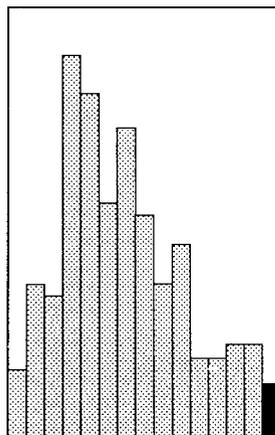


5. TECHNICAL ASSISTANCE

RESEARCH



Number of Research Projects Funded 1978-92

OSM conducts research studies to find ways to help mine operators and state and federal regulators do a better job of handling the everyday problems associated with implementing SMCRA. Such short-term research studies are directly related to the implementation of Title V regulations affecting active mining operations and provide practical answers to specific problems. In 1992, OSM research funding totaled \$505,166. These research funds were provided

to universities and to other federal agencies. Research funds were provided to universities in support of the following projects:

- Evaluation of the Biotic Potential of Microorganisms and Higher Plants to Enhance the Quality of Constructed Wetlands;
- Investigations and Assessment of Aquifer Response to Longwall Mining, Illinois;
- Constructed Vertical Flow Aerated Wetlands; and
- Optimizing Wetlands Creation on Coal Mined Lands.

Additionally, research funds were provided to the U.S. Geological Survey, the Bureau of Mines, and OSM's Eastern Support Center to conduct research on the effects of blasting on nearby structures. Research monies were also provided to support a cooperative reclamation research project involving OSM, the government of India, and Pennsylvania State University.

Seven research projects were completed during 1992.

TECHNOLOGY TRANSFER

OSM published five issues of its reclamation technology newsletter, *RecTec*, during 1992. *RecTec* provided current information on meetings, papers, and publications covering ground water, risk assessment and bonding, impoundments and dam safety, wetlands, and new surface mining reclamation-related publications.

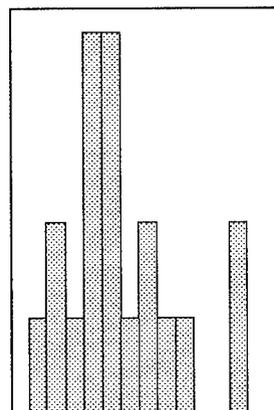
OSM participates in the Technology Transfer Program sponsored by the National Technical Information Service (NTIS). To date, OSM has transferred 249 technical

reports and related abstracts to NTIS for dissemination to the public. Six reports resulting from research under Title V of the Act were transferred to NTIS during 1992.

Additionally, a water database management system for application to the Western United States was developed and has been provided to the Wyoming Department of Environmental Quality.

Other forms of technology transfer include OSM's sponsorship of the Billings Symposium on mining and reclamation, which is conducted every other year, and direct assistance to state regulatory authorities by OSM's Eastern Support Center in Pittsburgh and OSM's Western Support Center in Denver.

EXPERIMENTAL PRACTICES



Experimental Practices Started 1978-92

Section 711 of SMCRA allows alternative mining and reclamation practices that do not comply with Sections 515 and 516 performance standards as a way of encouraging advances in mining technology or to allow innovative industrial, commercial, residential, or public post-mining land uses. However, the experimental practices must meet all other standards established by SMCRA and must maintain protection of the environment and the public. Approval and monitoring of a permit containing an experimental practice results in a close working relationship between the mine operator, the state, and OSM.

In 1992, the experimental practices directive was updated to encourage close federal, state, and industry cooperation and to streamline the OSM review process. In addition to nine on-going projects, four new experimental practices were under review. No projects completed during 1992.

INDIA PROJECT

In 1984, through the United States-India Fund, OSM received the equivalent of \$420,000 from the government of India for mining and reclamation technology transfer. Working directly with the Indian government, OSM planned three research projects and signed contracts to begin the work. The ongoing projects are:

- A conceptual environmental management plan for the Jharia Coal Field, including reclamation of existing

unreclaimed lands which have been in operation for approximately 100 years.

