to the Bituminous Mine Subsidence and Land Conservation Act (BMSLCA) and the implementing regulations regarding the repair or compensation for damages to structures, and restoration or replacement of water supplies damaged by underground mining operations. The historical data pertaining to this amendment is described in detail in the 2003 and 2004 OSM annual reports and an in-depth review of these actions are located in the December 9, 2004 Federal Register Notices, Volume 70, Pages 71528-71551 and 71551- 71560. PADEP promulgated these changes during this evaluation year and published the final rule in the Pennsylvania Bulletin on October 22, 2005. Although changes were made in accordance with OSM's approval of December 9, 2004, a few additional changes were made in this regulatory package, in response to public comments, that had not been previously approved by OSM. These additional changes have not yet been formally submitted to OSM for review, but are expected during the next evaluation period.

OSM and PADEP continued to focus on the effective resolution of the thirty-seven (37) outstanding required amendments codified at 30 CFR 938.16. Through a cooperative effort, two regulatory packages were submitted by PADEP to resolve 12 of the 37 outstanding required amendments.

The first proposed amendment, currently under review, pertains to the removal of seven (7) required amendments at 30 CFR 938.16 (r), (eee), (ggg), (kkk), (lll), (qqq), and (ttt). These amendments address previous issues pertaining to civil penalties, nonaugmentative normal husbandry practices, affected area, access roads, permit renewal applications and non-coal waste in refuse piles. OSM issued the proposed rule in the Federal Register on May 23, 2006 (71 FR 29597-29604-PA803.39) requesting public comment. OSM is in the process of reviewing public comments received and is completing the final rule making. The progress of this amendment will be reported in the next evaluation year.

The second amendment package that PADEP submitted requests the removal of five (5) required amendments at 30 CFR 938.16(mm) – (qq). These changes to 25 PA Code 86.187 – 190 and 86.283 concern the use of funds, reclamation and selection of bond forfeited sites, as well as changes to the remining and reclamation incentive provisions. PADEP also submitted, as part of this package, a change to remove the reclamation fee at 25 PA Code 86.17. OSM had previously provided an informal review of these changes, and is participating with PADEP in the

joint regulatory review process. As of the end of this evaluation year, the proposed rule has not yet been published. However, this amendment is also expected to be completed in the next evaluation year.

On June 8, 2006, PADEP submitted a proposed amendment to the approved State program regarding blasting regulations at 25 Pa. Code Chapters 87, 88, 89 and 210 (PA887.00). This proposed amendment was initiated based on the need to clarify the requirements for shaft and slope development on mine sites, and also to address a number of other issues relating to blasting. OSM will be reviewing this amendment package in the next evaluation year.

E. Abandoned Underground Mine Pools

In 2002, LTV's and Beth Energy's looming bankruptcies presented PADEP with the reality that about 15 significant underground mine drainage treatment plants may cease operations unless they were taken over by the Commonwealth. Unprepared to handle a crisis of this magnitude, then PADEP Secretary David Hess wrote a letter to the Mining Reclamation Advisory Board (MRAB) asking for their input and advice on how to deal with this underground mine pool issue. Although the LTV and Beth Energy situations were successfully resolved, the question of how to handle the many discharging abandoned underground mines still remained. The MRAB formed a task force in April 2003. In July 2003, the task force presented the full MRAB with 19 resolutions which were unanimously adopted and presented to the Secretary of PADEP. In summary the resolutions covered activities including evaluating technologies for in-situ and ex-situ treatment of the mine water; reduction of infiltration of surface water; economical metals recovery; using airborne geotechnology to map mine pools; developing and consolidating data bases of mine pools and discharges; developing trust funds to address the long-term treatment of discharges; and developing outreach to and partnerships with potentially interested parties. In December 2003, an action plan was developed and implemented to address the 19 resolutions. The action plan lays out the steps, responsible parties and timetable for fulfilling the resolutions.

The most innovative resolutions involve the potential marketing of mine pools to industries and other public and private water users to promote economic development. PADEP recognizes that flooded deep mines contain vast quantities of stored, but polluted water and that many industries need water to conduct their businesses. PADEP is encouraging such industries to consider recycling and reusing the mine pool water and large volume discharges as an option to satisfy their needs. The reuse and recycling of mine pool water offers the potential of several important benefits. First, industry would have additional flexibility in making siting decisions for their facilities. Second, the use of mine water could provide cost advantages compared to the options that rely on traditional sources of water. Third, a facility that is sited at a location to take advantage of the availability of mine water and possibly the reclamation of abandoned mine lands for facility construction would bring economic development to an area that might not previously have been considered.

PADEP issued two Requests for Proposals (RFP) in January of 2005. The first was for proposals with economic development or industrial application as their primary goal and which will rely on

recycled mine water and/or a site that has been made suitable for the location of a facility through the elimination of existing Priority 1 or Priority 2 hazards. The second RFP is for proposals for new and innovative mine drainage treatment technologies that will provide waters of higher purity that may be needed by a particular industry at costs below conventional treatment costs as in common use today or reduce the costs of water treatment below those of conventional lime treatment plants. The PADEP considered proposals in five (5) different categories. These include: In-situ treatment, in-situ abatement, ex-situ treatment, ex-situ abatement, and enhanced metals recovery.

In 2006, PADEP awarded 8 contracts under this program; seven from the 2005 Environmental Stewardship Fund and one from Growing Greener 2. The total amount of the awards is $4,075,009 including $791,521 from the 10% AMD Set-Aside program and $95,729 from the Title IV ACSP Grant.. Projects include metals recovery from mine drainage, the use of mine drainage sludges in the pressed metals industry, Manganese recovery, use of Activated Iron Solids/ Sequencing Batch Reactors to treat high iron discharges, in-situ treatment of mine pools with sulfate reducing bacteria, evaluation of limestone based self-flushing treatment systems, and the treatment and use of underground mine pool water to provide potable water needs for an industrial park.

F. Growing Greener

Growing Greener is the largest single investment of state funds in Pennsylvania's history to address Pennsylvania's critical environmental concerns of the 21st century.

The original Growing Greener legislation was signed into law by Governor Tom Ridge on December 15, 1999. Called the Environmental Stewardship and Protection Act, funds were allocated for farmland preservation, state park and local recreation projects, waste and drinking water improvements, and watershed restoration programs.

In June 2002, Governor Mark Schweiker signed legislation that increased the funding for Growing Greener, extending it until 2012. Though authorized funding levels were established, revenue shortfalls affected actual spending, and the program was in danger of running out of funds.

In 2004, Governor Rendell proposed the Growing Greener II initiative and a bond issue resolution was placed on the statewide voting ballot. In May 2005 Pennsylvania residents approved the resolution with 61% of the vote. This authorized the Commonwealth to borrow up to $625,000,000 for the maintenance, and protection of the environment, open space and farmland preservation, watershed protection, abandoned mine reclamation, acid mine drainage remediation and other environmental initiatives.

Funds are allocated to a variety of government agencies for award to selected projects. BAMR is authorized to allocate its share of Growing Greener funds for the following mining related activities:

- Watershed restoration and protection; and
- Abandoned mine reclamation

AML land and water reclamation projects funded by Growing Greener can be designed, contracted and administered through BAMR, or administered through grants to municipalities and watershed groups awarded by PADEP with oversight and technical assistance provided by BAMR and DMO staff. Since 1999, BAMR has received about 26 million dollars from the original Growing Greener program. Under the Growing Greener II program BAMR has awarded 7 contracts totaling 18.3 million dollars that includes 10.9 million dollars from Growing Greener II and 7.4 million dollars from the Title IV grant.

G. Appalachian Regional Reforestation Initiative (ARRI)

The reforestation initiative is a joint effort of Appalachian States and the OSM Regional Office. The initiative also includes partnerships with States, coal industry, academia, landowners, environmental organizations and various governmental agencies. The goals include planting more high value hardwood trees, increased tree survival and increased tree growth and productivity. The initiative uses the Forestry Reclamation Approach. This involves the planting of higher quality trees, minimum compaction of the reclaimed ground, using native as well as non-competitive ground covers and proper tree planting techniques.

During the week of June 5 – 9, 2006, team members of the ARRI participated in a field trip of various sites in the states of Pennsylvania, Maryland, and West Virginia. The field tour began with an update on American Chestnut breeding research being done at the Leffel Chestnut Center at Penn State University. Breeders are doing backcross breeding in an effort to transfer the resistance of the Chinese Chestnut into the American Chestnut.

The chestnut blight hit in 1904. Just prior to then, there were an estimated nine billion chestnut sprouts in the United States from Maine to Georgia.

American Chestnut Mix

Field visits were made to mine sites near Kylertown and Snow Shoe, Pennsylvania, where mined land was planted with oak acorns and bare root stock. The team visited a reclaimed mine site on state game lands to view natural succession amended with applied bio-solids.

The group also visited an AML reclaimed mine site near Orbisonia, Pennsylvania, where over 50,000 trees are to be planted. The team discussed various aspects of the FRA approach to ensure better tree growth at the site.

An Arbor Day Celebration and Tree Planting were held on April 28, 2006, at the American Chestnut Foundation's research project site in Washington Township, Jefferson County, Pennsylvania, in an area known as Coal Glen. The event was held on the American Chestnut Foundation Smith Chestnut Farm.

Students from both the Jefferson County Vo-Tech's Forest Products Curriculum and the DuBois Area Catholic High School planted Chestnut tree seedlings, as well as hardwood and other species on this reclaimed surface mine.

The celebration highlighted efforts to re-establish the American Chestnut tree in Pennsylvania, and promoted the planting of high-value hardwood trees on reclaimed mine lands. The event was cooperatively organized by the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Department of Environmental Protection (PADEP), the American Chestnut Foundation, the Woodland Owners of Clarion-Allegheny Valley, and the U.S. Department of the Interior, Office of Surface Mining in conjunction with its Appalachian Regional Reforestation Initiative (ARRI).

H. Other Initiatives and Accomplishments

Unsuitable For Mining Petitions. PADEP is currently reviewing two Areas Unsuitable for Mining (UFM) petitions as follows.

Big Run, Graham Township, Clearfield County. Department staff is in the final stages of completing a technical study of the Big Run area. This review is being completed in response to a petition submitted by the Graham Township Supervisors, which requests a 2,800 acre tract within the Big Run and Willholm Run watersheds be designated as unsuitable for surface mining operations. The petition alleges that surface mining within the area would adversely affect renewable land resources.

Muddy Run, Reade Township, Cambria County. A technical study was completed in response to a petition submitted by the Reade Township Water Authority to have 3, 690 acres designated as UFM. The petition alleges that surface mining activities could result in degradation of surface and groundwater resources used by local public water supply wells. The study documentation is currently under review by PADEP senior management.

