

General

Slu



Department Of Energy
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87185-5400

JUN 12 1997



Mr. Benito Garcia, Chief
New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
2044A Galisteo
Santa Fe, NM 87502

Dear Mr. *Benito* Garcia :

The Department of Energy (DOE), Albuquerque Operations Office (AL), has established a goal of completing the disposal of legacy waste and clean-up of environmental restoration sites by the end of fiscal year 2006. For the Department of Energy to reach this goal successfully it is important that tribal nations, states, regulators and stakeholders participate in the development of the path forward and help DOE formulate the approach we will take in cleaning up the weapons complex. To facilitate public input into the development of the EM Program, AL has developed the "Accelerating Clean-Up: Focus on 2006 for the Albuquerque Operations Office Discussion Draft" (AL Summary) for all of AL's facilities (Los Alamos National Laboratory/New Mexico, Sandia National Laboratories/New Mexico, Kansas City Plant/ Missouri, Pantex Plant/Texas, Pinellas Plant/Florida, various Uranium Mill Tailing sites, and the Grand Junction Office/Colorado).

The AL Summary outlines the activities to be performed at each of AL's facilities over the next ten years. In many instances, the clean-up activities will be complete in five to eight years. The AL Summary is meant to provide a brief synopsis of the plans and actions AL will undertake over the next few years to maintain compliance at our sites while accelerating site clean-up and closures. The AL Summary provides a basis for discussions with our stakeholders as we begin this planning process. As part of our development of the AL Summary, we are interested in receiving your comments or recommendations. The comments you provide will be shared with the Department of Energy Environmental Management Program to help develop the national strategy.

While reviewing this document it is important to remember that this document is not a final plan, but rather a document to kick-off discussions as we plan for future activities. Various discussions with stakeholders will be scheduled between June 12, 1997, and September 9, 1997, to gather their thoughts and recommendations on the path forward to achieving AL's goal. In concert with our efforts, DOE/HQ will be issuing the National Discussion Draft to review the national strategies as presented.

Thank you for your continued interest and involvement in this process. If you are interested in discussing specifics of the AL Summary any further or need additional



Printed on recycled paper



13037

information, please contact my office at (505) 845-6210. I look forward to having meaningful exchanges of information and concerns as we undertake this significant planning effort.

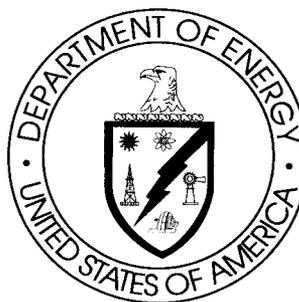
Sincerely,

A handwritten signature in black ink, appearing to read "W. John Arthur, III". The signature is fluid and cursive, with a large initial "W" and a stylized "A".

W. John Arthur, III
Assistant Manager for Office
of Environment/Project Management

Enclosure

cc w/o enclosure:
B. Twining, OOM, AL
D. Geary, OPA, AL



ACCELERATING CLEANUP: FOCUS ON 2006

DISCUSSION DRAFT

OFFICE OF ENVIRONMENTAL MANAGEMENT

JUNE 1997



The Discussion Draft "Accelerating Cleanup: Focus on 2006," is designed to give Tribal Nations, states, regulators, and other stakeholders an opportunity to participate in the development of the entire Environmental Management (EM) program, helping us to define innovative approaches to streamline cleanup and to save taxpayer dollars. It expands from EM's traditional stakeholder participation on the annual budget to an opportunity to participate in developing the long-term strategies of the program.

As a matter of National policy, the Clinton Administration and the Department of Energy (DOE) recognize the Federal Government's obligation to clean up sites across the country that supported our nation's defense mission and to protect human health and the environment now and in the future. This Discussion Draft reaffirms that commitment and offers us an opportunity to shape the strategies needed to meet the challenges before us.

We began this effort in 1996, when EM initiated a new strategic planning process built around a vision of both accelerating the cleanup program and completing the cleanup of as many DOE sites as possible by 2006. The strategic vision challenged us to focus management attention on action in defining better and more efficient ways to conduct our work. As Secretary Pena has said, "We cannot continue to operate this program in the same way as in the past."

I recognized from the outset that this planning effort would require unprecedented levels of participation and active involvement of Tribal Nations, states, regulators, and other stakeholders to succeed. We are long past the time when declarations from Washington, D.C. can be imposed unilaterally on those who live around and work at our sites. We learned a great deal as we worked with our site managers and stakeholders in not only pursuing a new strategic planning process, but also in revamping all of our management systems.

First, the job of creating a Ten-Year Strategic Plan was more difficult than I first anticipated. The EM program has historically been developed on a year-to-year basis. Few sites had developed comprehensive strategies for completion. Creating reliable baselines and a plan for the future has not been easy, and we still have much work to do. Even with the efforts over the last year, we still have data gaps and inconsistencies that will need to be addressed over the upcoming months.

Second, as the process evolved, I realized that we needed to afford more time and a more disciplined process for stakeholders to participate. Accordingly, we have revised the schedule to allow for public input into this Discussion Draft, and additional input into a draft National 2006 Plan that we expect to issue later this year. The Initial National 2006 Plan will be issued early next year and will be updated periodically.

The Discussion Draft indicates that it will take significant effort to clean up most sites by 2006, but that the goal is feasible if the program can become more efficient. I have challenged the sites to undertake a number of productivity improvements that would allow the program to achieve its goals. If successful, these productivity improvements would allow 12 percent more work to be conducted by 2006 within the same budget. These productivity improvements would allow us to achieve full compliance and to complete cleanup at most of the DOE sites. Even with this accelerated effort, however, almost 50 percent of the work would still remain after 2006.

The Discussion Draft focuses on what can be achieved by 2006, the original end date for the "Ten-Year Plan." Since the Initial National 2006 Plan will be issued in early 1998, EM has revised the title of EM planning documents to focus on the end point, 2006, rather than the number of years. I had never intended that the Ten-Year Plan would be a rolling goal - rather it is a completion goal for most of our sites.

We are looking forward to a collaborative effort with Tribal Nations, states, regulators, and other stakeholders in shaping the future of the EM program. We have an unprecedented challenge to achieve all of our compliance goals, accelerate cleanup, reduce risks to workers and communities, and effectively address other stakeholder priorities. This effort will only be achieved by strong citizen and regulatory agency participation.



*Alvin L. Alm
Assistant Secretary for Environmental Management*

TABLE OF CONTENTS

| | |
|--|------|
| EXECUTIVE SUMMARY | ES-1 |
| 1.0 INTRODUCTION | 1-1 |
| 1.1 Scope of the Environmental Management Program | 1-2 |
| 1.2 History of Funding for the Environmental Management Program | 1-2 |
| 1.3 Overview of the 2006 Plan | 1-4 |
| 1.4 Placing the 2006 Plan in Context | 1-6 |
| 2.0 LEGAL REQUIREMENTS AND POLICIES | 2-1 |
| 2.1 Meeting Legal and Regulatory Requirements | 2-1 |
| 2.2 Policies | 2-1 |
| 3.0 DRAFT SITE TEN-YEAR PLANS | 3-1 |
| 3.1 Cost Estimate Uncertainty and Data Gaps | 3-2 |
| 3.2 Site Completions | 3-4 |
| 3.3 Cost Analysis | 3-4 |
| 3.4 Compliance | 3-5 |
| 3.5 Conclusion | 3-5 |
| 4.0 ALTERNATIVE SCENARIOS WITH ENHANCED PERFORMANCE | 4-1 |
| 4.1 Enhanced Performance | 4-1 |
| 4.2 Performance Enhancement Targets | 4-2 |
| 4.3 Areas Targeted for Enhanced Performance | 4-5 |
| 4.4 Analysis of Closure and Life-Cycle Cost Under Alternative Scenarios | 4-7 |
| 4.5 Comparison of Initial Submissions with Enhanced Performance Scenarios | 4-10 |
| 4.6 Conclusions | 4-12 |

5.0 MANAGEMENT 5-1

- 5.1 Management Initiatives 5-1
- 5.2 The Management Foundation 5-6

6.0 STRATEGIC APPROACHES AND INVOLVEMENT OF TRIBAL NATIONS AND STAKEHOLDERS 6-1

- 6.1 Overall Strategic Approaches 6-1
- 6.2 Equity Considerations 6-2
- 6.3 Involvement of Tribal Nations and Stakeholders 6-3
- 6.4 Public Comment Process 6-3

ATTACHMENTS

- Attachment A — Key Issues A-1
- Attachment B — Public Comment Period B-1
- Attachment C — Sites Included in this Discussion Draft C-1
- Attachment D — Defining End States and Long-Term
Stewardship Requirements D-1
- Attachment E — Excess Facilities E-1
- Attachment F — 2006 Plan Issues/Opportunities Requiring Action Plans F-1
- Attachment G — Environmental Management’s National Action Plan on the
Intersite Transfer of Waste and Nuclear Materials G-1
- Attachment H — Environmental Management Planning Scenarios H-1
- Attachment I — List of High-Visibility Environmental
Management Projects/Systems I-1

EXECUTIVE SUMMARY

In 1996, the Department of Energy's (DOE) Office of Environmental Management (EM) proposed a strategy to accelerate site cleanup and improve productivity, with a particular focus on completing work at as many sites as possible by 2006. Achieving that goal poses challenges that will require input and cooperation from Tribal Nations and stakeholders. This Discussion Draft represents a positive step toward meeting that challenge. The document also responds to a wide range of Tribal Nation and stakeholder input already received, including the need that DOE provide more time and a more disciplined process for public participation.

Consistent with that input, this Discussion Draft is being distributed to interested parties to elicit their comments on the goals and strategies of the 2006 Plan and input on how those strategies should be implemented. In particular, EM wishes to obtain the viewpoints of Tribal Nations and stakeholders on strategic approaches for accomplishing compliance and completion goals and on whether the Discussion Draft articulates the appropriate management strategies to accomplish those goals.

This approach will ensure that EM has a broad perspective when developing a draft National 2006 Plan later this year. EM will develop the Initial National 2006 Plan by early 1998, after a second comment period. The 2006 Plan will be a changing document, evolving to reflect revised assumptions, viewpoints expressed by Tribal Nations and stakeholders, and newly obtained information.

The name of this report and future reports have been changed to focus on the end point goal for most sites. This change reflects the Discussion Draft's focus on what can be done to complete work at as many sites as possible by 2006, while acknowledging that cleanup will continue at some sites after 2006.

What the Discussion Draft is...

- *It is a working document which will continue to address data quality gaps*
- *It is a strategic document that presents alternative planning scenarios*
- *It identifies a preferred strategy to maintain compliance and accomplish accelerated site closure*
- *It solicits public input into the development of a long term EM strategy for cleanup*
- *It is the beginning of a planning process*

...and what the Discussion Draft is not:

- *It is not a decision-making document*
- *It guides budget formulation, but it is not a budget document*
- *It is self-initiated (that is, not required by legislation or other external requirements)*
- *It is not a final plan*

The task of encompassing the entire scope of the Environmental Management program is daunting. EM is releasing this Discussion Draft to obtain comment from a broad range of stakeholders. EM has made an effort to highlight the existence of certain data gaps and inconsistencies between the National and Site Discussion Drafts. EM will work with sites and stakeholders to address these problems in the next draft and the Initial National 2006 Plan.

BACKGROUND

With the end of the Cold War in the early 1990s, funding for EM increased rapidly as nuclear weapons production facilities shut down, cleanup responsibilities increased, and infrastructure functions at sites were transferred to the Environmental Management program.

As the budget for the Environmental Management program began to level off, EM predicted that funding soon would be insufficient to support increased responsibilities and continued compliance with all legal and regulatory requirements. EM referred to that prospect as the "train wreck scenario."

As limits on funding became increasingly stringent, EM began to focus on increasing efficiency in the performance of its mission. For example, the 1995 estimated cost of cleaning up the Rocky Flats Environmental Technology Site was almost \$37 billion (in 1995 dollars) over a 65-year period. Options for streamlining and accelerating cleanup subsequently were identified. The strategy presented for review in this Discussion Draft would allow completion of the proposed remediation and the beginning of long-term stewardship at a cost of about \$6 billion. Projections of the cost of cleanup at the Fernald Environmental Management Project have been reduced from \$5.9 billion over a 45-year period to a current estimate of \$2.6 billion over 9 years. The cost savings and reduced cleanup time frames reflected in these lower-cost options are achieved primarily by enhanced performance and acceleration of schedules, rather than by relying on a reduction in the scope of work.

THE PLANNING PROCESS THROUGH 2006

In June 1996, to reconcile the pressing need to reduce spending in the short term, while reducing both economic and environmental liabilities over the long term, EM established a vision:

Within a decade, the Environmental Management program will complete cleanup at most sites. At a small number of sites, treatment will continue for the few remaining legacy wastestreams. This unifying vision will drive budget decisions, sequencing of projects, and actual actions taken to meet program objectives. The vision will be implemented in collaboration with regulators, Tribal Nations, and stakeholders.

EM has refined the original Ten-Year Plan Vision as it has interacted with Tribal Nations and stakeholders and reviewed site plans. EM assumed that completion of most cleanup activities by 2006 would be possible at all sites, except those having high-level waste and large

amounts of transuranic waste. As draft Site Ten-Year Plans became available and Tribal Nations' and stakeholders' views became more evident, it became obvious that EM would have to revise those assumptions. For example, the Oak Ridge Reservation could not achieve the 2006 Plan goal and the Rocky Flats Environmental Technology Site will face challenges in doing so. Nevertheless, the vision has helped focus the Environmental Management program by providing a strong impetus toward completion.

When developing the vision, EM recognized that, at the major sites, numerous activities would continue beyond 2006. In fact, the data revealed that, at the Hanford Site in Washington, the Idaho National Engineering and Environmental Laboratory, and the Savannah River Site in South Carolina, approximately half the costs will be incurred after 2006 for treatment and disposal of high-level and transuranic waste. Although those activities will not be completed by 2006, one of the primary goals of the 2006 Plan is to reduce the outyear mortgage costs of such activities. In addition, the program, as outlined in the 2006 Plan, does not include facilities and material that currently are not included in the Environmental Management program. If a decision is made to transfer additional facilities and material to EM, the 2006 Plan will require revision and the costs of the EM cleanup effort will increase.

A cornerstone to the 2006 Plan cleanup strategy is the nation's first deep geologic radioactive waste disposal facility, the Waste Isolation Pilot Plant, located near Carlsbad, New Mexico. The Waste Isolation Pilot Plant is designed and engineered to permanently dispose of transuranic waste and transuranic mixed waste left from the nation's nuclear defense programs. The Department of Energy plans to open the Waste Isolation Pilot Plant in May of 1998.

Even after completing cleanup, EM will maintain a presence at most sites to ensure that the reduction in risk to human health and the environment is maintained. Such "long-term stewardship" will include passive or active institutional controls and, often, treatment of groundwater over a long period of time. The extent of long-term stewardship required at a site will reflect the end state developed in consultation among DOE and other representatives of the Administration, Congress, Tribal Nations, representatives of regulatory agencies and state and local authorities, representatives of nongovernment organizations, and interested members of the general public.

ACHIEVING THE GOALS OF THE 2006 PLAN

As implementation of the 2006 Plan proceeds, EM remains committed to maintaining full compliance with applicable environmental and other legal requirements. In addition, the Department will meet the requirements of Executive Order 12088, which requires the heads of all executive agencies to request sufficient funds to ensure compliance with environmental requirements. EM also intends to meet its commitments to the Defense Nuclear Facilities Safety Board.

EM also is committed to act on all its other policies through the implementation of the 2006 Plan. Those policies include:

- *Ensuring the safety and health of workers*
- *Reducing risks to the public and the environment*
- *Fostering the involvement of Tribal Nations and stakeholders*
- *Easing the transition of workers*

INITIAL SITE SUBMISSIONS

On February 28, 1997, DOE Operations/Field Offices submitted draft Site Ten-Year Plans to support EM's planning process. These draft plans were based on two potential funding scenarios for the Environmental Management program: one that assumes a \$6.0 billion annual funding level (the "High Planning Scenario") and another that assumes a \$5.5 billion annual funding level (the "Low Planning Scenario"). Each Operations/Field Office was directed to develop a draft Site Ten-Year Plan that analyzed each of those scenarios on the basis of allocations set in accordance with each Office's proportion of the fiscal year (FY) 1998 budget request. Table ES.1 summarizes life-cycle costs and completion information contained in the initial site submissions. An explanation of planning scenarios for sites and definition of terms used in this table are contained in Chapter 3.

Table ES.1 Initial Estimates for Site Completion and Life-Cycle Cost Under High and Low Planning Scenarios as Submitted by the Field

| OPERATIONS/ FIELD OFFICE ^a | NUMBER OF REMAINING SITES IN 2006 ^b | | COMPLETION OF LAST SITE | | LIFE-CYCLE COST (BILLIONS OF CONSTANT 1998 DOLLARS) ^c | |
|--|---|-----------|----------------------------|------|--|-------------------|
| | HIGH | LOW | HIGH | LOW | HIGH | LOW |
| Albuquerque | 0 | 0 | 2006 | 2006 | 3.0 | 3.0 |
| Chicago | 0 | 0 | 2004 | 2006 | 0.3 | 0.3 |
| National Programs ^c and Carlsbad | NA | NA | NA | NA | 20.4 ^f | 21.1 ^f |
| Idaho | 1 | 1 | 2050 | 2060 | 15.8 | 17.6 |
| Nevada | 1 | 1 | 2011 | 2015 | 1.2 | 1.2 |
| Oakland | 0 | 1 | 2006 | 2007 | 0.7 | 0.7 |
| Oak Ridge | 2 | 2 | 2012 | 2015 | 9.1 | 9.4 |
| Ohio | 0 | 5 | 2005 | 2030 | 4.7 | 6.4 |
| Rocky Flats | 1 | 1 | 2015 | 2030 | 7.2 | 10.4 |
| Richland | 1 | 1 | 2048 | 2050 | 54.3 | 56.7 |
| Savannah River | 1 | 1 | 2070 | 2070 | 29.6 | 29.6 ^d |
| TOTAL | 7 | 13 | | | 146.3 | 156.4 |

(a) Attachment C provides a list of sites included in the Discussion Draft.

(b) 82 sites required cleanup as of the end of 1996.

(c) National Programs are defined in Attachment H.

(d) The February 28, 1997, submission of the Savannah River Site draft Ten-Year Plan excluded full life-cycle costs associated with a number of projects over the period 2007-2070. Subsequent to submission of the draft Site Ten-Year Plan, a preliminary life-cycle cost projection for all projects was completed. This data would increase the life-cycle cost under the Low Planning Scenario to \$32.5 billion.

(e) The cost difference between the High and Low Planning Scenarios for the Albuquerque, Chicago, Nevada, and Oakland Operations Offices is insufficient to show when rounded to the nearest hundred million dollars.

(f) The Carlsbad Area Office costs are \$9.0 billion in the Low Planning Scenario and \$7.1 billion in the High Planning Scenario.

The current planning targets for the Environmental Management program are approximately \$5.5 billion annually for FY 1999 through FY 2002. The Office of Management and Budget will re-examine the planning targets for the program for FY 1999 and beyond based upon the analyses of the two planning scenarios in these plans. Additionally, the recent agreement between President Bill Clinton and the Congressional leadership to balance the Federal budget by the year 2002 will directly affect the level of the EM budget for FY 1999 through FY 2002. Future budgets for the Environmental Management program will be required to be consistent with this agreement.

Collectively, initial site plans indicated that life-cycle costs would range from about \$146 billion (under the High Planning Scenario) to about \$156 billion (under the Low Planning Scenario) in constant 1998 dollars. Table ES.1 shows that, under the Low Planning Scenario, completion of cleanup is projected at all the sites of only two Operations Offices by 2006, while under the High Planning Scenario, cleanup would be finished at all the sites of four Operations/Field Offices. As expected, cleanup at the major sites at which large quantities of high-level and transuranic wastes are present would not be completed by 2006 at either funding level.

In the February 1997 submittals and subsequent discussions, sites indicated that they would meet compliance requirements under the High Planning Scenario in almost all cases, while also maintaining other priorities. Some sites, however, indicated that more than their anticipated allotment of the \$6.0 billion target would be required to achieve compliance and other high-priority activities. The site data also suggest that EM would face more significant challenges in maintaining compliance and other high-priority activities under the Low Planning Scenario.

The draft Site Ten-Year Plans represented a good first effort to implement the structural and managerial aspects of the Environmental Management program planning process. For example, all activities were identified with distinct projects, and budget plans were developed for those projects. Substantial unmet science and technology needs at individual sites were identified for the first time.

However, when senior management of EM from both Headquarters and the field convened in late March to review draft Site Ten-Year Plans, they agreed that the plans fell short. The site plans did not meet EM's closure goals nor did they achieve full compliance.

In response to those issues, managers explored various options for meeting all compliance requirements, while maintaining other priorities and accelerating site closures within limited budgets. For example, through their discussions, the managers focused upon an approach based on improving productivity through enhanced performance. That approach is a key element in the strategy set forth in this Discussion Draft.

PERFORMANCE ENHANCEMENT SCENARIOS

Managers from both Headquarters and Operations/Field offices agreed to develop and implement overall performance enhancement targets as the most practicable approach to achieving completion and compliance goals. The targets EM adopted are:

- *Reduces support costs to 30 percent of site costs by FY 2000*
- *Achieve annual productivity improvements of 3.5 percent for definable projects*
- *Achieve annual productivity improvements of 6 percent for operations*

The combined effect of the targets, as contrasted to the individual subtargets, is the goal. If the performance enhancement targets are achieved, the Environmental Management program can perform \$8 billion of additional work by 2006, an increase of 12 percent over that proposed in the site submissions. Since achievement of the targets would have a profound effect on EM, it is important to determine their feasibility.

The Environmental Management program uses a wide array of tools to improve the effectiveness of its operations. They have been useful in the past in improving effectiveness and will be crucial in achieving enhanced performance in the future. Sections 4.2 and 5.1 summarize the use of these tools in the past and outline opportunities for their use in the future.

