
TECHNICAL ASSISTANCE

Experimental Practices Program

The experimental practices program provided for by Section 711 of the Act to encourage advances in mining and reclamation continued to provide an opportunity for coal operators to evaluate and utilize innovative mining and reclamation practices. Two new practices were approved, one in Pennsylvania allowing concave approximate original contour restoration with recreated premining drainage patterns and the other in Virginia where excess spoil fills will be evaluated both for the method of construction (durable rock and conventional methods) and construction costs.

In addition, the experimental practices program will be an integral part of a major OSM research project to identify and analyze the effectiveness of potential alternative sediment control measures. Demonstration and field evaluation of the most promising alternatives will be through the use of experimental practices permits. Ten projects are being evaluated for implementation in FY 1985.

Regional Subsidence Studies

Many urban areas overlie heavily mined regions and are facing continuing or potential problems from the effects of subsidence. In several of these locations, OSM has undertaken

area-wide subsidence studies to assess the degree of subsidence potential. These studies will aid the local governments and individual property owners in determining the types of measures that can be taken to abate existing or minimize future subsidence problems.

Information Dissemination

OSM staff delivered technical papers and speeches and offered mini-courses at many meetings, conferences, and symposia of trade and professional organizations to disseminate and exchange technical information for the benefit of State program managers, coal industry technical experts, and coal mine operators and managers.

Small Operator Assistance Program (SOAP)

Section 401(b)(1) of the Act authorizes that a specified amount of the fees collected for the Abandoned Mine Reclamation Fund is to be used to administer the Small Operator Assistance Program (SOAP). The program is designed to assist small mine operators (who each produce less than 100,000 tons per year) with initial technical support. This support entails determining probable hydrologic consequences and gathering results of test boring and core samplings. These tests are performed by qualified public or private laboratories.

SOAP Grant Awards

State	Operational grants ¹		
	FY 1982 ²	FY 1983	FY 1984
Colorado	0	0	\$5,000
Illinois	0	\$200,000	200,000
Indiana	\$1,500,000	0	0
Maryland	0	200,000	0
Missouri	0	45,907	0
Pennsylvania	0	1,000,000	0
Tennessee	750,000	0	300,000
Utah	0	60,000	0
Virginia	0	750,000	0
West Virginia	0	350,000	191,275
Wyoming	0	41,270	0
Total	2,250,000	2,647,177	741,275

¹ No administrative grants awarded in FY 1984.

² From unobligated balances of prior-year obligations.

RESEARCH PROGRAM

Research is an essential part of the OSM program. All studies are related to either the implementation of regulations regarding active mining operations or the abandoned mine land (AML) program. All of the research is applied and is short term, usually 1 year. The projects may be done by private consultants or universities under contract to OSM or by other Federal agencies under interagency agreements. Steps are taken to ensure coordination with studies being performed by other agencies as well as to prevent duplication of completed studies. The results of the studies are utilized by both industry and regulatory authorities.

Active Mining Research Program

During FY 1984, contracts for 24 projects totaling just under \$1 million were let. Those studies included --

- development of new techniques for disposal of excess spoil and the revegetation of newly backfilled and graded areas,
- determination of relevant characteristics of coal refuse for the design and construction of disposal facilities,
- development of a guidance manual for subsidence control,
- hydrogeology of reclaimed coal mine areas in Appalachia,
- cooperative studies with other agencies for fish and wildlife information systems,
- effect of surface mining operations on the Flattened Musk Turtle, and
- determination of relationships between tree growth and water table fluctuations in coal-producing areas of the Midwest.

In addition, 12 projects were completed in FY 1984. They included --

- state-of-the-art procedures for alleviating soil compaction,
- sampling procedures for vegetation,
- monitoring of backfilling and grading excess spoil sites,
- assessing regional alluvial valley floors,
- feasibility studies of lignite development in Mississippi, and
- evaluation of hydrologic data variations due to surface mining.

