



**Statement of Thomas P. Grumbly**

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**U.S. Department of Energy**

**before**

**the Committee on Armed Services**

**U.S. Senate**

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Mr. Chairman, and Members of the Committee, I appreciate this opportunity to appear before you to discuss the Department of Energy's Fiscal Year 1996 budget request for the Department of Energy's Environmental Management (EM) program. This program manages the human health and safety and environmental contamination consequences of the nation's fifty year nuclear weapons research, production, and testing program.

In my testimony, I will:

Begin with some background of the Environmental Management program and describe the progress we have made, the challenges we face, and what we are doing and propose to do about them;

Present an analysis of the budget requests for each program area, explaining the major activities, accomplishments, and commitments for each program; and

Discuss some of the new program initiatives and progress being made toward achieving our strategic goals.

## I. INTRODUCTION

Last year the Department submitted a budget request for the Environmental Management program that was essentially flat, halting the trend of increasing

budget requests that had occurred since the program was established in 1989. This year, I can report that this trend is being reversed with our FY 1996 budget request, which represents a reduction from last year given a comparable work scope. We have made substantial progress in changing the way we do business and have achieved increased cost savings through efficiency gains and productivity improvements. This effort translates into safer working conditions, better protection of public health and safety, and a cleaner environment. All at less cost to the taxpayer.

The Environmental Management program is playing a significant role in contributing to a leaner federal government and deficit reduction as part of the President's proposed FY 1996 budget. The entire Departmental budget is being reduced by \$10.4 billion over the next five years. The Environmental Management program budget request will account for a large portion of this reduction. For fiscal years 1997 through 2000 our request is being reduced by \$4.4 billion in outlays, which translates into a \$5.5 billion reduction in requested budget authority over the same period, from the previous budget targets established by the Administration. I believe these are very aggressive, but, ultimately achievable reductions.

Our FY 1996 request reflects a continued commitment to solving environmental and safety problems as well as a continued commitment to improve the way the Department does business. Our request includes funding for major added responsibilities previously in the Defense Programs budget. The new scope includes management of the Savannah River site in South Carolina, the Mound

site in Ohio, and the Pinellas Plant in Florida and 18 high risk facilities and 16 supporting facilities. Without the additional transferred scope of work, the Environmental Management base budget request for activities in waste management, environmental restoration, nuclear materials and facilities stabilization, and technology development is actually four percent less than the amount appropriated in FY 1995.

The Environmental Management program is committed to doing more with less now and into the foreseeable future. The aforementioned reductions in outyear budgets will take place over a five-year period to allow us to ramp down in a controlled fashion. More extreme budget cuts beginning in FY 1996 would likely have negative consequences.

First, a drastic drop in our resources could diminish our ability to protect human health and safety at our sites. We have focussed significant attention on the most urgent risks at our sites. But, we cannot afford to defer indefinitely the lower priority efforts. Deferring problems only increases costs later and saddles future generations with the problems, and may, in some cases, cause the cleanup to be more expensive and more dangerous as conditions deteriorate.

Second, extreme budget cuts could also cause the Department to be out of compliance with its environmental requirements. Roughly 65 percent of our budget is driven by enforceable agreements. Without the needed time to renegotiate and reconfigure these agreements, where appropriate, to account

for funding constraints and other factors, we may be unable to comply with them. This could result in the Department being subject to administrative or judicial enforcement orders and fines and penalties.

The Environmental Management program has many responsibilities, one of which is storing securely more than 25 metric tons of plutonium to prevent theft, sabotage, or diversion. We take our traditional environmental and waste management responsibilities very seriously. But, certain nuclear materials we handle have the potential for much greater harm. A mistake in safeguarding this nuclear material could result in incalculable calamity on a global scale. Nonetheless, nearly fifty years of nuclear weapons production have left us with a massive environmental legacy which we have a moral and legal obligation to address.

#### BACKGROUND ON THE ENVIRONMENTAL MANAGEMENT

The Department's Office of Environmental Management manages the largest environmental stewardship program in the world -- with over 130 sites and facilities in over 30 states and one territory. When it was established in 1989, the program was called environmental restoration and waste management. Since then, however, the importance of other missions, such as nuclear materials and facilities stabilization and technology development have grown significantly. The number of sites and facilities under our management has also grown as more buildings are determined to be surplus. The nuclear weapons production complex alone is spread over thousands of square miles in 13 states. Nuclear weapons production operations were shut down in the late

1980's, leaving a legacy of thousands of contaminated areas and buildings, huge waste volumes, and a large amount of hazardous nuclear materials still in the pipeline of their production processes. The Environmental Management program's responsibility is to address the most immediate, urgent risks to human health and the environment as well as manage the long-term contamination and safety threats.

The task of Environmental Management is a significant one. To illustrate the extent of this task here is a short list of the wide variety of threats and risks facing the Department:

hundreds of large, underground high-level radioactive waste tanks, many of which have leaked, and some of which may pose danger of an explosion; thousands of metric tons of highly radioactive spent nuclear fuel in various types of storage, some corroding; and thousands of radioactively contaminated buildings that must be stabilized and eventually decontaminated.

contaminated drinking water, soils, and surface water;

worker exposure to radiation and chemicals;

theft or diversion of nuclear weapons material (e.g., plutonium and highly enriched uranium);

industrial and transportation accidents;

We simultaneously satisfy a wide variety of demands:

compliance with state and federal laws and regulations;

compliance with negotiated agreements stemming from those regulations or court orders;

International Atomic Energy Agency nuclear nonproliferation safeguards requirements;

Defense Nuclear Facilities Safety Board "Recommendations";

Worker safety and health protection expectations derived from OSHA, nuclear industry, and Departmental practices;

Short- and long-term technology development needs; and

Worker and community development needs (e.g., training and land reuse);

The task ahead remains formidable. Yet, we are taking some tangible steps now to identify and mitigate the environmental and health risks at our sites.

In March the Department completed the 1995 Baseline Environmental Management Report which provides life-cycle cost estimates for completing the DOE environmental management mission. The Baseline Report, which was required by the FY 1994 National Defense Authorization Act, includes descriptions of projects, activities, remedies, schedules, and estimated costs for addressing the environmental problems at DOE sites. In addition to a "Base Case" program estimate, alternative scenarios were developed by modifying the following variables: future land use, funding, technology development, and waste management complex configuration.

The "Base Case" total program cost ranges from \$200 billion to \$350 billion (constant 1995 dollars) depending on productivity assumptions. The Baseline

Report analysis assumes program activities through the year 2070; however, ninety percent (90%) of estimated costs would be incurred during the first forty years. The Mid-Range Base Case estimate is \$230 billion, assuming 20% productivity improvement through 2000 and 1 percent annual improvement thereafter. This is the productivity goal we are working for in our current program planning, although, we need to achieve it long before the year 2000.

The first question the Baseline Report was designed to help address is, "What do we as a Nation want to buy?" Considering this question, the Baseline Report is a tool to help us make better informed policy decisions with increasingly scarce federal resources and competing requirements. The alternative cases developed and estimated in the Baseline Report begin to shed light on what those alternatives would mean in terms of future policy decisions and estimated costs. The results of this year's Baseline Report indicate that future land use and development of new technologies will have the greatest long-term impact on costs.

We have other efforts underway, in addition to the Baseline Report, to support making more informed policy decisions, as well as improve the productivity of the Environmental Management program. For example, our current technology development efforts help us to better understand, in a more cost-effective manner, the type and extent of the environmental and safety risks at our sites. This information is a necessary first step in the process of remediating problems, such as dealing with plutonium in various forms and spent nuclear fuel rods. Technology development also addresses the major

ongoing concerns and lessons learned from the past five years of Environmental Management program activities and from experience in the implementation of Superfund. These types of problems include the lack or inadequacy of existing technologies to remedy fully many of our complex environmental problems, the significant cost of some of these technologies, the lack of data available to characterize fully the risks; and the lack of consensus on standards for remediation.

The Environmental Management program is a prominent part of the nation's science and technology development effort. As I mentioned, one of the challenges we face is the lack of available technologies for many of our contamination and/or waste management problems -- a "technology/application" gap, if you will. The Department's National Laboratory system is a critical tool in developing newer, more effective, and cheaper environmental technologies to allow us to efficiently carry out our environmental projects.

The Task Force on Alternative Futures for the Department of Energy National Laboratories released its report earlier this year, and I am happy that Bob Galvin and Henry Kendall are joining us today to discuss the task force's work. We agree with many of its findings and recommendations and have already begun to implement some of them. We have and will continue to use the laboratory system to the extent it can compete in producing useful results in a cost-effective manner, compared to other sources of research and technology.