Support Costs

Since 1994, the Environmental Management program has undertaken an aggressive effort to reduce support costs. Reduction of support costs is consistent with efforts in the private sector over the past few years to focus resources on value-added work. When support costs are reduced, more funds are available for actual field work. Although the 30 percent goal will not be feasible at all EM sites, it will be so at most of them and will produce a substantial improvement in productivity. If all support costs were reduced to 30 percent, about \$3.5 billion of additional scope could be performed.

Productivity Improvement Targets

The productivity improvement targets were based on the experience of DOE, private-sector entities, and other government agencies. In the past, DOE has used productivity improvement targets as one method to meet program goals when funds have been restricted. For example, when former Secretary of Energy Hazel O'Leary reduced prospective funding for the Environmental Management program by \$4.4 billion in 1995 over a five-year period, productivity improvement targets were employed. Achievement of the productivity improvement targets produced major savings in the program.

At the Hanford Site, for example, a number of steps were taken to save a billion dollars over a three-year period. The savings resulted primarily from "projectization," that is, managing overall projects rather than individual activities. Other savings resulted from improvement of regulatory oversight and general cost-cutting.

At the Savannah River Site, savings of \$330 million are projected over FY 1997 and FY 1998 through a host of activities. Those efforts include additional outsourcing and privatization, consolidation of operational facilities, streamlining of monitoring requirements, aggressive improvements in productivity, and streamlining and improvement of interaction with regulators.

The Ohio Field Office accepted a productivity improvement target of \$100 million per year, representing a savings of 20 percent through FY 2005. The Ohio Field Office has reduced the cost of meeting its completion goals at the Mound Plant and the Fernald Environmental Management Project from \$8.3 billion to \$3.4 billion.

Contractors have shown great ingenuity in achieving cost savings when presented with the right incentives. For example, a combination of productivity improvements and earlier investment resulted in dramatic improvements in both cost and acceleration of the schedule at the Plutonium-Uranium Extraction Plant at the Hanford Site. An investment of \$22 million supported the deactivation of 75 buildings, saving \$203 million between FY 1994 and FY 2006. Productivity improvements, such as reuse of materials, reengineering, and activity-based cost estimating, accelerated completion by 15 months, saving \$80 million. The total savings from FY 1994 through FY 2006 are expected to be \$283 million.

ABILITY TO MEET PERFORMANCE ENHANCEMENT GOALS

Can these savings rates be retained through 2006? Clearly, the easiest savings already have been achieved, so additional savings will be more difficult. However, DOE's experience to date and industry experience indicate that substantial future savings are possible.

In 1996, an assessment by Independent Project Analysis, Inc. concluded that the EM waste management program was from 35 to 40 percent less efficient than such programs in the private sector and that the environmental restoration program was 25 percent less efficient than comparable private-sector programs. If the Environmental Management program were to achieve the same level of performance as the private sector, the productivity enhancement goals would be possible.

The Associate Administrator for Space Flight of the National Aeronautics and Space Administration (NASA) announced, in 1992, a goal of saving three to five percent over five years in operating costs of the Space Shuttle program. The National Academy of Public Administration reviewed the performance goals and concluded that NASA had achieved a 20 percent savings in two years, a result dramatically higher than the initial targets. The savings resulted primarily from achievement of performance targets. The NASA targets are consistent with those set forth in this Discussion Draft.

The U.S. Army Corps of Engineers has reviewed EM sites and has concluded that the program can achieve \$4 billion in savings by 2006. These savings would be the result of reductions that can be identified in the near term. There is reason to believe that the savings would be substantially larger if similar reviews were conducted periodically.

There are great untapped sources of savings from application of new technology. The Operations/Field Offices have identified potential savings of \$12 to \$27 billion that can be achieved through the use of innovative technology. A major effort will be undertaken in the field to measure progress in technology development and application. This estimate provides a measure of the savings that can be realized if the right incentives are in place and barriers to technology are removed.

Finally, EM's productivity goals are less than those of industry, even of mature industries that have achieved productivity improvements of a magnitude similar to that of those goals. The chemical industry, for example, has achieved compounded productivity improvements of 2.5 percent over the past 20 years, a result greater than the EM targets.

Therefore, there is good anecdotal evidence that the performance targets can be achieved. Nevertheless, they are ambitious. Depending on future savings clearly has its risks. Considering the gap between funding and compliance and completion needs, however, the establishment of performance targets represents one major approach to meeting EM's goals. Table ES.2 sets forth estimates of accomplishment, assuming achievement of the enhanced performance goals.

Table ES.2 Initial Estimates for Site Completion and Life-Cycle Cost Under High and Low Planning Scenarios with Enhanced Performance

| OPERATIONS/ FIELD OFFICE | NUMBER OF REMAINING SITES IN 2006 ^a | | COMPLETION OF LAST SITE | | LIFE-CYCLE COST ^d (BILLIONS OF CONSTANT 1998 DOLLARS) | |
|-----------------------------------|---|-----------|----------------------------|------|--|-------------------|
| | HIGH | LOW | HIGH | LOW | HIGH | LOW |
| Albuquerque | 0 | 0 | 2005 | 2005 | 2.3 | 2.3 |
| Chicago | 0 | 0 | 2004 | 2006 | 0.3 | 0.3 |
| National Programs and Carlsbad | NA | NA | NA | NA | 17.3 | 17.1 |
| Idaho | 1 | 1 | 2035 | 2045 | 10.5 | 11.6 |
| Nevada | 0 | 1 | 2006 | 2010 | 1.0 | 1.0 |
| Oakland | 0 | 0 | 2006 | 2006 | 0.7 | 0.7 |
| Oak Ridge | 2 | 2 | 2012 | 2015 | 9.1 | 9.4 |
| Ohio | 0 | 5 | 2005 | 2030 | 4.7 | 6.4 |
| Rocky Flats | 0 | 1 | 2006 | 2018 | 5.7 | 8.2 |
| Richland | 1 | 1 | 2033 | 2040 | 37.2 | 38.9 ^b |
| Savannah River | 1 | 1 | 2026 | 2026 | 21.1 | 21.1 ^c |
| TOTAL | 5 | 12 | | | 109.9 | 117.0 |

(a) 82 sites required cleanup as of the end of 1996.

(b) After the Richland Operations Office submitted their February 28, 1997, draft Site Ten-Year Plan, the site provided additional data that could materially increase the difference between the Low and the High Planning Scenarios assuming enhanced performance. This data would increase the Headquarters projection of life-cycle cost under the Low Planning Scenario to \$48.7 billion. EM chooses to be conservative and not include this case in this Discussion Draft due to the lateness of receiving the data and the limited time to understand the underlying assumptions. However, this latest case may confirm EM's belief that there are other large opportunities to decrease life-cycle costs at higher funding levels.

(c) After the Savannah River Operations Office submitted their February 28, 1997, draft Site Ten-Year Plan, the site provided additional data that could materially increase the difference between the Low and the High Planning Scenarios assuming enhanced performance. This data would increase the Headquarters projection of the life-cycle cost under the Low Planning Scenario to \$25.5 billion. Similar to the Richland Operations Office case discussed in footnote (b) above, EM chooses to be conservative and not include this case in the Discussion Draft.

(d) The cost difference between the High and Low Planning Scenarios for the Albuquerque, Chicago, Nevada, and Oakland Operations Offices do not show when rounded to the nearest hundred million dollars.

With performance enhancements, EM can accelerate work at sites. Under the High Planning Scenario with Enhanced Performance, EM can achieve the site closures outlined in Table ES.2. Particularly noteworthy are the projected closures of the Rocky Flats Environmental Technology Site, all Ohio Field Office sites, and all Nevada Operations Office sites by 2006. It appears that applying the performance goals will allow EM to achieve its compliance and closure goals under the High Planning Scenario.

Under the Low Planning Scenario with Enhanced Performance, EM would not have sufficient funds to meet its closure goals. For example, funds would be insufficient to achieve closure by 2006 at the Rocky Flats Environmental Technology Site, the Ohio Field Office, and the the Nevada Operations Office, and complex-wide life-cycle costs would increase by more than \$7 billion. Further, achieving compliance under such funding constraints would be challenging, and would change the distribution of funds among sites.

MANAGEMENT

EM is initiating a management foundation, the Integrated Planning, Accountability, and Budgeting System, which will restructure and streamline formerly independent management systems of the Environmental Management program's current management structure into a single cohesive system. The system supports the 2006 Plan strategy of accelerating the site cleanup and focusing on completing work at as many sites as possible by 2006.

The system rests on the 2006 Plan goals as a starting point. The goals are translated into the 2006 Plan, a strategic planning document designed to guide the program. Annual budgets are designed to achieve the objectives of the 2006 Plan. Once the budget is enacted, management commitments are entered into to ensure achievement of objectives each year. The commitments are tracked and subject to regular management reviews.

All activities in the Environmental Management program have been translated into projects. By focusing on projects, the Environmental Management program will pay proper attention to schedules and costs.

To achieve the performance goals, EM will use a wide array of tools. Those tools include increased fixed-price contracting; competitive contracting; new technology; privatization; systems engineering; and benchmarking.

STRATEGIC APPROACHES

Traditionally, EM's funding priorities have been guided by a number of strategic approaches. Among them are meeting compliance requirements, reducing risks, reducing mortgages, developing new technologies, maintaining equity among sites, and accelerating cleanup at sites. In earlier years, the Environmental Management program had not been focused on balancing those goals over the long term. EM instead focused funding priorities on each upcoming budget year. The Environmental Management program planning process provides EM with the capability to consider how to balance those approaches through 2006 and then to extend analyses to address activities that will be conducted after that period of time.

EM's preferred strategy would pursue enhanced performance aggressively. The strategy would incorporate all the approaches described above, but its priority objectives would be compliance and acceleration of cleanup. The strategy would be implemented without

increasing risk to human health and the environment. The preferred approach would maintain an appropriate level of technology development because of the potential that new technology has to reduce life-cycle costs and accelerate closure dates.

EM realizes that two events could prevent the program from achieving its completion and compliance goals: low funding or failure to meet enhanced performance targets. If either such event should occur, it would be imperative that DOE work closely with regulators and other stakeholders to address compliance requirements and other high-priority activities at sites and to establish appropriate priorities and the levels at which those priorities should be funded. The Department would be required to obtain approval from regulators before adopting any proposed modifications. This practice has been used several times in the past.

The approaches discussed below are various strategies suggested by Tribal Nations and stakeholders. EM would appreciate their comments on the importance of the various strategic approaches in two contexts:

- *To support EM's effort to set priorities*
- *To provide alternatives if funding is less than expected or if the effort to meet the enhanced performance targets falls short*

Meeting Compliance Requirements: This approach would base priorities primarily on maintaining compliance with applicable environmental and other legal obligations and Defense Nuclear Facilities Safety Board recommendations. This approach may fail to take advantage of long-term cost savings associated with acceleration of site cleanup and may not focus on addressing the cleanup work that poses the highest risk.

Reducing Risk: This approach would base priorities primarily on achieving the greatest possible reduction in overall risk in the shortest time possible. This approach would provide near-term protection to the public, but may require renegotiation of some milestones in compliance agreements. It would fail to take advantage of many opportunities for mortgage reduction.

Reducing Mortgages: This approach would focus on completing projects with attractive financial returns on investment and/or maximizing site closure as the primary priority of the Environmental Management program, therefore reducing fixed costs. Under this approach, only base program activities would be funded at each site, thereby freeing up funding to achieve site closure beyond routine facility operations and maintenance. This would require a different approach to allocating funds among sites.

Deploying Innovative Technologies: This approach would rely on new technology as the chief tool of the program. Cleanup would be deferred in some cases until new technology can be developed and applied. The cost savings from deployment of new technology ultimately may allow the program to succeed at lower planning levels and meet long-term compliance agreements, but could require renegotiation of some near-term compliance agreements and deferment of some site closures.

Accelerating Cleanup at Sites: This approach would focus on completing work at as many sites as possible as quickly as possible. This approach would reduce the life-cycle costs of cleaning up the EM sites, but could require renegotiation of some milestones in compliance agreements.

TRIBAL NATION AND STAKEHOLDER INVOLVEMENT

EM is asking the public to help it formulate a long-term approach to cleaning up the weapons complex and to help EM deal with issues that often have been submerged in the past. The task is substantially more difficult than merely commenting on annual budgets. Tribal Nations and stakeholders have provided invaluable assistance in the past. If EM, Tribal Nations, and stakeholders can develop an understanding about the future of the Environmental Management program, the program will be better able to preserve its momentum by retaining support, both in Congress and among the public.

EM is interested in Tribal Nations' and stakeholders' comments on all components of this Discussion Draft. EM wishes to hear about whether the performance goals appear credible as a means of achieving all its compliance and closure goals. If not, how should EM set priorities? Which of the strategic approaches should be emphasized? Which approaches should be deemphasized? In essence, EM is asking Tribal Nations and stakeholders to share the dilemmas EM faces in shaping its future. Attachment A provides a list of some of the types of issues and questions EM faces.

EM is requesting public comments on the Discussion Draft by September 9, 1997. In addition, EM is planning a series of meetings with Tribal Nations, states, regulators, and other stakeholders to discuss the effects of the plan, both on the national level and at each site.

EM, in a parallel effort, has asked sites to involve stakeholders in the formulation of the site-proposed FY 1999 budget. The EM FY 1999 budget is being developed concurrently with the Discussion Draft. In July 1997, EM will be holding a national feedback session to discuss the EM national FY 1999 budget. The options and alternatives described in this Discussion Draft and future iterations of the 2006 Plan will impact budget formulation and execution activities. This planning process will allow EM to develop annual budgets in the context of long-term strategies.

Commenters are requested to send all comments on overall strategy and integration of waste management projects to EM Headquarters and comments about specific sites to the appropriate site. Attachment B provides detailed information about submitting comments. After receiving comments, EM will work with interested parties to address issues and respond to comments before developing and releasing the draft National 2006 Plan later this year. In the case of any issue that cannot be resolved before the release of the draft National 2006 Plan, EM will develop Action Plans that outline the process of resolving the issue. EM plans to issue the Initial National 2006 Plan in early 1998, after conducting a second comment period.

Who are DOE's Stakeholders?

States have direct interest in transportation, storage, and disposition of wastes, and a range of other issues. State regulatory agencies and the **U.S. Environmental Protection Agency** implement a wide variety of regulatory activities at DOE sites.

City and county governments have an interest in operations and safety at sites, as well as economic development and site transition.

Site Specific Advisory Boards, established at each site, have an interest in the full range of cleanup activities at that site.

Other grassroots citizen groups have an interest in the full range of site operations.

Finally, citizens have a concern in the decisions that will affect their health and safety.

This page is intentionally left blank.

1 INTRODUCTION

The Department of Energy's (DOE) Office of Environmental Management (EM) proposes a strategy to accelerate site cleanup and enhance performance of the cleanup program. The strategy focuses in particular on completing work at as many sites as possible by the end of fiscal year (FY) 2006. To meet the challenge of achieving those goals, EM will require input from Tribal Nations and stakeholders. Therefore, EM is submitting this Discussion Draft to those interested parties to solicit their suggestions and comments.

The task of encompassing the entire scope of the Environmental Management program is daunting. EM is releasing this Discussion Draft to obtain the views of Tribal Nations and stakeholders, even though EM recognizes that there are certain data gaps and inconsistencies between the National and Site Discussion Drafts. Those problems will be addressed in the draft National 2006 Plan and in the Initial National 2006 Plan. This approach will ensure that, as EM develops a draft National 2006 Plan later this year, EM will understand the issues that Tribal Nations and stakeholders believe are most important. EM intends to develop the Initial National 2006 Plan by early 1998, after a second comment period. The 2006 Plan will be a changing document, evolving to reflect revised assumptions, viewpoints expressed by Tribal Nations and stakeholders, and newly obtained information.

This Discussion Draft presents material for comment prior to developing the 2006 Plan:

- *Chapter 1 presents the scope and funding history of the Environmental Management program, as well as an overview of the 2006 Plan*
- *Chapter 2 outlines the legal requirements governing the Environmental Management program and its policies*
- *Chapter 3 describes scenarios of completion, cost, and compliance submitted for specific sites*
- *Chapter 4 discusses enhanced performance targets and their effect on site completion, cost, and compliance*
- *Chapter 5 discusses the proposed management initiatives and management foundation of the 2006 Plan*
- *Chapter 6 outlines the strategic approaches of the Environmental Management program and discusses opportunities for public comment and involvement*

The name of this report and future reports have been changed to focus on the end point goal for most sites. This change reflects the Discussion Draft's focus on what can be done to complete work at as many sites as possible by 2006, while acknowledging that cleanup will continue at some sites after 2006.

1.1 SCOPE OF THE ENVIRONMENTAL MANAGEMENT PROGRAM

DOE's Environmental Management program has grown rapidly since 1989. The program focuses on addressing the environmental contamination and managing the hazardous and radioactive waste produced as the result of 50 years of nuclear weapons research, manufacturing, and testing, along with other research unrelated to weapons development. Today, as the steward of the world's largest environmental cleanup effort, EM is an essential part of DOE's mission, addressing hazardous and radioactive wastes and materials; excess buildings and facilities; soils, surface water, and groundwater; and associated infrastructure at 133 sites in 31 states and 1 territory.¹ The size of the sites taken together equals the size of the states of Delaware and Rhode Island combined. Attachment C presents a list of the EM sites still requiring cleanup.

Even after completing cleanup, EM will maintain a presence at most sites to ensure that the reduction in risk to human health and the environment is maintained. Such "long-term stewardship" will include passive or active institutional controls and, often, treatment of groundwater over a long period of time. The extent of long-term stewardship required at a site will reflect the end state developed in consultation among DOE and other representatives of the Administration, Congress, Tribal Nations, representatives of regulatory agencies and state and local authorities, representatives of nongovernment organizations, and interested members of the general public. Attachment D presents an explanation of end states and long-term stewardship.

1.2 HISTORY OF FUNDING FOR THE ENVIRONMENTAL MANAGEMENT PROGRAM

When it began, the Environmental Management program represented only a small portion of the costs at most sites. Initially, EM was not responsible for maintaining the infrastructure—operating utilities, maintaining roads, providing security, and performing other tasks—for any of the major EM sites. With the end of the Cold War in the early 1990s, funding for EM increased rapidly as nuclear weapons production facilities shut down, infrastructure functions at sites were transferred to the Environmental Management program, and cleanup responsibilities increased.

By 1994, EM was projecting that, to keep pace with the increasing scope of the program, the budget would increase to \$10 billion annually by 1999. However, by 1995, a national priority was placed on "downsizing" the Federal Government and reducing the Federal deficit, and it was clear that the funding growth would not take place. Former Secretary of Energy Hazel O'Leary issued the 1995 Strategic Alignment Initiative. Under that initiative, EM made a commitment to reduce projected cumulative outlays by \$4.4 billion over five years.

As the Environmental Management program's budget began to level off, EM predicted that funding soon would be insufficient to remain in compliance with all applicable legal and regulatory requirements. EM referred to that prospect as the "train wreck scenario."

¹As used in this report, an EM site is a distinct geographic location, independent of size, that generated DOE waste or was contaminated by past activities of DOE. This definition excludes DOE's Waste Isolation Pilot Plant in New Mexico because it is expected that the plant will be used in the future for the disposal of transuranic waste, and has not been contaminated by past DOE activities.

EM predicted that the budget would fall short of the level required to maintain compliance, which was rising because of increases in the scope of the program. EM worked with state and federal regulatory agencies to improve its environmental cleanup and compliance agreements so that enforceable milestones could be accomplished within the funding constraints. Methods of establishing priorities also improved, ensuring that conditions that pose a high risk or a safety hazard would be addressed first.

In 1995 and 1996, as requested by Congress, EM developed its first estimate of life-cycle cost and schedule for the remaining cleanup effort. The Baseline Environmental Management Reports communicated the complete scope of the Environmental Management program.² The 1996 report stated that, as a mid-range estimate, the program would cost \$227 billion (constant 1996 dollars) over the next 70 years, under the assumptions about funding levels, productivity, and land use that were applied in developing the estimate.

There are many differences between the Baseline Environmental Management Reports and the assumptions used in this Discussion Draft. Table 1.1 summarizes some of those differences.

Table 1.1 Differences Between the Baseline Environmental Management Report and this Discussion Draft

| COMPARISON | BASILINE ENVIRONMENTAL MANAGEMENT REPORT | DISCUSSION DRAFT |
|--------------------------------|---|--|
| Purpose | Established an aggregate estimate of the total life-cycle cost of the Environmental Management program. | Develops a strategic plan to accelerate cleanup of EM sites. |
| Integration with Other Systems | Stand-alone analysis. | Integrates the management, budgeting, and planning processes. |
| Scope | Included decommissioning scope for the Portsmouth and Paducah Gaseous Diffusion Plants and the Savannah River Site. | Includes cleanup assumptions that differ from those in the Baseline Environmental Management Report—for example, only the current scope of the Environmental Management program is accounted for in the Discussion Draft (no excess facilities). |
| Funding Assumptions | Funded sufficiently for compliance through FY 2000, with costs after FY 2000 capped at FY 2000 compliance level. | Examines funding under two scenarios: \$5.5 or \$6.0 billion per year. |
| Other | Included programmatic sensitivity analyses of funding, end state, scheduling, and other variables. | Focuses on completing as much of the cleanup as possible by 2006. |

²*Estimating the Cold War Mortgage: The 1995 Baseline Environmental Management Report*, March 1995, (DOE/EM-0232) and *The 1996 Baseline Environmental Management Report*, June 1996 (DOE/EM-0290).

While the Baseline Environmental Management Report and the Discussion Draft are not constructed on comparable bases, the draft Site Ten-Year Plans submitted by the Operations/Field Offices in February 1997 estimated substantially lower costs than were reported in the Baseline Environmental Management Report. The reduction in estimated costs appears to be chiefly the result of cost savings and life-cycle reductions through improved performance. Reduction in support costs, resequencing of projects, and contract reform are some methods by which the Environmental Management program is applying enhanced performance to the pursuit of its mission. The cost savings and reduced cleanup time frames made possible by these initiatives were not gained at the expense of safety and health, compliance, or any other overall cleanup goal.

