

THE DOE'S POLICY  
ON THE  
BACKEND OF THE FUEL CYCLE

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Mr. Chairman, Ladies and Gentlemen, I am pleased to take part in this Radioactive Waste Management 1982 Symposium which has as its theme Waste Isolation in the U.S. and Elsewhere.

I shall discuss the DOE programs in three parts: (1) Commercial Waste Management, (2) the Nuclear Fuel Cycle, and (3) Remedial Actions and give you the plans that are made for the FY 1983 budget.

In his Nuclear Policy Statement of last October, President Reagan called for several major policy initiatives designed to return vitality to the nuclear option. None is more critical than the establishment of an effective nuclear waste management system. The past 10 years have been characterized by the issuance of paper studies which all too often result in numerous policy and program redirections. In the meantime we have yet to demonstrate the ability to dispose of high-level nuclear waste. The lack of decisive action by the Federal Government has allowed this issue to develop into a problem of national concern. Several facts are clear. First, nuclear waste is a very real and present phenomenon. Second, we have available technically adequate means for handling this waste. And, third, the longer we allow political vacillations to delay an effective solution, the greater will be the level of public concern.

In response to the President's call to overcome this indecisive tendency, we have initiated an ambitious, results-oriented nuclear waste program. We must now make choices and take action. The number and scope of nuclear waste bills presently under consideration in the Congress indicates that this body, too, is determined to get on with the job of isolating the nation's high-level waste.

With the foregoing as prologue, I would like to review in some detail the objectives, strategies, and status of our individual program elements.

## COMMERCIAL WASTE MANAGEMENT PROGRAM

The objective of the Commercial Waste Management Program is to develop terminal isolation necessary for the long-term management and disposal of high-level and transuranic radioactive wastes.

Beginning in FY 1983 the project specific activities related to the establishment of an operating geologic repository are proposed to be funded by a Nuclear Waste Disposal Fund. Because this Nuclear Waste Disposal Fund is a new adjunct to our overall program, I would like to take a moment to describe it.

The Administration has proposed in the FY 1983 budget submission that the utilities finance the geologic repository program through fees associated with nuclear electric power generation. While we have no authority to collect these fees at this time, it is anticipated that legislation will be enacted that will enable us to do so. These fees would be deposited in the Treasury and used to finance the project-specific activities. This approach would allow those using nuclear generated electricity to pay for the total costs associated with its generation. It would also provide the geologic repository program with the necessary resources to meet the critical milestones in the development and operation of repositories.

The three subprogram elements to the Commercial Waste Management Program include: Terminal Isolation, Waste Systems Technology, and the West Valley Demonstration Project. I will discuss the scope and activities in each of these.

- a. Terminal Isolation. This activity consists of generic research and development and project-specific efforts leading to the site selection, design, licensing, construction, and operation of high level waste repositories.

The current overall program strategy is to identify three candidate geologic repository sites at which construction of exploratory shafts to depth will begin in CY 1983, to be completed by CY 1985. The three locations will likely be: (1) in basalt flows on the Hanford Site; (2) in welded volcanic tuff on the Nevada Test Site (NTS); and (3) in a salt formation site to be determined in CY 1983. One of the three sites will be selected for the development of a Test and Evaluation (T&E) Facility, a prototype of the fully operational licensed facility but with capability for retrieval and withdrawal should it be determined desirable in the future. This selection is currently scheduled for CY 1985. Parallel work on detailed site characterization, necessary before a decision can be

made on determining the site or sites to be used for a full-scale licensed repository, will continue at all three sites. A license application for the first repository is scheduled to be submitted to NRC by 1988, with earliest operation estimated to begin in 1998. The repository would be capable of accepting spent fuel in addition to solidified high-level and transuranic waste.