#### MAKING PROGRESS

I would now like to highlight some of the Environmental Management program's

accomplishments. These results not only demonstrate significant progress, but also reflect a new way of doing business by addressing urgent risks first while simultaneously managing the long-term contamination and health risks present at our sites. For example, in the last year we have addressed urgent risks in the following areas:

Completed safety improvements to a building and begun to stabilize inventories of pyrophoric plutonium contained inside it at the Rocky Flats Plant in Colorado in FY 1995. This material poses a fire hazard since, under certain conditions, plutonium ignites in air;

Safely transferred 199 spent nuclear fuel elements to safer storage facilities in Idaho; and

Returned 153 spent nuclear fuel elements containing weapons-grade uranium of United States origin from foreign research reactors. Accepting these fuel elements helps support the Nation's nuclear nonproliferation policy because they contain weapons-usable highly-enriched uranium;

Began routine operation of a pump that has virtually eliminated the threat of explosion in a high-level waste tank at our Hanford site.

Since 1989, we have also reduced the backlog of accumulated waste and long-term contamination problems across the country. The Department's

accomplishments include the following:

Decommissioned approximately 100 facilities across the complex;

Cleaned up 18 former nuclear weapons and industrial sites and 14 sites associated with uranium mining and milling;

Remediated over nearly 5,000 public and private properties contaminated with uranium tailings;

Treated 2.4 billion gallons of ground water and 1.8 billion gallons of surface water;

Recycled 16 million pounds of scrap metal;

Safely transported roughly one million tons of hazardous materials in 140,000 shipments; and

#### CHANGING THE WAY WE DO BUSINESS

These achievements demonstrate real progress in meeting our legal and moral obligations. However, inefficiencies still exist in our system, and there is room for more improvement. Given the downward trend in funding for the Department's Environmental Management program, we cannot afford to become

complacent. To make up for this year's real budget reductions, and to continue to seize opportunities for increasing productivity, we must continue to be smarter about the way we operate through increasing efficiency and eliminating wasteful spending by hiring experienced federal project managers, streamlining our contractor workforce, reducing indirect and overhead labor costs, and reforming our contracts. For example:

We have hired 1,200 experienced project managers, cost estimators, safety and health professionals, and environmental engineers to provide greater accountability and oversight at our sites. In return for additional staff, field office managers have committed to specific productivity savings.

We are reducing the number of contractor employees by a total of about 17,500 -- about 34 percent -- from FY 1994 to FY 1996. We are downsizing our workforce in accordance with Section 3161 of the Defense Authorization Act of 1993 to mitigate adverse effects of such layoffs.

The Rocky Flats Plant in Colorado and the Idaho National Engineering Laboratory are taking about 35 and 30 percent reductions of their total workforce, respectively; the Hanford Site in Washington and the Savannah River Site in South Carolina are reducing their workforce by 26 and 22 percent, respectively.

We are recompeting and renegotiating our contracts to include greater incentives for outstanding performance and to ensure that the

contractors -- not the taxpayers -- take on a larger share of the risks associated with doing business with the Department. A recently completed consolidation of our Idaho contract is projected to save \$500 million over the next five years.

By instituting these changes, we believe that our program will be able to meet its legal commitments during FY 1996, with a few exceptions. In cases where legal problems may occur we have already begun working with State regulators to resolve them within the FY 1996 request level.

Our program will continue to be driven by a results-oriented, risk-based approach that seeks to address the most urgent public health and safety problems first. However, after this fiscal year, even with the continued productivity savings that are expected, there will be a gap between available resources and requirements in the future. In order to continue to meet our obligations, we will need to address these outyear challenges with new analytical tools, renegotiation of some of our compliance agreements, and statutory changes.

To help shape a smarter, more productive program, we are responding to several Congressional requirements by developing analytical and informational tools: As already described, the Baseline Environmental Management Report was submitted to Congress on March 30, 1995. This is the Department's first attempt since 1988 to estimate the total life-cycle costs and schedules

to complete its Environmental Management missions. It also examines the potential impacts on cost of several factors, including future land use, residual contamination standards, and technology development.

A Risk Report requested by the Committees on Appropriations in DOE's FY 1994 Energy and Water Development appropriation will be submitted to Congress in June. Although the Environmental Management program is making progress we realize a better understanding of the risks and how those risks are reflected in our compliance agreements is needed. This report presents an evaluation of the risks to the environment, workers and the public posed by Departmental facilities that are currently subject to compliance agreements.

The Environmental Management Annual Cost and Variance Report submitted to Congress in March describes progress by the program across the country at our sites, including cost and schedule performance information.

With these tools we expect to improve our ability to plan the long-term future of the program.

#### COOPERATIVE EFFORTS TO INCREASE SUCCESS ARE NEEDED

The managerial initiatives are both bold and necessary to increase productivity, and the analytical tools we are developing and using to plan for

a better future will reduce costs. But even these initiatives are not sufficient to ensure success. We still face a real reduction in budget relative to scope of work this year, and even deeper reductions in later years. Therefore, another way in which we are ensuring that we continue to meet our legal obligations is by working with regulators to make appropriate changes to compliance agreements and asking for appropriate changes in requirements that apply to the Department such as the Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" law.

Let me emphasize that the Department is committed to complying with the laws that apply to its sites and operations. If Congress appropriates the President's budget request the Environmental Management program will be in substantial compliance with its legal commitments in FY 1996. Indeed, we have made real improvement in meeting our legal milestones in the past two years.

In FY 1993 75% of Environmental Management milestones were completed. For FY 1994 and FY 1995 we are on track to complete 88% of our milestones, and in FY 1996 we are projecting completing 95% -97% of our milestone commitments.

Notwithstanding that improvement many of our compliance agreements were signed during a fiscal climate much different from the one we have today. Some of the future milestones and schedules for completion are currently unworkable.

Recognizing this, it is a reasonable, and indeed sensible, thing to do to work cooperatively with the States, stakeholders, and EPA to renegotiate those agreements as appropriate to align them more with current fiscal reality.

Also, our goal in renegotiating these agreements is to ensure that they will achieve the greatest risk reduction and risk prevention per dollar spent.

## Compliance Agreement Changes

Changes are needed in our compliance agreements with regulators to address the systemic conditions that continue to hinder greater progress in the Environmental Management program. Given our future budget profile, it will be necessary to renegotiate some of the milestones in our current agreements.

The Department will seek to accomplish the following in any new or renegotiated compliance agreements:

- Establish realistic timelines for milestones that are challenging but doable;
- Establish ultimate end-point target dates, with appropriate intermediate objectives;
- Limit the enforceable milestones included in the agreement to a maximum of a three year timeframe to reflect sound technical planning assumptions, but allow for annual appropriations adjustments; and
- Provide that any and all penalties for noncompliance would fund further risk reduction.

We will continue to seek appropriate changes to our compliance agreements to better reflect budget realities and be able to address changing conditions at the sites. The Hanford Tri-Party Agreement was the first agreement renegotiated by the Clinton Administration, resulting in more than \$1 billion in savings. A second portion of the agreement is now being renegotiated to focus appropriate efforts on those risks of greatest concern to our stakeholders and make the cleanup more cost-effective. We are working with the states to effectively renegotiate our compliance agreements where necessary. We anticipate that by the end of June we will have a better idea whether this process will work.

In addition, changes in our budget cycle and the methods for setting enforceable milestones may be needed. In discussions with states we have proposed would allow for shorter-term milestones in our compliance agreements based on the lessons-learned after operating for several years under the current regime of multi-year milestone schedules. I would like to see compliance agreements with three-year milestone time frames, subject to annual appropriations changes, with longer-term milestones included as guidelines rather than enforceable actions. We hope to be able to accomplish this approach without the need for legislation. However, legislation that allowed a three-year budgeting cycle that paralleled the agreements would be desirable to provide more budget predictability to site and project managers.

Legislative Changes

We currently recommend four areas of legislative change which we believe are vital this year in order to rationalize cleanups. First, the Superfund law needs changes to future take land use into consideration in cleanup actions and to establish universal standards for cleanup -- standards based on sensible levels of risk given different future land uses.

Second, we support many elements of recently proposed risk legislation, and are working with the Congress to develop a sound and effective approach for such a risk analysis program. The Department also supports the inclusion of risks to workers as part of this legislation. The Department defined and published a set of principles for using risk analysis in January 1995. The principles are designed to be a first cut for the Department at defining risk analysis, its purposes, and the principles to be followed if it is to be done well and credibly.