AMD Treatment System Design Consultants. PADEP has begun awarding blanket contracts to consultants for the design of AMD passive treatment systems. Consultants were chosen based on the ranking of proposals submitted during the Request for Proposals process. The goal is to retain a group of consultants specialized in AMD treatment, who can quickly provide system designs on an "as needed" basis. The targeted sites will primarily be primacy mine sites with forfeited bonds.

Good Samaritan Act. An evaluation of the first five years of the Environmental Good Samaritan Act has been started. The Act was signed into law in 1999. It provides protections for volunteers willing to reclaim abandoned mine lands where there is no legal obligation. This evaluation is to include input from project participants, landowners and applicants.

Replacement Water Supplies. PADEP is finalizing a systematic approach for addressing situations in which replacement water supplies are more costly to operate and maintain than the pre-mining water supplies they replace. Payment for the increased costs of a replacement water supply was the focus in, *Lang et al. vs. DEP and Maple Creek Mining Company*. The new procedures should be fully implemented by the end of the 2007 evaluation year.

Remining to Reclaim AML Problems. PADEP's DMO issued 31 new remining permits with the potential of reclaiming 1,058 acres of abandoned mine land. In addition, 328 acres of abandoned mine lands were reclaimed this year under existing remining permits. This activity results in a significant reduction in the number of abandoned mine acres in need of reclamation, at no cost to the Commonwealth and the Title IV AML fund.

I. Title IV of SMRCA AML Reclamation

The Pennsylvania Title IV AML Program was approved in July 1982. Even as early as 1982, Pennsylvania had already put forth years of committed effort to reclaim abandoned mine lands throughout the Commonwealth with a special state funded reclamation program. In the first decade of the approved program, Pennsylvania primarily addressed priority one and two health and safety hazards through traditional reclamation contracts. Starting in the early 1990's and culminating with changes to the approved program for a special OSM rule that expanded the

scope of government financed reclamation opportunities, the Pennsylvania AML program has diversified and incorporated other agencies and organizations into productive partnerships.

This year, Pennsylvania continued to address a wide range of environmental, health and safety problems. The Bureau of Abandoned Mine Reclamation (BAMR) reclaimed AML features through traditional construction contracts, entered into partnerships with property owners to reclaim safety hazards on sites that will provide opportunities for community development, and worked with other government agencies, private organizations and watershed groups to leverage additional funding for abatement of pollution from mine drainage. Finally, Pennsylvania committed substantial sums of funds from Growing Greener to partner with the Title IV program and to independently address sites that would not normally fall under the approved AML program. Pennsylvania has a diverse and effective AML program.

Traditional Title IV Reclamation
Abatement of Health and Safety Impacts

Pennsylvania's AML program continued to make progress in traditional areas of abandoned mine land reclamation such as dangerous highwall removal, subsidence control, and sealing shafts and portals. Specific accomplishments include completion of 25 major projects for a total of 290 acres of land reclamation. The total construction cost for these projects exceeded $7 million and included $24,000 of non-Title IV matching funds. Reclamation included over 20,300 linear feet of dangerous highwalls, numerous deep mine shafts and entries, and hazardous equipment and structures. The AML program also completed two water line extension projects to address impacted drinking water supplies.

During the year, contracts were awarded on 37 new projects at a cost of $37.6 million, which includes $26.3 million from the Title IV grant and $11.3 million from matching state sources. At the end of the evaluation period BAMR had a total of 72 projects under construction at a total cost exceeding $81 million. Upon completion, these projects will address nearly 2800 acres of abandoned mine land. Preparing for future reclamation, BAMR has over 100 projects in some stage of design and over 80 under development.

Pennsylvania addressed many smaller AML problems this year with two special state work crews; located in the Wilkes-Barre and Cambria offices (Anthracite Division & Bituminous Division, respectively). These small state workforces conduct maintenance activities and address small AML problems that are not suited for the more complicated and expensive contractual bidding approach used for traditional site reclamation. This year, the Bituminous Division (BD) located in the Cambria Office worked on 98 separate sites in 18 counties for a total cost of approximately $492,000. The majority of the sites they worked on involved dealing with mine drainage problems around homes. The BD crew also fixed small mine subsidence holes and reclaimed three small highwall areas; the largest of which was eight acres. The BD crew installed over a mile of piping for mine drainage and reclaimed 34.1 acres. The Anthracite Division (AD) worked on 16 separate sites in four counties for a total cost of approximately $97,000. The AD crew consists of three employees, two of which are equipment operators. While their work primarily involved addressing subsidence and coal cropfall areas, the AD crew also worked on stabilizing a wetland embankment and performed some specialized excavation to

slow the spread of a mine fire. The AD is capable of handling a wide range of small AML problems.

Government Financed Construction Contracts (GFCC)

Pennsylvania leads the nation in achieving reclamation under the AML Enhancement Rule promulgated by OSM on February 12, 1999. The 1999 "AML Enhancement Rule" was an amendment to the Federal Regulations to allow incidental coal removal on Title IV AML reclamation projects in the cases where there is less than 50 percent government financing. Prior to this rule change, SMCRA Title IV AML reclamation projects that involved incidental coal removal were required to have at least 50 percent of the cost of reclamation provided by a governing agency's budget. The purpose of this regulatory change was to encourage reclamation of Title IV eligible sites that are unlikely to be reclaimed under an AML grant-funded reclamation project or a Title V surface mining permit. Many low-rated health/safety and environmental problems would otherwise go unreclaimed because scarce grant funds would be expended on higher-priority projects and remining operations would avoid the area because of the potential risks posed by marginal coal reserves and/or long-term liabilities associated with pre-existing pollutional discharges or other environmental concerns. Removing the minimum 50 percent government funding threshold in projects involving coal removal incidental to an AML reclamation contract, encourages reclamation of additional AML at little cost to the public. According to information provided by BAMR, 232 GFCC project applications have been submitted since the program's inception.

During the evaluation year, PADEP received 53 applications, approved 42, and denied 5 applications. The remaining are still under review. During the year, 34 GFCC projects received authorizations to proceed (approval as a Title IV AML project). The approved projects represent AML benefits of approximately 675 acres reclaimed and just over $3 million in reclamation value. In addition, PADEP rejected 8 GFCC proposals prior to the formal submission of an application. Reasons that applications are rejected are because of site eligibility problems, incomplete documentation, and potential water-related problems. Occasionally, applications are withdrawn by the applicant or are simply not pursued to contract.

Pennsylvania 10% AMD Set Aside Program

Pennsylvania currently has a balance of $18,093,564.63 in the 10% Set Aside fund. The total accumulated revenue with interest that has been placed into the fund since inception is $40,394,041.84. Since there are other AMD funding sources available in PA (ACSP and Growing Greener programs), the 10% Set Aside Program will be used primarily for larger, more expensive construction projects. Future plans for the 10% Set-Aside fund include watershed-wide abatement projects to keep surface streams from entering deep mine pools, and the construction of active treatment facilities where the AMD problem is too large to address with passive facilities.

During the evaluation period, PADEP used 10% AMD Set Aside funding for continued operation of mine drainage treatment facilities. In addition, BAMR continued development of Hydrologic Unit Plans for two areas; Bennett Branch Sinnemahoning Creek and headwaters of

the West Branch Susquehanna River. Both unit plans are part of a larger effort by the Commonwealth to improve the opportunities for tourism and economic development in north central Pennsylvania by improving water quality in the West Branch Susquehanna River. Both plans will include construction of active (chemical) treatment facilities capable of treating approximately 10 million gallons per day of mine drainage each. The facility in the headwaters of the West Branch will be operated with state funding and will help to mitigate for the impacts of agricultural consumptive use within the Susquehanna basin. Long term plans for Set-Aside projects include additional active treatment facilities in the West Branch, as well as Blacklick Creek watersheds.

The following are some examples of interesting and diverse AML projects undertaken by Pennsylvania during the review period.

Pine Glen East, Acid Mine Drainage (AMD) Abatement Project
State Game Lands 100
Centre County, Pennsylvania

The Pine Glen East, AMD Project was constructed to address AMD in Boake Run. Funding in the amount of $819,767 was provided through the ACSP allocation in PADEP's Title IV grant. The AMD resulted in degradation of the main receiving stream, Sterling Run, below its confluence with Boake Run. A successful project would restore water quality and aquatic life to the lower portions or Sterling Run and expand habitat for existing native Brook Trout populations.

Completed Reclamation - Pine Glen East

The metal laden water contaminating the Boake Run Watershed enters through a series of seeps coming off of the reclaimed surface mines and reduces the water pH to 4.3. Boake Run travels approximately 1.6 miles where it meets Sterling Run.

The Pine Glen East project consisted of treating Boake Run by diverting a majority of the stream flow through a limestone bed and a series of ponds to raise the pH and let the contaminants (primarily aluminum) settle out. After flowing through the treatment system, the treated water reenters Boake Run and reduces acid loading and pollution through further dilution to the

existing stream. The project also relocated approximately 1100 linear feet of existing stream with 13 acres of disturbed area being planted with grasses and legumes to benefit wildlife. Finally, eleven different species of nut and fruit producing trees and shrubs were planted to enhance wildlife habitat.

Native Brook Trout

After one summer of operation, the water leaving the treatment site has an approximate 7.8 pH. The water at the confluence of Boake Run and Sterling Run is currently averaging 6.0 pH. In June of this year, the Pennsylvania Fish Commission conducted a field survey and found native Brook Trout moving into sections of Sterling Run that has previously been polluted by AMD.

Luciana Bottoms West
Abandoned Mine Reclamation Project
Huntington County, Pennsylvania

In 1905, the Broadtop Coal and Mineral Company opened two deep mines near Jacobs, Pennsylvania. The mines were successful and operated for approximately 23 years. In the 1930's, additional mines were opened. These mines operated until the 1950's when surface mining in the area became the prominent method for obtaining coal. In the late 1960's essentially all mining ceased leaving behind unreclaimed pits, several refuse piles, open mine shafts, and water pollution.

Abandoned and Unreclaimed Mine Pits

Numerous accidents related to the abandoned mines have occurred over the years. The worst accident was the death of a young woman riding an all-terrain vehicle on the abandoned areas in the early 1980's. There have been several attempts to clean the area up through landfill and surface mining proposals, however, due to mine pool and toxic overburden concerns, none of the projects could be approved.

In early 2004, BAMR initiated a $1.2 million project to reclaim the hazards at the site and to address the associated water pollution. BAMR's plan involved segregating acid forming refuse material in defined lifts with four inch caps of alkaline material. In addition alkaline material was placed on the floor of the open surface mine pits and BAMR constructed a passive treatment system for an abandoned mine entry with an artesian flow. When completed, the project reclaimed over 8,000 feet of dangerous highwall involving 67 acres. It also addressed three refuse piles, 8 subsidence openings and shafts, and one mine portal. The graded areas were reclaimed with grasses and BAMR planted over 68,000 tree seedlings.