The T&E Facility will provide experience and verification of waste emplacement technology. The Facility will be designed for the placement of up to two to three hundred packages of high-level waste which will be completely monitored, and designed for retrieval. Equipment for handling large quantities of waste packages will be evaluated. This experience will assist in the licensing of repositories whether or not the first repository is located at the site of the T&E Facility. Further, it will demonstrate on a practical basis that high-level radioactive wastes can be handled and stored safely.

I would now like to briefly describe our accomplishments and projected activities for FY 1982 and our proposed terminal isolation activities at the requested budget level for FY 1983.

In FY 1982, we will initiate drilling of preliminary boreholes at the salt locations to allow a CY 1983 exploratory shaft site selection for salt. Site characterization work at NTS will allow for an early FY 1983 decision on the site and horizon selection for the tuff exploratory shaft. The exploratory shaft location on the Hanford Site has been identified and confirmatory drilling of boreholes is now proceeding. Technology development efforts include initiating preliminary design of waste packages, and accelerated barrier materials testing. Conceptual design studies of the T&E Facility will also be initiated in FY 1982.

The terminal isolation program will continue the development of additional technologies associated with the repository system, such as repository sealing, transportation, and performance assessment modeling that is generic to the geologic media being investigated. Cooperative activities with other countries will be maintained. Related testing continues with Sweden, the Federal Republic of Germany, and Canada on a bilateral basis. Also included is the continued evaluation of the technical and environmental feasibility of subseabed disposal.

Under the new policy of utility financing, we are requesting \$185.0 million in borrowing authority from the Treasury to fund the project-specific activities in FY 1983 until utility fees are available. This funding will allow the construction of exploratory shafts in basalt at the Hanford Site and in tuff at NTS to be initiated in CY 1983, and for land acquisition, design, and long-lead procurements leading to a late CY 1983 construction start of the exploratory shaft in salt at a site identified in CY 1983.

- o The second subprogram of the Commercial Waste Management Program is the Waste Systems Technology Program. The FY 1983 funding request of \$11.4 million, encompasses the following tasks:

- 1. Federal/State interactions

- This task would provide funds in FY 1983 to allow potentially affected States to participate in the planning and implementation of the site qualification and selection program for mined geologic repositories.

- 2. Supporting studies and evaluations

- This task supports the nuclear waste and fuel cycle program in the areas of collection and dissemination of information on international programs; the review of technical programs by the National Academy of Sciences; and the independent assessment of technical and institutional issues.

- 3. Low level waste technology

- The objectives of this activity are to facilitate the establishment of a reliable system for treatment and disposal of commercial low-level waste (LLW), to facilitate the formation of regional compacts, to transfer improved technology to the private sector, and to foster cooperative technology development demonstrations with the States and industry. The technical program will focus in FY 1983 on waste form and volume reduction processes, radionuclide migration, and disposal site stabilization.

- o I will now discuss the West Valley Demonstration Project. The objective of the West Valley Demonstration Project is to carry out a high-level radioactive waste solidification demonstration project at the Western New York Nuclear Service Center near West Valley, New York, under the provisions of Public Law 96-368, the "West Valley Demonstration Project Act." The project will demonstrate the technology for solidification and preparation for permanent disposal of approximately 600,000 gallons of high-level wastes from nuclear fuel reprocessing. It will also provide experience in the decontamination and decommissioning of nuclear fuel cycle facilities and operational experience on the removal and handling of stored waste, and will demonstrate technologies for the decontamination and decommissioning of high-level waste storage tanks.

On September 23, 1981, the Department and the Nuclear Regulatory Commission (NRC) completed a Memorandum of Understanding as required by the Act. This agreement established arrangements for NRC review and consultation on Project activities. On September 30, 1981, the NRC issued a license amendment to permit licensees to transfer possession of the West Valley facility to the Department. This transfer took place on February 25, 1982.

The FY 1983 funding request for the West Valley project is \$15.4 million. Activity will emphasize the establishment of the technical, cost, and schedule baselines for carrying out the project, and the operation, maintenance, and upgrading of the facilities at the West Valley Center. A high priority is being assigned to verification of waste solidification equipment and performance of the solidified waste product, design of the waste removal and processing systems, and decontamination of the facilities for reuse and subsequent final decommissioning.