Third, changes are needed to address the way budgets are allocated among our sites. For example, legislation to allow for site-based budgeting would help improve integration of operations at our sites, and allow them more flexibility in responding to changing environmental conditions and priorities. It would also allow a more tailored approach to risk reduction, letting the site managers and stakeholders determine what the greatest risks are at the individual site and how to prioritize activities based on cost-benefit analyses. We have proposed such a system on a pilot basis in our FY 1996 budget request at the Rocky Flats site.

Finally, we should take another look at whether Federal officials should be exposed to the risk of criminal liability if a violation of environmental requirements occurs because of funding constraints where a good faith effort has been made to comply with the law.

The outlook for the Environmental Management program depends on many things. I have described the managerial changes we are implementing to address the challenges we face given declining resources. I have also outlined the focus on urgent risk reduction in prioritizing a results-oriented program. However, the scope of the Environmental Management program demands a national debate to help set priorities and directions for the future. Some of the issues that I believe we need to work on together include the following:

We need to reconsider the pace and long-term schedule for the Environmental Management program. In 1989, the Administration committed to a 30-year program. Now, preliminary analysis indicates that such a schedule is neither feasible nor wise. We need to consider carefully how to pace different aspects of the program. Our near-term goals need to address our urgent risks such as the Hanford waste tanks, spent nuclear fuel, and stabilizing nuclear materials and facilities to reduce maintenance costs. In addition, we need to invest in new technologies so that we have more effective and less costly remedies in the future. We need to think carefully about the risks and benefits of each alternative before selecting a particular course. In fact, the decision will not be a single one, but will be thousands of individual decisions

based on the best information we can obtain on risks, costs, and schedules.

We lack a rational and timely process to allocate funds in the event of a shortfall. I know that the Federal Facilities Environmental Restoration Dialogue Committee -- the "Keystone" group in which the Department participated -- recommended in 1993 that a pro rata allocation be made among compliance-related budget areas for environmental restoration and related activities. First, environmental restoration activities are only one part of our budget and other activities such as waste management and facility stabilization need to be considered in the allocation of cuts. Also, although this process is appealingly simple, it does not take into consideration differences between sites such as efficiency, risk or opportunities to make progress.

With respect to the last point, we plan to take a step toward a more efficient budget allocation process this year. As stated in brief earlier, we proposed a pilot project at Rocky Flats to implement a site-based budget, rather than allocating funds through the traditional program organizational elements. The goal of this initiative is to provide sufficient flexibility to the site to ensure that funds are allocated to the highest priorities after the appropriation process is completed to address urgent risks or to make investments to reduce long-term maintenance costs. Site managers will be better able to work cooperatively with their local regulators and stakeholders

to develop priorities that make sense for the site. These changes allow site managers to be more responsive to changing needs or site conditions, and avoids the cumbersome budget reprogramming process currently used. If this pilot proposal is approved and successful in FY 1996 at Rocky Flats, I plan to expand this budget technique to all sites for FY 1997.

In addition, we are exploring other options with respect to budgeting and priority setting that could help reduce total program costs and better focus technical expertise. These options are at the early stages of development, but could have the potential to dramatically change and improve how we conduct business, how much it costs, and how long it takes.

## II. ANALYSIS OF THE ENVIRONMENTAL MANAGEMENT BUDGET BY PROGRAM AREA

The FY 1996 budget request is being proposed under three separate appropriations accounts: the Energy Supply and Research Development appropriation (roughly 10 percent of the budget request); the Defense Environmental Restoration and Waste Management appropriation portion of the Atomic Energy Defense Activities account (roughly 87 percent of the budget request); and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund appropriation (roughly 3 percent of the budget request).

The Department's FY 1996 budget request for the Environmental Management program totals \$6,591,741,000. This includes \$843,000,000 for new responsibilities primarily at three sites -- Mound, Pinellas, and Savannah

River -- transferred to the Environmental Management account from the Defense Programs account. Management responsibility for the Savannah River Site, Mound, and Pinellas was transferred to Environmental Management in January, 1995. Given a comparable work scope, this request represents a reduction of 4 percent from the FY 1995 baseline appropriation. The information on the FY 1996 budget request follows in Table 1.

TABLE 1  
ENVIRONMENTAL MANAGEMENT  
Fund Summary (in \$ Millions)

FY 1995

FY 1996

Percent

Change

Waste Management

Defense

Non-Defense

Total

Corrective Activities

Defense

Non-Defense

Total

2,673.1

243.0

2,916.1

\$ 0.5

26.7

27.2

2,501.6

206.1

2,707.7

3.4

5.4

8.8

-6.4

-15.2

-7.1

+580.0

-79.8

-67.6

Environmental Restoration

Defense

Non-Defense

Total

Uranium D&D Fund

Non-Defense

1,379.9

388.6

1,768.5

301.3

1,576.0\*

417.8

1,993.8

288.8

+14.2

+7.5

+12.7

-4.1

Nuclear Material and

Facility Stabilization

Defense

Non-Defense

Total

765.5

73.4

838.9

1,596.0

83.7

1,679.7

+108.5

+14.0

+100.2

### Technology Development

-6.4

Defense

417.4

390.5

### Transportation Management

Defense

20.7

16.1

81.3

-22.2

+100.0

Compliance and Program

Coordination

Defense

0

Analysis Education and Risk

Management

Defense

84.9

157.0

+84.9

Use of Prior Year Balances

and Other Adjustments

Defense

Non-Defense

Total

- 249.3

- 8.2

- 257.5

-313.9

-23.1

-337.0

+25.9

+730.5

+48.3

Transfer Government

Contribution to Uranium

Enrichment D&D from

ER Defense/Foreign Fees

-133.7

-395.0

+161.8

FY 1995

FY 1996

Percent

Change

#### APPROPRIATION BREAKDOWN

Defense

Energy Supply

Uranium D&D Fund

TOTAL\*\*

5,092.7

723.5

167.6

5,983.8

6,008.0

689.9

-106.2

6,591.7

+18.0

-4.6

-163.4

+10.2

\* Includes \$350 million for Government contributions to the Uranium Enrichment D&D Fund.

Actual change from 1995 to 1996 for the Defense budget is -2%.

\*\* This includes \$843 million for newly transferred responsibilities. The base budget request without these new responsibilities is \$5.748 billion, a 4 percent reduction from last year's enacted amount.

The Environmental Management program's budget is broken down into four primary activity areas. These are the first four shown in Table 1. The program also has Transportation Management, Compliance and Program Coordination, and Analysis, Education and Risk programs. The Transportation Management program, comprising less than 1 percent of the total Environmental Management budget, is responsible for the safe, secure, and cost-effective transport of Departmental materials, including hazardous and radioactive substances. The program also assures that all Department shipments comply with applicable regulations and operating procedures and guidelines. The Office of Compliance and Program Coordination, which accounts for about 1 percent of the total program budget, provides independent monitoring and appraisal, programmatic guidance, integrated performance analysis and technical assistance for the Environmental Management program's environment, safety, and health, engineering, cost evaluation, technical operations, transportation management, emergency management and other functions. The program-wide perspective of this office provides line organizations with an understanding of their

implementation of applicable regulatory and technical requirements. The Analysis, Education and Risk Management part of the budget, approximately 2 percent of the total program, includes transfers of some former Office of Technology Development programs. Although a very small portion of the budget request, Analysis, Education and Risk Management supports essential activities such as analyzing current and long-term costs; formulating risk assessment and risk integration activities; developing policy; administering, formulating and executing the budget; conducting strategic, long-range planning; monitoring and evaluating contractor performance; conducting employee and public education programs; and providing links between the Department and other agencies, Congress, environmental and other stakeholder groups, and the private sector.

As we take on greater responsibility from other Departmental elements, we are requesting more funding for our Nuclear Materials and Facilities Stabilization program (formerly Facility Transition) which includes thousands of former Defense Program (DP) facilities that are no longer needed for nuclear weapons production. Significant funding is required to safely stabilize and maintain surplus nuclear weapons facilities while they await decontamination and decommissioning. Detailed breakouts of each of the four primary program areas appear below.