Project planting activities

Indian Creek Watershed Restoration
Addressing Mine Pool Hazards & Water Pollution
Fayette County Pennsylvania

BAMR, the U.S.D.A. Natural Resources Conservation Service (NRCS), and a local watershed group, the Mountain Watershed Association (MWA) are currently implementing phase I of an innovative mine drainage restoration project. The project involves two abandoned underground mine sites that exhibit significant water quality and public health and safety problems.

Commercial underground coal mining began in the Indian Creek watershed in the 1920's and continued until the end of 1966. Large underground mines were developed on the Middle Kittanning coal seam along the Indian Creek corridor with smaller commercial underground mines being developed within the adjacent watershed. The underground mines were developed by mining up-dip to facilitate gravity drainage of water from the mines. As early as 1924, legal action by the Pennsylvania Railroad and private water companies restrained the mining companies from allowing AMD discharges into the upper Indian Creek watershed. In order to comply with the court, the mining companies constructed a mine drainage "flume" to collect and convey mine drainage to a point downstream of the Mill Run Reservoir. The system was over seven miles in length and utilized piping to provide connections to existing mine workings.

During the mid 1970's the flume system began to malfunction as a result of deterioration, plugging and lack of any significant maintenance. AMD from these abandoned mines now enters the main channel of Indian Creek at the down-dip mine entries or as coal cropline discharges. In addition to abandoned underground mining AMD sources, several forfeited abandoned surface mine sites also contribute significant pollution loads to Indian Creek and its tributaries.

A local watershed organization, known as the Mountain Watershed Association (MWA), was formed to address problems in the Indian Creek watershed. MWA and its partners (BAMR & NRCS) recognized the need to develop a comprehensive abatement plan and, to date, much work has been completed has been to characterize the most significant pollution sources. The Melcroft restoration projects are significant components of what has been envisioned as a series of projects aimed at restoring the aquatic resources of Indian Creek and lessening the impact of AML problems in this community.

The abandoned Melcroft No. 1 (Kalp Site) and Melcroft No. 3 (Melcroft Site) mine pools have been responsible for water pollution, and property damage, and represent a hazard due to blow-out potential. The Melcroft No. 1 mine pool has long been recognized as a Priority 2 Health and Safety problem by the Pennsylvania BAMR and OSM because of its impact to adjacent homes, properties and public highways, and its potential for a mine pool blowout. The discharge from the Melcroft No. 1 mine is acidic, has elevated metals concentrations, and produces approximately 40% of the total AMD pollution load in the watershed. It impacts Indian Creek for a distance of approximately seven miles. The Melcroft No. 3 mine pool is the source of pollutional discharges that adversely impact the lower reaches of Champion Creek and Indian Creek. In addition, the Melcroft No. 3 mine pool has caused considerable property damage to a number of residences in the village of Melcroft by periodically flooding basements. Successful

abatement and treatment would not only resolve health, safety, and property damage impacts, but it would also restore water quality to Indian Creek; the upper reaches of which are a high quality cold water fishery.

AMD damaged basement – Melcroft, Pennsylvania

PADEP decided to approach the Indian Creek problems through a two-phase process. The initial phase of both restoration projects utilized an innovative technology called in-seam directional drilling to facilitate control and collection of the mine discharges. In-seam directional drilling relocated the current discharges to areas proximal to the proposed (phase 2) treatment systems. During the summer of 2005 boreholes were drilled approximately perpendicular to the coal outcrop to provide mine pool intercepts. Valves were installed to provide flow adjustment. At both the Kalp and Melcroft sites approximately 30 feet of mine pool hydraulic head was gradually and permanently removed.

During the spring of this year BAMR released two contracts to dewater and chemically treat the Melcroft #1 and #3 mine pools in order to address the aforementioned health and safety concerns expeditiously and to aid in the design and construction of the pending phase 2 treatment projects. At the Kalp site (Melcroft #1 Mine) from March 17, 2006 to June 2, 2006 a total of 80 million gallons of mine pool water was removed and chemically treated which eliminated the original discharge plus cropline seeps and other discharges. In addition, a number of homeowners who had been experiencing problems with mine drainage in their yards and basements no longer are subject to these problems. The potential for a mine pool blowout has been significantly reduced. The mine pool is currently discharging from the directional boreholes at its baseflow condition of approximately 250 to 300 gallons per minute.

Dewatering and chemical treatment of the Melcroft site is currently underway. More than 39 million gallons of mine pool water has been removed, and recent monitoring information indicates that the target pool elevation has been achieved. The discharge rate from the directional boreholes is currently 100 gallons per minute. Flows from existing discharges have been

significantly reduced and BAMR is monitoring adjacent homes that were historically affected by mine drainage problems.

In-seam Directional Drilling Underway at Indian Creek

A phase II passive treatment project will proceed in the fall of 2006 for the Kalp site. Work is expected to begin in early August 2006. Funding for this project phase is being provided by BAMR through a Growing Greener grant (state revenues). The project will use a project design developed by NRCS. BAMR Cambria Office staff will prepare the design of the Melcroft treatment system and construction is anticipated in 2007. Funding from Title IV, the USDA, Pennsylvania, and local funding sources have been combined to facilitate these projects.

Bituminous Division State Workforce Project
Allegheny County

The Bituminous Division state workforce completed a unique reclamation project during the review period. The workforce reclaimed approximately 800 feet of highwall that represented a safety problem for residents living adjacent to the site. Approximately 6 acres of abandoned highwall and spoil areas were reclaimed. In partnership with Switchgrass for Bioenergy, a company located in Ligonier Pennsylvania, the project included a switchgrass plot in the middle of the regraded mine spoil backfill. The goal of the project is to demonstrate that switchgrass can be established on abandoned mine land project sites. Switchgrass is not only a renewable energy source but is also a carbon sequestration resource. This project will benefit agriculture, renewable energy, wildlife, the environment, and is the first pilot project of this type on an abandoned mine reclamation project for the Cambria BAMR Office.

Bennett Branch AMD Initiative
10% AMD Set-Aside Program
Elk County

Traditionally, Pennsylvania has approached the 10% Set-Aside Program by developing hydrologic unit plans (HUP) surrounding one or two discharges that have or will have a devastating impact on a receiving stream. In EY 2004, BAMR began the development of a

comprehensive plan to address mine drainage problems on Bennett Branch of the Sinnemahoning Creek; a substantial contributor of mine drainage to the West Branch of the Susquehanna River. Cleaning up the West Branch of the Susquehanna has wide support from many citizen groups, meets the Commonwealth's goals to improve water quality in areas with high recreation interest, and has been identified as a priority by Governor Rendell.

Bennett Branch. Note the iron staining on rocks.

The primary mission of the Bennett Branch initiative is to develop and implement a detailed mine drainage abatement plan with a goal of restoring water quality in the main stem of the Bennett Branch and significantly improving water quality in most of the mine drainage impacted tributaries. BAMR, in cooperation with the U.S. Army Corps of Engineers (Corps), local organizations and other state agencies, is currently completing a multi-phase reclamation project in Dents Run (a Bennett Branch tributary) that will significantly reduce mine drainage and restore trout habitat. The Corps/BAMR project will reclaim an estimated 250 acres of abandoned surface mines and construct 12 passive mine drainage treatment facilities.

During EY 2005, BAMR collected crucial water quality information, worked with staff from the PADEP Knox Office of the Bureau of District Mining Operations (DMO), the Moshannon Office of DMO, and members of the Bennett Branch Watershed Association, and prepared an interim report on pollution sources, potential treatment options, and abatement costs. BAMR has been actively pursuing partnerships with the mining industry to evaluate areas with re-mining potential that could result in water quality improvements or in the elimination of abandoned mine land features that pose a threat to the health and safety of the general public.

During this year, BAMR continued project development with sampling and other field reconnaissance work within the watershed. In April 2006, BAMR received a final report from Civil & Environmental Consultants, Inc., that provided information on the impacts and feasibility of constructing a treatment facility as a central part of the Bennett Branch abatement plan. BAMR also began the process of developing information and assessments needed for

approving the Bennett Branch project as a formal hydrologic unit under the 10% Set-Aside Program. It is anticipated that by October 2006, BAMR will finalize information on mine drainage conveyance and treatment plans and will complete the assessment of potential project impacts. Once complete, BAMR and OSM will coordinate the activities needed for formal approval as a HUP under the 10% AMD Set-Aside Program.

Albert F. Stiffler
AML Enhancement Rule Project
Government Financed Construction
Westmoreland County

The Albert F. Stiffler GFCC project involved reclamation of two contiguous areas; an abandoned surface mine area with a highwall with spoil piles and an abandoned deep mined area with an old mine entry, a small flow discharge, and land subsidence. One of the subsidence features captured surface flow from an ephemeral stream and directed the flow into the old underground mine complex. AML funding restrictions and limited coal resources at the site meant that this site would not likely be reclaimed by the AML program or a remining permit. The GFCC program provided an opportunity to achieve reclamation with little cost to the Pennsylvania AML program.

Mine subsidence

The completed project eliminated several hundred feet of dangerous highwall; regraded and revegetated five acres of abandoned spoil; removed over a dozen subsidence features by daylighting portions of the abandoned underground mine; eliminated a low flow deep mine discharge; and returned flow to the ephemeral stream channel. The receiving stream adjacent to the GFCC project is classified as a High Quality Special Protection watershed and flows into a county park containing a lake. The lake is a favorite spot of local fishermen. The reclamation activities reduced the sedimentation and mine drainage to the tributary—improving the overall water quality of the stream.

Completed GFCC project

The Commonwealth of Pennsylvania saved approximately $72,000 — the cost it would have had to expend to reclaim these abandoned mine features. In addition, the reclamation project has returned the property to a condition where it may have a beneficial use within the community rather then simply containing environmental and safety problems.

Mercury Monitoring at Abandoned Coal Mine Fires

In 2004 BAMR initiated an effort to understand the risk to public health and safety posed by the release of mercury from abandoned coal mine fires. If mine fires are significant emitters of mercury, this risk analysis would provide the BAMR with a means to prioritize fires for extinguishment utilizing the limited federal funds available to the State through the Federal Surface Mine Control and Reclamation Act, P.L. 95-87. As recently as last year, forty uncontrolled mine fires were known to be burning in the State.

Centralia air-monitoring station

The project was implemented through an agreement with the Pennsylvania Bureau of Air

Quality to pool limited resource to collect information on mercury emissions from sample sites identified in the area of the historic Centralia mine fire. During the evaluation year, three air-monitoring stations were installed. Each station monitors three species of mercury (vapor, particulate and reactive gaseous), carbon monoxide, carbon dioxide, hydrogen sulfide, sulfur dioxide and particulates. In addition, one suite of meteorological equipment is also sampling weather conditions.