- A conceptual environmental management plan for the Singrauli Coal Field. This project will result in the development of contemporaneous reclamation standards for a relatively new coal field.
- An environmental model for water quality resulting in treatment facilities for improved water quality in the Jharia Coal Field. The U.S. Environmental Protection Agency is assisting with this project.

In 1992, data gathering efforts by Indian scientists were performed under these three projects.

In addition, a new project was approved by the government of India titled "Reclamation, Revegetation, Land Use Planning and Environmental Protection of Large Scale Continuous Surface Mining in a Complex Ground Water Hydrologic Regime" was approved by the government of India. This project is a collaborative effort between OSM and the Pennsylvania State University, Neyveli Lignite Corporation, Ltd., and the government of India. The three tasks included in the project are mine planning and design; reclamation, revegetation, and environmental protection; and the development of techniques for ground water management.

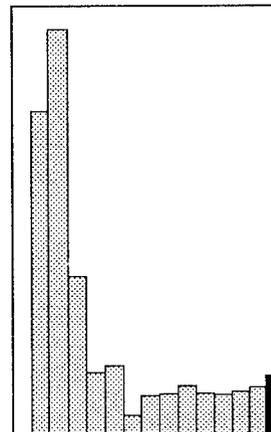
During 1993, OSM will continue assistance to the government of India on these projects.

TECHNICAL TRAINING

In 1992 nationwide training continued for federal, state, and private surface coal mining regulatory and reclamation personnel. The 17 courses offered in 1992 included Acid-Forming Materials Workshop, Administration of Reclamation Projects, Applied Hydrology, Basic Inspection Workbook, Blasting and Inspection, Bonding Workshop, Enforcement Procedures, Engineering Principles for Program Personnel, Evidence Preparation and Testimony, Historical and Archeological Resources, Instructor Training Course, NEPA Procedures, Principles of Inspection, Soils and Revegetation, Spoil Handling and Disposal Practices, Surface and Groundwater Hydrology, Technical Writing, and Underground Mining Technology.

There were 1,145 participants in attendance at 54 training sessions during 1992. Participation by state and tribal personnel totaled 69 percent of program attendance, while federal and private attendance increased from 29 percent in 1991 to 31 percent in 1992.

SMALL-MINE OPERATOR ASSISTANCE PROGRAM (SOAP)



Section 401(b)(1) of SMCRA authorizes that up to 10 percent of the fees collected for the Abandoned Mine Reclamation Fund may be used for technical assistance to help qualified small mine operators obtain technical data needed for permit applications. Operators who produced fewer than 100,000 tons of coal per year were eligible for assistance in 1991. Effective October 1, 1991, the Abandoned Mine Reclamation Act of 1990 increased from 100,000 to 300,000 the tonnage limit that defines whether operators qualify for assistance. SOAP helps small mine operators meet requirements for the determination of the probable hydrologic consequences for proposed mining operations and the statement of the results of test boring or coal samplings. The "determination" is an analysis of the effect of the proposed operation on the quantity and quality of surface and ground water. The "statement" is an analysis of the overburden and coal that provides information on their chemical and physical makeup, especially if acid- and toxic-producing materials are present.

The data are collected and analyzed by qualified laboratories and consulting firms. OSM originally approved 379 laboratories throughout the United States. Qualification of laboratories is now the responsibility of the state regulatory authorities.

Regulations for SOAP place responsibility with the states that have approved permanent programs. In states with federal programs, OSM operates SOAP. In 1992, 115 small mine operators received assistance. This is a decrease from 147 operators in 1991. Table 11 provides a breakdown of SOAP grant awards by state during 1992.

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**TABLE 11
SMALL-MINE OPERATOR ASSISTANCE
1992 GRANT AWARDS**

State	Grant Amount
Kentucky	\$437,114
Maryland	20,000
Ohio	238,000
Pennsylvania	1,400,000
Virginia	10,000
West Virginia	180,000
Total	\$2,285,114