I will now discuss the second element of our activities.

#### NUCLEAR FUEL CYCLE PROGRAM

The Nuclear Fuel Cycle Program includes technology for the safe and economic closing of the back-end of the light water reactor (LWR) nuclear fuel cycle, R&D on the breeder fuel cycle, and the development of processing that result in waste forms that would meet requirements for storage, transfer and ultimately safe disposal in a geologic media. Additionally, the program includes the identification and elimination of technical and institutional impediments to commercial reprocessing. Since additional spent fuel storage capacity will be required prior to the availability of commercial reprocessing services, the Agency, industry and utilities will participate in programs leading to the licensing of alternative storage techniques to enhance existing capabilities. The Budget Request for this program is \$59.3 million, as compared to \$52.7 million in FY 1982. The subprogram elements include: (1) Spent Fuel Technology, (2) Reprocessing Technology, and (3) Waste Treatment and Storage Technology. I will discuss the scope and activities in each of these.

- o The first subprogram of the Nuclear Fuel Cycle Program is the Spent Fuel Technology Program. Analyses indicate that utilities will require interim spent fuel storage capacity in addition to their present pool-type storage. The projections currently show these could be as much as 120 metric tons of fuel excess to current capacity by 1986 climbing to 1,800 metric tons by 1990. While the Agency believes that this interim storage is the responsibility of the private sector, we also see the feasibility of Government assistance and support in the commercial application of alternative storage technologies. Our experience has indicated the interim storage needs of commercial reactors can best be met by technologies such as rod consolidation and dry storage in casks. Thus, we are working with utilities with near-term storage problems to explore methods of applying these technologies to their particular needs.

The Department is considering these methods for dry fuel storage activities mandated by upcoming Congressional actions and is also considering whether cask storage would be appropriate for storage of solidified reprocessing waste. Accordingly, the Department is supporting the consolidation of BWR fuel rods in a licensed reactor pool during FY 1983 through a cooperative agreement with the Tennessee Valley Authority whereby the Department provides the disassembly equipment. Licensed use of a storage only cask, procured by the Department in FY 1982, is also planned to begin in FY 1983 at TVA's Browns Ferry Plant.

- o Next, I will discuss Reprocessing Technology. The fuel reprocessing research and development program provides for technology development in commercial fuel reprocessing and recycle. Process improvements for light water reactor fuel reprocessing are being addressed as are the more stringent requirements associated with reprocessing fast breeder fuels. The technical program is focusing on reduced occupational exposure, improved environmental protection, enhanced operational safety and reliability, acceptable economics, and improved safeguards.

In FY 1982, equipment will be installed and integrated into systems in the Remote Operations and Maintenance Demonstration (ROMD) section of the Integrated Equipment Test (IET) facility at Oak Ridge and tested for remote maintenance performance.

In FY 1983, the Integrated Process Demonstration (IPD) section of IET will be put into service. There will be development and non-radioactive testing of reprocessing equipment and services. The modular shear will be completed and installed as will the automatic in-cell samplers. Engineering development of remote maintenance equipment will continue. Efforts will also proceed on safeguards, spent fuel, plutonium and waste handling development at the Barnwell facility in South Carolina. Design studies of an advanced head-end facility suitable for FBR fuels collocated with an existing LWR reprocessing facility will continue.

- o The last subprogram under the Nuclear Fuel Cycle Program is Waste Treatment and Storage Technology. This program is directed toward the safe handling, treatment, and interim storage of fuel cycle wastes prior to their permanent disposal. A significant activity is the selection of a commercial high level waste form and process that the Federal Government would accept from a reprocessing operation. Emphasis will be placed on the development of capabilities for handling commercial transuranic waste and to provide interim storage of waste from reprocessing operations.