J. Abandoned Mine Reclamation Activities - AMD Treatment

The Bureau of District Mining Operations (DMO) and Bureau of Abandoned Mine Reclamation (BAMR) provided significant support to AMD abatement efforts. These Bureaus provide technical and financial assistance to local agencies, municipalities and watershed groups, develop watershed restoration plans, collect stream data, and implement AMD treatment plans. A number of state and locally administered AML and AMD abatement projects were funded under Pennsylvania's Growing Greener Program. Growing Greener funds are appropriated by the Pennsylvania Legislature and are not part of those awarded by OSM from the Title IV Abandoned Mine Reclamation Fund. In several projects, Growing Greener funds were combined with ACSP funds to enhance the partnership approach to AMD cleanup. Seventeen ACSP Projects funded in financial partnership with Growing Greener funds, are Tremont North Indian Head, Tanoma South, Glenwhite Run, Keystone Phase I, Mill Creek Allen Point, Newkirk Mines, Melcroft Phase I, Argentine Central, Little Mill Creek, Quemahoning Creek, Blue Valley Phase II, Lackawanna River, Two Mile Run, Wingfield Pines, Sugar Camp Run, Tide Treatment System, and Lee's Creek. The total cost of these projects is $4,735,512, with $2,364,272 from the ACSP and $2,371,240 from Growing Greener. OSM has awarded PADEP $16.2 million in grants for ACSP projects, for the cleanup of streams contaminated by AMD. Fifty-seven projects have been identified for funding. Twenty-six projects have been completed, 13 are in construction and 18 are in design. These are partnership projects, with local watershed groups, private companies and other State and Federal agencies contributing time and financial resources.

V. Success in Achieving the Purposes of SMCRA

OSM's national regulatory program oversight guidelines known as REG-8 requires an evaluation of off site impacts, reclamation success, and a component of customer service in its annual oversight work plan with PADEP. Summaries of those areas of evaluation are discussed below.

A. Off-Site Impacts

OSM Directive REG-8, Oversight of State Regulatory Programs, requires a yearly evaluation of the success of mining and reclamation as determined by the number and severity of impacts outside of the mining permit boundary. This information is one of OSM's GPRA (Government Performance Results Act) program performance measures. Off-Site impact information is presented in Table 4 of the Pennsylvania Annual Report. The information presented in Table 4 comes from PADEP's eFACTS data management system. Off-Site Impacts are grouped in

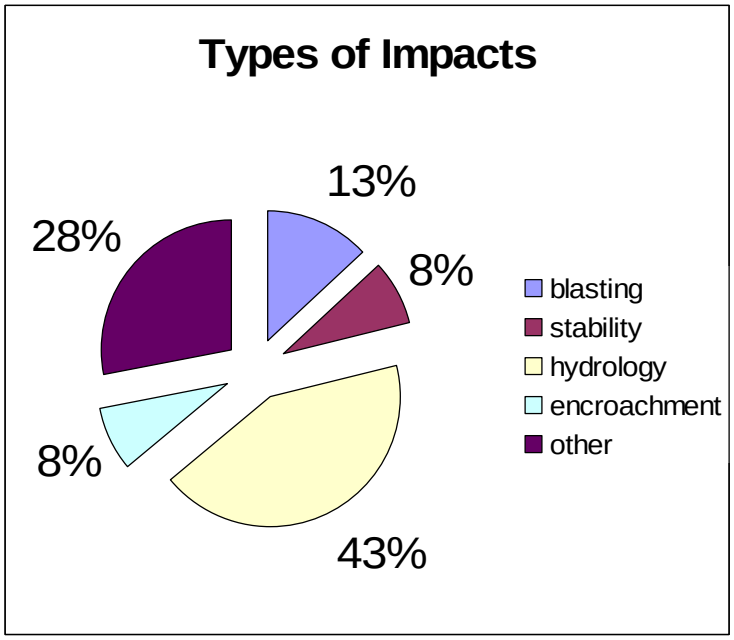
impacts on people, land, water, and structures, and include blasting, land stability, hydrology, encroachment, and other. Severity is determined as minor, moderate and major.

In evaluation year 2006, PADEP provided OSM with all off-site impact data for this report from eFACTS. As a validation of the reliability of the data, OSM inspectors also continued to identify off-site impacts through routine oversight complete inspections.

This year OSM was required to conduct an evaluation of the process that PADEP uses to collect, record and validate off-site impacts data. The purpose of this evaluation was to assure information submitted by OSM for GPRA is accurate. OSM conducted interviews with staff of the Bureaus of Mining and Reclamation and District Mining Office, gathering information regarding the collection of off-site impacts information. The general information categories included; Validation that the program measurement (off-site impacts) is appropriate, Standards and Procedures used to guide collection of the data, Data Entry and Transfer, Data Security and Integrity, Data Quality and Limitations, and Oversight and Certification of the accuracy of the data. OSM prepared a report, known as the Validation and Verification Assessment, which covered 26 program evaluation criteria. In summary, OSM found that PADEP's processes provided adequate controls and checks to assure the collection of and accuracy of the off-site impact information collected for Table 4 of this report as well as OSM's GPRA report.

Off site impacts are any negative off permit impacts from a surface coal mining or reclamation activity that affects the following resources: people, land, water, and structures. There are three levels of impacts: **1.** Minor impact or impacts that do not affect the public, disturb a small area or have negligible effect on the receiving stream; **2.** Moderate impacts, or impacts that do not fit in either of the other two categories; and **3.** Major impacts, or impacts that have significant impacts to the public, that affect large off site areas and have major impacts to the receiving streams. The categories of impacts identified for the study are blasting, land stability, hydrology, encroachment and other.

PADEP inspectors conducted partial and complete inspections during the evaluation year on 1820 permits and reported 60 off-site impacts. Those 60 off-site impacts represent 44 permits and 5 operations that were not permitted. Therefore, data shows that 97% of the permits were free of off-site impacts. The impacts were classified by PADEP as 13 major, 11 moderate and 36 minor. They are categorized as follows: 25 hydrology (43%), 5 encroachment (8%), 18 other (28%), 5 land stability (8%), and 7 blasting (13 %.)



Discussion of impacts

Most of the impacts are hydrology related and result from the discharge of improperly treated or untreated water that exceed the numerical effluent limitation specified in the permit. These discharges result in impacts to nearby streams with the addition of acidity, iron, manganese, and sedimentation. Out of the 25 hydrology impacts, 3 were major, 3 moderate, and 20 were minor. The two major impacts were a large discharge that did not meet the effluent levels and contaminated a receiving stream; and the third was a seep causing land instability

The second largest category of off-site impacts fell into the "other" category with 18 impacts. The minor impacts involved failure to design, construct or maintain erosion controls and failure to employ adequate air pollution controls. Most of the moderate impacts were for general safety violations for coal mining operations. Four major impacts involved mining without a permit. Two major impacts involved a treatment plant failure and mining without a permit.

The blasting impacts totaled 7 with most of the minor and moderate impacts resulting from violations of general blasting requirements, fly rock leaving the permitted area and some minor damage to real property. The one major impact resulted from the operator's failure to barricade a public highway within 1000 feet of the blast area. Fly rock left the permit and struck a truck on the highway but the driver was not injured. PADEP issued a civil penalty against the operator and the blasting company for this violation.

Encroachment and land stability had 9 off-site impacts which comprise 16% of the total off-site impacts reported. One major impact for encroachment was for the operator conducting mining activities in a barrier area without first obtaining a variance. The operator was removing overburden and stockpiling material without obtaining the 300 foot variance from a house. The other major encroachment impact was for mining without a permit. Land stability had two major impacts.

The percentage of permits (97%) with no off site impacts has remained constant with results

reported in the 2005 evaluation year. Hydrology impacts still remains the highest source of off site impacts but the reporting trend shows this is moderating. The number in the "other" category has risen from last year which was 7%, to 28% for this evaluation year. This could be a result of the state inspectors having a different interpretation of the definitions in making the classification decisions and reporting in eFACTS.

B. Reclamation Success

OSM Directive REG-8, Oversight of State Regulatory Programs, requires a yearly evaluation of the success of reclamation as determined by the acres of bond release. In Pennsylvania, acres reclaimed to Stage I, II, and III standards is used instead of acres with bond release because this provides a more comtempory measure of the reclamation activity. This information is one of OSM's GPRA (Government Performance Results Act) program performance measures. Bond release information is presented in Table 5 of the Pennsylvania Annual Report. The information presented in Table 5 comes from PADEP's eFACTS data management system.

This year OSM was required to conduct an evaluation of the process that PADEP uses to collect, record and validate acres reclaimed to Stage I, II, and III standards. The purpose of this evaluation was to assure information submitted by OSM for GPRA is accurate. OSM conducted interviews with staff of the Bureaus of Mining and Reclamation and District Mining Office, gathering information regarding the collection of acres reclaimed information. The general evaluation criteria included; Validation that the program measurement (acres reclaimed) is appropriate, Standards and Procedures used to guide collection of the data, Data Entry and Transfer, Data Security and Integrity, Data Quality and Limitations, and Oversight and Certification of the accuracy of the data. OSM prepared a report, known as the Validation and Verification Assessment, which covered 26 program evaluation criteria. In summary, OSM found that PADEP's procedures provided adequate controls and checks to assure the collection of and accuracy of the acres reclaimed information collected for Table 5 of this report as well as OSM's GPRA report.

To assess the accuracy of data reported by PADEP, OSM inspection staff evaluated 30 permits selected from eFACTS from those with Annual Bond Calculation and or Coal Completion Reports filed during the evaluation period. There were 17 Coal Completion Reports and 13 Annual Bond Calculation Summary Reports. These permits represented all five District Mining Offices. Staff conducted 21 field inspections and 9 office file reviews only. In all except 1 of the 21 permits that were field inspected, OSM found reclamation meeting Stage I, II, and III standards. On the one permit, Stage II revegetation requirements were not met because less than 70% vegetative coverage was present and required tree seedlings were not observed. PADEP instructed the permittee to re-seed the area. These findings are consistent with previous years' in which inspections have found almost complete compliance with bond release standards.

As a further cross check of the data in eFACTS, for Stage I, II and III reclamation, OSM compared acres released as shown in 70 bond release letters dated from January 2005 through March 2006 with eFACTS. Based on the findings of these evaluations, OSM made several recommendations to improve the accuracy of information. These recommendations can be found in the detailed report available in the OSM Harrisburg Office.