## WASTE MANAGEMENT

BUDGET REQUEST: \$2,716,551,000

37.0% of the total program budget

#### Major Activities

Waste management activities of the Environmental Management program comprise the largest portion -- over a third -- of the total budget request. (See Tables 2 and 3 for a breakdown of the Waste Management budget.) The program's activities include managing the treatment, storage and disposal of wastes, and working to minimize the amount of new wastes generated. The Department is faced with a variety of wastes, including high-level radioactive waste (such as the waste found in the Hanford tanks), transuranic waste, low-level radioactive waste, hazardous waste, and mixed waste (both radioactive and hazardous). The Waste Management program is also responsible for managing the Department's spent nuclear fuel. Some 2,700 metric tons of highly radioactive spent fuel is stored at various sites around the country. Some of the fuel is corroding, and some has been in storage for as long as thirty years -- far longer than the planned storage time for this material.

In addition to maintaining safe storage the Department continues to operate treatment and disposal facilities while developing badly needed additional treatment and disposal capabilities. Examples of these projects include the Tank Waste Remediation System at Hanford, Washington; the Defense Waste Processing Facility and related high-level waste tank farm operations at the Savannah River Site, South Carolina; the West Valley Demonstration Project in New York; and the development of Site Treatment Plans with the 22 States where the Department stores or generates mixed waste.

Part of the waste management budget is funding for "corrective activities." In 1989, approximately 175 active and standby facilities were identified as being out of compliance with applicable local, state and federal regulations.

Corrective activities are conducted to bring these facilities into compliance as rapidly as possible. This portion of the budget has declined dramatically since 1991, when the appropriation was nearly \$200 million, to this year's request of roughly \$9 million. This declining budget reflects the success of this program in bringing the Department's facilities into compliance with applicable environmental regulations. For FY 1996, only three projects under the Corrective Activities budget require funding for completion: the Hazardous Waste Treatment Facility at the Los Alamos National Laboratory, and two construction projects related to low-level radioactive waste at the Oak Ridge National Laboratory. Some of the environmental laws that the Department must comply with include the Resource Conservation and Recovery Act, the Clean Air Act, the Safe Drinking Water Act, and the Toxic Substances Control Act. These are the same laws that the government expects private industries to comply with to protect human health and the environment. Unless and until Congress amends these laws, the Department has a legal and moral obligation to comply with these laws and to request adequate funding to do so. This basic principle is codified in Executive Order 12088.

TABLE 2  
WASTE MANAGEMENT AND CORRECTIVE ACTIVITIES  
Defense Funding Summary  
(Dollars in Thousands)

Activity
FY 1995
FY 1996
Program Management . . . . .
Facility Operations and Maintenance. . . . .
Former Defense Program Facilities. . . . .
New Facilities . . . . .
Defense Waste Processing Facility. . . . .
Hanford Waste Vitrification Plant. . . . .
Waste Isolation Pilot Plant. . . . .
Program Direction. . . . .

TOTAL, Waste Management-Defense. . . . .

CORRECTIVE ACTIVITIES

TOTAL, Corrective Activities-Defense . . . . .

TOTAL, Corrective Activities/Waste Management - Defense

\$ 184,113

1,236,258

62,060

708,786

234,648

442

174,323

72,417

2,673,047

\$ 512

\$2,673,559

\$ 141,778

1,178,891

171,085

566,040

178,651

0

172,700

92,451

2,501,596

\$ 3,406

\$2,505,002

TABLE 3

WASTE MANAGEMENT AND CORRECTIVE ACTIVITIES

Non-Defense Funding Summary  
(Dollars in Thousands)

Activity

FY 1995

FY 1996

Program Management .....

Facility Operations and Maintenance .....

New Facilities. ....

West Valley Demonstration Project .....

Low-Level Waste .....

TOTAL, Waste Management-Non-Defense .....

\$ 4,242

71,191

34,979

125,127

7,477

\$243,016

\$ 4,193

63,290

10,562

122,100

6,000

\$206,145

TOTAL, Corrective Activities, Non-Defense. . . . .

TOTAL, Corrective Activities and Waste Management, Non-  
Defense. . . . .

\$ 26,700

\$269,716

\$ 5,404

\$211,549

GRAND TOTAL, Waste Management . . . . . \$2,943,275 \$2,716,551

## Selected Accomplishments in Waste Management FY 1994

### In Idaho:

- Treated 700,000 gallons of liquid high-level waste to convert into a more stable, dry calcine form at the New Waste Calcining Facility.

### In Nevada:

- Began shipments of low-level waste from Rocky Flats to the Nevada Test Site for disposal. Low-level waste has been accumulating at Rocky Flats since 1990 when the last shipments were made.

### In New Mexico:

- Began the retrieval of bermed transuranic waste at Los Alamos National Laboratory to place in a compliant above-ground configuration;

### In Washington:

- Reduced the volume of high-level waste in tanks at Hanford by 5.2 million gallons after treatment with the 242-A Evaporator system;  
and

- Completed the construction and began operating the Treated Effluent Disposal Facility at the Hanford site. This facility provides continuous treatment and disposal of liquid effluent from the 300 Area. All discharges of effluent to the 300 Area Process Trenches has ceased.

In New York:

- Completed the transfer and neutralization of acid high-level waste at the West Valley site in preparation of vitrification.

In Tennessee:

- At the Oak Ridge Reservation, we treated over 5 million pounds of mixed waste (both radioactive and hazardous) in 1994 at the Toxic Substances Control Act (TSCA) Incinerator, exceeding both the requirements of the Oak Ridge Federal Facilities Compliance Agreement and the performance in 1993 which was 3.6 million pounds. These wastes originated from operations at our sites in Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky.
- Also at Oak Ridge, we treated 40 million gallons of wastewater at the K-25 Gaseous Diffusion plant's Central Neutralization Facility. This facility treats wastewater from the TSCA

incinerator that contains radioactive and/or hazardous constituents in accordance with the National Pollution

In South Carolina:

- At the Savannah River site, newly constructed low-level radioactive waste vaults began accepting waste. These vaults provide improved containment and protection of the area's relatively shallow water table, and represent the evolution of low-level disposal away from engineered trenches;
- After the restart of an evaporator system at Savannah River, over 1 million gallons of high-level waste was processed to reduce volume and create additional storage space; and
- Commenced radioactive operations of the In-Tank Precipitation facility and completed washing of Sludge Batch #1 at the Extended Sludge Processing Facility to prepare feed for the DWPF.

Priorities and Challenges for FY 1996 in Waste Management

Begin operations at the Defense Waste Processing Facility at Savannah River and at the West Valley vitrification facility.

Finalize the EPA compliance plan for the Waste Isolation Pilot Plant in New Mexico.

Continue to safely manage and treat approximately 61 million gallons of high-level radioactive waste stored in 177 underground tanks at the Hanford Site in Washington.

Continue to improve management and storage of all DOE spent nuclear fuel while implementing decisions of the complex-wide Spent Nuclear Fuel Environmental Impact Statement.

Implement Site Treatment Plans for mixed waste under the Federal Facility Compliance Act, and plan for the storage and disposal of treated mixed low-level waste.

ENVIRO NMENTAL RESTORATION

BUDGET REQUEST: \$1,993,731,000

27% of the total program budget

Major Activities

The Office of Environmental Restoration is responsible for the assessment and remediation of facilities and land no longer used for nuclear weapons production, as well as other inactive sites. These sites range from contaminated buildings to abandoned or inactive waste disposal sites. It is

this portion of the overall Environmental Management program that is often described as the "cleanup" program.

Remedial action requirements are derived primarily from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), and are carried out in compliance with the National Environmental Policy Act (NEPA).

The Formerly Utilized Sites Remedial Action Program (FUSRAP) and the Uranium Mill Tailings Remedial Action program (UMTRA) are also managed under the Environmental Restoration program.

We are continuing to move away from doing studies to engaging in actual cleanup. Almost 40 percent of the Environmental Restoration budget request for FY 1996 will fund remediation -- groundwater and soil restoration, and decontamination and decommissioning of facilities. A little over 15 percent of the budget request is for the Government Contribution to the Uranium Enrichment Decommissioning and Decontamination Fund, and a smaller portion is allocated for surveillance and maintenance activities, and landlord functions at the Fernald site and the Oak Ridge, Tennessee K-25 site. Most of the remaining budget is allocated to characterization and assessment of the nature and extent of environmental problems at our sites. In the coming years we will continue to devote even greater resources to environmental risk reduction and fewer resources to environmental assessments. (Information on the breakdown of the Environmental Restoration budget follows in Table 4.)

TABLE 4  
ENVIRONMENTAL RESTORATION  
Funding Summary  
(Dollars in Thousands)

SUBACTIVITY

FY 1995

FY 1996

DEFENSE

Facilities and Sites . . . . .

Subtotal, Defense . . . . .