For example, the estimate provided in the 1995 Baseline Environmental Management Report for cleaning up the Rocky Flats Environmental Technology Site was \$37 billion (in 1995 dollars) over a 65-year period. The estimate set forth in the 1996 Baseline Environmental Management Report was \$17 billion (in 1996 dollars) over a 55-year period. The strategy presented for review in this Discussion Draft would complete the proposed remediation and begin long-term stewardship of the site by 2006, at a cost of about \$6 billion. These reductions in life-cycle costs and schedule are to be achieved primarily by resequencing projects to reduce fixed costs. Likewise, cleanup cost projections for the Fernald Environmental Management Project have been reduced from \$5.9 billion over a 45-year period in 1995 to a current estimate of \$2.6 billion over 9 years.

1.3 OVERVIEW OF THE 2006 PLAN

In June 1996, to reconcile the pressing need to reduce spending in the short term while reducing both economic and environmental liabilities over the long term, EM established a vision for the next ten years. The vision was:

Within a decade, the Environmental Management program will complete cleanup at most sites. At a small number of sites, treatment will continue for the few remaining legacy waste streams. This unifying vision will drive budget decisions, sequencing of projects, and actual actions taken to meet program objectives. The vision will be implemented in collaboration with regulators, Tribal Nations, and stakeholders.

The original Ten-Year Plan Vision has been refined as EM has interacted with Tribal Nations and stakeholders and reviewed site plans. Originally, the vision assumed that only sites having high-level waste and large amounts of transuranic waste would not achieve completion by 2006. As draft Site Ten-Year Plans were submitted and Tribal Nations and stakeholders offered their views, it became obvious that the Environmental Management program could not achieve the 2006 Plan goal at the Oak Ridge Reservation and will face challenges in meeting that goal at the Rocky Flats Environmental Technology Site. Nevertheless, the vision has helped focus the Environmental Management program by providing a strong impetus toward completion.

However, even in the cases of sites that are completed by 2006, EM and DOE must address a number of additional issues and responsibilities, including:

- *Monitoring - At many sites, some monitoring will be required after environmental management activities have been completed. For example, at some sites, groundwater monitoring will continue for the foreseeable future.*
- *Long-term stewardship - At most other completed sites, EM or DOE will be responsible for stewardship of nuclear materials and waste and for long-term surveillance and monitoring. These responsibilities will require funding well beyond 2006.*
- *Excess facilities - The Discussion Draft does not provide funding estimates for excess facilities that currently are not included in the Environmental Management program. Currently, DOE has made no decision about whether the Environmental Management program should accept additional excess facilities. As an alternative, maintenance and cleanup of excess facilities could remain the responsibility of the current responsible office. If EM were to take responsibility for the facilities, costs would be added to the total cleanup program. A decision on this matter is expected in the near future. (Attachment E provides more information about excess facilities that are not currently in the program.)*

Definition of Completion of Site Cleanup in the 2006 Plan

For the 2006 Plan, EM adopted a formal definition of the word "completion." Cleanup at a site is considered complete when:

- *Deactivation and decommissioning of all facilities currently in the Environmental Management program have been completed, excluding any long-term surveillance and monitoring*
- *All releases to the environment have been cleaned up in accordance with agreed-upon cleanup standards*
- *Groundwater contamination has been contained, and long-term treatment or monitoring is in place*
- *Nuclear material and spent fuel have been stabilized and/or placed in safe long-term storage*
- *"Legacy" waste (i.e., waste produced by past nuclear weapons production activities, with the exception of high-level waste) has been disposed of in an approved manner*

A cornerstone to the 2006 Plan cleanup strategy is the nation's first deep geologic radioactive waste disposal facility, the Waste Isolation Pilot Plant, located near Carlsbad, New Mexico. The Waste Isolation Pilot Plant is designed and engineered to permanently dispose of transuranic waste and transuranic mixed waste left from the nation's nuclear defense programs. Its sole mission is to protect humans and the environment from long-lived radioactivity for thousands of years. The Department of Energy plans to open the Waste Isolation Pilot Plant in May of 1998.

1.4 PLACING THE 2006 PLAN IN CONTEXT

The 2006 Plan is intended as a strategic planning tool to help focus the Department's planning for environmental restoration and waste management activities. It will not be a decision-making document. As noted above, the planning process leading to this Discussion Draft began in June 1996 with the identification of a unifying vision focused on completing as much of the EM mission as possible by 2006. Potential strategic approaches to achieving that vision have evolved over the past year, as a result of interactions with Tribal Nations and stakeholders and discussions within the Department. The plan will continue to evolve in response to public comments, new information, and changing circumstances as it proceeds from this Discussion Draft to a draft plan later this year, an Initial National 2006 Plan in early 1998, and periodic updates thereafter. Thus, even the Initial National 2006 Plan, when it appears next year, will not be a decision document on specific proposals for action, but rather a living document designed to ensure that EM's strategic planning and budgeting processes remain focused on the program's strategic goal--completing as much work as possible by 2006. The same will be true of the plan's subsequent updates.

Decisions on proposed actions to carry out the Environmental Management program, whether the actions are site-specific or national in scope, will be informed by the 2006 Plan. Other factors, however, will also affect those decisions. For example, in the area of environmental restoration, decisions are inherently site-specific in nature. DOE sites differ in the extent and types of contamination at the site, the types of remediation technology that may be appropriate, the characteristics of the surrounding environment, expectations for future land use, the desires and expectations of key Tribal Nations and stakeholders, the nature of ongoing or planned non-EM work at the site, and local regulatory requirements. Key parameters, such as agreement on a site's end state and the identification of required cleanup levels, must be negotiated with the appropriate authorities for each site. These variables illustrate the impracticality of attempting to make cleanup decisions on other than a site-specific basis. Accordingly, the 2006 Plan will not dictate site-specific outcomes, but rather will ensure that, as the Department makes site-specific environmental restoration decisions in consultation with its regulators and other stakeholders, it does not lose sight of the strategic goal of completing as much cleanup as possible by 2006.

Unlike environmental restoration decisions, the Department's need for facilities to treat, store, and dispose of various waste types is more amenable to national or regional approaches capable of achieving economies of scale or other advantages over a purely site-specific approach. Even in the area of waste management, however, the 2006 Plan will serve a strategic planning rather than a decision-making purpose. On May 30, 1997, the Department issued its Waste Management Programmatic Environmental Impact Statement, which analyzes a number of alternative approaches for managing current and future inventories of hazardous, low-level, mixed low-level, transuranic, and high-level waste at DOE sites. In coming months, the Department expects to issue national programmatic Records of Decision for each waste type. EM's strategic goal of accomplishing as much work as possible by 2006 will be one of the factors that will influence these programmatic decisions, and subsequent versions of the 2006 Plan will reflect the programmatic decisions as they are made. As in the case of environmental restoration activities, the 2006 Plan will not dictate specific waste management approaches at individual sites. It will, however, help to ensure that EM's strategic goal remains in focus in the Department's consideration of the site-specific activities

that will be necessary to implement the earlier programmatic decisions. Proposals for waste management activities at specific sites will require appropriate regulatory approvals, and will be the subject of stakeholder consultations and appropriate environmental reviews.

Much of the information in this Discussion Draft is derived from information obtained from the sites since July 1996. On February 28, 1997, Operations/Field Offices submitted draft Site Ten-Year Plans and Project Baseline Summaries with data to support the Environmental Management program planning effort. After that submission, the Assistant Secretary for Environmental Management decided to change the planning process to include more time for public involvement. Continuing dialogue with Tribal Nations and stakeholders led EM to develop this Discussion Draft.

EM will incorporate changes in response to comments on this Discussion Draft into the draft National 2006 Plan to be released later this year. At the same time, the Site Discussion Drafts will be revised in collaboration with Tribal Nations and stakeholders at the site level. Specific Action Plans will be adopted at sites to resolve issues raised by interested parties (see Attachment F for issues already with Action Plans and Attachment G for the *National Action Plan on the Intersite Transfer of Waste and Nuclear Materials*). After another comment period, EM plans to issue the Initial National 2006 Plan in early 1998. The plan will undergo annual updates to reflect changes in assumptions made in planning and to gauge advancement toward the targets of the 2006 Plan. Chapter 6 and Attachment B provide detailed information about how to submit comments on this document.

Who are DOE's Stakeholders?

States have direct interest in transportation, storage, and disposition of wastes, and a range of other issues. State regulatory agencies and the U.S. Environmental Protection Agency implement a wide variety of regulatory activities at DOE sites.

City and county governments have an interest in operations and safety at sites, as well as economic development and site transition.

Site Specific Advisory Boards, established at each site, have an interest in the full range of cleanup activities at that site.

Other grassroots citizen groups have an interest in the full range of site operations.

Finally, citizens have a concern in the decisions that will affect their health and safety.

This page is intentionally left blank.

2 LEGAL REQUIREMENTS AND POLICIES

This Chapter articulates legal requirements and policies that affect the Environmental Management program. The requirements and policies are considered essential to the effective accomplishment of the mission of the Office of Environmental Management (EM).

2.1 MEETING LEGAL AND REGULATORY REQUIREMENTS

EM is committed to maintaining full compliance with applicable environmental and other requirements. First, in accordance with Executive Order 12088, EM will request sufficient funds to ensure compliance with applicable pollution control standards necessary to conduct environmental management activities. More broadly, EM will comply with all activities required by applicable Federal, state, and local statutes and regulations; activities required under the terms of permits, administrative orders, or judicial decrees; and enforceable milestones or schedules established in agreements negotiated between EM and regulators. In addition, the Environmental Management program intends to meet commitments to the Defense Nuclear Facilities Safety Board.

The sites will work closely with Tribal Nations and stakeholders to address compliance requirements, conduct other activities, and determine appropriate priorities and related funding levels. As necessary, site managers would support such efforts by proposing modifications of certain compliance activities; the Department would be required to obtain approval from its regulators before acting on any proposed modifications.

2.2 POLICIES

Historically, EM's policies have included ensuring the safety and health of workers; reducing risks to the public and the environment; fostering the involvement of Tribal Nations and stakeholders; and easing the transition of workers.

2.2.1 ENSURING SAFETY AND HEALTH

The mission of EM involves the cleanup and management of large amounts of radioactive and hazardous waste and materials. Accordingly, EM is committed to a policy that can be summarized as "do work safely or don't do it." EM will not compromise safety and health to accelerate site closures and will continue to implement its safety management policy and the recommendations of the Defense Nuclear Facilities Safety Board.

EM's Safety Management System provides the framework for safety and health management. Integral to the system is up-front involvement of workers in defining the work and evaluating hazards. The system provides the basis for identifying the appropriate mix of skills and other resources required for planning, budgeting, and conducting the safe and effective

completion of project work. EM is identifying methods of improving safety and health performance, establishing benchmarks by which to measure such performance, and holding managers accountable for performance. The Secretary of Energy has directed the Assistant Secretary for Environmental Management to work closely with the Assistant Secretary for Environment, Health, and Safety to ensure that the 2006 Plan includes appropriate provisions for the protection of health and safety.

2.2.2 REDUCING RISK

Risk management is an integral element of EM's approach to setting priorities, sequencing project work, and measuring performance. Initiatives set forth in the 2006 Plan place priority on projects that eliminate urgent risks. Specifically, sequencing of projects will be based on an evaluation of risks to workers, the public, and the environment, as well as other factors. Evaluations of risk for projects also will include metrics that show incremental reduction of risk. EM will continue its efforts to identify opportunities to reduce risk more quickly than in the past. Those opportunities will be explored thoroughly with Tribal Nations and stakeholders before they are included in future versions of the 2006 Plan.

2.2.3 INVOLVING TRIBAL NATIONS AND STAKEHOLDERS

Because the strategies chosen by EM affect a diverse group of Tribal Nations and stakeholders, and must be approved by regulators, EM places a high priority on soliciting and incorporating the suggestions of all those parties at both local and national levels early in its planning process.

In November 1996, Assistant Secretary for Environmental Management Al Alm sent a letter to Tribal Nations and stakeholders, making a commitment that the various draft Site Ten-Year Plans would incorporate *only* those initiatives that EM was confident could proceed, certain that they are consistent with legal requirements and have been developed in collaboration with stakeholders and regulators. Mr. Alm stated further that iterations of the 2006 Plan would identify issues that remain to be addressed with regulators or other stakeholders and that require resolution. For some sites, assumptions were made that are based on only preliminary discussions with stakeholders and regulators. For such sites, discussion will continue. The parties to those discussions will conform to the decision-making process prescribed under Federal, state, and local environmental laws before making any final decisions. EM recognizes that, to date, involvement of Tribal Nations and stakeholders has not been consistent. Therefore, EM is committed to the establishment of a more disciplined and inclusive system.

The Environmental Management program planning process also includes an approach to issue resolution that involves the development of Action Plans for some issues. Action Plans are required for selected issues that are controversial, that change the Environmental Management program's previous planning baseline, that have not yet been addressed with Tribal Nations and stakeholders, that affect a number of sites, that require that an explicit decision or policy to be made, or that affect the path toward closure of a site. Resolution of issues and opportunities for decision-making are expected to continue, and it is expected that modifications and updates of the 2006 Plans will be necessary.

2.2.4 EASING THE TRANSITION OF WORKERS

Workforce restructuring plans are currently under development for the sites that will address adjustments in the workforce that may occur from time to time as the 2006 Plans are implemented. Potential strategies for offering benefits to workers affected by workforce adjustments are under review. These strategies may include incentive programs for both voluntary and involuntary separation and outplacement assistance services, such as job search workshops, access to job listings, resume preparation, career and educational counseling, and educational assistance to help workers make the transition to new job opportunities. Certain involuntarily separated workers will be eligible for preference in hiring and for severance pay, in accordance with Section 3161 of the National Defense Authorization Act for FY 1993.

As projects conducted under the 2006 Plan come to a close and sites approach closure, DOE also intends to provide, in accordance with the requirements of Section 3161 of the National Defense Authorization Act for FY 1993, assistance to communities that are affected by the reconfiguring, downsizing, and closing of its defense nuclear facilities. DOE realizes that attaining the 2006 Plan goals may affect the economies of nearby communities where a significant number of displaced workers live. DOE will cooperate with the Community Reuse Organization and execute economic development initiatives to help minimize those effects. The Office of Worker and Community Transition, which is responsible for the overall management of DOE's community transition program, will authorize specific actions, within approved funding levels, selected through application of the evaluation criteria set forth in the guidance.

This page is intentionally left blank.

3 DRAFT SITE TEN-YEAR PLANS

On February 28, 1997, DOE Operations/Field Offices submitted draft Site Ten-Year Plans and the associated information about projects (Project Baseline Summaries) to the Office of Environmental Management (EM) to support this Discussion Draft. The draft Site Ten-Year Plans are based on two potential scenarios for funding of the Environmental Management program: one assuming a \$6.0 billion annual funding level ("High Planning Scenario") and the other assuming a \$5.5 billion annual funding level ("Low Planning Scenario"). Individual site plans included additional funds for the capital portion of privatization projects over and above the High and Low Planning Scenarios. Privatization operating costs are included in the site distributions except for the Hanford Site Tank Waste Remediation System. Funding for the capital portion of the privatization projects does not currently exceed the FY 1998 through FY 2002 levels requested in the FY 1998 budget.

The current planning targets for the Environmental Management program are \$5.5 billion for FY 1999 through FY 2002. The Office of Management and Budget will re-examine the planning targets for the program for FY 1999 and beyond based upon the analyses of the two planning scenarios in these plans. Additionally, the recent agreement between President Bill Clinton and the Congressional leadership to balance the Federal budget by the year 2002 will directly affect the level of the EM budget for FY 1999 through FY 2002. Future budgets for the Environmental Management program will be required to be consistent with this agreement.

The use of two planning scenarios allowed EM to analyze the effects of different funding levels on compliance, site closure, and total life-cycle cost. Although these scenarios do not represent all possible planning scenarios, they highlight the major issues related to alternative levels of funding.

Constant and Current Dollars

This report principally discusses costs in constant dollars. However, it is important to note that Federal budgets are developed in current dollars and that the scenarios discussed in this report were constructed using current dollars.

Current dollars represent the dollar value of goods or services in terms of prices current at the time of sale. (Inflation is included in the dollar value.) DOE and other agencies prepare their budget requests in current dollars.

Constant dollars represent a dollar value adjusted for changes in prices. Dollars in the future are adjusted by removing the effects of inflation. Comparing costs in constant dollars ensures that differences are not the result of inflation or schedule changes.

This Chapter summarizes the results of the analysis of the draft Site Ten-Year Plans under the two planning scenarios. As will be discussed, the submittals did not achieve the compliance and completion objectives of the Environmental Management program. EM managers at the highest level met in March 1997 to discuss the submittals and to establish performance goals to achieve EM's objectives through enhanced performance. Chapter 4 discusses the performance goals and their effect on EM's compliance and closure goals.

3.1 COST ESTIMATE UNCERTAINTY AND DATA GAPS

EM developed the overall cost estimate for the Discussion Draft by rolling up the individual cost data for the 381 projects identified in the February 28, 1997, draft Site Ten-Year Plans and their associated Project Baseline Summaries. The quality of data related to individual projects at each site varies, in turn affecting the quality of the overall estimate. However, standard, recognized techniques were used in the field to develop most of the cost estimates.

Unlike standard construction projects, such as buildings and bridges, for which there usually is a well-established base of knowledge, many EM cleanup projects are new, "first-time" efforts. Such efforts entail uncertainty related to the technologies involved, changes in scope, the evolving regulatory environment, and other influences. However, the accuracy of a cost estimate improves as the project proceeds. Therefore, the accuracy of the overall cost estimate depends upon the stage of each project in its life-cycle.

Data gaps in the draft submittals also were identified. For example, some sites provided incomplete data sets for long-term costs under the Low Planning Scenario. While some progress has been made in filling those gaps, more work is needed. Therefore, some comparisons might over- or underestimate differences in life-cycle costs under the two scenarios.

EM recognizes the need for consistent, high-quality data to facilitate program management and improve progress. The Integrated Planning, Accountability, and Budgeting System (discussed in Chapter 5) will facilitate better data management and will improve the consistency and quality of program data. EM plans to improve data quality during the public comment period. Since the process of improving data quality will be continual, initial efforts will focus on FY 1997, FY 1998, and FY 1999, and will be reflected in the draft National 2006 Plan to the fullest extent possible. A major benefit of the Integrated Planning, Accountability, and Budgeting System is that it will provide continually updated and improved data quality as it is implemented.

Table 3.1 sets forth life-cycle cost estimates under the High and Low Planning Scenarios, as submitted by the field. (The number of sites remaining should be compared with the 82 sites remaining in 1997.) Many inconsistencies in the data are apparent. These problems, as well as other problems related to the data submitted, will be rectified in the draft National 2006 Plan.

Table 3.1 Life-Cycle Cost Estimates Under (a) High and (b) Low Planning Scenarios as Submitted by the Field

(a) High Planning Scenario as Submitted by the Field (Billions of Constant 1998 Dollars)

| OPERATIONS/ FIELD OFFICE ^a | NUMBER OF REMAINING SITES IN 2006 ^b | COMPLETION OF LAST SITE | 1997-2006 (\$ BILLION) | 2007-2070 (\$ BILLION) | TOTAL ^c (\$ BILLION) |
|--|--|----------------------------|---------------------------|---------------------------|------------------------------------|
| Albuquerque | 0 | 2006 | 2.2 | 0.8 | 3.0 |
| Chicago | 0 | 2004 | 0.3 | 0.0 | 0.3 |
| National Programs and Carlsbad ^d | NA | NA | 8.3 | 12.1 | 20.4 ^f |
| Idaho | 1 | 2050 | 5.0 | 10.8 | 15.8 |
| Nevada | 1 | 2011 | 0.7 | 0.5 | 1.2 |
| Oakland | 0 | 2006 | 0.6 | 0.1 | 0.7 |
| Oak Ridge | 2 | 2012 | 7.0 | 2.1 | 9.1 |
| Ohio | 0 | 2005 | 4.6 | 0.1 | 4.7 |
| Rocky Flats | 1 | 2015 | 5.0 | 2.2 | 7.2 |
| Richland | 1 | 2048 | 12.5 | 41.8 | 54.3 |
| Savannah River | 1 | 2070 | 11.7 | 17.9 | 29.6 |
| TOTAL | 7 | | 57.9 | 88.4 | 146.3 |

(b) Low Planning Scenario as Submitted by the Field (Billions of Constant 1998 Dollars)

| OPERATIONS/ FIELD OFFICE ^a | NUMBER OF REMAINING SITES IN 2006 ^b | COMPLETION OF LAST SITE | 1997-2006 (\$ BILLION) | 2007-2070 (\$ BILLION) | TOTAL ^c (\$ BILLION) |
|--|--|----------------------------|---------------------------|---------------------------|------------------------------------|
| Albuquerque | 0 | 2006 | 2.2 | 0.8 | 3.0 |
| Chicago | 0 | 2006 | 0.3 | 0.0 | 0.3 |
| National Programs and Carlsbad ^d | NA | NA | 7.5 | 13.6 | 21.1 ^f |
| Idaho | 1 | 2060 | 4.6 | 13.0 | 17.6 |
| Nevada | 1 | 2015 | 0.6 | 0.6 | 1.2 |
| Oakland | 1 | 2007 | 0.6 | 0.1 | 0.7 |
| Oak Ridge | 2 | 2015 | 6.5 | 2.9 | 9.4 |
| Ohio | 5 | 2030 | 3.9 | 2.5 | 6.4 |
| Rocky Flats | 1 | 2030 | 4.5 | 5.9 | 10.4 |
| Richland | 1 | 2050 | 12.5 | 44.2 | 56.7 |
| Savannah River | 1 | 2070 | 11.7 | 17.9 | 29.6 ^d |
| TOTAL | 13 | | 54.9 | 101.5 | 156.4 |

(a) Attachment C provides a list of sites included in the Discussion Draft.

(b) 82 sites required cleanup as of the end of 1996.

(c) National programs are defined in Attachment H.

(d) The February 28, 1997, submission of the Savannah River Site draft Ten-Year Plan excluded full life-cycle costs associated with a number of projects over the period 2007-2070. Subsequent to submission of the draft Site Ten-Year Plan, a preliminary life-cycle cost projection for all projects was completed. This data would increase the life-cycle cost under the Low Planning Scenario to \$32.5 billion.