AML Research Activities

In FY 1984 new procedures were developed and utilized for the systematic selection and implementation of AML research projects. The new procedures rely heavily on the States and Indian Tribes for development of research ideas and initiate a new era of Federal/State/Tribe cooperation in the review and selection of proposals for funding. The first projects under these new procedures will be implemented in FY 1985.

Work continued on the Renton mine fire project (water-injection/fume-exhaust demonstration project) and an evaluation of past procedures used on mine subsidence control projects. A new study was initiated by the Eastern Technical Center to evaluate the effectiveness of methods used on past mine-fire control or abatement projects. Studies were also funded to determine the adaptability of various plant species on mined areas with high acid-content soil and the effects of controlled overburden placement on mine-spoil properties. Core support funds were provided to the National Academy of Sciences.

Applied Research Projects

Project	Funding ¹			Estimated completion date
	FY 1982	FY 1983	FY 1984	
Assistance in developing OSM/RA/SCS workshop on prime farmland, topsoil and revegetation.	0	0	\$9,875	Nov. 1984.
Monitoring overburden backfilling and grading operation at Browncrest No. 3 mine, Pennsylvania Coal Co., Glen Ritchie, Pa.	0	0	5,000	Feb. 1985.
Monitoring excess spoil disposal area at Simco mine, Peabody Coal Co., Ostego, Ohio.	0	0	5,003	May 1985.
Monitoring backfilling and grading and filling of excess spoil sites at Amos Ridge Coal Co., Wise County, Va.	0	0	5,000	Completed.
Monitoring of excess spoil disposal site at ODNR Permit C-1247, Lawrence, Ohio.	0	0	5,000	Aug. 1985.
Guidance manual on subsidence control.	0	0	58,747	Mar. 1986.
Guidance manual for seismic and sound techniques as applied to surface mining blasting.	0	0	13,000	Apr. 1985.
Geomorphic approach to strip mine reclamation.	0	0	33,590	Apr. 1985.
Regional alluvial valley floor assessment.	\$99,762	\$97,238	0	Completed.
Improvement of overburden analytical technology.	165,000	0	0	Oct. 1985.
Subsidence damage criteria.	72,624	0	0	Dec. 1984.
Monitoring of alternative to sedimentation pond at Jim Bridger mine, Wyoming.	0	7,000	0	Sept. 1985.
Monitoring revegetation of a slurry pond site at Seminoe No. 1 mine, Carbon County, Wyo.	0	5,000	0	Completed.
Monitoring of a highwall retention practice at IDNR permit no. 6360, Percy, Ill.	0	6,000	0	Completed.
Identification, evaluation, and demonstration of sediment control technologies.	0	431,957	0	Oct. 1986.
Monitoring of mine fire extinguishing practice at Big Horn mine, Montana.	0	3,500	0	Sept. 1985.
State of the art in alleviating soil compaction.	60,000	0	0	Completed.
Total	397,386	550,895	135,215	

¹ Funding for research projects in FY 1982 and FY 1983 shown only for those projects still in progress in FY 1984.