\$1,379,924

\$1,379,924

\$1,575,973

\$1,575,973

NON-DEFENSE

Facilities and Sites . . . . .

Formerly Utilized Sites Remedial

    Action Project . . . . .

Uranium Mill Tailings Remedial

    Action Project . . . . .

Uranium Mill Tailings Groundwater

    Restoration Project. . . . .

Subtotal, Non-Defense. . . . .

219,380

74,100

88,117

7,000

\$ 388,597

244,758

85,200

80,000

7,800

\$ 417,758

Uranium Enrichment D&D Fund . . . . .

\$ 301,327

\$ 288,807

TOTAL, ENVIRONMENTAL RESTORATION\*

\$2,069,848

\$2,282,538

\*This total includes \$288.8 million for the Uranium Enrichment D&D Fund.

The total for Environmental Restoration programs without this fund is \$1,993,731,000.

By the end of FY 1996, we expect to have completed the remediation of almost 99 percent of the Uranium Mill Tailing Remedial Action (UMTRA) program's vicinity properties. As of now, we have cleaned up over 4,700 UMTRA vicinity properties, removing in excess of 2,400,000 cubic yards of contaminated materials.

The major activities of the Environmental Restoration program are as follows:

At over 30 major DOE installations, safe management and remediation of contaminated sites, characterization, remedial action, decontamination and decommissioning, and closure activities.

Formerly Utilized Sites Remedial Action Project (FUSRAP), which currently includes 41 former Manhattan Project or Atomic Energy Commission sites and five other sites added by Congress.

Uranium Mill Tailings Remedial Action (UMTRA) Project, which conducts remediation of 24 inactive uranium mill tailings sites that provided

uranium for past Manhattan Project and Atomic Energy Commission activities, as well as more than 5,000 associated vicinity properties.

Uranium Mill Tailings Groundwater Compliance Project, which will restore, as necessary, the groundwater at the 24 UMTRA processing sites to ensure compliance with EPA standards.

Uranium Enrichment Decontamination & Decommissioning (D&D) Fund, which provides for D&D, remedial actions, site-wide landlord requirements, and surveillance and maintenance efforts at the uranium enrichment facilities at Portsmouth, Ohio, and Paducah, Kentucky, and the inactive K-25 site at the Oak Ridge Reservation in Tennessee. This is also the source of funds for reimbursing a portion of the remedial action costs at active uranium and thorium mill sites as required by Title X of the Energy Policy Act of 1992.

#### Selected Accomplishments in Environmental Restoration

18 out of 46 Formerly Utilized Site Remedial Action Program (FUSRAP) sites (about 35%) have been cleaned up;

14 out of 24 Uranium Mill Tailings Remedial Action Program (UMTRA) sites have been completed, nearly 60%. Over 27 million cubic yards of mill tailings have been removed and disposed;

119 remedial action projects have been completed, with an additional 111 underway;

16 million pounds of scrap metal have been recycled; and

2.4 billion gallons of ground water have been pumped and treated and 1.8 billion gallons of surface water have been treated to reduce contaminants.

#### Priorities and Challenges in Environmental Restoration

In FY 1996, the Environmental Restoration program will:

- Complete 100 interim cleanup actions, such as early removals and expedited responses;
- Complete 20 remedial action projects;
- Complete 12 interim decommissioning and decontamination actions;
- Complete 6 UMTRA cleanups and begin cleanup at the final 2 sites;
- and
- Complete 2 FUSRAP cleanups.

## NUCLEAR MATERIAL AND FACILITY STABILIZATION

BUDGET REQUEST: \$1,679,711,000

23% of the total program budget

### Major Activities

The mission of the Office of Nuclear Material and Facility Stabilization is to reduce the high-risk conditions associated with unstable excess nuclear and chemical materials left intact at former nuclear weapons production facilities and reduce the maintenance costs associated with stabilizing buildings awaiting decontamination or final disposition. More specifically, this involves the protection of workers and environment from exposure and contamination, stabilization of hazardous nuclear and chemical materials, deactivation of facilities to attain the lowest surveillance and maintenance costs, and disposition of facilities to the Office of Environmental Restoration for decontamination and decommissioning.

With the end of the Cold War, a large amount of extraordinarily hazardous nuclear materials and a large number of facilities have become surplus and require stabilization prior to decontamination and decommissioning. These facilities typically require extensive surveillance and maintenance, as well as associated "landlord" activities such as utilities and fire safety

functions. The Department will continue to incur costs for these activities until the nuclear materials are stabilized and removed. Approximately 4500 facilities have already been transferred to the Environmental Management program for stabilization. Another 1,200 are expected between now and FY 1999. Nuclear materials will require a variety of chemical processing activities, repackaging operations, and performing surveillance, maintenance, and safeguards activities. Surplus facilities, once stabilized, will require decontamination and decommissioning (D&D).

In FY 1996, the Environmental Management program's responsibilities in the Nuclear Material and Facility Stabilization program area will double as the result of transferring the responsibility for Savannah River Site in South Carolina, the Mound Site in Ohio, and the Pinellas site in Florida from Defense Programs to the Environmental Management program, as well as approximately 18 high-risk facilities and 16 buildings supporting them at other sites in several states. These new responsibilities will include repair and operation of some facilities, stabilizing nuclear materials that pose a significant risk in their current form or location, producing radionuclides for Departmental missions, and developing new ways of operating complex facilities. This is the fastest growing program within the Office of Environmental Management. The carrying costs for these facilities are enormous and will continue to increase until the nuclear materials are stabilized and/or removed. The landlord responsibilities -- including fire safety, utilities, roadway maintenance, and security -- and surveillance and maintenance costs, for which the Office of Nuclear Material and Facility

Stabilization is responsible, is in excess of \$1 billion. Landlord responsibilities represent about 70 percent of the Office's budget.

Our budget request for Nuclear Material and Facility Stabilization reflects the overall strategy of the Environmental Management program to stabilize nuclear materials and facilities, recognizing that we can not "cleanup" all of our facilities at once. Let me emphasize that this is one area in which inaction on our part could have serious near-term consequences on worker health and safety and the quality of the environment. Significant funding is needed to safely stabilize these facilities in order to reduce the cost and risks of maintaining the surplus facilities awaiting decontamination.

Our budget request for FY 1996 includes funding for four principal sites:

Savannah River Site, South Carolina. As of January, 1995, the

Environmental Management program became the primary site manager, or landlord, at Savannah River. The site budget request of \$685 million in FY 1996 is needed to safely conduct a range of operations. One urgent risk to workers at the site is the presence of nuclear materials in solution in the F-Canyon.

Rocky Flats Plant, Colorado. \$393.8 million is allocated for the

program's operations, including the stabilization of 100 kilograms of pyrophoric plutonium, thus reducing the risk of fire. Also, the stabilization of about 375 gallons of acidic weapons-grade uranium

liquids is planned.

Hanford, Washington. Safe stabilization of plutonium with minimal worker exposure at the Plutonium Finishing Plant is planned, as is the removal of the remaining radioactive and hazardous chemicals from the PUREX facility to place the facility in a safe and stable, low maintenance condition, and to reduce out-year surveillance and maintenance costs. The funding request for FY 1996 is \$286.1 million.

Idaho National Engineering Laboratory. We are working to stabilize uranium and liquid acidic solutions to significantly reduce out-year maintenance costs and have requested \$162.1 million for FY 1996. Leakage from aging pipelines could result in unsafe and costly contamination.

Additional Nuclear Material and Facility Stabilization site responsibilities include high risk facilities at:

Los Alamos National Laboratory, NM; ETEC, CA; Oak Ridge, TN; Mound near Dayton, OH; and Pinellas, FL.

Information on the Nuclear Material and Facility Stabilization budget follows in Table 5.

TABLE 5  
 NUCLEAR MATERIAL and FACILITY STABILIZATION  
 Funding Summary  
 (Dollars in Thousands)

Activity

FY 1995

FY 1996

DEFENSE

- (1) Program Integration . . . . .
- (2) Surveillance and Maintenance. . . . .
- (3) Deactivation/Compliance . . . . .
- (4) Landlord. . . . .
- (5) Program Management. . . . .
- (6) Program Direction . . . . .

\$ 29,590

268,010

124,868

232,335

53,940

56,774

\$ 63,299

542,733

208,719

539,294

144,681

97,302

Total, Defense

765,517

\$1,596,028

NON-DEFENSE

Program Integration . . . . .

Surveillance and Maintenance. . . . .