(e) The cost difference between the High and Low Planning Scenarios for the Albuquerque, Chicago, Nevada, and Oakland Operations Offices is insufficient to show when rounded to the nearest hundred million dollars.

(f) The Carlsbad Area Office costs are \$9.0 billion in the Low Planning Scenario and \$7.1 billion in the High Planning Scenario.

3.2 SITE COMPLETIONS

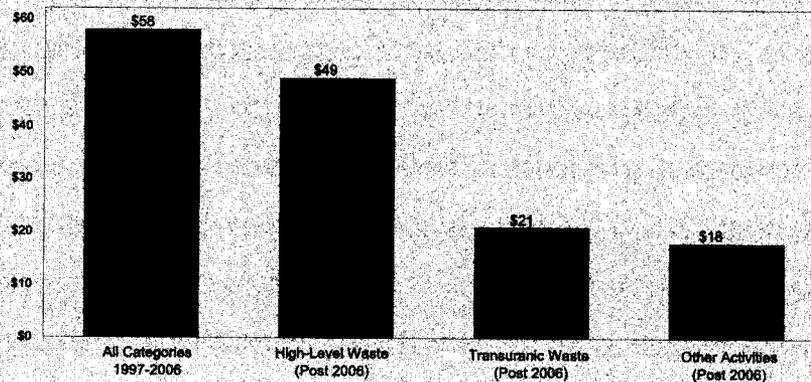
The submittals from the field fall short of EM's closure goal, even under the High Planning Scenario. Only four Operations/Field Offices would complete cleanup of most activities by 2006. Under the Low Planning Scenario, only two offices, the Albuquerque and the Chicago Operations Offices, would reach completion. The closure dates for more complex sites are even more disturbing. The completion dates for the Richland Operations Office and the Savannah River Operations Office were estimated to be around 2050 and 2070 respectively, up to three-quarters of a century distant. Under either scenario, work at the Rocky Flats Field Office and the Nevada Operations Office would not be completed by 2006. Under the Low Planning Scenario, completion would not be achieved at the Oakland Operations Office by 2006.

3.3 COST ANALYSIS

On the basis of field submissions, the life-cycle cost for the High Planning Scenario was about \$146 billion (constant FY 1998 dollars). The cost for the Low Planning Scenario was about \$156 billion. As Table 3.1 shows, the difference between the High and the Low Planning Scenarios occurred primarily at a few sites. Specific projects were less costly when funded at the funding level of the High Planning Scenario. For example, numerous projects at the Rocky Flats and Ohio Field Offices showed significant life-cycle savings when funded at the funding level of the High Planning Scenario. Other opportunities exist: for example, the acceleration of canyon deactivation at the Savannah River Site under the High Planning Scenario. Acceleration of deactivation reduces surveillance and maintenance costs, thereby reducing life-cycle costs at the Savannah River Site by \$1 billion.

Most of the costs would be incurred after 2006. Under the field submission High Planning Scenario, 60 percent of the \$146.3 billion life-cycle cost would be incurred after 2006. Most costs incurred after 2006 (79 percent) support management of high-level waste (\$49 billion) and transuranic waste (\$21 billion) at the Hanford Site, the Waste Isolation Pilot Plant, the Savannah River Site, and the Idaho National Engineering and Environmental Laboratory. Other costs incurred after 2006 (\$18 billion) support long-term surveillance and maintenance activities at completed sites and deactivation, decommissioning, and remedial action activities at the large sites. Figure 3.2 disaggregates costs incurred after 2006 under the High Planning Scenario by major category.

Figure 3.2 Costs by Category Under the Field Submission High Planning Scenario (Billions of Constant 1998 Dollars)



3.4 COMPLIANCE

In the February 28, 1997, draft Site Ten-Year Plans and in subsequent discussions, almost all of the sites reported that their Low Planning Scenario was insufficient to meet the sites' compliance needs. Specifically, the sites could not resolve the following issues:

- *Compliance - Under the Low Planning Scenario, most sites submitted that they were unable to meet many of the direct compliance needs mandated by Federal and state regulations (e.g., actions established in Federal Facility and Compliance Act Agreements) and maintain other high-priority activities*
- *Other Necessary Programs - Sites reported that the Low Funding Scenario would eliminate the necessary support activities needed for compliance activities (e.g., Federal salaries)*
- *Site Accelerations/High-Priority Programs - Sites reported that neither site acceleration activities nor national business management programs, would receive funding under the Low Planning Scenario*

Sites reported different results for the High Planning Scenario. Most sites reported that compliance would be achieved while still maintaining other high-priority activities. At these sites, resources in excess of compliance goals would be allocated to other necessary programs and site accelerations and other high priority programs. A few sites reported that even under the High Planning Scenario, they still would not meet their compliance requirements, while also maintaining activities associated with their high priorities. Those sites requested additional resources above their allocations.

3.5 CONCLUSION

The draft Site Ten-Year Plans were unacceptable with respect to both compliance and the completion goals of the 2006 Plan. Since EM is committed to maintaining compliance, EM managers therefore explored various options for meeting all compliance requirements and conforming to EM policies, while accelerating closure of sites despite budget constraints. Chapter 4 explores those options.

This page is intentionally left blank.

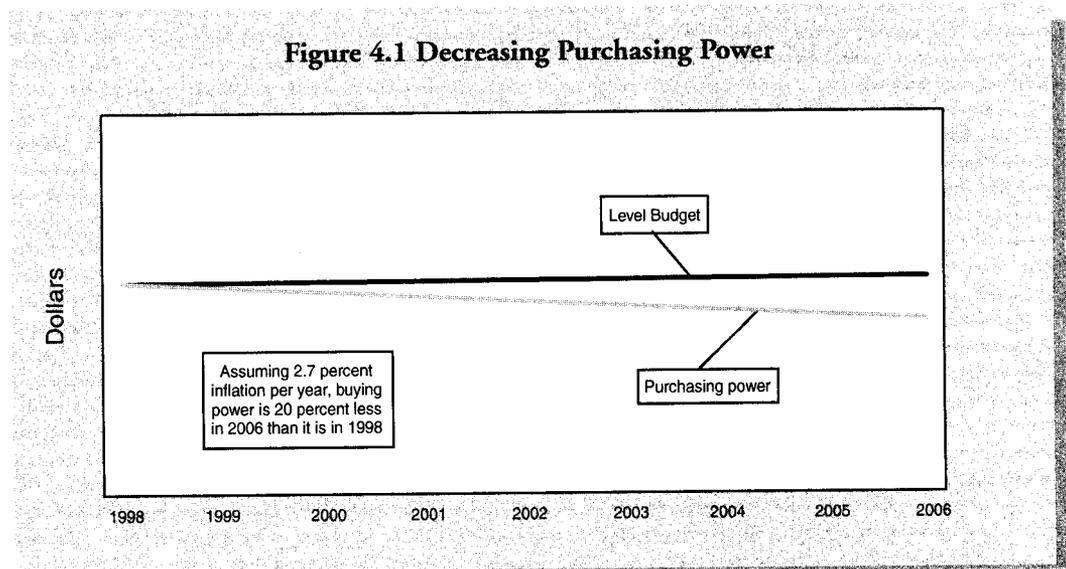
4 ALTERNATIVE SCENARIOS WITH ENHANCED PERFORMANCE

The discussion in Chapter 3 of the draft Site Ten-Year Plans under the High and the Low Planning Scenarios indicated that, although the sites would achieve, in part, the goals of the 2006 Plan under either scenario, they would fall short of maintaining compliance with applicable requirements, conducting other high-priority activities, and completing cleanup by 2006. For that reason, the Office of Environmental Management (EM) Headquarters and field managers agreed to develop adjusted High and Low Planning Scenarios, based upon specific performance enhancement targets. Those alternatives incorporate an approach that is consistent with EM's past response to funding constraints -- do more with less through enhanced performance.

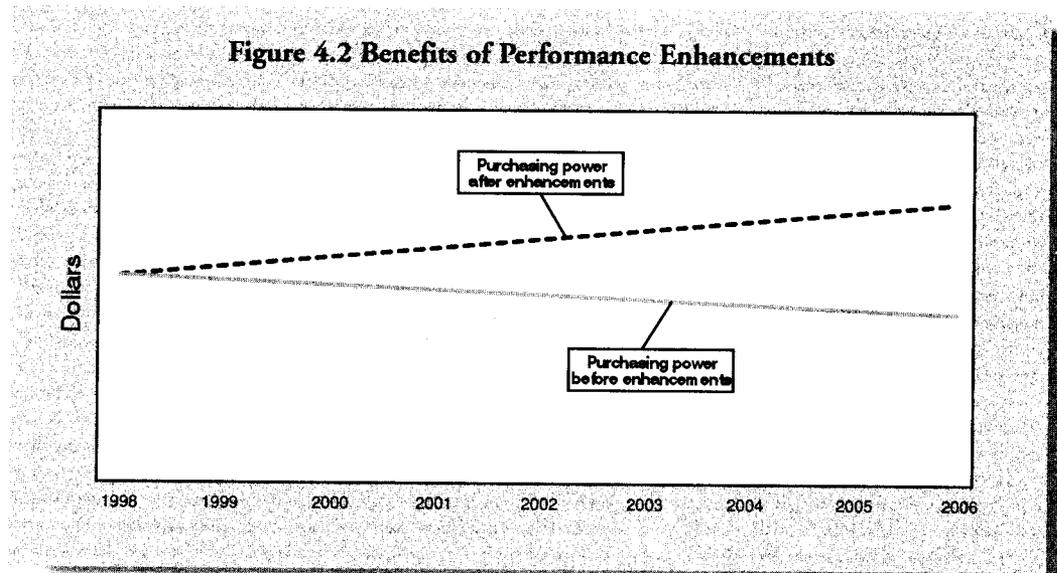
This Chapter describes the goals that underlie the enhanced performance cases (referred to as the High Planning Scenario with Enhanced Performance and the Low Planning Scenario with Enhanced Performance). It sets forth characteristics of the two scenarios as they affect compliance, costs, and closure of sites.

4.1 ENHANCED PERFORMANCE

The need to enhance performance is exacerbated in an environment of reducing or level funding because even level funding represents decreasing purchasing power over time (see Figure 4.1).



Enhanced performance can overcome and exceed lost buying power without additional funds to accelerate site cleanup and closure. The analysis in this Chapter assumes performance enhancements that will allow EM to increase buying power under the two planning scenarios. Figure 4.2 illustrates the effect EM seeks to accomplish.



4.2 PERFORMANCE ENHANCEMENT TARGETS

Drawing upon its past experience, knowledge of practices in the private sector, and analysis of the performance of its program, EM established performance enhancement targets to bridge the gap between funding and resources needed to meet program goals. The targets established are:

- *Reduce support costs to 30 percent of site costs by FY 2000*
- *Achieve annual productivity improvements of 3.5 percent for definable projects (or pure projects)*
- *Achieve annual productivity improvements of 6 percent for operations (or operational projects)*

By applying a combination of performance targets on a site-by-site basis, the Environmental Management program also set an overall goal of performing \$8 billion of additional work by 2006, a 12 percent increase. Since achievement of those targets would have such a profound effect on the Environmental Management program, it is important to discuss their feasibility. The goals are ambitious and may be unachievable. On the other hand, there is certainly a reasonable chance they could be achieved, or at least that the program could come close to achieving them.

Support Costs: EM is a leader in seeking opportunities to reduce the cost of support activities without sacrificing safety and health. Support costs are all costs other than mission direct (that is, those directed toward actual cleanup activities) and capital and construction costs. They support such activities at sites and are essential to the operations of EM's organizations. Examples include maintenance, procurement, information and outreach services, safeguards and security, safety and health activities, and the activities of the Chief Financial Officer.

Operational projects: Operational projects (for example, operating a waste management facility and performing surveillance and maintenance for an excess facility) ordinarily involve treatment or processing activities in which work is repeated year after year. Experience of both the public and the private sector has shown that learning and process improvement continually reduce the costs of repeated activities. Because of the repetitive nature of the work performed for operational projects, efficiencies of 6 percent per year are possible.

Pure projects: Pure projects (for example, remediation and construction) typically are of a specialized nature and, although they may have some resemblance to other projects, each is unique. It is estimated that efficiencies of 3.5 percent per year can be achieved for such pure projects. The lower rate compared with operational projects reflects the unique nature and duration of pure projects.

The performance targets were based on the experience of DOE, organizations in the private sector, and other government agencies. When available funding is less than is needed to meet program goals, performance targets are used to bridge the gap.

EM intends to establish baselines for each project to monitor and track progress made by each site regarding the incorporation of performance enhancing initiatives. As EM develops performance metrics to track progress, they will be included in the draft National 2006 Plan and future iterations of the 2006 Plan. Developing metrics and tracking performance will increase attention on achieving the targets. The focus will remain on achieving the 2006 goal of enhancing performance by 12 percent. EM anticipates that some sites will exceed their annual targets, some will meet their annual targets, and some may fall short.

In 1995, when former Secretary of Energy Hazel O'Leary created the Strategic Alignment Initiative, she established a target of reducing funding for the Environmental Management program by \$4.4 billion over five years. This streamlining initiative created Department-wide efficiencies by reducing staff, consolidating buildings, and eliminating the use of leased office space by the Department. Also under that initiative, the former Secretary established performance targets for the Environmental Management program. As a result of the initiative, EM avoided significant costs.

At the Hanford Site, for example, a number of steps were undertaken to save a billion dollars over a three-year period. The savings resulted primarily from managing overall projects, rather than individual activities. Other savings resulted from such individual projects as improvement of regulatory oversight and general cost-cutting. The effort saved 26 percent over a three-year period.

At the Savannah River Site, savings of \$330 million are projected over FY 1997 and FY 1998 through a host of activities. Those efforts include additional outsourcing and privatization, consolidation of operational facilities, streamlining of monitoring requirements, aggressive improvements in productivity, and streamlining and improvement of the interaction with regulators.

The Ohio Field Office accepted a performance enhancement goal of \$100 million per year, an amount that represents a savings of 20 percent through FY 2005. The Ohio Field Office has reduced the cost of meeting its completion goals at the Mound Plant and the Fernald Environmental Management Project from \$8.3 billion to \$3.4 billion.

Contractors have shown great ingenuity in achieving cost savings when presented with the right incentives. For example, a combination of productivity improvements and earlier investment brought about dramatic improvements in both reduction of costs and acceleration at the Plutonium-Uranium Extraction Plant at the Hanford Site. An investment of \$22 million resulted in the deactivation of 75 buildings, reducing annual surveillance and maintenance costs from \$33.8 million to \$1.2 million. Savings from these activities from FY 1994 to FY 2006 are expected to be \$203 million. Productivity improvements such as reuse of materials, reengineering, activity-based cost estimating, and more accelerated completion by 15 months, saved \$80 million. Therefore, the total savings from FY 1994 through FY 2006 is expected to be \$283 million.

Even with the efficiencies already achieved, a 1996 assessment by Independent Project Analysis, Inc. concluded that the EM waste management program was from 35 to 40 percent less efficient than such programs in the private sector and that the environmental restoration program was 25 percent less efficient than comparable private-sector programs.

Can these savings rates be retained through 2006? Clearly, the savings that were easiest to achieve already have been made, so additional savings will be more difficult. DOE's experience to date and industry experience, however, indicate that substantial future savings are possible.

Other Experience

The Associate Administrator for Space Flight of the National Aeronautics and Space Administration (NASA) announced, in 1992, a goal of saving three to five percent over five years in operating costs of the Space Shuttle program. The National Academy of Public Administration reviewed the results of these efficiency goals and concluded that NASA had achieved a 20 percent savings in two years, a result dramatically higher than initial targets. The savings resulted primarily from achievement of performance enhancement goals. NASA targets are consistent with those set forth in this Discussion Draft.

The U.S. Army Corps of Engineers has reviewed EM sites and has concluded that the program can achieve \$4 billion in savings by 2006. The savings would be the result of savings that can be identified in the near term. There is reason to believe that the savings would be substantially larger if similar reviews were conducted periodically.

There are great untapped sources of savings from application of new technology. The Operations/Field Offices identified savings of \$12 to \$27 billion that can be achieved through the use of innovative technology. Past experience suggests that the estimate is optimistic. Nevertheless, it does provide a measure of the savings that can be realized if the right incentives are in place and barriers to technology are removed.

Finally, EM's productivity targets are less than those of industry, even of mature industries that have achieved productivity improvements of a magnitude similar to that of those targets. The chemical industry, for example, has achieved compounded productivity improvements of 2.5 percent over the past 20 years, a result greater than the EM targets. Table 4.1 shows actual productivity improvements in four major industries from 1985 to 1994. These trends show that EM's performance goals are less than those the comparable industries realized. While the activities are not directly comparable, there are similarities between EM and each of the four industries in applicable environmental regulations and oversight. The four examples chosen are the most similar to EM among examples available in industry.

Table 4.1 Comparison of Enhanced Performance of Four Major Industries Using Increased Labor Output: 1985 to 1994 (1987=100)

| COMPARABLE INDUSTRY | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | PERCENT INCREASE |
|------------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|---------------------|
| Coal Mining | 85.1 | 92.4 | 100 | 110.5 | 116.4 | 118.3 | 122.1 | 132.7 | 145.4 | 150.4 | 77% |
| Steel | 85.8 | 89.7 | 100 | 113.5 | 108.5 | 110.5 | 108.2 | 117.7 | 134.2 | 142.7 | 66% |
| Petroleum Refining | 84.7 | 94.9 | 100 | 106.3 | 107.0 | 109.2 | 106.6 | 111.3 | 120.1 | 123.8 | 46% |
| Industrial Chemicals | 84.0 | 89.0 | 100 | 100.1 | 103.2 | 104.9 | 99.2 | 103.5 | 108.1 | 107.7 | 28% |

Therefore, there is good anecdotal evidence that the productivity targets can be achieved. Nevertheless, they are ambitious. Depending on future savings clearly has its risks. Considering the gap between funding and resources needed to achieve compliance and completion, however, the establishment of productivity targets may represent the only practicable option for meeting EM's goals. It is crucial that EM obtain Tribal Nations' and stakeholders' views on the feasibility of depending on productivity targets of such magnitude and on other available options, should such dependency be found overly challenging.

4.3 AREAS TARGETED FOR ENHANCED PERFORMANCE

Each Operations/Field Office has developed some preliminary ideas about how to achieve enhanced performance targets. Some examples follow:

The Oak Ridge Operations Office plans to achieve the performance enhancement targets by reducing project costs through the adoption of a management and integration approach that uses industry standards for remediation work. The use of private-industry percentages for design and construction management greatly decreases the estimate. The office also plans to reduce construction costs by 10 percent through increased use of competition and by using subcontractors instead of management and operations contractors to provide support. Creating efficiencies through outsourcing and reducing scope also are seen as promising methods of cutting overall costs that will assist the office in reaching its goals. The adoption of these and other enhancements is expected to contribute to a cumulative 33 percent enhancement in performance.

The Richland Operations Office plans to achieve its performance enhancement targets through indirect cost reductions; stretch, breakthrough, and privatization opportunities; other project efficiencies (new reengineering and technology applications and streamlining of management); and changes in scope agreed to by regulatory authorities. The office expects to realize significant savings from these site accelerations; the savings in turn will allow further investments in site closure activities. The Richland Operations Office lists three projects that will advance closure activities significantly through reduction of mortgage. Candidates for acceleration are the deactivation projects at the 324/327 buildings and the deactivation of the T-Plant. The Office also plans to consolidate on-site liquid low-level mixed waste streams currently being treated elsewhere to further reduce costs.

The Rocky Flats Environmental Technology Site is facing the challenge of completing 14 years of work scope by 2006. In order to complete the site by that time, the site must realize significant performance enhancements in the way it conducts work. The Rocky Flats Environmental Technology Site assumes an average savings of 5 percent per year in all cases, in the areas of management, technical support, and infrastructure. In addition, the site intends to continue to use the performance-based contracts to establish incentives for contractors to accelerate site closure. Some examples from FY 1997 are:

- *Particularly challenging performance measures have provided a vehicle to motivate the contractor to accomplish additional work, thereby freeing an additional \$30 million to perform closure work approved in the site's baseline. Although this work was in the baseline, it was unfunded at the beginning of the fiscal year.*
- *Performance measures have been integrated and coordinated to ensure work is accomplished in an optimum sequence. For example, to earn a fee in FY 1998 in the area of shipment of special nuclear material, the contractor must complete the entire scope of work under the FY 1997 performance measures for shipment of special nuclear material.*

Rocky Flats Field Office can complete closure by 2006 if certain funding considerations are favorable in the next three years. These favorable considerations include either availability of accelerated closure funds in lieu of privatization funds or unrestricted use of privatization funds; availability of accelerated closure funds; or other mechanisms to increase available funds. This issue will be resolved prior to release of the draft 2006 Plan later this year.

The Oakland Operations Office has developed a sequence of work and distribution of funds by optimizing strategic integration of their programs and sites. The schedule and estimated costs presented in the Oakland plan are based on an aggressive approach in a number of cost saving areas, including reduction in support costs through innovative contracting, use of innovative technologies at Lawrence Livermore National Laboratory and other sites, sequencing of restoration projects at small sites, and ongoing process optimization.

Over the past few years, the Savannah River Site has cut costs through various performance enhancements. However, the site sees the opportunity for additional gains in efficiency in business processes and systems, operations (especially in new facilities currently undergoing startup), and new technologies. Examples include:

- *A new management system for the site has high promise of producing efficiency gains in the long term. It is a fully integrated suite of modules that govern all aspects of site operations. Expectations are that the integrated system approach will lead to simplification of business processes and data management.*
- *The Defense Waste Processing Facility is still in its infancy compared with other site operations. If it proves to be like most large, new production facilities, gains in operational efficiency should be realized after the "bugs" have been worked out.*

4.4 ANALYSIS OF CLOSURE AND LIFE-CYCLE COSTS UNDER ALTERNATIVE SCENARIOS

A key component of the performance enhancement strategy is completion of work by 2006. Achievement of 100 percent of the targets for performance and reduction of support costs would allow the compression of more than \$66 billion worth of work into \$58 billion worth of buying power through 2006, representing an increase of 12 percent in work being performed.