## REMEDIAL ACTIONS

The current DOE policy has maintained a commitment to those activities designated as Remedial Actions. We believe our work can be no less than comprehensive in demonstrating that nuclear energy both realizes and acts responsibly in avoiding long-term externalized costs. The program includes four subactivities, each addressed to a particular set of sites and conditions.

Two of these subprograms deal with control of uranium mill tailings exclusively and the other two deal with cleanup of former industrial processing plants or surplus facilities owned by the Department.

The first remedial action program authorized by Congress is directed at alleviating excessive exposure to occupants of buildings at Grand Junction, Colorado, where tailings from a former uranium mill had been used as construction fill. Colorado manages the remedial actions and contributes 25% of the cost of cleanup. A total of 740 structures have been determined to qualify for remedial action because the level of exposure exceeds guidelines of the Surgeon General. To date, remedial action has been performed on about 400 properties. We expect to complete the remedial actions by FY 1987 and post remedial action measurements by FY 1988. The program is currently paced by the allocation of State funding and we plan to take action on 80 to 100 properties per year.

In 1978 the Congress authorized remedial actions to control the radiation exposure from certain inactive uranium mill tailings piles including the one at Grand Junction. Twenty four mill tailing sites were designated for this program which also authorized cleanup of nearby contaminated properties. The program will be conducted under cooperative agreements between the Federal Government and the affected States or Indian tribes. Remedial action costs will be shared on a 90/10 basis with States; in the case of the Indian tribes, the Federal Government will pay all of the costs.

Remedial action on any of the 24 processing sites require the promulgation of final Environmental Protection Agency (EPA) radiological standards. The EPA is expected to issue these standards on or before January 1983. The legislation calls for completion of the program within 7 years following the promulgation of the EPA standards. The total estimated cost of the program is \$540 million in FY 1981 dollars, including contingencies.

Cooperative agreements have been executed with Pennsylvania, Utah, and Colorado which has nine of the sites. A proposed cooperative agreement with which to open negotiations with the Navajo tribe is being drafted.

Four of the mill tailings sites have been given a high priority on the basis of their potential for radiological hazards to the public. They are: Canonsburg, Pennsylvania; Salt Lake City, Utah; Durango, Colorado; and the Shiprock, New Mexico site at the Navajo Indian Reservation. Remedial action on the first processing site is to begin in the first quarter of FY 1984.

Cleanup of one contaminated vicinity property, Salt Lake City Fire Station #1, was completed in December 1981 using the interim EPA standards issued for this purpose in April 1980. Plans are in place for starting work on a second group of vicinity properties in Salt Lake City, and on an initial group of properties in Canonsburg, Pennsylvania, in the Spring of 1982, or immediately upon the issuance of standards by the EPA.

The third program of remedial actions involves the cleanup of the so-called Formerly Utilized MED/AEC Sites. We have completed one site at Jersey City, New Jersey, and partially completed two others at Middlesex, NJ and Niagara Falls, NY. We have the necessary authority to clean up 13 of the 35 currently identified locations. We would require Congressional Authorization to undertake work at the remaining 22 sites.

Finally, our remedial action program is also responsible for the management and disposition of all the surplus contaminated facilities that are owned by DOE. This program maintains appropriate monitoring and surveillance of contaminated sites and is dismantling several facilities to restore the sites for alternative use. We will complete the D&D of the SRE Reactor in California this year and initiate work on several other projects. Most notably we expect to complete the preliminary engineering studies that will enable the D&D of the Shippingport Reactor in mid CY 1984 after it is permanently shut down in late 1982. This will be an important demonstration because several innovative techniques are being considered that stand to reduce the cost of dismantlement for future commercial nuclear reactors.

#### SUMMARY

Ladies and Gentlemen, if I have conveyed but one message in my foregoing remarks, I hope it is that we do not have business-as-usual programs. We feel that our goals are ambitious but realistic. With the help of Congress, we believe that our programs can make substantial contributions to the safe, reliable and economical generation of nuclear-powered electricity.

Thank You.