Deactivation/Compliance . . . . .  
\$ 1,200  
54,313  
17,823  
\$ 2,916  
40,217  
40,550

Subtotal, Non-Defense. . . . .  
73,336  
83,683

Total, Nuclear Materials/Fac. Stab.  
\$838,853  
\$1,679,711

(1) Program Integration refers to planning, site characterization, and other activities associated with assuming management responsibility for a site.

(2) Surveillance and Maintenance refers to periodic inspection of items such as HEPA filters, tank levels, and waste drum conditions to ensure safe operations of the facilities.

(3) Deactivation/Compliance refers to activities associated with the removal of hazardous and radioactive material, equipment, etc., to reduce the hazard classification of the facility.

(4) Landlord refers to activities that cut across an entire site, such as medical and fire-fighting services, electricity, sewer, and water.

(5) Program Management refers to contract support directly related to Nuclear Material and Facility Stabilization.

(6) Program Direction refers to salaries and other direct costs of Federal employees.

## Selected Accomplishments of the Nuclear Material and Facility Stabilization Program

At Rocky Flats, Colorado:

Initiated shipment of low-level waste generated at Rocky Flats to the

Nevada Test Site and continued shipments to Hanford;

Completed renegotiation of interagency agreement with the State of Colorado and the Environmental Protection Agency; and

Completed solidification of 375 bottles of dilute plutonium solutions.

At Richland, Washington:

Completed deactivation of the Uranium Tri-Oxide plant;

Reduced the contaminated area of PUREX by 420,000 square feet, approximately 90 percent of the total area; and

Remediated the plutonium bearing ductwork in support facility at the Plutonium Finishing Plant.

At Idaho National Engineering Laboratory, Idaho

Completed the uranium accountability at the Idaho Chemical Processing Plant's Buildings 601 and 602, part of the facility's uranium recovery line;

Completed the deactivation of the second and third cycle extraction

processes at the Idaho Chemical Processing Plant (ICPP); and

Completed the deactivation of the ICPP denitrator process stabilizing 12,000 liters of liquid uranium inventories.

### Priorities and Challenges for Nuclear Material and Facility Stabilization

At Rocky Flats, Colorado:

Thermally stabilize 100 kilograms of pyrophoric plutonium oxides to eliminate the risk of fire;

Convert 1,400 liters of nitrate solutions comprising 275 kilograms of 93.2% highly enriched uranium to a solid form; and

Complete filtered venting of 2,000 drums containing plutonium materials to prevent explosion and possible failure of containment.

At Richland, Washington:

Complete 78% of the Plutonium-Uranium (PUREX) deactivation project;

Disposition 947,000 liters of surplus uranium contaminated nitric acid; and

Complete 75% defueling of the Fast Flux Test Facility (FFTF) reactor.

At Idaho National Engineering Laboratory, Idaho:

Initiate deactivation of the Idaho Chemical Processing Plant dry end process including removal of up to 150 kilograms of uranium in graphite ash; and

Complete definitive design for deactivation of calcine cell within the Old Waste Calcining Facility.

At Savannah River, South Carolina:

Complete stabilization of 300,000 liters of plutonium 239 solutions in F Canyon; and

Complete the stabilization of 1,600 liters of Pu-242 solutions and 16,000 corroding plutonium targets pending completion of the Interim Management of Nuclear Materials Environmental Impact Statement.

## TECHNOLOGY DEVELOPMENT

BUDGET REQUEST: \$390,510,000

5.3% of the total program budget

### Major Activities

Developing new technologies to address the environmental challenges in the former nuclear weapons complex is an integral part of the Environmental Management program. This program also reflects our strategy of investing in technology development to develop long-term effective methods for addressing environmental challenges. The goals of our technology development program include reducing risks to people and the environment, reducing cleanup costs, and finding new technologies to environmental problems for which no solutions currently exist. The Environmental Management Technology Development program is an aggressive national program of applied research, development, demonstration, testing, and evaluation for environmental cleanup, waste management, and related technologies. Our strategy is to identify and develop technologies that can clean up the nuclear weapons complex, and manage the wastes more quickly, more safely and at a lower cost. In many cases, developing new technologies presents the best hope for ensuring a real reduction in risk to the environment and improved worker and public safety, especially given competing national priorities and limited funds. (The Technology Development budget follows in Table 6.)

TABLE 6

TECHNOLOGY DEVELOPMENT

Funding Summary

(Dollars in Thousands)

Subactivity	FY 1995	FY 1996
-------------	---------	---------

DEFENSE

Treatment and

Remediation

Technology

Systems

157,718

203,800

Innovative &  
Crosscutting  
Technology  
Program

80,229

80,200

Industry Programs

43,200

41,200

Technology

Integration

9,789

17,040

Program Support

38,054

33,271

Program Direction

16,754

14,999

Education and

Integrated Risk

Management

Initiative

38,752

0

Infrastructure  
Program

32,863

0

Total, Technology  
Development

417,359\*

390,510

\*This includes Education and Risk Management Initiatives and Infrastructure Programs. These programs have been transferred to other Environmental Management organizations for FY 1996. The base budget for FY 1995 is \$336.5 million.

## Selected Accomplishments in Technology Development

In Texas:

The Expedited Site Characterization methodology saved \$3 million and 6 months in characterizing parts of the Pantex, Texas, site. It also provided a more comprehensive site analysis than would have been possible with baseline technologies.

Five new applications of technologies developed saved over \$28 million and, in one case, decades of treatment. (See California example below.)

Decisions have been signed with private industry for three remediation projects using new technologies: Minimum Additive Waste Stabilization (MAWS) at Fernald, Robotic Retrieval and Vitrification at Idaho, and MAWS at Savannah River. These applications will save over \$80 million over baseline technologies. In total, over \$115 million have been saved through the use of new or improved technologies.

In Tennessee:

We demonstrated a Laser-Induced Fluorescence (LIF) sensor system for the detection of uranium at the now closed K-25 gaseous diffusion uranium enrichment plant at the Oak Ridge site. This real-time sensor is

capable of detecting uranium on surfaces through laser excitation of the oxide. Uranium was detected on the surfaces of gaseous diffusion chambers inside the building of K-25 as well as on the rooftops and vent stacks. For decontamination and decommissioning activities, where alpha particle detectors are currently being used to screen for uranium, the LIF system offers the potential of reducing first-order screening time to less than 10 percent of current requirements.

In California:

At Lawrence Livermore National Laboratory, we demonstrated the use of dynamic underground stripping, a system for thermal remediation of an underground gasoline spill. Underground imaging techniques were used to verify remediation efficiency and to detect the presence of free gasoline, if any. Over 30,280 liters of gasoline have been removed, at an estimated cost of \$65 per cubic meter, versus a typical pump and treat cost of about \$260 per cubic meter. The time for remediating with a pump-and-treat system is in terms of several decades, while the dynamic stripping is in terms of several months. The baseline technology, pump and treat, costs \$25 million and takes 30 years; dynamic stripping costs \$6 million and takes only 6 months -- saving \$19 million and decades. The University of California is seeking commercialization opportunities.

In South Carolina:

At the Savannah River Site, we successfully demonstrated in-situ air stripping. This new technology, which involves injection of air through underground horizontal wells to strip groundwater and soils of volatile organic chemicals, will be transferred to the Environmental Restoration program and to private industry for use.

Also at Savannah River, Fiber Optic Chemical sensors have been used to allow on-the-spot monitoring of chlorine in waste streams and groundwater. This allows real-time analysis rather than normal week-long laboratory analysis. Non-exclusive licenses for Trichloroethylene sensors have been issued with Purus and Burge Instrument Company In New Mexico:

In New Mexico:

The Long Range Alpha Detector was implemented at the Los Alamos National Laboratory. This instrument measures alpha radiation in air molecules in real-time and on large surface areas. Preliminary costs estimates indicate that LRAD saves from \$10 to \$20 thousand per site surveyed compared to conventional technologies. Up to 30 sites can be monitored in a day without disturbing soil or generating waste. This technology was transferred from Los Alamos to TMA/Eberline via a Cooperative Research and Development Agreement.

The Magnetometer Towed Array measures magnetic forces, allowing buried hazardous wastes -- particularly ferrous metals -- to be located. Up to 15 acres a day can be surveyed, more than 7 times the capability of conventional technologies. It also costs about \$2000 per acre to use versus \$3500 to \$5000 with conventional methods. Sandia National Laboratory developed this technology, and transferred it to Geo-Centers, Inc.