In developing the two scenarios below, the maximum possible gains in performance enhancement were assumed. Therefore, the achievements must be considered "goals" rather than programmatic commitments. Table 4.2 sets forth the conclusions for the High and Low Life-Cycle Estimates with Enhanced Performance.

The High Planning Scenario with Enhanced Performance is based on a funding allocation among sites that differs slightly from the funding allocation for the High Planning Scenario without performance enhancements. The funding allocation for the High Planning Scenario with Enhanced Performance includes investments at the Rocky Flats Field Office, the Ohio

Table 4.2 Life-Cycle Cost Estimates with Enhanced Performance Under (a) High and (b) Low Planning Scenarios

(a) High Planning Scenario with Enhancements (Billions of Constant 1998 Dollars)

| OPERATIONS/ FIELD OFFICE | NUMBER OF REMAINING SITES IN 2006 ^a | COMPLETION OF LAST SITE | 1997-2006 (\$ BILLION) | 2007-2070 (\$ BILLION) | TOTAL (\$ BILLION) ^d |
|-----------------------------------|--|----------------------------|---------------------------|---------------------------|------------------------------------|
| Albuquerque | 0 | 2005 | 2.2 | 0.1 | 2.3 |
| Chicago | 0 | 2004 | 0.3 | 0.0 | 0.3 |
| National Programs and Carlsbad | NA | NA | 8.3 | 9.0 | 17.3 |
| Idaho | 1 | 2035 | 5.0 | 5.5 | 10.5 |
| Nevada | 0 | 2006 | 0.7 | 0.3 | 1.0 |
| Oakland | 0 | 2006 | 0.6 | 0.1 | 0.7 |
| Oak Ridge | 2 | 2012 | 7.0 | 2.1 | 9.1 |
| Ohio | 0 | 2005 | 4.6 | 0.1 | 4.7 |
| Rocky Flats | 0 | 2006 | 5.1 | 0.6 | 5.7 |
| Richland | 1 | 2033 | 12.5 | 24.7 | 37.2 |
| Savannah River | 1 | 2026 | 11.7 | 9.4 | 21.1 |
| TOTAL | 5 | | 58.0 | 51.9 | 109.9 |

(b) Low Planning Scenario with Enhancements (Billions of Constant 1998 Dollars)

| OPERATIONS/ FIELD OFFICE | NUMBER OF REMAINING SITES IN 2006 ^a | COMPLETION OF LAST SITE | 1997-2006 (\$ BILLION) | 2007-2070 (\$ BILLION) | TOTAL (\$ BILLION) ^d |
|-----------------------------------|--|----------------------------|---------------------------|---------------------------|------------------------------------|
| Albuquerque | 0 | 2005 | 2.2 | 0.1 | 2.3 |
| Chicago | 0 | 2006 | 0.3 | 0.0 | 0.3 |
| National Programs and Carlsbad | NA | NA | 7.5 | 9.6 | 17.1 |
| Idaho | 1 | 2045 | 4.6 | 7.0 | 11.6 |
| Nevada | 1 | 2010 | 0.6 | 0.4 | 1.0 |
| Oakland | 0 | 2006 | 0.6 | 0.1 | 0.7 |
| Oak Ridge | 2 | 2015 | 6.5 | 2.9 | 9.4 |
| Ohio | 5 | 2030 | 3.9 | 2.5 | 6.4 |
| Rocky Flats | 1 | 2018 | 4.5 | 3.7 | 8.2 |
| Richland | 1 | 2040 | 12.5 | 26.4 | 38.9 ^b |
| Savannah River | 1 | 2026 | 11.7 | 9.4 | 21.1 ^c |
| TOTAL | 12 | | 54.9 | 62.1 | 117.0 |

(a) 82 sites required cleanup as of the end of 1996.

(b) After the Richland Operations Office submitted their February 28, 1997, draft Site Ten-Year Plan, the site provided additional data that could materially increase the difference between the Low and the High Planning Scenarios assuming enhanced performance. This data would increase the Headquarters projection of life-cycle cost under the Low Planning Scenario to \$48.7 billion. EM chooses to be conservative and not include this case in this Discussion Draft due to the lateness of receiving the data and the limited time to understand the underlying assumptions. However, this latest case may confirm EM's belief that there are other large opportunities to decrease life-cycle costs at higher funding levels.

(c) After the Savannah River Operations Office submitted their February 28, 1997, draft Site Ten-Year Plan, the site provided additional data that could materially increase the difference between the Low and the High Planning Scenarios assuming enhanced performance. This data would increase the Headquarters projection of the life-cycle cost under the Low Planning Scenario to \$25.5 billion. Similar to the Richland Operations Office case discussed in footnote (b) above, EM chooses to be conservative and not include this case in the Discussion Draft.

(d) The cost difference between the High and Low Planning Scenarios for the Albuquerque, Chicago, Nevada, and Oakland Operations Offices do not show when rounded to the nearest hundred million dollars.

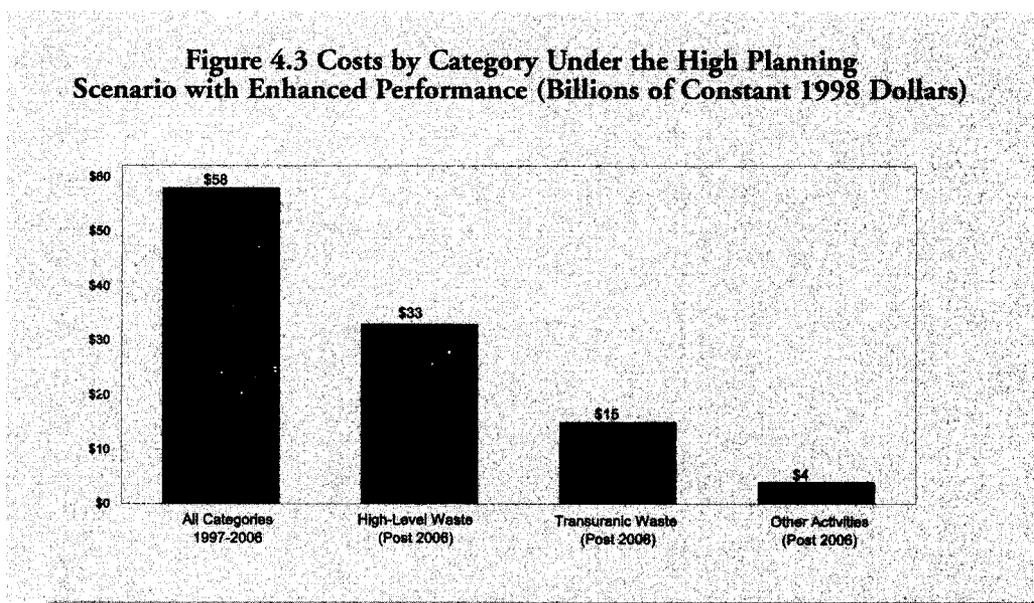
Field Office, and the Nevada Operations Office that are necessary to meet the closure dates of 2006 established for those sites. It also includes investments at the Waste Isolation Pilot Plant to allow the plant to receive transuranic waste at a rate that will accommodate the need of other EM sites to ship transuranic waste off-site. Additional amounts were added to the planning levels for the Idaho National Engineering and Environmental Laboratory to help ensure compliance with the settlement agreement for that site. The Low Planning Scenario with Enhanced Performance is based on the same funding allocation among sites as the Low Planning Scenario without performance enhancements. Attachment H provides an Office-by-Office summary of funding allocations for the planning scenarios.

4.4.1 SITE COMPLETIONS AND COST ANALYSIS

Incorporation of initiatives to enhance performance into its program will enable EM to achieve its completion goals. Under the High Planning Scenario with Enhanced Performance, all sites except the Idaho National Engineering and Environmental Laboratory, the Oak Ridge Reservation, the Savannah River Site, and the Hanford Site can achieve closure by 2006, although doing so will require great effort at the Rocky Flats Environmental Technology Site. Under the Low Planning Scenario with Enhanced Performance, the Nevada Operations Office, the Ohio Field Office, and the Rocky Flats Field Office would also not achieve the closure goal.

The life-cycle cost for the High Planning Scenario with Enhanced Performance is about \$110 billion (constant FY 1998 dollars), a cost savings of \$36 billion over the original scenario. The life-cycle cost for the Low Planning Scenario with Enhanced Performance is \$117 billion (constant FY 1998 dollars), a cost savings of \$39 billion over the original scenario.

Under the High Planning Scenario with Enhanced Performance, 47 percent of the costs are incurred after 2006. That figure represents a significant reduction from the 60 percent projected before enhanced performance was considered. As expected, most costs to be incurred after 2006 (93 percent) will be expended to manage high-level waste (\$33 billion) and transuranic waste (\$15 billion) at the Hanford Site, the Waste Isolation Pilot Plant, the Savannah River Site, and the Idaho National Engineering and Environmental Laboratory. Figure 4.3 illustrates costs by major category under the High Planning Scenario with Enhanced Performance.



Cost of surveillance and monitoring to ensure adequate protection of human health and the environment extend for many years after completion of work at a site. Long-term surveillance and monitoring costs currently are estimated at approximately \$100 to \$250 million per year.

4.4.2 COMPLIANCE

EM could achieve compliance, as well as fund site acceleration initiatives and other high-priority initiatives, at all sites under the High Planning Scenario with Enhanced Performance, but further adjustments in funding and the acceleration of schedules may be necessary at some sites. Every effort will be made to resolve such issues before the draft National 2006 Plan is issued later this year. Under the Low Planning Scenario with Enhanced Performance, achieving compliance could be even more difficult at several sites. Neither site accelerations nor other high-priority activities would be possible under this scenario.

4.5 COMPARISON OF INITIAL SUBMISSIONS WITH ENHANCED PERFORMANCE SCENARIOS

This Section compares the two low scenarios with each other and then the two high scenarios with each other. First, the Low Planning Scenarios with and without Enhanced Performance are compared in the areas of site closure, cost, and compliance. Then, the High Planning Scenarios with and without Enhanced Performance are compared for the same three factors.

4.5.1 LOW PLANNING SCENARIO AND LOW PLANNING SCENARIO WITH ENHANCED PERFORMANCE

Table 4.3 compares the Low Planning Scenarios with and without enhanced performance by site completion, life-cycle cost, and compliance.

Table 4.3 Comparison of the Low Planning Scenario with the Low Planning Scenario with Enhanced Performance

| SCENARIO | 1997-2070 LIFE-CYCLE COST (BILLIONS OF CONSTANT 1998 DOLLARS) | COMPLETION BY 2006 | COMPLIANCE |
|---|--|---|--|
| Low Planning Scenario as submitted by the field | 156.4 | All Albuquerque and Chicago Operations Office sites completed. No acceleration activities. | Almost all the sites reported that they would be unable to meet compliance requirements and still maintain other high-priority activities. |
| Low Planning Scenario with Enhanced Performance | 117.0 | All Albuquerque, Chicago, and Oakland Operations Office sites completed. Few acceleration activities. | Compliance difficulty if other high-priority projects were to be maintained, but feasible with adjustments between sites. |

Cost Analysis - As Table 4.3 illustrates, if EM achieves 100 percent of its performance enhancement goals, a cost reduction of approximately \$39 billion, or 25 percent, would be realized over the life-cycle of the program.

Completion - The table above shows that, with enhanced performance, only one more Operations Office will be completed by 2006. However, it does not illustrate the true progress being accomplished by the complex as a whole. The completion dates for individual sites accelerate in all cases.

Compliance - Almost all sites reported an inability to meet compliance requirements and maintain other high-priority activities under the Low Planning Scenario without enhanced performance. The sites also indicated that other high-priority mortgage and risk reduction projects would not be funded.

4.5.2 HIGH PLANNING SCENARIO AND HIGH PLANNING SCENARIO WITH ENHANCED PERFORMANCE

Table 4.4 compares the High Planning Scenarios with and without enhanced performance by life-cycle cost, site completion, and compliance.

Table 4.4 Comparison of the High Planning Scenario with the High Planning Scenario with Enhanced Performance

| SCENARIO | 1997-2070 LIFE-CYCLE COST (BILLIONS OF CONSTANT 1998 DOLLARS) | COMPLETION BY 2006 | COMPLIANCE |
|--|--|--|---|
| High Planning Scenario as submitted by the field | 146.3 | All Albuquerque, Chicago, Oakland, and Ohio Operations Office sites completed. Few acceleration activities. | Most sites reported that they would meet compliance requirements and maintain other high-priority activities. |
| High Planning Scenario with Enhanced Performance | 109.9 | Sites at six Operations Offices complete. Sites at the Idaho, Oak Ridge, Richland, and Savannah River Operations Offices not complete. Significant site acceleration activities. | All sites would meet their compliance requirements. |

Cost Analysis - As Table 4.4 illustrates, if EM achieves 100 percent of its performance enhancement goals, a cost reduction of approximately \$36 billion, or 25 percent, would be realized over the life-cycle of the program.

Completion - Table 4.4 shows that, without enhanced performance, sites at only four Operations Offices would be completed by 2006; sites at six Operations Offices would be completed by 2006 if 100 percent of the performance enhancement goals were realized. Under the High Planning Scenario with Enhanced Performance, the completion date at the Savannah River Operations Office would be accelerated by 44 years. Similarly, under the High Planning Scenario with Enhanced Performance, the Richland Operations Office's completion date would be accelerated by 15 years, and the Idaho Operations Office's completion date would be accelerated by 15 years (see Tables 3.1 and 4.2).

Compliance - Under the High Planning Scenario, most sites reported that all compliance goals would be met. However, some sites requested additional funds above their allocations to meet those goals. At \$6 billion per year, the additional needs could be met by changing the allocations of funds. Under the High Planning Scenario with Enhanced Performance, all compliance requirements would be met. In addition, work on other high-priority programs and national initiatives would be accelerated.

4.6 CONCLUSIONS

The analysis indicates that enhanced performance will result in significant life-cycle cost reductions regardless of the funding level. If EM realizes 100 percent of the performance enhancement goals, approximately \$36 billion to \$39 billion in cost reduction can be achieved, and significant accelerations in site cleanup would occur as well. EM realizes that implementing such enhanced performance is the key to life-cycle cost reduction, and therefore, site accelerations. In Chapter 5, this document presents for discussion various management initiatives that could enhance performance.

The High Planning Scenario with Enhanced Performance approaches achievement of EM's compliance and closure goals, although there would be challenges in doing so. The Low Planning Scenario with Enhanced Performance places primary emphasis on compliance, extending the dates for completion and adding \$7 billion to life-cycle costs. Without enhanced performance, it would be difficult to achieve the completion goals or even meet all compliance requirements. As Table 4.5 illustrates, under the High Planning Scenario with Enhanced Performance, acceleration of cleanup is realized for all sites completed after 2006, except the Savannah River Operations Office. Under the High Planning Scenario, completion dates for the Idaho, Nevada, Oak Ridge, Ohio, Rocky Flats, and Richland Operations/Field Offices will be accelerated by an average of approximately ten years each.

Table 4.5 Site Acceleration Table with Performance Enhancements

| OPERATIONS/FIELD OFFICE | COMPLETION OF LAST SITE (HIGH) | COMPLETION OF LAST SITE (LOW) | DELTA (YEARS) |
|--------------------------------|--------------------------------|-------------------------------|---------------|
| Albuquerque | 2005 | 2005 | 0 |
| Chicago | 2004 | 2006 | 2 |
| National Programs and Carlsbad | NA | NA | NA |
| Idaho | 2035 | 2045 | 10 |
| Nevada | 2006 | 2010 | 4 |
| Oakland | 2006 | 2006 | 0 |
| Oak Ridge | 2012 | 2015 | 3 |
| Ohio | 2005 | 2030 | 25 |
| Rocky Flats | 2006 | 2018 | 12 |
| Richland | 2033 | 2040 | 7 |
| Savannah River | 2026 | 2026 | 0 |

Despite the limitations of the data, this analysis indicates clearly that improvements in the productivity of the Environmental Management program must have the highest priority if EM is to achieve its goals. Nevertheless, depending on performance improvements yet to be identified involves a certain amount of risk. Since it appears that total funding will be limited, the only practicable alternatives to this strategy would require setting new priorities and dropping some current objectives of the program.

This page is intentionally left blank.

5 MANAGEMENT

Achievement of the performance targets by the Office of Environmental Management (EM) will require strong management and continual commitment. Section 5.1 discusses the management initiatives that will be used to achieve the performance enhancement targets. Section 5.2 describes the new Integrated Planning, Accountability, and Budgeting System.

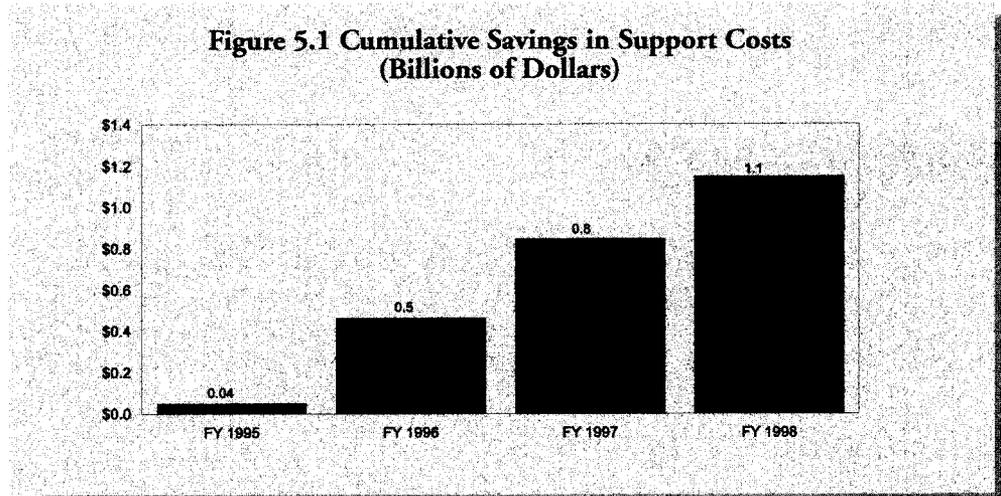
5.1 MANAGEMENT INITIATIVES

The Environmental Management program uses a wide array of initiatives to improve the effectiveness of its operations. The following initiatives will be crucial in achieving enhanced performance:

- *Reduce support costs*
- *Create the right incentives*
- *Optimize project sequencing*
- *Privatize*
- *Deploy innovative technology*
- *Follow up on U.S. Army Corps of Engineers effort*
- *Use benchmarking*
- *Implement pollution prevention*
- *Integrate activities among sites*
- *Conduct work-outs*

5.1.1 REDUCE SUPPORT COSTS

The Environmental Management program has undertaken an aggressive effort to reduce support costs. Reduction of support costs is consistent with private sector actions over the past few years to focus resources on value-added activities. When support costs are reduced, more funds are available for field work. Some Operations/Field Offices already have reduced support costs substantially, as Figure 5-1 illustrates. Although the target of reducing support costs to 30 percent will not be attainable at all EM installations, it can be achieved at most, and that achievement will improve productivity. If all reductions in support costs were achieved, EM could perform about \$3.5 billion in additional field work.



5.1.2 CREATE THE RIGHT INCENTIVES

Creation of the right incentives for both contractors and DOE staff is necessary. To support a productive culture, DOE has been turning from management and operating contracts to performance-based contracts. Such contracts provide incentives for actual performance, and contractors share in cost savings at many sites. In some cases, workers also are awarded incentives for improved performance. EM opened all but two of its major environmental contracts to recompetition and is conducting recompetition at the Oak Ridge Reservation and at the Mound Plant.

The procurement at the Oak Ridge Reservation represents a significant departure from past practices. The contractor will be chosen to manage the overall effort, but the actual field work will be conducted by subcontractors, primarily under fixed-price arrangements. In general, fixed-price and privatization contracts are 30 to 50 percent cheaper than cost-type contracts.

5.1.3 OPTIMIZE PROJECT SEQUENCING

EM is trying to resequence projects in a manner that reduces fixed costs while meeting other objectives. Currently, the fixed costs of maintaining many EM facilities in a safe and secure condition are high. If the facilities could be decontaminated, most of those fixed costs could be eliminated. The savings realized through completion of projects that have high maintenance costs then can be applied to other projects.

For example, the Rocky Flats Field Office, in concert with stakeholders and regulators, has established cleanup priorities and identified the activities required for closure. The high-priority activities identified include stabilization of plutonium metal, oxides and residues; and removal of plutonium, enriched uranium, and transuranic waste from the site. These activities reduce the site's highest risks and free funds for completion of the remaining projects at the site. For example, if several projects are conducted at the same time, a single startup cost is incurred for all those projects, rather than a separate startup cost for each. The additional funds then can be reallocated to other closure projects. The resequencing was one of the reasons the estimate of the cost of completion at the site dropped from \$37 billion in 1995 to \$6 billion today, under the High Planning Scenario with Enhanced Performance. By setting priorities among projects, certain types of costs can be reduced or even eliminated.

As another example, optimal sequencing of stabilization and deactivation at the Savannah River Site could accelerate completion, producing substantial savings in life-cycle cost and shortening project schedules. Cost savings realized by resequencing of projects could be used to accelerate other cleanup activities and to reduce life-cycle costs and schedules.

5.1.4 PRIVATIZE

Privatization is a key component of EM's contracting strategy to meet cleanup challenges despite declining budgets. This approach helps to accelerate cleanup despite budget constraints because budget outlays are deferred until products and services that meet performance specifications are delivered. The \$1 billion request submitted for the President's budget for FY 1998 equals 13 percent of the total EM budget request. Privatization is an acquisition strategy that, under appropriate circumstances, can accelerate cleanup and reduce costs through competition, financing by the private sector, and application of private-sector technology and experience.

Within DOE, a team has been established to ensure effective implementation of the privatization program. DOE believes that privatization will play a key role in future cleanup activities because substantial cost savings can be realized through the development of such working relationships between the government and private industry.