C. Customer Service

OSM Directive REG-8, Oversight of State Regulatory Programs, requires a yearly evaluation of a component of PADEP's program that addresses public interaction in the regulatory process. This year, public notification and opportunity for comment on bond release applications, was selected for review. Pennsylvania received 143 bond release applications during the evaluation period. A representative sample review was conducted at the PADEP district mining offices. The review consisted of an examination of the bond release application files to ensure that all pertinent documents such as the proof for the four week successive advertisement of the bond release request in the local newspaper, letters to land owners and other parties of interest informing them of the request for bond release, and site inspection documentation were present in the files. OSM found the required documentation for every bond release application reviewed.

VI. OSM Assistance

A. Technical Assistance

During the past evaluation year, BAMR requested technical assistance from the OSM Harrisburg Office on a variety of AML projects. OSM facilitated BAMR's request by working with them to develop an arrangement that made the staff hydrologist available on a shared time basis. The main focus of this activity was evaluating the current condition and performance of passive treatment systems. However the effort also included work on conceptual treatment designs, reviewing treatment designs, and participation on a review committee for ranking the submittals for a request for proposals.

Since 1997, BAMR's Cambria and Harrisburg offices has constructed over 25 limestone-based passive treatment systems using a combination of bond forfeiture (> $1.6 million), Title IV (> $200K), Appalachian Clean Streams Initiative (> $2.7 million), and 10% set aside (> $3.9 million) monies. The Harrisburg Office OSM staff compiled water monitoring data and visited each site to evaluate the performance and identify the maintenance needs. In May 2006 OSM presented the findings on the 9 systems constructed by the Harrisburg office of BAMR. OSM found that 4 of the systems are working as designed and 5 systems are not working as designed. Of the 5 systems that are not working as designed, 1 system is discharging poor water quality, 1 system is not accepting water, 1 system's siphoning mechanism is dysfunctional, and 2 systems are not discharging water (i.e. leaking). OSM is continuing to work on evaluating the systems designed by the Cambria office and hopes to present findings in the Fall of 2006.

In addition to reviewing constructed passive treatment systems, Harrisburg Office staff also worked with engineers to develop conceptual designs for new passive treatment systems. Assistance was also provided in evaluating AMD treatment options for the Reed, Strattonville, Sandy Run, and Fran sites.

In 2005, BAMR announced they were requesting proposals on innovative in situ and ex situ mine water treatment technologies and on beneficial reuse of mine water on mine lands. Harrisburg Office staff served as a committee member for ranking the proposals. BAMR received over 20 proposals and awarded 8 grants totaling more than 4 million dollars.

B. AMD Inventory Maintenance (Primacy Permits)

PADEP and OSM continued their cooperative approach to the development and maintenance of a statewide inventory of long-term pollutional discharges (AMD Inventory) from sites mined under the Pennsylvania primacy program (after July 30, 1982). The purpose of the inventory is to help determine the magnitude of the potential harm from AMD, to assess the potential for use of passive treatment technologies to address problem sites, to identify the amount of bond available to treat the discharges and to estimate the cost to abate the pollution. During the evaluation year OSM inspectors collected water quality and quantity data on 24 discharges contained in the inventory. The additional information helps to verify and improve the quality of the data. PADEP and OSM also continued to improve the AMD inventory. The PADEP AMD Inventory sites were incorporated, with the OSM MDI. This action resulted in the AMD inventory listing 291 permits with a total of 350 AMD discharges. Included in this number was new information for 17 permits and 20 discharges submitted by PADEP. Also, 21 discharges were removed from the AMD inventory, including seven pre-primacy permits, five discharges that meet effluent limits, three alleged discharges that were private water supply complaints, two sites that only had sediment pond breaches, two sites that were bond released permits because the small seeps did not leave the permit area, and two sites that did not have a discharge associated with them. To date, 122 permits and 136 AMD discharges have been inspected by the PADEP and OSM and the hydrologic information has been updated in the AMD inventory. OSM and PADEP will continue to refine the database by collecting additional water quality and quantity data during the next evaluation year.

C. AML/AMD Treatment Systems GIS and Information Data Base

This will enable OSM to conduct geographic and other analysis of state and federally funded AMD abatement activities in the state. The data will also be available to PADEP, the other funding agencies and watershed groups for planning and decision making purposes.

The number of passive AMD treatment systems installed in Pennsylvania to remediate the effects of abandoned mine drainage in streams is rapidly growing. Treatment systems are being funded and/or installed by or under the supervision of PADEP's BAMR, DMO, County Conservation Districts, local governments and non-profit organizations. In addition, the Natural Resources Conservation Service (NRCS) constructs AMD treatment systems. Pennsylvania's Growing Greener Program provides significant funding to PADEP and numerous local municipalities and watershed groups for the construction of AMD treatment facilities. OSM's WCAP also provides direct assistance to watershed groups for AMD remediation. There are numerous foundations, conservancies and other organizations providing funding for AMD treatment facilities. Because of the large numbers of entities involved in the funding, construction and operation/maintenance of these systems, no one agency or organization had

compiled a complete list of basic GIS information on the projects. However, there is general consensus on the need for one data base of all passive treatment projects.

In 2003, OSM and PADEP agreed to collaborate on developing a GIS data base of all AMD remediation projects for AML and bond forfeited projects statewide. The data base was completed in 2005 and announced to potential users. In 2006, the data base was upgraded to include additional treatment technologies, and funding contributed by the various agencies. Also, the data base has been expanded to include projects in Ohio, West Virginia and Maryland. There have been several requests for the data base and information summaries from the data.

This data base can provide extensive information to a variety of users from those interested in the number, location, cost and types of treatment systems installed in a particular water shed, up to individuals and agencies seeking information on which to base state wide funding allocation decisions. Individuals seeking information for studies of the effectiveness of certain types of treatment technologies can use the data base to identify locations. Agencies seeking information on the numbers and costs of projects can use the data base. The Fox Pro data base has the ability to generate and number of reports summarizing information on a large number of fields, and with the right software, project locations can be displayed on a variety of maps, including topographic maps.

Sites included in the GIS are those funded by the Appalachian Clean Streams Program (ACSP) through PADEP's Title IV AML grant, and those funded by OSM's Watershed Cooperative Assistance Program (WCAP) in direct grants to watershed groups. In addition the GIS captures data on remediation sites funded through other State and Federal programs such as Growing Greener, NRCS – PL 566, and EPA's 319 program. Data collected at the project sites includes the water quality and quantity of the discharges, and the quality of the treated water. Spatial data is gathered by GPS readings taken at the discharge locations. Additional information collected includes the name and address of the organization responsible for maintenance of the system, a description of the treatment technology, observations on the effectiveness of the system and the total capital cost of the project.

Through June 30, 2006, approximately 240 individual passive treatment project sites have been entered into the Pennsylvania GIS data base. These projects have a total capital investment of over 50 million dollars. It is noted that there are often multiple treatment systems at each project site, and the data base contains information on the type and number of treatment systems associated with each project. Information on projects is collected from a wide range of sources including consultants, State and Federal agencies, conservation districts, and non-profit watershed groups.

The data base will continue to be updated as new AMD treatment projects are constructed, or as existing treatment systems are modified or rehabilitated. OSM will continue to be responsible for maintaining the data base and at least once a year, will solicit information on new and existing projects. The Growing Greener data base will also be cross referenced for new projects. OSM will continue to respond to requests for information from the data base. In addition, web access, through OSM's Appalachian Region home page is anticipated by the Fall of 2006.

D. Appalachian Clean Streams Program

In 1994, OSM determined that additional effort was needed to help focus Federal attention on pollution of the nation's rivers and streams by drainage from abandoned coal mines. There are 7,500 miles of streams known to be impacted by abandoned coal mine drainage in Appalachia, with Pennsylvania, West Virginia, Ohio, Maryland and Virginia having the majority. Pennsylvania alone has 3,500 miles of impacted streams from hundreds of abandoned surface and underground coal mine discharges. As watershed assessments are completed, the number of stream miles impacted by abandoned mine drainage in Pennsylvania is expected to rise.

To help address this significant problem, OSM created the ACSP and receives Congressional funding authority in appropriations from the AML Fund that are directed to participating states for mine drainage remediation projects. Selected projects emphasize Federal/State/local partnerships to treat coal mine drainage in watersheds. The allocation is budgeted against the Federal share of the AML Fund. The thirteen States participating in the program receive a share of the yearly clean streams allocation, based on their adjusted historical coal mined percentage, with a minimum of $120,000.

Through the ACSP, OSM provides financial and program assistance to PADEP. Awards granted through fiscal year 2006 total $16.3 million. In Fiscal Year 2006, PADEP received $948,777 in ACSP funds as a part of its Abandoned Mine Land Program Grant. Fifty-Seven AMD remediation projects have been identified by PADEP for funding using these ACSP funds and 26 projects have been completed, 13 are under construction and 18 are in design. The OSM routinely consults with PADEP regarding the ACSP projects selected to help assure they meet the guidelines of the program, and to identify the contributions of other funding and non-funding partners. The OSM technical staff are often asked for input regarding which treatment technologies will have the greatest likelihood of success in treating individual AMD sites.

One of the goals of the ACSP is to foster partnerships in watershed restoration. This is in recognition of the enormity of the problem and the value of partnerships, and local "grass roots" support in implementing and maintaining successful treatment projects. PADEP provides significant financial, program and technical support, as well as public recognition to watershed groups in building local interest in watershed restoration. PADEP also works closely with other Federal and State agencies in partnerships to leverage funds to address mine drainage problems.

PADEP seeks involvement from local watershed groups in developing projects. Watershed groups provide an invaluable service in generating local support, helping secure land owner cooperation, collecting water samples, and generally keeping an eye on the treatment systems to discourage vandalism, perform routine maintenance and notify PADEP of any problems.

Boswell ACSP AMD Remediation Project

In what should be the most definitive test of the success of a mine drainage treatment system, about 3,000 trout were successfully stocked in April 2005, in a four mile section of Quemahoning Creek downstream from a recently completed project known as the Boswell project. This segment of stream has not been fished for almost 100 years. The discharge is from underground coal mining operations that were conducted from 1909 until 1946. The result was pollution of Quemahoning Creek and destruction of aquatic habitat. The discharge, which is a large flow, net alkaline, and high iron loading problem, flowed through an AMD wetland several acres in size before entering Quemahoning Creek. However, the wetland was only able to remove a small percentage of the iron. The project enhanced and expanded the wetland, thus increasing the retention time of the water and allowing more effective precipitation of the iron. The project also separated good quality water in a local tributary, Beaverdam Creek, from the discharge, therefore reducing the volume of water passing through the wetland. The most current information shows the system is successfully treating about 1,600 gallons per minute by reducing the iron dissolved in the water from about 23 milligrams per liter to about 1 milligram per liter.