#### Priorities and Challenges in Technology Development

Some major priorities and challenges for Technology Development include:

Treat and dispose of mixed wastes. We are pursuing versatile treatment methods such as plasma, vitrification, molten metal and non-thermal techniques. These activities are being closely coordinated with the Waste Management program to meet Federal Facility Compliance Act requirements.

Retrieve and process tank waste. We are initiating full-scale demonstrations on technology systems to safely retrieve and efficiently process high-level tank waste for permanent disposal. Tank structural analysis and waste content analysis methods are being developed.

Remediate contaminated soils and groundwater. We have initiated full-scale demonstrations on technology systems to characterize, contain, and remediate contaminated plumes in soils and groundwater. In-situ treatment of Dense Non-Aqueous Phase Liquids (DNAPLs) is one example.

Stabilize landfills. Containment and in-situ treatment methods for buried waste are being developed. In addition, the retrieval, characterization and treatment of landfill wastes are being pursued.

Recycle materials from decontamination and decommissioning of facilities. We will conduct a full-scale demonstration for the development of facility decontamination and decommissioning technologies with emphasis on the recycling of materials.

Transfer technologies to private industry. As part of the Secretary's emphasis on measuring results, we have committed to making a minimum of 24 technologies available for transfer to private industry and to federal facilities. By successfully transferring these technologies, the nation can achieve a return on the investment in technology development.

This concludes the description of our specific program areas. In the next

section, I will describe our program's strategic goals and highlight the progress we have made.

### III. STRATEGIC GOALS: INITIATIVES AND PROGRESS

Over the past year, the Department has made significant progress in fulfilling its goals for improving the Environmental Management program. In 1993 I established six strategic goals to guide our efforts.

- (1) Manage and eliminate the urgent risks and threats in our system;
  
- (2) Provide a safe workplace that is free from fatalities and accidents, and that continuously reduces injuries and adverse health effects;
  
- (3) Change the system so that it is under control managerially and financially;
  
- (4) Become more outcome oriented and get more results on the ground in a timely fashion;
  
- (5) Focus the technology development program on DOE's major environmental management issues while involving the best talent in the DOE and the national (public and private) science and engineering communities; and
  
- (6) Develop strong partnerships between the Department and its stakeholders.

We are dedicated to meeting the strategic goals we have set for the Environmental Management program, despite fiscal constraints. In fact, focussing on these strategic goals and priorities is even more critical in the

face of funding constraints. However, we must all do our jobs more efficiently and effectively to meet the increasing amount of work we face. I would like to highlight some of our recent achievements in these six areas.

### REDUCING URGENT RISKS

Two of our most urgent safety concerns have been addressed. A unique mixing pump installed in the SY-101 high-level waste tank at Hanford has begun routine operation after previous experimental use. This pump has virtually eliminated the danger of an explosion in this tank. Also, the threat of fire from unstable inventories of plutonium has been greatly reduced at Rocky Flats since beginning stabilization processes there.

In addition to these high-priority risks, our spent nuclear fuel management program continues to improve the storage conditions of this highly radioactive material. Nearly 200 spent fuel elements were recently transferred to safer storage conditions at our Idaho site, and we continue to upgrade the facilities that store this highly radioactive material.

We are committed to continued risk reduction. The Department has hundreds of high-level waste tanks, and some continue to pose some risk of explosion.

Though the installation of the mixing pump in our most troublesome tank has been successful, we must continue to mitigate risks in the other storage tanks. Also, we have only begun to stabilize the plutonium inventory at Rocky Flats that poses a fire hazard. Some 100 additional kilograms need to be stabilized to eliminate the risk of a plutonium fire. We are committed to

seeing this project through as quickly as possible. Furthermore, the continued improvement of our spent nuclear fuel storage facilities is a priority. We have made progress in this area, but more needs to be done. We are determined to see that these materials are stored in a safe, secure manner to enhance worker and public safety as well as support the Nation's nonproliferation goals.

As noted earlier in my testimony, the Department has published and adopted a series of risk principles to guide the setting of priorities for the Environmental Management program. These principles, which were developed as a result of efforts led by the Office of Science and Technology Policy, will be used across the federal government, including applying sound risk analysis procedures to regulatory decision-making. As a regulated agency, not a regulator, the Department modified Administration's principles to apply more specifically to its programs and procedures, to accommodate our citizens' values, to address inter-generational issues, and to clarify the role of prevention programs and social and economic considerations in risk management.

## PROTECTING WORKER'S HEALTH AND SAFETY

Far too often, worker protection and safety have taken a back seat in the Department's corporate culture. This is no longer the case. Our second strategic goal helps ensure that the people who carry out the heart of the work of our program are protected from the risks they may face. Through continuing vigilance and close cooperation with our contractors, last year the

Department reduced the amount of work days lost due to injury by 12 percent.

We will continue to train thousands of workers through sponsorship of a Hazardous Waste Operations and Emergency Response (HAZWOPER) program in cooperation with the National Institute for Environmental Health Sciences.

This training is essential for the safe conduct of operations within Departmental treatment, storage, and disposal facilities and hazardous waste sites, and is required by the Occupational Safety and Health Administration for workers who enter and work in these areas.

## GAINING FINANCIAL AND MANAGERIAL CONTROL

### Contract Reform

The Department's contracting system fulfilled the nation's Cold War priorities of designing, building, and testing nuclear weapons secretly and quickly.

When production was the primary mission, one large contractor was responsible for virtually all services at each site, and that contractor was protected from most financial risks by the terms of the contract.

While appropriate for Cold War production, these types of contracts are not the best way to reach the environmental quality objectives of the Department

today. We will require contractors involved in environmental management activities to demonstrate sound business practices and assume greater financial responsibility for activities within their control.

Contract reform initiatives emphasize competition and the development of clear, objective performance criteria and measures. Performance-based incentives are focused on the accomplishment of the Department's strategic mission and reward contractors for fulfilling clear programmatic objectives. The Department has also begun to reallocate the financial and legal risks inherent in operating its sites in order to hold contractors more accountable.

Currently, nearly \$30 billion worth of contracts are being renegotiated and recompeted. A recent example of how the Department is changing its contracting arrangements is the consolidation of contracts at the Idaho National Engineering Laboratory. This consolidation is projected to save over \$500 million over the next five years. It is also notable in that the contractor assumes a greater and more appropriate share of the financial risk for inadequate performance.

This process is just getting underway, and will take time to complete. However, it is well worth the effort to create a contract regime that is better-suited to our mission and will save billions of dollars.

#### Improved Contract Management

Compared to other federal agencies, the Department of Energy has the highest

ratio of contractors to federal employees. We cannot gain managerial control of this program until we have the personnel to help us do that. The Department has been working closely with the Congress and the Office of Management and Budget to allow for greater flexibility within the authorized budget to hire more federal workers to shift this ratio. New cost estimators and project managers have already been hired to improve the efficiency of projects and quickly identify cost needs and opportunities for savings. Overall, sixteen hundred new federal employees, including project managers and cost estimators, have been authorized for the program since FY 1994 and 1200 will be hired by March 1995. These new managers will primarily be located at our field sites, rather than in Washington, D.C.

As I mentioned before, we must downsize our contractor workforce substantially to bring workforce structure and size in line with new missions and management arrangements. These contractor workforce reductions are also necessary for improved productivity and cost savings.

#### New Initiatives for Budget Allocation

There are opportunities to better manage our money and achieve savings. Given the uncertainty of annual budgets, and the varying scope of work the program is responsible for, flexibility in budget allocation is essential to meet our program goals.

As I mentioned earlier, a new approach to budget allocation is proposed for this year. In FY 1996, at the Rocky Flats site, we are proposing a pilot

budget process that will allocate funds to the site as a whole, rather than be divided along Environmental Management programmatic lines (such as environmental restoration, waste management, etc.). This will allow site managers to more quickly and effectively direct funds to the most urgent risks they face and to be responsive to changing conditions or new information about risks at the sites rather than having to go through the cumbersome exercise of reprogramming funds currently done at headquarters. Additionally, the site manager will be better able to engage regulators and other stakeholders to develop priorities that make sense for the site. It also increases the accountability of site managers to National Program Managers, to Congress, and to the regulators.

This pilot program holds much promise to reinvent budget allocation and improve risk management. Though only a preliminary program this year, we plan to expand the concept to all of our major sites in FY 1997 if it proves successful.

#### DEMONSTRATING TANGIBLE RESULTS

The Environmental Management program is committed to showing tangible progress in all of its activities. Already I have highlighted the achievements of the program since its inception, at particular sites, and by program area. The progress we have made is significant, but the challenges we face continue to mount. Thus, we must continue to set goals for progress in order to guide our efforts and address priorities. Let me share with you some of our immediate

plans for the coming year.