5.1.5 DEPLOY INNOVATIVE TECHNOLOGY

DOE places high priority on the successful development of new technology. The draft Site Ten-Year Plans identified 523 innovative technology initiatives that, if deployed, could realize savings from \$12 to \$27 billion. EM plans to determine which of the potential projects are technically feasible, cost-effective, and acceptable to regulators. EM then will establish firm management commitments to those projects.

EM has supported efforts of the Western Governors' Association and Southern States Energy Board to foster cooperation among the states to facilitate deployment of new technologies. In addition, in the FY 1998 budget request, DOE proposed a technology deployment initiative to facilitate the use of technically feasible and cost-effective innovative technologies. The Technology Deployment Initiative is designed to overcome barriers and deploy innovative technologies. The objectives of the Technology Deployment Initiative program are:

Examples of Privatization

Some major privatization projects being pursued are:

Tank Waste Remediation System.

DOE has undertaken a privatization effort to treat high-level waste at the Hanford Site. The Hanford Tank Waste Remediation System project is proceeding in a manner consistent with the requirements of a compliance agreement with the Washington Department of Ecology and the U.S. Environmental Protection Agency.

Advanced Mixed Waste Treatment.

At the Idaho National Engineering and Environmental Laboratory, DOE awarded a contract to British Nuclear Fuels Limited, Inc. to treat mixed waste. EM has estimated that cost savings from 30 to 50 percent will be realized.

- *To provide for deployment of cleanup technologies or processes to numerous sites within two to four years*
- *To conduct cleanup efforts that reduce EM's mortgage and support achievement of program goals*
- *To provide incentives to sites by reinvestment of cost savings*

Even if there is significant progress between now and 2006, substantial post-2006 spending will be necessary in several areas, such as treatment of high-level waste. For such projects, investments in new technology could lead to a significant reduction in cost. Investments in basic scientific research now can lead to breakthroughs in the innovative cleanup methods and technologies of the future.

5.1.6 FOLLOW UP ON U.S. ARMY CORPS OF ENGINEERS EFFORT

The U.S. Army Corps of Engineers has conducted an independent review of environmental management cost estimating procedures and cost estimates for DOE sites. The review identified opportunities to reduce the costs of the work without altering the scope of the work. This review identified \$4 billion in potential savings through 2006. EM plans to follow up on the recommendations of the U.S. Army Corps of Engineers.

5.1.7 USE BENCHMARKING

The Environmental Management program has used benchmarking as a process improvement tool for several years. In 1993, the EM Benchmarking for Cost Improvement study demonstrated the overall benefits of benchmarking and identified the broad range of performance improvements that could be achieved through benchmarking. EM is measuring its own processes against a number of other benchmarks in the areas of health and safety, cost of waste disposal, cost of project and program management, overall project cost and schedule performance, level of facility maintenance, and other business benchmarks. Many benchmarking studies have been conducted on specific activities or processes at particular sites. The studies have enabled sites to identify which of their costs are higher than costs at other sites and how "best-in-class" performers conduct similar work more economically.

5.1.8 IMPLEMENT POLLUTION PREVENTION

EM is committed to minimizing future generation of waste through DOE's National Pollution Prevention Program. Pollution prevention represents a major shift from a culture that accepts and manages large volumes of waste to one that aggressively prevents the creation of waste. EM will avoid the generation of new wastes from its operations whenever it is economically feasible to do so and undertake pollution prevention to achieve compliance as its preferred approach. EM has begun to identify cases in which small, up-front investments in pollution prevention can reduce significantly the costs of managing newly generated waste.

The 2006 strategy includes as a planning assumption that, by FY 2000, the generating programs will assume financial responsibility for management of newly generated waste. EM is currently conducting a series of pilot projects in order to determine the feasibility and attractiveness of returning waste management functions to the waste generators. However, no decision concerning the transfer of responsibility for future waste management has yet been made.

5.1.9 INTEGRATE ACTIVITIES AMONG SITES

Integration throughout the weapons complex of DOE's capabilities to treat and dispose of wastes offers opportunities for cost savings. Historically, communities and states have resisted such efforts. Once the Waste Isolation Pilot Plant has opened, however, DOE will begin to move wastes from sites, and greater equity will be possible in the total waste flows in and out of sites.

The Discussion Draft includes few new site transfers, except for those into the Waste Isolation Pilot Plant. DOE will be using various venues to request Tribal Nations' and stakeholders' comments on a broader range of intersite transfers. The Waste Management Programmatic Environmental Impact Statement discusses current proposals for integration and presents analysis and comments on several options currently under consideration. Future integration opportunities will be pursued in accordance with the National Environmental Policy Act.

In July 1996, to supplement the 2006 planning process, EM challenged senior executives of contractor organizations to seek out strategies to achieve the vision of maximizing the amount of cleanup performed over the coming decade. The result of this challenge was the formation of an Environmental Management Integration Team for the entire weapons complex that would work independently to identify, analyze, and recommend opportunities for technical integration that can reduce costs and risks, accelerate cleanup schedules, and further the goals set forth in the Discussion Draft. Using a systems analysis approach, the team has identified numerous opportunities in its report "Contractor Report to the Department of Energy on Opportunities for Integration of Environmental Management Activities Across the Complex" (see Attachment G for more information).

The report will be circulated under separate cover as a discussion document. The contractors' report is not the current EM policy, nor is it a planning document. The document presents an engineering analysis, based strictly on engineering and economic considerations. The contractor group was not asked to deal with any political or other issues associated with transfer of waste among sites. The opportunities identified in the report represent a potential savings of \$500 million by 2006 and more than \$17 billion in life-cycle savings.

Although many of EM's Integration Team's recommendations are controversial, this report should provide a useful contribution to the debate over treatment, transportation, and disposition of nuclear waste and materials. The National Action Plan, which is included as Attachment G, provides a brief description of each of the recommendations under consideration. Substantial barriers, such as the need to change current requirements and transport more wastes among sites to implement certain recommendations, are associated with many of the recommendations. Therefore, EM invites Tribal Nations and stakeholders to comment on the recommendations, or to propose alternative strategies. To the extent that agreement is reached with states and stakeholders, EM will incorporate some of these opportunities into the draft National 2006 Plan to be released later this year. The strategies also will be discussed in the workshops planned for a forthcoming "National Dialogue."

Implementation of every element of this Discussion Draft and any future integration options will be contingent on completing evaluations required under the National Environmental Policy Act (NEPA) and other applicable regulations. Many actions likely to be implemented

during the next four years have already been or are currently being evaluated under NEPA in documents like the Waste Management Programmatic Environmental Impact Statement.

5.1.10 CONDUCT WORK-OUTS

In April 1995, DOE's Assistant Secretary for Environmental Management initiated a series of "work-out" sessions to address environmental needs despite declining budgets. The sessions, which brought together senior Headquarters, field, and contractor managers and senior representatives of federal and state regulatory agencies, were aimed at finding more cost-effective ways to meet goals and commitments related to environmental management. Work-outs have been held at five of EM's major sites -- the Hanford Site, the Idaho National Engineering and Environmental Laboratory, the Oak Ridge Reservation, the Rocky Flats Environmental Technology Site, and the Savannah River Site.

Through the effort to work cooperatively in a joint, site-by-site problem-solving effort, opportunities have been identified to reduce costs significantly, increase efficiency, find alternative solutions to regulatory challenges, and define better ways of managing resources and environmental objectives. Sites at which work-outs or related efforts have been conducted continue to work to implement the agreements reached, in particular the specific cost-saving targets and performance enhancements identified during the work-out sessions. During the summer of 1997, a new series of work-outs will focus on the performance enhancement targets.

5.2 THE MANAGEMENT FOUNDATION

The goal of the Environmental Management program is to do as much work as possible by 2006. That goal was the moving force behind both the National and the Site Discussion Drafts. The plans establish proposed paths forward for accomplishing EM's mission by setting targets and making commitments annually. To ensure that sites are performing their work in a timely manner, EM plans to institute a new management system that integrates budgeting, planning, and measurement.

The Integrated Planning, Accountability, and Budgeting System will support the 2006 Vision through a series of fundamental changes in the way the program conducts business. The vision will be incorporated into the draft National 2006 Plan, a document that will be updated periodically. Annual budgets will be based on review of progress toward realizing the goals of the 2006 Plan, as well as the need to continue meeting those goals at each site. Specific management commitments will be made once the annual budget is enacted. Those commitments will be tracked and will be subject to management reviews.

The Integrated Planning, Accountability, and Budgeting System will call for the reorganization of all EM activities into projects, including those not traditionally thought of as projects. Each project will be made up of a group of similar or associated activities, each of which has a defined scope, a schedule, and a cost that support a defined end state. EM currently has identified 381 projects that will become the building blocks of the new management system. Once those projects are in the system, they will be tracked from planning through budgeting and execution. DOE believes that this management focus on projects will increase efficiency, reduce costs, and provide a more stable and understandable reporting structure.

The new system will transfer the majority of management responsibility and accountability to the field where the work is performed. For projects assigned to Headquarters, a program manager will be assigned as project officer and located appropriately. For highly visible or highly sensitive projects, the level of involvement of Headquarters in the routine decision-making process will increase (see Attachment I for a list of high-visibility projects initially identified). Although most management responsibility will be transferred to the sites, Headquarters will continue to provide long-range planning and track corporate performance.

The corporate performance measures will focus on EM's mission and planned end-states. The measures include: cubic meters of waste treated and disposed of; number of release sites completed; number of facilities deactivated and decommissioned; and quantity of nuclear material and spent nuclear fuel moved to secure, dry storage. The corporate performance measures also will include various other measures, such as the number of fixed-price contracts and health and safety incidents. As an integral part of the 2006 process, site-specific performance goals that include these corporate measures will be established at the project level. During the budgeting process, information about performance will be used to justify and defend EM's budget to the Office of Management and Budget, Congress, Tribal Nations, and stakeholders. Work will be executed in accordance with approved work scope. Program results will be evaluated against the sites' measures during periodic reviews by senior management.

Implementation of management initiatives will be necessary to achieve the objectives of the Discussion Draft. The management tools all will be used to help reduce costs. The Integrated Planning, Accountability, and Budgeting System will be used to keep the 2006 Plan on course and to ensure the accountability of managers.

This page is intentionally left blank.

6 STRATEGIC APPROACHES AND INVOLVEMENT OF TRIBAL NATIONS AND STAKEHOLDERS

The process set forth in this Discussion Draft is designed to give stakeholders an opportunity to help shape the Environmental Management program. The public participation plan encourages interaction on many levels. It provides opportunities for written comments on this Discussion Draft, a national meeting of Tribal Nations and stakeholders, a series of regional meetings of Tribal Nations and stakeholders, and a planned "National Dialogue" on intersite transfers of waste.

6.1 OVERALL STRATEGIC APPROACHES

Traditionally, the Office of Environmental Management's (EM) funding priorities have been determined by a number of strategic approaches. Those approaches include meeting compliance requirements, reducing risks, reducing mortgages, developing new technologies to reduce program costs, maintaining equity among sites, and accelerating cleanup at sites.

The two planning scenarios set forth in this Discussion Draft were based primarily on extrapolations from current funding distributions and priority-setting strategies based on those approaches. Traditionally, however, the Environmental Management program has not been able to consider how to balance those approaches over the long term. EM instead focused funding priorities on the upcoming budget year. The 2006 planning process will provide EM, as well as Tribal Nations and stakeholders, with the capability to consider how to balance approaches between now and 2006.

EM would appreciate Tribal Nations and stakeholder comments on the importance of the various strategic approaches. The strategic approaches discussed below have been suggested by various stakeholders. EM is interested in Tribal Nations' and stakeholders' views on the strategic approaches and the most effective combination of any or all of them for fulfilling the 2006 Plan Vision. The strategic approaches are:

Meeting Compliance Requirements: This approach would base priorities primarily on maintaining compliance with applicable environmental laws and regulations, the requirements of enforceable cleanup agreements, and Defense Nuclear Facilities Safety Board Recommendations. This approach may fail to address some concerns of Tribal Nations and stakeholders or take advantage of long-term cost savings associated with accelerating cleanup.

Reducing Risk: This approach would base priorities solely on achieving the greatest possible reduction in overall risk in the shortest time possible. Although risk currently is a factor in setting priorities, this approach would make reducing risk the paramount consideration. It would provide somewhat greater near-term protection to the public but would probably require renegotiation of some milestones in compliance agreements. It would fail to take advantage of many opportunities for mortgage reduction.

Reducing Mortgages: This approach would focus on completing projects with attractive financial returns on investment and/or maximizing site closure as the primary priority of the Environmental Management program, therefore reducing fixed costs. Under this approach, only base program activities would be funded at each site, thereby freeing up funding to achieve site closure beyond routine facility operations and maintenance. This approach could require significant reallocations among sites.

Deploying New Technologies: This approach would rely on new technology as the chief tool of the program. Cleanup would be deferred in some cases until new technology could be developed and applied. The cost savings from deployment of new technology ultimately may allow the program to succeed at lower cost, but could require renegotiation of some milestones in compliance agreements and could result in deferment of some closures.

Accelerating Cleanup at Sites: This approach would focus on completing work at as many sites as possible as quickly as possible. This approach would reduce the life-cycle costs of cleanup at EM's sites, but could require renegotiation of some milestones in compliance agreements. It also could increase short-term risks.

Preferred Strategic Approach

EM's preferred strategy would pursue enhanced performance aggressively. This strategy would incorporate all the approaches described above, but its priorities would be compliance and acceleration of cleanup. Similarly, the strategy would be accomplished without increasing risk to human health and the environment. The preferred approach would maintain an appropriate level of technology development because of the potential new technology has to reduce life-cycle costs and accelerate closure dates.

EM would appreciate Tribal Nations' and stakeholders' comments on the importance of the various strategic approaches described above in two contexts:

- *To support EM's effort to set priorities*
- *To provide alternatives if funding is less than expected or if the effort to meet the enhanced performance targets falls short*

EM realizes that two events could prevent the program from achieving its completion and compliance goals: low funding or failure to meet enhanced performance targets. If either such event should occur, it would be imperative that DOE work closely with regulators and other stakeholders to address compliance requirements, to perform other activities at sites, and to establish appropriate priorities and the levels at which those priorities should be funded. The Department would be required to obtain approval from regulators before adopting any proposed modifications. This practice has been used several times in the past.

6.2 EQUITY CONSIDERATIONS

EM recognizes that equity considerations among communities are important in balancing compliance and completion goals described in this Discussion Draft. Additional investments are necessary to meet the closure date of 2006 established for several sites. The Department is interested in exploring equity considerations regarding any investment that may change site allocations from year to year. EM intends to work with Tribal Nations,

stakeholders, Congress, and the Office of Management and Budget to optimize achievement of these goals. Examples include: expanding the scope and funding of the closure fund; balancing decisions related to intersite transfer of waste and material with future site missions; redistribution of resources among sites to maximize site closures; and liquidating DOE's excess land and equipment.

6.3 INVOLVEMENT OF TRIBAL NATIONS AND STAKEHOLDERS

Development of a national consensus on the Environmental Management program will be challenging. EM is asking the public to help it formulate a long-term approach to cleaning up the weapons complex and to help EM deal with issues that often have been submerged. The task is substantially more difficult than merely commenting on annual budgets. Tribal Nations and stakeholders have provided invaluable assistance in the past. If EM, Tribal Nations, and stakeholders can develop an understanding about the future of the Environmental Management program, the program will be better able to preserve its momentum by retaining support, both in Congress and among the public.

EM is interested in Tribal Nations' and stakeholders' comments on all components of this Discussion Draft. EM wishes to hear about whether the performance targets appear credible as a means of achieving all its compliance and closure goals. If not, how should EM set priorities? Which of the strategic approaches should be emphasized? Which approaches should be deemphasized? In essence, EM is asking Tribal Nations and stakeholders to share the dilemmas EM faces in shaping its future.

EM is requesting public comments on the Discussion Draft by September 9, 1997. In addition, EM is planning a series of meetings with Tribal Nations and stakeholders to discuss the effects of the Discussion Draft, both at the national level and at each site.

EM, in a parallel effort, has asked sites to involve Tribal Nations and stakeholders in the formulation of the site-proposed FY 1999 budget. The EM FY 1999 budget is being developed concurrently with the Discussion Draft. In July 1997, EM will be holding a national feedback session to discuss the EM national FY 1999 budget. The options and alternatives described in this Discussion Draft and future iterations of the 2006 Plan will impact budget formulations and execution activities. This planning process will allow EM to develop annual budgets in the context of long-term strategies.

6.4 PUBLIC COMMENT PROCESS

A 90-day public comment period will follow immediately upon the release of this Discussion Draft. Throughout the comment period, Headquarters and site personnel will hold public meetings, interactive workshops, or briefings to help Tribal Nations and stakeholders examine this Discussion Draft and to elicit comments from the public. The workshops will complement a series of educational workshops to be conducted as part of the planned "National Dialogue." DOE's Assistant Secretary for Environmental Management will visit the major sites and hold teleconference calls for other sites to gain a personal understanding of the concerns of Tribal Nations and stakeholders.

Attachment A sets forth a number of specific questions Tribal Nations and stakeholders may wish to address. Attachment B provides detailed information about submitting comments on the Discussion Draft. After receiving comments, EM personnel will work with interested parties to address issues and comments before the development and release of the draft National 2006 Plan later this year. In the case of any key issues that cannot be resolved before the release of the draft National 2006 Plan, EM personnel will pursue Action Plans that outline the process of resolving the issues. EM intends to release the Initial National 2006 Plan in early 1998, after a second comment period on the draft National 2006 Plan. A concurrent process will be followed in developing and releasing the Initial Site 2006 Plans.

Each Site Discussion Draft includes draft Action Plans for issues related to the site that remain unresolved, including end states and final land uses. Current Action Plans, including the National Action Plan developed by Headquarters, which addresses issues affecting numerous sites, as well as the supplement *Issues/Opportunities Related to the Discussion Draft*, detail the known issues that must be resolved before EM can write a credible draft National 2006 Plan. Efforts to resolve those issues will continue with Tribal Nations and stakeholders. Attachment F presents a list of issues and Action Plans.

As detailed in Attachment B, comments about issues of general concern at sites or comments on the Discussion Draft should be submitted to EM Headquarters. Comments about specific sites should be directed to the appropriate site. If there is uncertainty about where comments should be sent, they should be submitted to EM Headquarters, as discussed in Attachment B.

The comment process is designed to give stakeholders an unprecedented opportunity to participate meaningfully in the development of the draft National 2006 Plan. As it has in the past, EM is providing a forum to elicit comments from stakeholders. However, the opportunity to comment on this Discussion Draft will provide Tribal Nations and stakeholders the means to affect EM's long-term priorities and objectives. As Tribal Nations and stakeholders engage in developing the strategic long-term outlook, they help shape the entire Environmental Management program.

Due Date for Comments

Discussion Draft - *September 9, 1997*

Attachment A provides questions for Tribal Nations' and stakeholders' discussion of key issues.

Attachment B provides more information about the public comment process.

ATTACHMENT A: KEY ISSUES

Although Tribal Nation and stakeholder input on any component of this Discussion Draft is welcome, EM is particularly interested in input with regard to performance enhancement targets, EM management initiatives, strategic approaches, and Tribal Nation and stakeholder involvement. The list below provides questions for discussion in each of these areas.

Alternative Scenarios with Enhanced Performance (Chapter 4)

- *Do you think that the performance enhancement targets are realistic?*
- *Do you believe that EM can do better than the performance enhancement targets identified in Chapter 4?*

Management (Chapter 5)

- *What other initiatives could help EM achieve accelerated site cleanup and long-term cost reduction?*

Strategic Approaches and Involvement of Tribal Nations and Stakeholders (Chapter 6)

- *Do you believe that any of the strategic approaches outlined in Chapter 6 would be superior to the Planning Scenarios presented in Chapters 3 and 4? If so, why?*
- *How can EM improve stakeholder involvement in the 2006 planning process at both the local and national levels?*
- *Would any other options for performing the Environmental Management Program be superior to the Planning Scenarios presented in Chapters 3 and 4? If so, why?*
- *Should any of the strategic approaches be given additional or lessened priority from now until 2006?*

Other

- *Do you have any ideas on how to improve performance at any specific sites?*
- *Do you know of any success stories at individual sites from which other EM sites can learn?*

This page is intentionally left blank.

ATTACHMENT B: PUBLIC COMMENT PERIOD

The 2006 Plan Vision clearly recognizes EM's need to work with Tribal Nations and stakeholders in developing this Discussion Draft, with the goal of making better decisions that reflect public concerns and priorities. In order to incorporate comments into the planning process, EM is holding concurrent public comment periods on the National and Site Discussion Drafts. A public comment opportunity begins with the release of this Discussion Draft and ends on September 9, 1997.

Between the release of this Discussion Draft and September 9, 1997, EM will work with Tribal Nations and stakeholders to address issues, refine data, and provide continued analysis to support release of the draft National and Site 2006 Plans later this year and the Initial National and Site 2006 Plans early in 1998. The primary avenues for public involvement in the development process will be through workshops, meetings, and other activities at the individual DOE sites. Additionally, the Assistant Secretary for Environmental Management will either visit or hold video conferences with Tribal Nations and stakeholders at all sites.

In addition, a National Stakeholders Feedback Forum Meeting is tentatively planned to be held following the public comment period to discuss issues and receive feedback from stakeholders on this Discussion Draft.

EM, in a parallel effort, has asked sites to involve stakeholders in the formulation of the site-proposed FY 1999 budget. The EM FY 1999 budget is being developed concurrently with the Discussion Draft. In July 1997, EM will be holding a national feedback session to discuss the EM national FY 1999 budget. The options and alternatives described in this Discussion Draft will impact budget formulation and execution activities. This planning process will allow EM to develop annual budgets in the context of long-term strategies.

At the national level, EM is focusing on ways to enhance performance and make the best use of its resources across the Environmental Management program. Comments focused on issues related to this Discussion Draft or comments concerning cross-site or policy issues should be submitted directly to EM at the following address:

U.S. Department of Energy
Mr. Gene Schmitt
P.O. Box 44818
Washington, D.C. 20026-4481
FocusOn2006@EM.DOE.GOV

Comments on the individual Site Discussion Drafts should be provided directly to the appropriate site points of contact identified below. If uncertain about the appropriate site point of contact, please provide comments to Mr. Gene Schmitt at DOE Headquarters using the address provided above.