Treatment Wetland

Final Treatment Discharge

This project represents a collaboration of efforts between OSM, the Pennsylvania Department of Environmental Protection (PADEP), the Southern Alleghenies Conservancy, Somerset County Conservation District, local sportsmen's clubs who purchased the property, and Reliant Energy, that made a cash contribution. OSM contributed funds from its Watershed Cooperative Agreement Program (WCAP) and PADEP contributed funds from its Title IV AML grant, Appalachian Clean Streams Program (ACSP). The total cost of the project was about 1 million dollars. The Boswell project had an added element of the protection of a threatened plant species known as the Purple Fringeless Orchid. The plants were located and then relocated to an approved habitat about 100 feet from their previous location.

The Boswell project involves the treatment of the largest discharge on Quemahoning Creek. However, it is also part of a broader effort to improve water quality in the watershed including the completion of the Jenners AMD project 8 years ago (one of the original ACSP projects, now being rehabilitated), stream bank improvement projects, and implementation of best management farming practices to reduce sediment and nutrient loading. The Quemahoning Reservoir, a large publically owned water body four miles downstream from Boswell is also realizing improvements in water quality, enhancing its uses for recreation and as a public water supply.

E. Watershed Cooperative Agreement Program

There has been a significant growth of watershed protection and restoration groups in the Appalachian Region in the past decade, in large part responding to increasing financial and technical support provided by Federal and State agencies. Pennsylvania now has dozens of active watershed groups dedicated to the remediation of mine drainage problems, and PADEP is providing significant staff support, often funded by grants from the Abandoned Mine Fund, and project funding through the Growing Greener Program.

In 1999, OSM established the Watershed Cooperative Agreement Program (WCAP), funded under the Appalachian Clean Streams Program (ACSP). To date, 67 WCAP grants have been awarded to Pennsylvania non-profit watershed groups for a total of $6.3 million. Total costs for these projects including all partner cash and in-kind donations of labor and services are $26.6 million. In total, OSM's contribution to the projects averages about 24 percent. Sixty-two of the projects have been awarded to construct passive treatment systems with most projects involving more than one treatment system. Two projects are for land reclamation to reduce or eliminate a source of mine drainage. Three projects are for active treatment of mine water. Fifty-five projects have been completed. In the evaluative year, there were 4 new project grants awarded for a total of $297,525. PADEP is frequently involved as a primary partner in these direct assistance grants, either providing funding and or technical assistance, and OSM Harrisburg Office staff coordinates with PADEP to help assure the successful completion of the projects. Funds provided by OSM complete the remediation budget, and OSM has noted a large number of financial assistance referrals from the Growing Greener program. Other financial partners involved in WCAP projects include the NRCS, Environmental Protection Agency, the Eastern and Western Pennsylvania Coalitions for Abandoned Mine Reclamation, the U.S. Army Corps of Engineers (COE), and numerous foundations, conservancies, watershed groups, industries and coal mining companies, and individuals. Because of the partnership nature of the WCAP, the OSM Harrisburg Office is routinely involved in meetings and site visits with watershed groups, PADEP and other project partners, helping to coordinate the technical and programmatic aspects, and to resolve issues. The OSM has dedicated a significant amount of staff resources in administering this program, and is providing an increasing amount of technical help to watershed groups seeking the best available technology to remediate their mine drainage problems.

In 2005 OSM initiated a performance review of the completed WCAP projects. To date 26 completed passive treatment projects have been evaluated for performance. In conducting this site evaluation of the success of the WCAP projects completed, OSM accomplishes several objectives. Through this review, OSM is able to evaluate the success of a wide variety of mine

drainage treatment designs and technologies as used in numerous locations, with different water flows and chemistries. This information will help people make more informed decisions in the future and will help OSM make better decisions where to allocate its limited financial resources in the WCAP. OSM evaluates the system performance, and identifies operation and maintenance needs and provides advice and guidance to the parties responsible for maintenance of the projects. Often the watershed groups have a very limited understanding of what should be happening with the treatment systems and have little or no human or financial resources to monitor performance.

Audenreid Mine Drainage Tunnel AMD Treatment Project Dedication

On June 17, 2006, a project dedication ceremony was conducted at the site of the Audenreid mine drainage tunnel. A large audience of project partners and interested guests were provided a tour of the AMD treatment project and participated in the ceremony. The Audenreid Mine Discharge Tunnel flows at a rate of between 8 and 14 thousand gallons per minute and contributes 84% of the total acidity loading in the Catawissa Creek. Catawissa Creek is in a beautiful rural mountain setting and has the potential to become a major recreational resource. About 35 miles of aquatic stream habitat is effectively killed by the dissolved aluminum in the water (5 to 6 mgl). To construct the project, the funding partners contributed about 2 million dollars, with EPA's Section 319 program (administered by Pennsylvania DEP) providing the largest single source. The Office of Surface Mining's Watershed Cooperative Agreement Program provided $150,000, and BAMR provided $100,000 from the Title IV ACSP Grant

Treatment System at Audenreid

This project handles more mine water than any other passive treatment system in Pennsylvania. The treatment system consists of three very large circular concrete holding tanks filled with limestone. The mine water is piped into the bottom of the tanks. When a pre-set water level is reached, automatic siphons are activitated and the water is discharged into two settling ponds.

Siphon operation is being supplemented by manual flushing of the systems while performance issues are corrected. It is hoped that frequent flushing of the system will help prevent excessive buildup of aluminum in the limestone. The Caribbean blue color of the settling ponds is testimony to the effectiveness of the system in precipitating the dissolved aluminum. As long as the pH of the treated water can be maintained at a level above 5.5, there is will be no dissolved aluminum leaving the system. Although the creek below the treatment system discharge is milky white with suspended aluminum, the monitoring point one mile downstream shows a marked improvement in water quality (pH of 5 and dissolved aluminum of 1 mgl). Although 1mgl of dissolved Al is still toxic to fish, further downstream, the Al is totally assimilated by the creek, and there are recent reports of native brook trout being caught in segments of the Catawissa Creek that have been biologically dead since the 1930s. OSM, the Pennsylvania DEP and the Schuylkill County Conservation District are actively monitoring system performance and water quality to help identify problems and prolong the effectiveness of the treatment system.

Boggs Road AMD Treatment Project Dedication

On September 30, 2005, the Montour Run Watershed Association dedicated its first AMD passive treatment project. Montour Run watershed is located in western Allegheny County, Pennsylvania, within and around lands owned by the Greater Pittsburgh Airport Authority. The Boggs Road project is located near the headwaters. The discharge, which originates in the spoil of an abandoned coal mine refuse pile, is pH 7, has an average flow of 28 gpm, and a dissolved iron concentration of 17 mg/l. Because the mine water is net alkaline, that is the total alkalinity exceeds total acidity, treatment is relatively simple and consists of a series of aerobic wetlands and settling ponds.

Funding for project construction includes a Growing Greener grant from the Pennsylvania Department of Environmental Protection in the amount of $47,766, and a Watershed Cooperative Agreement from the Office of Surface Mining in the amount of $54,000. Other significant partners include the property owners, who made several acres available for the project, Imperial Land Corporation, which is an adjacent landfill operation and provided access to construction equipment. Stream Restoration Inc. provided design and construction monitoring services, and also contributed in-kind donations of labor and materials.

Boggs Road project during construction

Initial water sampling results are very encouraging. The total iron concentration has been reduced from 17 mg/l to less than one mg/l. This project will restore the aquatic habitat of 2.5 miles of Montour Run and improve the water quality of 12.5 of stream. The settling ponds have been designed to facilitate the removal of iron precipitate. There is another AMD project under construction in the watershed, and others are in the planning stages. Montour Run is in an area of Allegheny County that is rapidly increasing in population, and could become a major recreational resource in the greater Pittsburgh area. Bike/hike trails have already been installed along sections of Montour Run, and Montour Run is designated for trout stocking once the water quality has reached acceptable levels.

F. Dents Run Watershed Restoration Project

Over the past five years, the BAMR has, in partnership with the U.S. Army Corps of Engineers (COE), been working with the Bennett Branch Watershed Association, the Pennsylvania Game Commission, the PA Bureau of Forestry, the Rocky Mountain Elk Foundation, the Western Pennsylvania Conservancy, and a local mining company, P&N Coal Company to reclaim abandoned mine lands and address mine discharges in the Dents Run watershed in Elk County, Pennsylvania. In 2001, the COE completed their planning, issued a final environmental impact statement (EIS) and prepared to contribute up to $5 million towards reclamation and water treatment. For their part, BAMR proposed contributing approximately $2.7 million in funding.

Over the last several years, BAMR completed portions of the reclamation, however, the COE has experienced funding and design delays. To provide BAMR with the flexibility to take over responsibility for portions of the COE proposed work, OSM implemented a little used provision of the National Environmental Policy Act (NEPA) to adopt the environmental review and findings of COE. The adoption allowed OSM to accelerate the environmental review process and authorize BAMR reclamation on all Title IV portions of the project.

To implement the adoption process, OSM conducted a review of the project sites, coordinated with the Environmental Protection Agency and re-circulated the EIS to approximately 40 agencies, organizations, and individuals. OSM addressed public comments and prepared the required decision documents. BAMR staff provided significant assistance in the OSM adoption process by providing site status information and copies of the original COE EIS in printed and electronic format. The adoption was completed in June 2006 with the issuance of a Record of Decision by OSM.

VII. General Oversight Topic Reviews

Each year the OSM, in consultation with PADEP, develops an oversight work plan, as required by the OSM Directive REG-8, Oversight of State Regulatory Programs. This plan includes various aspects of Pennsylvania's approved coal regulatory and Title IV AML programs that OSM will evaluate for effectiveness, innovation, and compliance. OSM's oversight is not process driven. It focuses on the on-the-ground/end result success of Pennsylvania's program in achieving the purposes of SMCRA. A review team is established for each topic and a team leader is designated. PADEP is invited to appoint team members, and in some cases joint OSM/PADEP team leaders are designated. At the conclusion of the evaluation, a report is written and provided to PADEP for comment prior to finalization. Copies of the reports are maintained in the public evaluation file located in the OSM Harrisburg Office.

Several evaluation studies have been discussed earlier in this report and are not repeated here. A short summary and results of each remaining study follows.

A. Oversight Inspections

The oversight inspection study is conducted to fulfill responsibilities as specified in OSM's Oversight policy REG-8, regarding review of PADEP's permitting and inspection program for surface coal mining operations. This study includes reviews of applicable mine permit files and on-site inspections focused on identification of off site impacts resulting from various mining activities. Inspections are documented using OSM's Mine Site Evaluation and addendum forms. Inspection data is entered into a national data base. Specifically, this study provides monitoring capability for the entire spectrum of State program operations and gives an up-to-date perspective of the on-the-ground successes of Pennsylvania's mining program. In addition, data was collected in support of other studies identified in the 2006 Work Plan specific evaluating reclamation success and off site impacts.