Interagency Research Projects

Project	Cooperating organization	Funding ¹				Estimated completion date
		FY 1981	FY 1982	FY 1983	FY 1984	
Surface subsidence due to underground mining in the eastern U.S. coal fields.	Virginia Polytechnic Institute.	0	0	0	\$99,964	Oct. 1986.
Support for committee on guidelines for paleontological collecting.	National Academy of Science.	0	0	0	25,000	Sept. 1985.
Hydrogeological investigation of reclaimed coal mine areas in eastern Kentucky.	U.S. Geological Survey.	0	0	0	85,000	Oct. 1985.
Development of a wider diversity of plant materials for use in revegetation of arid and semi-arid sites in western U.S.	U.S. Department of Agriculture.	0	0	0	92,000	Apr. 1985.
Effects of controlled overburden placement on mine spoil properties for revegetation of loblolly pine seedlings.	Virginia Polytechnic Institute.	0	\$49,120	0	71,507	Aug. 1985.
Economic/environmental feasibility of lignite mining in Mississippi.	Coahoma Jr. College.	0	0	\$125,000	0	Dec. 1984.
Optimum moisture requirements for establishment of native species on topsoiled coal mine spoils in Four Corners area of New Mexico.	U.S. Department of Agriculture.	\$168,000	120,000	0	0	Sept. 1985.
Effectiveness of OSM regulations in preventing groundwater contamination.	U.S. Environmental Protection Agency.	0	70,000	0	0	Completed.
Aerial photography support.	Tennessee Valley Authority.	0	90,000	0	0	Sept. 1985.
Sampling procedures for vegetation.	University of North Dakota.	0	47,548	0	0	Completed.
Remote sensing of AML projects.	U.S. Environmental Protection Agency.	0	15,000	17,000	0	Completed.
Plant materials study to identify plant associations suited to coal mine reclamation.	U.S. Department of Agriculture.	0	92,000	0	0	Dec. 1984.

Interagency Research Projects--Cont.

Project	Cooperating organization	Funding ¹				Estimated completion date
		FY 1981	FY 1982	FY 1983	FY 1984	
Peer review of products generated for sediment control technologies contract.	National Academy of Sciences.	0	0	0	\$9,500	Completed.
Strength and consolidation characteristics of coal refuse for design and construction of disposal facilities.	University of Kentucky.	0	0	0	89,403	Jan. 1987.
Establishment of cooperative statewide fish and wildlife species information system.	Bureau of Land Management.	0	0	0	120,900	Sept. 1985.
Support for seventh summer field institute on western energy and minerals opportunities, problems, and policy issues.	Colorado School of Mines.	0	0	0	10,000	Sept. 1985.
Support for committee on ground hazards mitigation research.	National Academy of Sciences.	0	0	\$10,000	10,000	Sept. 1985.
Federal high-altitude photography program modification.	U.S. Geological Survey.	\$95,000	95,000	0	90,000	Sept. 1985.
Study of Flattened Musk Turtle.	U.S. Fish and Wildlife Service.	0	0	0	60,000	Sept. 1985.
Development of data-collection methods for probable hydrologic consequences.	U.S. Geological Survey	0	0	0	20,000	Jan. 1985.
User's manual to the benthic macroinvertebrates and fishes of the Warrior coal field.	Geological Survey of Alabama.	0	0	0	30,000	Nov. 1985.
Relationships between tree growth and water-table fluctuation in a mature oak-hickory forest in southern Illinois.	Southern Illinois University.	0	0	0	31,383	Apr. 1986.
Core support program.	National Academy of Sciences.	55,000	55,000	55,000	0	Continuing.

Interagency Research Projects--Cont.

Project	Cooperating organization	Funding ¹				Estimated completion date
		FY 1981	FY 1982	FY 1983	FY 1984	
Prime farmland special study-soil survey vs. crop production as a measure of soil productivity for bond release.	University of Illinois.	0	0	\$130,033	0	Mar. 1985.
Coordination of regulatory permit process for surface mining permits and dredging permits where coal operations discharge dredge materials into waters of the U.S.	Smithsonian Institution.	0	0	41,307	0	Completed.
Technical annotated bibliography of data sources for use by coal operators when preparing surface coal mine permits.	Indiana State University.	0	0	9,900	0	Completed.
Concepts of highwall removal and approximate original contour restoration.	National Academy of Sciences.	0	\$200,000	0	0	Completed.
Sedimentation/hydrology of surface mined lands in the Appalachian Plateau area of Maryland, West Virginia, and Pennsylvania.	Tennessee Valley Authority.	0	100,000	75,000	0	Dec. 1984.
Total		318,000	933,668	463,240	844,657	

¹ Funding for research projects in FY 1981, FY 1982, and FY 1983 shown only for those projects still in progress in FY 1984.