U.S. Department of Energy
Albuquerque Operations Office
Ms. Tracy Loughead
Pennsylvania & H Street
Kirtland Air Force Base
Albuquerque, NM 87116
505/845-5977

U.S. Department of Energy
Carlsbad Area Office
Mr. Dennis Hurtt
P.O. Box 3090
Carlsbad, NM 88221
505/234-7485

U.S. Department of Energy
Chicago Operations Office
Ms. Mary Jo Acke
9800 South Cass Avenue
Argonne, IL 60439
630/252-8796

U.S. Department of Energy
Idaho Operations Office
Ms. Kathy Whitaker
850 Energy Drive
Idaho Falls, ID 83401
208/526-1062

U.S. Department of Energy
Nevada Operations Office
Mr. Kevin Rohrer
2621 Losee Road
North Las Vegas, NV 89030-4134
702/295-0197

U.S. Department of Energy
Oakland Operations Office
Mr. Ron Duvall
1301 Clay Street
Oakland, CA 94612-5208
510/637-1812

U.S. Department of Energy
Ohio Field Office
Mr. Ken Morgan
1 Mound Road
Miamisburg, OH 45342-3020
937/865-3968

U.S. Department of Energy
Oak Ridge Operations Office
Mr. Walter Perry
200 Administration Road
Oak Ridge, TN 37830
423/241-6417

U.S. Department of Energy
Richland Operations Office
Mr. Jon Yerxa
825 Jadwin Avenue
Richland, WA 99352
509/376-9628

U.S. Department of Energy
Rocky Flats Field Office
Mr. Mike Konczal
Highway 93 & Cactus Road
Golden, CO 80402
303/966-7095

U.S. Department of Energy
Savannah River Operations Office
Ms. Virginia Gardner, PM&CD
Aiken, SC 29801
803/725-5752

The public comment period will extend through September 9, 1997. Requests for copies or further information should be directed to the Center for Environmental Management Information (CEMI) at 1-800-736-3282.

ATTACHMENT C: SITES INCLUDED IN THIS DISCUSSION DRAFT

Sites Included in this Discussion Draft (by State)*

| | | |
|---|---|---|
| ALASKA <ul style="list-style-type: none"> • Arachitka Island⁴ | IOWA <ul style="list-style-type: none"> • Ames Laboratory | NEW YORK <ul style="list-style-type: none"> • Ashland 1³ • Ashland 2³ • Bliss & Laughlin Steel² • Brookhaven National Laboratory • Colonie³ • Linde Air Products³ • Niagara Falls Storage Site⁴ • Seaway Industrial Park³ • Separations Process Research Unit⁵ • West Valley Demonstration Project |
| CALIFORNIA <ul style="list-style-type: none"> • General Atomics Site • General Electric Vallecitos • Geothermal Test Facility • Laboratory for Energy-Related Health Research • Lawrence Berkeley Laboratory • Lawrence Livermore National Laboratory - Main Site • Lawrence Livermore National Laboratory - Site 300 • Sandia National Laboratories - CA • Santa Susana Field Laboratory (or ETEC) • Stanford Linear Accelerator Center | KENTUCKY <ul style="list-style-type: none"> • Maxey Flats Disposal Site • Paducah Gaseous Diffusion Plant | NORTH DAKOTA <ul style="list-style-type: none"> • Belfield^{1, 2} • Bowman^{1, 2} |
| COLORADO <ul style="list-style-type: none"> • Grand Junction Office Site • Maybell¹ • Naturita¹ • New Rifle¹ • Old Rifle¹ • Rio Blanco¹ • Rocky Flats Environmental Technology Site • Rulison¹ • Slick Rock (A)¹ • Slick Rock (B)¹ | MARYLAND <ul style="list-style-type: none"> • W.R. Grace & Company² | OHIO <ul style="list-style-type: none"> • Battelle Columbus Laboratories - King Avenue • Battelle Columbus Laboratories - West Jefferson • Fernald Environmental Management Project • Luckey³ • Mound Plant • Painesville³ • Portsmouth Gaseous Diffusion Plant • RMI Site |
| CONNECTICUT <ul style="list-style-type: none"> • Combustion Engineering³ | MASSACHUSETTS <ul style="list-style-type: none"> • Shpack Landfill³ • Ventron³ | PUERTO RICO <ul style="list-style-type: none"> • Center for Energy and Environmental Research |
| FLORIDA <ul style="list-style-type: none"> • Pinellas Plant | MISSISSIPPI <ul style="list-style-type: none"> • Salmon¹ | SOUTH CAROLINA <ul style="list-style-type: none"> • Savannah River Site |
| IDAHO <ul style="list-style-type: none"> • Argonne National Laboratory - West • Idaho National Engineering and Environmental Laboratory | MISSOURI <ul style="list-style-type: none"> • Kansas City Plant • Latty Avenue Properties³ • St. Louis Airport Site • St. Louis Airport Site Vicinity Properties • St. Louis Downtown Site • Weldon Spring Site | TENNESSEE <ul style="list-style-type: none"> • Oak Ridge Reservation (Y-12, K-25, and ORNL) |
| ILLINOIS <ul style="list-style-type: none"> • Argonne National Laboratory - East • Fermi National Accelerator Laboratory • Madison³ • Site A/Plot M | NEVADA <ul style="list-style-type: none"> • Central Nevada Test Site⁴ • Nevada Test Site • Shoal Site⁴ • Tonopah Test Range Area | TEXAS <ul style="list-style-type: none"> • Pantex Plant |
| | NEW JERSEY <ul style="list-style-type: none"> • Dupont & Company³ • Maywood³ • Middlesex Sampling Plant³ • New Brunswick Site³ • Princeton Plasma Physics Laboratory • Wayne Interim Storage³ | UTAH <ul style="list-style-type: none"> • Monticello Remedial Action Project |
| | NEW MEXICO <ul style="list-style-type: none"> • Gasbuggy⁴ • Gnome-Coach¹ • Inhalation Toxicology Research Institute • Los Alamos National Laboratory • Sandia National Laboratories - NM | WASHINGTON <ul style="list-style-type: none"> • Hanford Site |

* The 2006 Plan also includes the sites already completed by EM to cover surveillance and monitoring.

¹ Uranium Mill Tailings Remedial Action Project (UMTRA) sites.

² Revocation of UMTRA designation anticipated.

³ Formerly Utilized Remedial Action Program (FUSRAP) sites.

⁴ Underground nuclear test sites outside of the Nevada Test Site.

⁵ EM is also responsible for remediating the Separations Process Research Unit (SPRU). SPRU has been assigned to the Ohio Field Office. However, since funds have not yet been allocated to the Ohio Field Office for SPRU, the Ohio Field Office Discussion Draft funding profile does not include SPRU remediation. EM is committed, as part of the process of developing the Initial National 2006 Plan, to identify planning funding for SPRU starting in FY 2000, and remediation funding starting in FY 2001.

Sites Included in this Discussion Draft (by Operations/Field Office)*

| | | |
|---|---|--|
| <p>ALBUQUERQUE OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Belfield^{1,2} • Bowman^{1,2} • Grand Junction Office Site • Inhalation Toxicology Research Institute • Kansas City Plant • Los Alamos National Laboratory • Maxey Flats Disposal Site • Maybell¹ • Monticello Remedial Action Project • Naturita¹ • New Rifle¹ • Old Rifle¹ • Pinellas Plant • Pantex Plant • Sandia National Laboratories - CA • Sandia National Laboratories - NM • Slick Rock (A)¹ • Slick Rock (B)¹ | <ul style="list-style-type: none"> • Gnome-Coach⁴ • Nevada Test Site • Rio Blanco⁴ • Rulison⁴ • Salmon Site⁴ • Shoal Site⁴ • Tonopah Test Range Area <p>OHIO FIELD OFFICE</p> <ul style="list-style-type: none"> • Battelle Columbus Laboratories - King Avenue • Battelle Columbus Laboratories - West Jefferson • Fernald Environmental Management Project • Mound Plant • RMI Site • West Valley Demonstration Project • Separations Process Research Unit⁵ | <ul style="list-style-type: none"> • Center for Energy and Environmental Research • Colonic³ • Combustion Engineering³ • Dupont & Company³ • Latty Avenue Properties³ • Linde Air Products³ • Luckey³ • Madison³ • Maywood³ • Middlesex Sampling Plant³ • New Brunswick Site³ • Niagara Falls Storage Site³ • Oak Ridge Reservation (Y-12, K-25, and ORNL) • Paducah Gaseous Diffusion Plant • Painesville³ • Portsmouth Gaseous Diffusion Plant • Seaway Industrial Park³ • Shpack Landfill³ • St. Louis Airport Site⁴ • St. Louis Airport Site (Vicinity Properties)³ • St. Louis Downtown Site • Ventron³ • W.R. Grace & Company³ • Wayne Interim Storage³ • Weldon Spring Site |
| <p>CHICAGO OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Ames Laboratory • Argonne National Laboratory - East • Argonne National Laboratory - West • Brookhaven National Laboratory • Fermi National Accelerator Laboratory • Princeton Plasma Physics Laboratory • Site A/Plot M | <p>OAKLAND OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • General Atomics Site • General Electric Vallecitos • Geothermal Test Facility • Laboratory for Energy-Related Health Research • Lawrence Berkeley Laboratory • Lawrence Livermore National Laboratory-Main Site • Lawrence Livermore National Laboratory-Site 300 • Santa Susana Field Laboratory (or ETEC) • Stanford Linear Accelerator Center | <ul style="list-style-type: none"> • Rocky Flats Environmental Technology Site |
| <p>IDAHO OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Idaho National Engineering and Environmental Laboratory | <p>OAK RIDGE OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Ashland 1³ • Ashland 2³ • Bliss & Laughlin Steel³ | <p>ROCKY FLATS FIELD OFFICE</p> <ul style="list-style-type: none"> • Rocky Flats Environmental Technology Site |
| <p>NEVADA OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Amchitka Island⁴ • Central Nevada Test Site⁴ • Gasbuggy⁴ | <p>OAK RIDGE OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Ashland 1³ • Ashland 2³ • Bliss & Laughlin Steel³ | <p>RICHLAND OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Hanford Site <p>SAVANNAH RIVER OPERATIONS OFFICE</p> <ul style="list-style-type: none"> • Savannah River Site |

* The 2006 Plan also includes the sites already completed by EM to cover surveillance and monitoring.

¹ Uranium Mill Tailings Remedial Action Project (UMTRA) sites.

² Revocation of UMTRA designation anticipated.

³ Formerly Utilized Remedial Action Program (FUSRAP) sites.

⁴ Underground nuclear test sites outside of the Nevada Test Site.

⁵ EM is also responsible for remediating the Separations Process Research Unit (SPRU). SPRU has been assigned to the Ohio Field Office. However, since funds have not yet been allocated to the Ohio Field Office for SPRU, the Ohio Field Office Discussion Draft funding profile does not include SPRU remediation. EM is committed, as part of the process of developing the Initial National 2006 Plan, to identify planning funding for SPRU starting in FY 2000, and remediation funding starting in FY 2001.

ATTACHMENT D: DEFINING END STATES AND LONG-TERM STEWARDSHIP REQUIREMENTS

Through the 2006 planning process, sites are accelerating cleanup and reducing out-year costs. While the emphasis is on what can be accomplished from 1997-2006, DOE also recognizes the importance of defining potential future uses of sites and on-going requirements after cleanup is completed. At many DOE sites, "cleanup" consists of stabilizing and containing radioactive and hazardous waste and contamination on-site, followed by some form of site use restrictions to prevent exposure to residual contamination. The reason for this "cleanup" practice is that it is often technically or economically infeasible to return sites to unrestricted use. As part of the 2006 planning effort, DOE is analyzing site end states and post-cleanup activities (i.e., long-term stewardship requirements).

Each site's *end state* is defined as that point when all environmental restoration, waste management, or nuclear materials and facility stabilization activities are complete (see section 1.1). The end states will be determined through negotiated agreements between the DOE, Tribal Nations, states, regulators and other stakeholders by assigning cleanup levels and assumed land use categories (i.e., agricultural, residential, industrial, recreational, open space, or restricted access). For instance, cleanup goals at a site or a portion of a site intended for future industrial use will generally be less stringent than the cleanup levels needed at a site intended for residential use. Whatever end state is selected as the goal of cleanup, it is important to clarify this goal as soon as possible in the cleanup process. The management axiom -- "begin with the end in mind" -- is particularly applicable for the complex technical, economic, and social issues incorporated in waste site cleanup. Once a clear goal is established and agreed upon, it is much easier to focus the efforts of staff, contractors, and the community, and provides an invaluable sense of accomplishment once the goal has been met.

Because many sites have not reached decisions regarding their end states, assumptions have been developed in previous analyses and in Site Discussion Drafts in order to define the technical approach for remediating the site. Table D.1 provides a high-level summary of the end states proposed by the sites in the draft Site Ten-Year Plans. However, these assumptions in no way preclude the formal Tribal Nation and stakeholder process that is ultimately used to make future use decisions. Public input, especially local stakeholder involvement, is key in developing sound end state assumptions. During the next several months, DOE and contractor personnel at sites and headquarters will work with Tribal Nations and stakeholders to better define the site end states, develop better information on the long-term stewardship activities that will likely be required, and begin to develop better estimates of the costs of long-term stewardship activities.

Long-term stewardship is defined broadly to encompass all activities required to maintain an adequate buffer between human and environmental receptors and the remaining nuclear materials, waste, and contamination after the end state is achieved. Some of these activities are prescribed by regulation or compliance agreements, while others have not yet been defined. Stewardship activities can range from varying degrees of surveillance, monitoring, and maintenance at sites with residual contamination, to access restrictions at sites with hazards of greater concern. Stewardship activities can include safeguarding nuclear materials, conducting

groundwater pump-and-treat operations, inspecting disposal cells, enforcing physical access restrictions, implementing permits and other legal and institutional controls, maintaining relevant information, and generally providing responsible long-term care of the sites.

Based on end state information in previous documents and Site Discussion Drafts, most sites will require some level of long-term stewardship. For example, DOE will have to monitor and maintain low-level waste disposal cells and monitor contaminated groundwater at many sites. Some sites, such as the Hanford site and the Savannah River Site, will also have facilities (e.g., nuclear reactors and processing canyons) that will require long-term stewardship. Sites with nuclear materials will require more intense levels of stewardship. At most of the larger sites, only portions of the land will have land use restrictions, while significant parts will likely be available for unrestricted use. In addition, some smaller sites, such as certain Formerly Utilized Site Remedial Action Project sites, will be released for unrestricted use and will not require any on-going stewardship activities.

In addition, DOE will increase efforts to work with Tribal Nations and stakeholders on the question of future ownership and appropriate organizational entities to carry out long-term stewardship. In some cases, the Federal government will continue to use land and facilities indefinitely; in other cases, land and facilities will be used, managed, and owned by state or local governments or private interests. Taking into consideration the site landlord, the future use, and on-going stewardship requirements, DOE, Tribal Nations, and stakeholders need to raise the question of what entity is best suited to carry out stewardship responsibilities at each site or portions of sites for long periods of time.

Table D.1 High-Level Summary of End States Proposed in Site Discussion Drafts

| OFFICE | END STATE |
|-------------|--|
| Albuquerque | <ul style="list-style-type: none"> • All waste operations activities completed and transferred to landlord programs. • Long-term surveillance and maintenance for completed sites within operating facilities transferred to landlord program. • Long-term surveillance and maintenance of uranium mill tailings disposal sites and other sites. |
| Carlsbad | <ul style="list-style-type: none"> • All transuranic waste disposed. • Deactivation and decommissioning of all facilities. |
| Chicago | <ul style="list-style-type: none"> • All sites remediated. • All waste operations activities completed and transferred to landlord programs. • All facilities returned to landlord. • All transuranic waste shipped offsite for eventual disposal at Waste Isolation Pilot Plant. • All legacy low-level waste shipped offsite for disposal. |
| Idaho | <ul style="list-style-type: none"> • All nuclear facilities deactivated. • All spent nuclear fuel in disposition ready storage. All fuel removed from Idaho. • Stored transuranic disposed at Waste Isolation Pilot Plant. • Advanced Mixed Waste Treatment Facility (AMWTF) will process transuranic waste by 2015. • High-level waste final end state by FY 2038: all 11 tanks closed, all calcine removed/treated, all high-level waste "Road Ready" by 2035. • Low-level/mixed low-level/stored transuranic final end state 2015. • Newly generated waste disposed at offsite Resource Conservation and Recovery Act (RCRA) facility. • Complete cleanup of transuranic pits and trenches by 2023. • Idaho National Engineering and Environmental Laboratory restored to industrial & open space use standards; long-term groundwater pump & treat options, cap construction, monitoring, maintenance, and remediation continue. • Final end state 2047: all assessments completed and remediation at all release sites in Federal Facilities Agreement/Consent Order completed. • Long-term surveillance and maintenance is planned for 100 years. |
| Nevada | <ul style="list-style-type: none"> • All legacy waste characterized and shipped for disposal. |

**Table D.1 High-Level Summary of End States Proposed in Site Discussion Drafts
(cont'd)**

| OFFICE | END STATE |
|-------------|---|
| Oakland | <ul style="list-style-type: none"> • All sites restored. • All transuranic waste shipped for disposal at Waste Isolation Pilot Plant. • All low-level waste packaged and shipped offsite for disposal. • Deactivation and decommissioning of all surplus facilities. |
| Oak Ridge | <ul style="list-style-type: none"> • Remedial Actions completed at Y-12, K-25, and Oak Ridge National Laboratory. • Deactivation and decommissioning of the Molten Salt Reactor and Oak Ridge Research Reactor completed. • Complete disposition of legacy low-level and mixed waste. • Ground-water monitoring and long-term surveillance and maintenance implemented. • Land uses are in the process of being selected. |
| Ohio | <ul style="list-style-type: none"> • Battelle Columbus Laboratories - Deactivation and decommissioning of 15 facilities; return of all facilities to Battelle for unrestricted reuse. • Fernald - Restoration to land use standard; deactivation and decommissioning of all facilities; deactivation and decommissioning waste transferred to on-site disposal facility. • Mound Plant - All transuranic waste dispositioned to Waste Isolation Pilot Plant; facility transitioned to Miamisburg Mound Community Improvement Corporation to becoming industrial park. • RMI - Deactivation and decommissioning of Extrusion Plant; complete remediation of surrounding land; release of site for unrestricted use. • West Valley - Deactivation and decommissioning of all high-level waste facilities; all high-level waste vitrified; all spent nuclear fuel shipped to Idaho National Engineering and Environmental Laboratory; all transuranic waste shipped to the Waste Isolation Pilot Plant; West Valley site stewardship turned over to the State of New York. • All material shipped offsite. |
| Rocky Flats | <ul style="list-style-type: none"> • All material is stabilized. • All plutonium residues stabilized; resulting transuranic waste shipped to the Waste Isolation Pilot Plant. • All nuclear facilities deactivated and all facilities except those designated for economic reuse will be demolished. • All transuranic waste shipped offsite for disposal. • All low-level waste and mixed low-level waste shipped offsite for treatment and disposal. • 6,100 acres available for open space uses; 100 acres capped; industrial area will remain. |

Table D.1 High-Level Summary of End States Proposed in Site Discussion Drafts
(cont'd)

| OFFICE | END STATE |
|----------------|--|
| Richland | <ul style="list-style-type: none"> • All wastes treated and disposed. • All post-1970 transuranic waste shipped for disposal at the Waste Isolation Pilot Plant. • Reactor blocks transported to Central Plateau. • 100 Area soil cleanup to residential use; 300 Area soil cleanup to industrial use. • All facilities dispositioned or available for alternative use. • All nuclear facilities decommissioned. • Fuel placed in interim dry storage until it is shipped to a national repository at some future date (estimated 2037). • Tank wastes immobilized. High-level waste portion shipped offsite. Low activity portion disposed onsite. Tank farms closed. |
| Savannah River | <ul style="list-style-type: none"> • All nuclear materials stabilized. • All nuclear facilities deactivated. • All spent nuclear fuel shipped to Yucca Mountain in Nevada. • All high-level waste shipped to Yucca Mountain in Nevada. • Maintenance and monitoring at closed sites; groundwater remediation operations at high risk plume sites. • All transuranic waste shipped to the Waste Isolation Pilot Plant for disposal. • All legacy waste dispositioned. |

This page is intentionally left blank.

ATTACHMENT E: EXCESS FACILITIES

A key element of the 2006 planning process is to accelerate cleanup and complete as much work in the EM inventory as possible by 2006. Therefore, this Discussion Draft assumes that the Environmental Management program will have a stable scope and will not require constant replanning to accommodate new activities or facilities. This assumption may be significantly affected by the outcome of an analysis being conducted on the Department's policy for managing future excess facilities, requested by former Secretary Hazel O'Leary.

The Excess Facilities Special Project is working to identify the number of facilities not currently within the scope of the Environmental Management program that may become excess by 2006 as well as the potential costs for surveillance, maintenance, and disposition of these facilities. In addition, the National Academy of Public Administration (NAPA), an independent group of experts, assessed possible organizational alternatives for managing excess facilities, including the current Departmental model in which all excess facilities are transferred to EM for cleanup and disposition.

The results of the internal analysis of numbers and costs and the NAPA organizational recommendations will be presented to the Secretary for decision. Depending on the outcome of that Secretarial decision, future iterations of the 2006 Plan may need to be modified accordingly.

The scope of the excess materials and facilities problem is significant. Currently the Department owns approximately 22,500 facilities of which about 20,500 were constructed and operated in support of the nuclear weapons research, development, and production complex. These facilities range in size and complexity from guard stations, cafeterias, office buildings, and storage facilities, to large industrial production facilities such as uranium enrichment facilities and nuclear reactors. About 10,300 (approximately 45 percent of the universe) of these facilities have already been transferred to EM. Over fifty percent of these facilities are more than twenty years old, with 25 percent having been constructed prior to 1954. As these facilities continue to age, the costs associated with their maintenance also continues to increase.