OSM conducted a total of 276 inspections during the evaluation year. Of those inspections, 133 were oversight complete inspections of mine sites. The other 143 inspections were in support of other oversight work plan evaluations, initial Government Financed Construction Contract (GFCC) inspections, and responses to citizen complaints, Ten-Day Notices, and follow-up inspections. The data was used to determine the number of sites in full compliance. The study found the PADEP inspection program continues to do an effective job in achieving and maintaining on-the-ground compliance and minimizing the potential for off site impacts. Of the total 133 oversight complete permit inspections conducted for this study, 108 (81%) of the sites

were found in full compliance. There were a total of 40 violations noted on the 25 permits with violations. One permit had 8 violations noted and one permit had 4 violations noted. All violations were either previously cited or abated during the inspection, or were ones where the PADEP inspector agreed to take action. This compliance percentage is a slight regression from last evaluative year's 87 percent compliance rate, but is very consistent over the past few years.

B. Bond Forfeiture Program Transfer

On July 1, 2004, responsibility for reclamation of primacy bond forfeited permits was transferred from BAMR, to DMO. The primary reason for the transfer of the program was to realize efficiencies and reclamation cost savings by having the program in the same office responsible for issuance of the permit and permit inspection prior to forfeiture. DMO staff, with a familiarity of the permit and its condition at forfeiture, would be in an advantageous position when determining what activities are needed to complete the mine reclamation plan. Essentially, the inspector with responsibility to monitor the active permit will also be responsible for assuring reclamation of the site should the permit be forfeited. This knowledge of the permit and cradle to grave approach is expected to result in more timely reclamation of bond forfeited sites. Also, reclamation is expected to be less costly, again because of the familiarity of the DMO staff with the site and reclamation plan at forfeiture. Another anticipated benefit of the cradle to grave approach is that the inspector should become more diligent in assuring contemporaneous reclamation if she/he knows that they will also be responsible for any bond forfeiture reclamation required.

When the program was transferred, DMO received a list of unreclaimed primacy forfeitures from BAMR. That list was assessed and the permits were placed in six priorities. DMO advised OSM that the top three priorities included 41 permits. These priorities include permits needing land reclamation (priority 1); discharges with increased pollution; and water supply replacement permits. The DMO's original goal to have these 41 identified bond forfeited permits resolved within three years. Thus, with the writing of this report, two years have passed.

This year's oversight focused on the data base accuracy and determination as to the progress being made in reclamation of the transferred primacy bond forfeited permits. To accomplish this objective, the Director of DMO provided the forfeiture data base to OSM and asked that OSM work with the individual District Offices to get updates on the status of the permits. Each District Office was provided the data base and asked to include additional information and updates. The updated data base was sent back out to DMO.

DMO had initially ranked 41 permits as priority 1, 2, or 3, and set a goal to have these 41 permits addressed within 3 years. As of June 30, 2006, two years have passed and at least 10 priority 1, 2, or 3 permits have been reclaimed. In addition, 29 lower priority permits have been addressed through a variety of methods including BAMR, Act 181, and surety reclamation, and re-permitting. OSM review finds that DMO is making progress in resolving the bond forfeited permits transferred from BAMR, but that program implementation has taken longer than originally expected due to work load, system development and staff adjustments. OSM will continue to monitor this activity in the coming year.

C. Abandoned Mine Lands Project Reviews

OSM conducts site reviews of AML projects to understand how PADEP controls the reclamation process and to determine whether the program is meeting stated goals and objectives. During the evaluation year, the Harrisburg office conducted 34 site visits to approved AML projects during various phases of completion. When possible, site visits were coordinated with BAMR which is offered the opportunity to accompany OSM during the review. OSM gathered information on site status, BAMR monitoring, overall project success, and the existence of actual or potential problems. The site visits conducted by OSM included 16 construction phase reviews, 11 final inspection phase reviews, and 7 post-completion phase reviews. Two site reviews by OSM have raised questions concerning the accuracy of environmental assessment documents developed by BAMR in support of the authorization to proceed. OSM will be evaluating these and similar projects in the EY2007 review period. Overall, OSM construction, final, and post-final reviews confirm that BAMR successfully manages the AML project reclamation process. BAMR develops effective designs and monitors contractor performance to ensure that the projects meet the goals and objectives of the AML program.

D. Abandoned Mine Lands Inventory Review

This review was conducted to confirm the existence of support information in BAMR project files that verify the units and costs entered into the OSM Abandoned Mine Lands Information System (AMLIS). This review is preformed annually, and is conducted to address findings by the U.S. Department of the Interior Office of Inspector General (OIG) that the OSM AMLIS system contained errors. The first OSM review, conducted in evaluation year 2004, concluded that Pennsylvania has a system in place that should provide for the entry of accurate information into AMLIS. To determine whether the existing system is being implemented successfully, this annual study reviewed inventory sites where changes to the AMLIS database were made during the last year.

The reviews were conducted in each of the BAMR office locations - Wilkes-Barre, Ebensburg, and Harrisburg. To verify that information exists for the data entered into AMLIS, this study reviewed project files for written documentation of feature numbers and costs. Written documentation is considered to be copies of PAD forms, project completion reports, engineer estimates or other BAMR documents that included discussions or costs that specifically confirmed the AMLIS entries.

E. Use of Conventional Bonds and Treatment Trust Funds for long term treatment

PADEP continued to negotiate and implement Trust Funds and Conventional Bonds for the perpetual treatment of primacy permits with post mining discharges. PADEP uses AMDTreat, and/or actual water treatment cost data the coal company or a third party provides, as instruments to aid in the establishment of the bond or treatment trust funds amount. There are other factors such as the trust's life span, market rate, and administration costs that are also taken into consideration for establishing trust fund accounts.

PADEP has developed a database type instrument to track the operators and facilities that require

pollutional discharge bonding. This Treatment Trusts database is sectioned by district office and agreement status to track pollutional discharge agreements. Offices identified are California, Cambria, District Mining, Greensburg, Knox, Moshannon, and Pottsville. Agreement status includes: not started, data collection in progress, initial calculations are completed, negotiations are ongoing, agreement has been reached, and Trust/Bond is finalized. Included in the database are pre-primacy and non-coal permits along with primacy coal mining permits.

To date, PADEP is tracking information and data on 109 primacy discharge agreements. The 109 primacy discharge agreements will address 211 discharges. Agreements are in various stages of execution. They are:

- Not started – 7
- Data collection in progress – 19
- Initial calculations are completed – 15
- Negotiations are ongoing – 24
- Agreement has been reached – 10
- Trust/Bond is finalized – 34

Of the 34 finalized agreements, 17 are conventionally bonded and 17 are treatment trusts accounts. The 17 discharges conventionally bonded total $74,882,583. The 17 discharges under treatment trust funds represent a current value of $73,320,711. Six of the 17 treatment trusts accounts are partially funded. Funding is being tracked with the Pennsylvania's eFACTS. A quarterly report is generated by the district offices to track, maintain, and administer the partially funded accounts.

Conclusion

This evaluation year, the OSM Harrisburg Office conducted a comprehensive review of the Pennsylvania approved coal regulatory and abandoned mine reclamation programs, including 14 topical areas of evaluation, technical assistance, or study. Oversight data and studies indicate that the Pennsylvania Program continues to be effective in meeting the regulatory and reclamation goals of SMCRA. In support of this finding, OSM conducted 276 permit inspections including 133 randomly selected inspections, and 34 abandoned mine reclamation project inspections. PADEP is conducting a program where active mining sites are, with very few exceptions, in compliance with the approved regulatory program. Very few off site impacts were noted. Reclamation proceeds in a successful and contemporaneous fashion. Abandoned mine reclamation projects result in successful hazard elimination and environmental stabilization and enhancement. Of particular note this year is PADEP's issuance of the technical guidance document *Surface Water Protection - Underground Bituminous Coal Mining Operations*. OSM also recognizes PADEP's modification of eFACTS to collect information regarding off-site impacts and acres reclaimed to Stage I, II, and III standards. This allows data for Tables 4 and 5 in this report to be generated in a verifiable manner to more effectively document program performance.

PADEP recognizes the impact mine drainage from abandoned and bond forfeited sources has on Commonwealth streams, and continues to dedicate significant staff and financial resources to

developing long-term treatment options through trust agreements, and bonding, constructing mine drainage treatment systems, supporting watershed groups in their clean-up efforts, and advancing treatment technologies to help maximize their effectiveness. In addition, Pennsylvania's regulatory programs are designed to minimize impacts to surface and ground water, and water supplies. In support of these efforts, PADEP awarded 8 contracts totaling $4,075,009 for projects advancing the technology of treating coal mine drainage and use of the sludges, and the use of mine pool water for commercial and industrial purposes. Also, PADEP continues to move forward in addressing ABS bond forfeited permits with discharges. OSM fully supports PADEP in these initiatives, and provides significant staff resources dedicated to addressing AMD issues affecting Pennsylvania.

APPENDIX A

Acronyms used in this Report

ABS	Alternative Bonding System
ACSP	Appalachian Clean Streams Program
AMD	Acid Mine Drainage (Relates to all mining related pollutional discharges)
AML	Abandoned Mine Lands
AMLIS	Abandoned Mine Land Inventory System
BAMR	Bureau of Abandoned Mine Reclamation
BMR	Bureau of Mining and Reclamation
CAC	Citizens Advisory Council
CBS	Conventional Bonding System
CO&A	Consent Order and Agreement
COE	U.S. Army Corps of Engineers
DCED	Department of Community and Economic Development
DMO	Bureau of District Mining Operations
eFACTS	Environment Facility Application Compliance Tracking System
EHB	Environmental Hearing Board
EQB	Environmental Quality Board
GFCC	Government Financed Construction Contract
GPRA	Government Performance Results Act
HUP	Hydrologic Unit Plan
MRAB	Mining and Reclamation Advisory Board
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
OSM	Office of Surface Mining Reclamation and Enforcement
PADEP	Pennsylvania Department of Environmental Protection
PASMCRA	Pennsylvania Surface Mining Conservation and Reclamation Act
PFD	Pittsburgh Field Division
SMCRA	Surface Mining Control and Reclamation Act of 1977
TMDL	Total Maximum Daily Load
WCAP	Watershed Cooperative Assistance Program

APPENDIX B

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

These tables present data pertinent to mining operations, State and Federal regulatory activities within Pennsylvania. They also summarize funding provided by OSM and Pennsylvania staffing. Unless otherwise specified, the reporting period for the data contained in all tables is the 2005 evaluation year (July 1, 2004 - June 30, 2005). Additional data used by OSM in its evaluation of Pennsylvania's performance is available for review in the evaluation files maintained by the Harrisburg Field Office.