Some of the key outcomes of the Environmental Management program planned for FY 1996 include:

Complete the stabilization of the current plutonium oxide inventories at Rocky Flats, eliminating the risk of a plutonium fire;

Transfer over 500 additional spent fuel elements to safer storage conditions in Idaho and Washington, thus protecting workers and the public from these highly radioactive substances;

Demonstrate 50 new or improved environmental cleanup and/or characterization technologies to help reduce costs and increase the effectiveness of our work;

Complete 100 interim environmental restoration actions, 20 larger-scale cleanups, 12 interim decommissioning and decontamination actions, and complete 2 more Formerly Utilized Sites Remedial Action Program (FUSRAP) projects;

Begin operation of the Defense Waste Processing Facility in South Carolina and the vitrification plant at West Valley, New York, to convert liquid high-level waste into stable glass logs; and

Finalize the Waste Isolation Pilot Plant compliance application for EPA

approval, an important milestone for the Department's transuranic waste repository program.

It is my sincere hope and intention that, given adequate resources for our program, I can report back to you next year, as I am this year, and tell you that all of these things, and more, have been achieved.

#### DEVELOPING MORE EFFECTIVE TECHNOLOGIES

Beginning in 1993, the Environmental Management program established the goal of "focusing" technology development efforts on our most critical needs to assist in the missions of environmental quality. Five "focus areas" were created in 1994 to guide this effort. This "focusing" has been achieved and we are now engaged in developing and implementing new technologies and methods of environmental characterization and remediation to get results. Considering initial analysis that points to the Environmental Management program requiring several decades -- or more -- to complete its work, the need for basic research is also clear.

The five focus areas, and some examples of progress, include the following:

Mixed waste characterization, treatment, and disposal. Our Idaho National Engineering Laboratory leads the programs to address treatment, destruction, and disposal of mixed wastes. Two of these, vitrification of mixed waste sludge and the encapsulation of nitrate salt waste in polyethylene, have been demonstrated in pilot projects. These activities will be closely coordinated with the Office of Waste

Management to meet Federal Facility Compliance Act requirements.

Radioactive tank waste remediation. Led by our Richland, Washington office, this program addresses the urgent problems associated with the storage of millions of gallons of high-level radioactive waste.

Characterization, leak detection, retrieval and processing of the tank wastes for final disposition are key areas of this effort. By June of 1997, the goal is to demonstrate the ability to retrieve and treat liquid tank waste to comply with the Hanford Tri-Party Agreement.

Contaminant plume containment and remediation. Over 600 billion gallons of ground water and 200 million cubic yards of soil are contaminated with radioactive and hazardous materials. Our Savannah River Site in South Carolina heads up this focus area. The goal of this focus area is to prevent further spread of contaminants and remediate the ground water and soil contamination.

Landfill stabilization. Also coordinated by the Savannah River Site, this focus area is aimed at remediating landfills and contaminated soils associated with over 3 million cubic meters of radioactive and hazardous buried waste, and other types of landfilled waste.

Facility transitioning, decommissioning final disposition. The Department is responsible for deactivating and dispositioning 1200 facilities across the nation. The vast majority of surplus facilities

are expected to be transferred to the Environmental Management program.

The Morgantown Environmental Technology Center in West Virginia leads in the development of methods to decontaminate structures at lower cost to the taxpayer.

For FY 1996, our Technology Development program plans to demonstrate 50 new or improved environmental technologies. Furthermore, 24 technologies will be transferred or made available for transfer to our operating programs, other federal facilities, and the private sector.

Last year, we announced a new approach to managing our environmental research and technology development activities. The goal of this new approach is to conduct a research and technology development program that involves the best talent in the Department and the national science communities to focus on developing environmental surveillance and remediation technologies to efficiently clean up our sites.

Key features of this new approach include teaming up with our Waste Management, Environmental Restoration, and Nuclear Materials and Facilities Stabilization programs to identify, develop and field test needed technologies for these programs; continuing to use a life-cycle approach to technology development; involving high-level management across the Department; focusing

technology development activities on solutions to major environmental management problems; focusing all available resources in national laboratories more effectively; involving industry in developing and implementing solutions including both technology transfer into the Department and technology transfer from DOE to the private sector; strengthening basic research by involving academia and other research organizations to stimulate technological breakthroughs; enhancing mechanisms for regulator and stakeholder involvement; and applying business principles such as avoiding unnecessary costs, getting a return on investment, and quickly transferring technologies to the marketplace.

We are involved in a number of efforts to develop new technologies. First, of course, are the variety of efforts at the national laboratories. These institutions have some of the best technical talent and facilities in the world, and are now available for conversion from their previous defense missions. However, we will continue to seek the most cost-effective source of research and development rather than rely solely on an internal, Departmental system. Second, we are participating on a Federal Advisory Committee to Develop On-Site Innovative Technologies (DOIT) with several western governors, senior representatives from the Department of Defense and Interior, the Environmental Protection Agency, and ex-officio members of the Western Governors Association and the Office of Management and Budget.

## PUBLIC PARTICIPATION AND ACCOUNTABILITY

Our nation's nuclear weapons operations were conducted in secrecy over a

period of fifty years, which while necessary during the Cold War, resulted in distrust of the Department's ability to restore, stabilize, and clean up the environmental legacy left behind. Secretary O'Leary's openness initiative beginning in December 1993 recognized the credibility problems the Department faced and its impact on our ability to do our job. We have learned that building trust is essential to the success of the Environmental Management program -- for negotiating agreements, obtaining permits, and achieving public consensus. Following the Secretary's initiatives on openness and involving the public in our decision-making, I established the Office of Public Accountability in 1993. This office is responsible for ensuring that all Environmental Management offices conduct substantive, cooperative planning with all our stakeholders in the development and implementation of budgets and policies. This mechanism allows the people who live and work in and around our sites to understand what we are doing and why, and affords them the opportunity to engage in the process. Our personnel in the field are receiving training on public participation, and in a short time, this office has taken major strides to actively involve the public in meaningful ways: We are continuing with an aggressive schedule that follows the recommendations of the Keystone process to involve stakeholders in key decisions through site-specific advisory boards (SSABs) at our major sites. We currently have SSABs in place at Fernald, Hanford, Rocky Flats, Idaho, Nevada, and the Savannah River Site. Three additional SSABs are in the final stages of forming.

Through the State and Tribal Government Working Group (STGWG), the

Department provides a forum for six tribes and 17 states to share their concerns with us and provide input to the various sites around the country.

The Environmental Management Advisory Board (EMAB) involves representatives from labor, the U.S. Environmental Protection Agency, tribes, states, and citizen groups in a variety of issues facing the Environmental Management program. The EMAB was recently reconstituted, and now has 28 members.

We are also committed, in accordance with Executive Order 12898 on environmental justice, to working with those individuals and groups around our sites who may consider themselves to be disenfranchised. For example, we are working to ensure that the Native American communities around our sites are responsibly included in all of our regulatory negotiations.

#### IV. CONCLUSION -- REMAINING CHALLENGES BEFORE US

The Department of Energy has undergone significant changes and faced difficult challenges over the past few years. Since the end of the Cold War, the Department's primary mission has changed from that of producing nuclear weapons to addressing the consequences of a half-century of nuclear weapons production, testing, and research. We are applying our technical and scientific expertise on other endeavors to expand our knowledge and support

the national economy. The Secretary has led the momentous effort in making our Department more open to facilitate meaningful public awareness and participation in national policy decisions. These institutional and fundamental cultural changes within the Department cannot happen overnight. We believe that we are on the right track and have been effective in making fundamental changes in the way the Department does business.

The Environmental Management program has been integrally involved with these Departmental changes. Openness, focus on a new mission, new motivations, and accountability are characteristics that the Environmental Management program has attempted to develop, and will continue to nurture. Coupled with our strategic goals, the Environmental Management program is dedicated to meeting its responsibilities in reducing risks, creating a safe work environment, and protecting public safety.

Our proposed FY 1996 budget for the Environmental Management Program is a declining budget given an equal work scope but it will still allow us to fulfill legal and moral commitments while simultaneously streamlining our program. This streamlining, however, has limits beyond which further cuts in funding will trade off savings against safety. We are engaged in a daunting effort to redirect the national commitment from production of nuclear weapons for our national security strategy to resolving the resulting widespread environmental and safety problems at thousands of contaminated sites across the country. We have an obligation to do no less and we are dedicated to producing meaningful results.

Thank you.