TABLE 1

COAL PRODUCTION (Millions of short tons)			
Period	**Surface mines**	**Underground mines**	**Total**
Coal production[A] for entire State:			
Annual Period			
2003	11.800	53.100	**64.900**
2004	17.300	51.600	**68.900**
2005	12.900	56.300	**69.200**

A Coal production as reported in this table is the gross tonnage which includes coal that is sold, used or transferred as reported to OSM by each mining company on form OSM-1 line 8(a). Gross tonnage does not provide for a moisture reduction. OSM verifies tonnage reported through routine auditing of mining companies. This production may vary from that reported by States or other sources due to varying methods of determining and reporting coal production. **Provide production information for the latest three full calendar years to include the last full calendar year for which data is available.**

TABLE 2

INSPECTABLE UNITS
As of June 30, 2006

Coal mines and related facilities	Number and status of permits								Insp. Units[D]	Permitted acreage[A] *(hundreds of acres)*		
	Active or temporarily inactive		Inactive Phase II bond release		Abandoned		Totals					
	IP	PP	IP	PP	IP	PP	IP	PP		IP	PP	Total
STATE AND PRIVATE LANDS REGULATORY AUTHORITY: STATE												
Surface mines	0	808	0	455	0	0	0	1263	1263	0	175,109	175,109
derground mines	0	141	0	34	0	0	0	175	175	0	205,781	205,781
Other facilities	0	315	0	67	0	0	0	382	382	0	36,959	36,959
Subtotals	0	1264	0	556	0	0	0	1820	1820	0	417,849	417,849
FEDERAL LANDS REGULATORY AUTHORITY: STATE												
Surface mines	0	0	0	0	0	0	0	0	0	0	0	0
derground mines	0	0	0	0	0	0	0	0	0	0	0	0
Other facilities	0	0	0	0	0	0	0	0	0	0	0	0
Subtotals	0	0	0	0	0	0	0	0	0	0	0	0
ALL LANDS[B]												
Surface mines	0	808	0	455	0	0	0	1263	1263	0	175,109	175,109
derground mines	0	141	0	34	0	0	0	175	175	0	205,781	205,781
Other facilities	0	315	0	67	0	0	0	382	382	0	36,959	36,959
Totals	0	1264	0	556	0	0	0	1820	1820	0	417,849	417,849

Average number of permits per inspectable unit (excluding exploration sites): 1

Average number of acres per inspectable unit (excluding exploration sites): 229.6

Number of exploration permits on State and private lands: 1 On Federal lands[C]: N/A

Number of exploration notices on State and private lands: 439 On Federal lands[C]: N/A

IP: Initial regulatory program sites

PP: Permanent regulatory program sites

[A] When a unit is located on more than one type of land, include only the acreage located on the indicated type of land.

[B] Numbers of units may not equal the sum of the three preceding categories because a single inspectable unit may include lands in more than one of the preceding categories.

[C] Includes only exploration activities regulated by the State pursuant to a cooperative agreement with OSM or by OSM pursuant to a Federal lands program. Excludes exploration regulated by the Bureau of Land Management.

[D] Inspectable Units includes multiple permits that have been grouped together as one unit for inspection frequency purposes by some State programs.

TABLE 3

STATE PERMITTING ACTIVITY
As of June 30, 2006

Type of Application	Surface mines			Underground mines			Other facilities			Totals		
	App. Rec.	Issued	Acres	App. Rec.	Issued	Acres[A]	App. Rec.	Issued	Acres	App. Rec.	Issued	Acres
New Permits	68	59	7,526	3	2	56	1	3	1,188	72	64	8,770
Renewals	194	177	N/A	20	7	N/A	46	59	N/A	260	243	N/A
Transfers, sales and assignments of permit rights	28	20		1	4		7	7		36	31	
Small operator assistance	30	33		0	0		0	0		30	33	
Exploration permits	0	0		1	1		0	0		1	1	
Exploration notices[B]		439			0			0			439	
Revisions (exclusive of incidental boundary revisions)		91			40			11			142	
Incidental boundary revisions		123	N/A		37	N/A		34	N/A		194	N/A
Totals	**320**	**942**	**7,526**	**25**	**91**	**56**	**54**	**114**	**1,188**	**399**	**1,147**	**8,770**

OPTIONAL - Number of midterm permit reviews completed that are not reported as revisions. | N/A |

[A] Includes only the number of acres of proposed surface disturbance.

[B] State approval not required. Involves removal of less than 250 tons of coal and does not affect lands designated unsuitable for mining.

TABLE 4

OFF-SITE IMPACTS

RESOURCES AFFECTED			People			Land			Water			Structures		
DEGREE OF IMPACT			minor	moderate	major	minor	moderate	major	minor	moderate	major	minor	moderate	major
TYPE OF IMPACT AND TOTAL NUMBER OF EACH TYPE	Blasting	7	0	0	1	1	0	0	1	0	0	1	4	0
	Land Stability	5	0	0	0	1	1	2	1	1	0	0	0	0
	Hydrology	25	0	0	0	0	0	1	20	3	2	0	0	0
	Encroachment	5	0	0	0	5	0	2	1	0	0	0	0	0
	Other	18	3	2	0	4	2	1	1	1	0	0	0	0
	Total	**60**	**3**	**2**	**1**	**11**	**3**	**6**	**24**	**5**	**2**	**1**	**4**	**0**

Total number of inspectable units: 1820

Inspectable units free of off-site impacts: 1760

Refer to the report narrative for complete explanation and evaluation of the information provided by this table.

TABLE 5

ANNUAL STATE MINING AND RECLAMATION RESULTS

Reclaimed phase	Applicable performance standard	Acreage Reclaimed during this evaluation period
Phase I	- Approximate original contour restored - Topsoil or approved alternative replaced	6,035.5
Phase II	- Surface stability - Establishment of vegetation	4,596.9
Phase III	- Post-mining land use/productivity restored - Successful permanent vegetation - Groundwater recharge, quality and quantity restored - Surface water quality and quantity restored	4,393.9
	Bonded Acreage Status[A]	**Acres**
Total number of acres bonded at end of last review period (June 30, 2005)[B]		426,592
Total number of acres bonded during this evaluation year		7,471
Number of acres bonded during this evaluation year that are considered remining, if available		1,417
Number of acres where bond was forfeited during this evaluation year (also report this acreage on Table 6)		4,106

[A] Bonded acreage is considered to approximate and represent the number of acres disturbed by surface coal mining and reclamation operations.

[B] Bonded acres in this category are those that have not received a Phase III or other final bond release (State maintains jurisdiction).

TABLE 6

STATE BOND FORFEITURE ACTIVITY
(Permanent Program Permits)

Bond Forfeiture Reclamation Activity by SRA	Number of Sites	Acres
Sites with bonds forfeited and collected that were unreclaimed as of June 30, 2005 (end of previous evaluation year)[A]	38	4,106
Sites with bonds forfeited and collected during Evaluation Year 2006 (current year)	7	226
Sites with bonds forfeited and collected that were re-permitted during Evaluation Year 2006 (current year)	1	21
Sites with bonds forfeited and collected that were reclaimed during Evaluation Year 2006 (current year)	10	570
Sites with bonds forfeited and collected that were unreclaimed as of June 30, 2006 (end of current year)[A]	262	7,719
Sites with bonds forfeited but uncollected as of June 30, 2006 (end of current year)	13	220
Surety/Other Reclamation (In Lieu of Forfeiture)		
Sites being reclaimed by surety/other party as of June 30, 2005 (end of previous evaluation year)[B]	31	4,394
Sites where surety/other party agreed to do reclamation during Evaluation Year 2006 (current year)	3	59
Sites being reclaimed by surety/other party that were re-permitted during Evaluation Year 2006 (current year)	1	47
Sites with reclamation completed by surety/other party during Evaluation Year 2006 (current year)[C]	1	14
Sites being reclaimed by surety/other party as of June 30, 2006 (current evaluation year) [B]	40	3,279

[A] Includes data only for those forfeiture sites not fully reclaimed as of this date

[B] Includes all sites where surety or other party has agreed to complete reclamation and site is not fully reclaimed as of this date

[C] This number also is reported in Table 5 as Phase III bond release has been granted on these sites

TABLE 7

STATE STAFFING
(Full-time equivalents at the end of Evaluation Year 2006)

Function	EY 2006
Regulatory Program	
Permit review	46.60
Inspection	85.00
Other (administrative, fiscal, personnel, etc.)	111.40
Regulatory Program Total	**243.00**
AML Program Total	116.00
TOTAL	**359.00**

TABLE 8

FUNDS GRANTED TO PENNSYLVANIA BY OSM

(Millions of dollars)

EY 2006

Type of Grant	Federal Funds Awarded	Federal Funding as a Percentage of Total Program Costs
Administration and Enforcement	10.4	50%
Small Operator Assistance	0.79	100%
Totals	**$11.19**	

TABLE 9

STATE INSPECTION ACTIVITY

PERIOD: JULY 1, 2005 - JUNE 30, 2006

Inspectable Unit Status	Number of Inspections Conducted	
	Complete	**Partial**
Active*	4,237	7,343
Inactive*	2,458	1,840
Abandoned*	0	0
Total	**6,695**	**9,183**
Exploration	**85**	**46**

* Use terms as defined by the approved State program.

State should provide inspection data to OSM annually, at a minimum, and maintain inspection data on a continual basis. OSM offices responsible for Federal and Indian Programs need not complete this table since data will be queried from the I & E Tracking System.

TABLE 10

STATE ENFORCEMENT ACTIVITY

PERIOD: JULY 1, 2005 - JUNE 30, 2006

Type of Enforcement Action	Number of Actions*	Number of Violations*
Notice of Violation	592	724
Failure-to-Abate Cessation Order	9	10
Imminent Harm Cessation Order	17	26

* Do not include those violations that were vacated.

State should provide enforcement data to OSM annually, at a minimum, and maintain data on a continuous basis. OSM offices responsible for Federal and Indian Programs need not complete this table since data will be queried from the I & E Tracking System.

TABLE 11

LANDS UNSUITABLE ACTIVITY

PERIOD: JULY 1, 2005 - JUNE 30, 2006

Number of Petitions Received	0		
Number of Petitions Accepted	0		
Number of Petitions Rejected	0		
Number of Decisions Declaring Lands Unsuitable	0	Acreage Declared as Being Unsuitable	0
Number of Decisions Denying Lands Unsuitable	0	Acreage Denied as Being Unsuitable	0

State should provide lands unsuitable data to OSM annually if there is any activity in this program area. OSM OFFICES RESPONSIBLE FOR FEDERAL AND INDIAN PROGRAM STATES MUST ALSO COMPLETE THIS TABLE.