Four DOE programs -- the Offices of Environmental Management (10,300), Defense Programs (7,000), Energy Research (2,500), and Nuclear Energy (700) -- currently manage the majority of these facilities. Management of active facilities is the responsibility of the "owning" program. This includes funding all operating activities, as well as conducting and funding surveillance and maintenance costs. The owning program may declare a facility excess for a variety of reasons including end of mission, age, safety concerns, and reduced funding. Once a facility has been declared excess, these facilities and their surveillance and maintenance budgets previously were transferred to EM for disposition. However, EM has not been accepting new excess facilities since 1996, in an effort to stabilize the scope of its program and allow it to focus resources on its current facilities.

The ongoing special project analysis, based on data from Operations/Field Offices and model projections, shows that an additional 800-1500 facilities will become excess by 2006. This projection may understate the number of facilities to become excess because it assumes the current state of affairs (e.g., current mission plans, funding levels, and arms control treaties). Approximately one third of these facilities are expected to be contaminated with hazardous or radioactive constituents or both. About eight percent of these facilities are expected to contain excess materials that will also need to be managed and dispositioned.

The costs of addressing just the new excess facilities are expected to range from a total of \$450 million to \$2 billion for surveillance and maintenance between 1997 and 2006 if nothing is done to disposition these facilities. If a reasonable (20 percent) investment is made in disposition activities for these facilities, the cost over the same period would range from \$800 million to \$2.7 billion. It is important to note that these cost estimates do not include funding to address all materials that may come with the facilities. Surveillance and maintenance costs alone for these materials could add \$200 million annually to these estimates. Although no estimates of the materials disposition costs can be made at this time (because of insufficient information on the identity, amount, and condition of these excess materials) it is safe to assume that these costs would add significantly to the overall program costs. Like the estimates of the number of facilities that are likely to become excess during this period, the costs for managing and dispositioning these facilities may also be significantly understated.

The budget implications of this issue are significant for the Department, and potentially for the Environmental Management program, depending on the Secretary's decision on the policy for managing newly excess facilities. At present, Defense Programs, Energy Research, and Nuclear Energy are budgeting only for a level of surveillance and maintenance of newly excess facilities necessary to ensure that the safety of workers and the public is protected. EM is budgeting for surveillance and maintenance as well as disposition of those facilities that have already been transferred. As these budget issues are resolved, the 2006 Plans may need to be revised accordingly.

ATTACHMENT F: 2006 PLAN ISSUES/OPPORTUNITIES REQUIRING ACTION PLANS

In accordance with its overall stakeholder involvement policy, DOE has worked to involve stakeholders in the development of the 2006 Plan from its earliest drafts. DOE shared preliminary July 1996 versions of individual draft Site Ten-Year Plans with stakeholders, and has worked to consider comments from Tribal Nations and stakeholders in further developing this Discussion Draft.

The Department identified over 300 issues/opportunities in the comments received on the July 1996 draft Site Ten-Year Plans. In December 1996, Headquarters issued guidance, detailing how each of these issues was to be resolved:

- *Headquarters will revise or clarify the 2006 Plan development process, purpose, and analysis requirements for subsequent versions of the National 2006 Plan (the December 1996 guidance contained the process changes/clarifications to resolve these issues/opportunities);*
- *Sites will revise their July 1996 draft Site Ten-Year Plans to address issues, reflecting resolution in their Discussion Draft; or*
- *Sites and Headquarters will develop Action Plans, defining planning assumptions to be used in the Discussion Draft and a path forward to resolve each issue (for issues expected to require longer time frames for resolution—beyond June 1997).*

This attachment provides details on each of these last category of issues: those requiring Action Plans (see Table F.1). Each Action Plan describes in detail how the Department intends to resolve an issue, clarifying the decision to be made, the decision maker, opportunities for public involvement in the decision process, and the schedule for resolution. The December 1996 guidance identified issues that required Action Plans. Since then, sites and Headquarters staffs have worked these issues with Tribal Nations and stakeholders. As a result, some issues, which in December 1996 appeared to require an Action Plan, have instead been resolved and incorporated into Site Discussion Drafts. Other issues, which in December appeared easily resolvable and were expected to be incorporated into the Site Discussion Drafts, instead require more time to resolve and are now captured in Action Plans.

Since Table F.1 lists only issues and opportunities requiring Action Plans, the table omits many issues. The complete list of issues from the December 1996 guidance is not included here because of its size. However, information on the disposition of other individual issues is available through the Center for Environmental Management Information at 1-800-736-3282. The full *Supplement: Issues and Opportunities Related to the Ten-Year Plan*, is also available upon request.

Table F.1 is organized by the office responsible for issue resolution and provides both a brief description of the issue, as well as the status of the issue. The status indicates whether:

- *The issue has been resolved and is incorporated in a Site Discussion Draft;*
- *The issue has not been resolved and is reflected in an Action Plan attached to a Site Discussion Draft; or*
- *The issue has not been resolved and is captured in the National Action Plan for cross-site waste treatment and disposal issues.*

The National Action Plan rolls together many individual issues for joint resolution. Though the December guidance indicated there would be two National issues, these have since been combined to form a single National Issue. The draft National Action Plan is provided in Attachment G.

With the release of this Discussion Draft and ensuing public comment period, DOE may need to further refine the Action Plans and possibly develop additional Action Plans. Through the Action Plan process, necessary changes to the 2006 Plan will be identified, planned, discussed with the public, decided by DOE management, and implemented.

This Discussion Draft includes few new site waste or material transfers, except for those into the Waste Isolation Pilot Plant. DOE will be using various venues to request Tribal Nations' and stakeholders' comments on a broader range of intersite transfers. The *Waste Management Programmatic Environmental Impact Statement* discusses current proposals for integration and presents analysis and comments on several options currently under consideration. Future integration opportunities will be pursued in accordance with the National Environmental Policy Act (NEPA).

Implementation of every element of this Discussion Draft and any future integration options will be contingent on completing evaluations required under NEPA and other applicable regulations. Most actions likely to be implemented during the next four years have already been or are currently being evaluated under NEPA in documents like the Waste Management Programmatic Environmental Impact Statement.

Table F.1
Issues/Opportunities Requiring Action Plans

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|---------------------------------|---|---|
| Headquarters | DOE needs an overall, consistent approach to address national policy issues relating to programmatic or cross-programmatic, intersite decisions including but not limited to: mixed low-level waste treatment and disposal; low-level waste disposal; transuranic waste treatment and disposal; Rocky Flats plutonium residues and scrub alloy treatment; plutonium disposition; transportation; Comprehensive Environmental Response, Compensation, and Liability Act and DOE Order on Radioactive Waste Management; and Greater-Than-Class C Waste. | Addressed in National Action Plan; incorporates 36 individual sub-issues and Issues 21.1 and 21.2 |
| All Offices | Treatment, storage, and disposal decisions for Environmental Restoration are being made independently at the Operations/Field Office Level, as opposed to being integrated system-wide. | Issue 10.15 addressed in National Action Plan |
| Albuquerque | Albuquerque's July 1996 draft Site Ten-Year Plan assumed existing mixed low-level waste would be "treated and disposed within a five year window" yet there is no facility to do so. There is strong opposition to using the controlled air incinerator for that purpose. | Issue 20.41 addressed in National Action Plan (incinerator <u>not</u> considered as option) |
| Albuquerque | Albuquerque's July 1996 draft Site Ten-Year Plan assumed Los Alamos National Laboratory would save \$76 million and accelerate completing transuranic waste shipments to Waste Isolation Pilot Plant by 20 years. Clarify the implications of this assumption to environmental and transuranic waste characterization requirements. | Issue 20.42 addressed in National Action Plan |
| Carlsbad, Richland, Rocky Flats | Transuranic waste residue treatment and potential repackaging requirements should be clarified with regards to the Waste Isolation Pilot Plant Safeguards Termination Limits. | Issues 4.27 and 2.22 addressed in National Action Plan |
| Carlsbad | Revisit the Idaho assumption that the Advanced Mixed Waste Treatment Facility will treat all transuranic waste to meet Waste Isolation Pilot Plant Waste Acceptance Criteria given 1996 amendment which exempts mixed transuranic from treatment standards and land disposal prohibitions under Resource Conservation and Recovery Act. | Issue 20.5 addressed in National Action Plan |
| Carlsbad | Ensure complex-wide transuranic disposal needs do not exceed Waste Isolation Pilot Plant currently allowed capacity. Define disposal options for non-defense, commercial and newly generated transuranic waste. | Issue 20.6 addressed in National Action Plan |

Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|--|---|--|
| Carlsbad | DOE needs to decide on a consistent transuranic waste policy that considers waste acceptance criteria and treatment standards, consistency of definitions, retrieval of pre-1970 buried waste, Pu-238 bearing transuranic waste, and Waste Isolation Pilot Plant disposal capacity. | Issue 21.2 addressed in National Action Plan |
| Carlsbad | The disposition of Pu-238 bearing wastes and the impact on transuranic waste packaging and shipment to Waste Isolation Pilot Plant must be resolved by the transuranic waste sites, Carlsbad Area Office, and HQ. | Issue 4.13 addressed in National Action Plan |
| Carlsbad | EM needs to work towards the timely development of a transuranic strategy that includes the economics of treatment vs. characterization. | Issue 4.18 addressed in National Action Plan |
| Idaho | Idaho's Discussion Draft should define the cleanup process, end state, facility integration, and significant issues to complete Waste Area Group 3 (i.e., the Idaho Chemical Processing Plan) restoration past 2006. | Addressed in Idaho Action Plan for Issue 10.14 |
| Idaho | Idaho's Discussion Draft should include delisting/partial delisting and release of portions of the Idaho National Engineering and Environmental Laboratory from Environmental Management control; release should be accelerated from 2010 to 2006. | Addressed in Idaho Action Plan for Issue 15.8 |
| Idaho, Nevada Oak Ridge, Richland, Savannah River | Transportation should be minimized whenever possible, with more wastes managed at their point of origin to reduce both the number of shipments and the overall risk incurred from transportation. Accident risk and the need for adequate waste acceptance criteria and procedures should be evaluated. | Issue 16.4 addressed in National Action Plan |
| Idaho | EM should continue to calcine liquid high-level waste as the near-term strategy, while analyzing potential accelerated separations and final waste form alternatives to the use of vitrified glass. | Addressed in Idaho Action Plan for Issue 20.9 |
| Idaho | Idaho National Engineering and Environmental Laboratory's Discussion Draft should evaluate the storage of EBR-II spent nuclear fuel safely in dry interim monitored storage facilities or in long-term repositories. | Addressed in Idaho Action Plan for Issue 8.18 |
| Idaho | Key milestones should be developed for the decontamination and decommissioning of the Experimental Test Reactor and Materials Test Reactor at Waste Area Group 2 [i.e. the Test Reactor Area]. | Addressed in Idaho Action Plan for Issue 8.25 |

Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|-----------------|---|---|
| Idaho | Idaho National Engineering and Environmental Laboratory should incorporate a schedule for development and operation of a site-wide soil repository pursuant to Comprehensive Environmental Response, Compensation, and Liability Act. | Addressed in Idaho Action Plan for Issue 8.26 |
| Idaho, Carlsbad | DOE should evaluate acceptability of grouting of high activity non-transuranic, transuranic, and high-level waste, and revise transuranic waste estimates to include waste deposited in pits/trenches before 1979. | Issue 20.36 addressed in National Action Plan |
| Nevada | The uses of the Nevada Test Site for activities not directly related to the original nuclear testing mission need to be officially and legally determined by the proper agency or entity. | Action Plan for Issue 2.4 and 10.18 being developed with stakeholders. |
| Nevada | Effective planning and management of nuclear waste transportation programs require structured and regular interaction within DOE and among government agencies and other stakeholder groups (including Transportation Protocol Working Group) to address policy, planning institutional and operational issues. | Action Plan for Issue 10.17, 16.1, 16.2 and 16.4 being developed with stakeholders (also addressed in National Action Plan) |
| Nevada | Waste not suitable for shallow-land burial at the Nevada Test Site needs to be addressed and defined under the Nevada Division of Environmental Protection process with analysis for a national program. | Action Plan for Issue 2.33 and 9.3 being developed with stakeholders (also addressed in National Action Plan) |
| Nevada | There is inadequate provision for life-cycle funding in perpetuity for the Nevada Test Site waste management program. | Action Plan for Issue 9.9 and 20.10 being developed with stakeholders |
| Nevada | Develop strategy for bringing the mixed low-level waste disposal facility at Nevada Test Site on-line for use by the DOE complex. | Issue 4.17 addressed in National Action Plan |

**Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)**

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|---|--|--|
| Nevada | The definition of "cleanup" in the Accelerated Cleanup Plan is misleading and not acceptable to stakeholders. | Addressed in Nevada Action Plan for Issue 8.9 |
| Nevada | The extent and duration of radioactive contamination at the Nevada Test Site is inadequately understood for determining appropriate remedial actions. Existing information is not sufficiently communicated to stakeholders. | Addressed in Nevada Action Plan for Issue 9.4 |
| Oakland | Resolve interpretation difference between DOE and state on California's non-degradation policy that a plume must be cleaned up or hydraulically controlled so that it will not act as a continuing source of pollution. | Addressed in Oakland Action Plan for Issue 8.31 |
| Oakland, Savannah River | EM must resolve funding issues related to the Accelerated Cleanup Initiative for reducing source area contamination and testing technologies at the Livermore Site. | Addressed in Oakland Action Plan for Issue 12.29 |
| Ohio, Oak Ridge, Richland, Savannah River | The use of on-site disposal cells under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to dispose of cleanup wastes to reduce costs needs regulator, stakeholder, and OMB and the appropriate requirements and procedures need to be identified (DOE Order 5820 vs. CERCLA). | Issue 2.25 addressed in National Action Plan |
| Ohio | Current and projected funding levels for the Columbus Environmental Management Project need to be consistent with the 1993 U.S. Nuclear Regulatory Commission approved Decommissioning Plan. | Addressed in Ohio Action Plan for Issue 2.21. |
| Ohio | DOE needs to get community and US Environmental Protection Agency agreement before changing the treatment for Silo 3 from the treatment defined in the Record of Decision for Operable Unit 4. | Addressed in Ohio Action Plan for Issue 2.36 |
| Ohio | Resolve the question of storage and disposition of spent fuel and vitrified high level waste at West Valley. | Addressed in Ohio Action Plan for Issue 20.12 |
| Ohio | Finalize waste type and acceptance criteria for the Fernald On-Site Disposal Facility. Local stakeholders oppose acceptance of waste from off-site sources. | Addressed in Ohio Action Plan for Issue 4.12 |

Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|-----------|--|---|
| Ohio | Ensure that focusing on an accelerated deadline does not cause issues to be missed or inadequate attention paid to the long-term impact of decisions currently being made. Involve Tribal Nations and stakeholders in discussions (e.g. free release of contaminated metals and the on-site disposal cell). | Addressed in Ohio Action Plan for Issue 8.30 |
| Oak Ridge | Continue to pilot programs where other DOE organizations will accept responsibility for waste management. | Addressed in Oak Ridge Action Plan for Issue 10.7 |
| Oak Ridge | DOE should specify how it will achieve a free release criteria by 1999. | Addressed in Oak Ridge Action Plan for Issue 11.5 |
| Oak Ridge | Oak Ridge's July 1996 draft Site Ten-Year Plan assumed that remote-handled solids would not be retrieved from Solid Waste Storage Area 5N; the State of Tennessee expects this material to be retrieved and transported to the Waste Isolation Pilot Plant. | Addressed in Oak Ridge Action Plan for Issue 4.8 |
| Oak Ridge | DOE should detail how it will address the conflicting requirements of Order 5820.2A (i.e., requirement for 100-year institutional control of its disposal facilities) and site flexibility to pursue on-site disposal cell and brownfield remedial action alternatives that include institutional control where necessary based on the level of cleanup. | Issue 15.5 addressed in National Action Plan |
| Oak Ridge | DOE should acknowledge its obligations to continue post closure monitoring and associated operations and maintenance requirements. | Addressed in Oak Ridge Action Plan for Issue 15.6 |
| Oak Ridge | Oak Ridge's Discussion Draft needs to consider Natural Resource Damage Act and the responsibility of the Natural Resource Trustees including DOE, Tennessee Valley Authority, Department of Interior, and the State of Tennessee. Addressed in Oak Ridge | Action Plan for Issue 2.12 |
| Oak Ridge | Oak Ridge's Mixed-Waste Site Treatment Plan and Order directs disposal of mixed transuranic waste at Waste Isolation Pilot Plant. DOE should evaluate whether the definition of transuranic waste should be revised to include isotopes such as Cm224, U233, and Cf 252 for acceptance at the Waste Isolation Pilot Plant. | Addressed in Oak Ridge Action Plan for Issue 2.15 |

**Table F-1
Issues/Opportunities Requiring Action Plans (cont'd)**

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|-----------------------------|---|---|
| Oak Ridge | Address institutional control as a major Federal action in the Oak Ridge Discussion Draft. | Addressed in Oak Ridge National Action Plan for 3.8 |
| Oak Ridge | On-site disposal of low-level waste generated from Oak Ridge environmental restoration programs and from active operations should meet on-site waste acceptance criteria. | Issue 4.7 addressed in National Action Plan |
| Oak Ridge | Oak Ridge's July 1996 draft Site Ten-Year Plan assumed remote-handled solids would not be retrieved from Storage Area 5N; the State of Tennessee expects this material to be retrieved and transported to Waste Isolation Pilot Plant. | Addressed in Oak Ridge Action Plan for Issue 4.8 |
| Rocky Flats, Savannah River | Provide more detail on Rocky Flats' baseline case for shipping Rocky Flats scrub alloy to Savannah River for processing and interim storage. | Issue 20.14 addressed in National Action Plan |
| Rocky Flats | Rocky Flats should maintain the baseline proposal for the treatment and shipment of sand slag and crucible and salts, but also review and evaluate technical reviews and Environmental Protection Agency activities to determine impacts to the current baseline. | Issue 20.16 addressed in National Action Plan |
| Rocky Flats, Savannah River | Rocky Flats' and Savannah River's Discussion Drafts should assume that existing Rocky Flats scrub alloy will be received at Savannah River for stabilization and interim storage, until ongoing studies, analyses, discussions and subsequent Records of Decision are complete. | Issue 20.20 addressed in National Action Plan |
| Rocky Flats, Savannah River | Savannah River's Discussion Draft should include receipt of sand slag, and crucible as well as scrubbed salts from Rocky Flats as an alternative. | Issue 20.24 addressed in National Action Plan |
| Rocky Flats | Rocky Flats' end state is dependent on a solution for plutonium and highly enriched uranium storage and moving materials offsite. | Issue 8.22 addressed in National Action Plan |
| Richland, Savannah River | Richland's Discussion Draft should evaluate shipment of plutonium to Savannah River and other options for potential mortgage reduction savings. | Issue 20.19 addressed in National Action Plan |

Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|----------------|---|--|
| Savannah River | Savannah River's Discussion Draft should consider storage and disposal of commercial Greater-than-Class-C waste. | Issue 2.37 addressed in National Action Plan |
| Savannah River | Savannah River should assume implementation of the highly enriched uranium blend down mission and should assume (and identify) that the programmatic sponsor responsible for this activity will assume management and funding responsibilities for the associated facilities after completion of the EM mission (94-I). If negotiations with Tennessee Valley Authority do not provide Department of Energy with sufficient recovery of total program costs or if discussion with affected stakeholders preclude this proposed alternative reflect an advanced deactivation date of H-Canyon. | Addressed in Savannah River Action Plan for Issue 20.21 |
| Savannah River | Savannah River's baseline should reflect ramp down of the landlord program as EM missions are completed, and the resultant savings if no new missions are assigned to EM (highly enriched uranium blend down, disposition of weapons plutonium, consolidated storage of plutonium, etc). | Addressed in Savannah River Action Plan for Issue 20.22 |
| Savannah River | Include the disposition of weapons plutonium and consolidated storage of plutonium missions as alternative opportunities to the Discussion Draft baseline pending Environmental Protection Agency and Secretarial mission decisions, as well as issuance of a Record of Decision. | Issue 20.23 addressed in National Action Plan |
| Savannah River | Chemical processing should remain a viable alternative in the 2006 Plan until a dry storage method is fully developed. | Addressed in Savannah River Action Plan for Issues 20.26, 20.45, 20.46 |
| Savannah River | Spent Fuel must not be processed. | Addressed in Savannah River Action Plan for Issues 20.26, 20.45, 20.46 |
| Savannah River | Stakeholders oppose the movement of materials and waste to Savannah River Site for temporary, interim, and long-term storage without provision for final disposition. | Issue 4.30 addressed in National Action Plan |

Table F.1
Issues/Opportunities Requiring Action Plans (cont'd)

| OFFICE | ISSUE STATEMENT | ISSUE STATUS |
|----------------|--|---|
| Savannah River | Need to have general public participation for the 2006 Plan concerning transportation routes. | Issue 4.31 addressed in National Action Plan |
| Savannah River | High activity transuranic waste should be treated on an aggressive schedule as suggested by the Savannah River Citizens Advisory Board and independent peer reviews. | Issue 20.48 addressed in National Action Plan |

ATTACHMENT G: ENVIRONMENTAL MANAGEMENT'S NATIONAL ACTION PLAN ON THE INTERSITE TRANSFER OF WASTE AND NUCLEAR MATERIALS (DISCUSSION DRAFT)

ATTACHMENT TO ACCELERATING CLEANUP: FOCUS ON 2006

Introduction

In June 1996, Assistant Secretary for Environmental Management (EM) Al Alm articulated a vision of completing cleanup at most EM sites by 2006. Each of the 10 Operations and Field Offices is preparing a draft strategy discussing its possible approach to achieving the 2006 Vision, with DOE Headquarters preparing a National Discussion Draft entitled *Accelerating Cleanup: Focus on 2006* (herein called National Discussion Draft) that addresses EM's sites and its wastes, facilities, and plutonium, as well as the projects necessary to achieve the vision. EM is developing the 2006 Plan in collaboration with state governments, Tribal Nations, regulators, and stakeholders.

In July 1996, draft Site Ten-Year Plans were released by the DOE Operations and Field Offices for comment, which resulted in more than 300 issues for resolution by the Department of Energy (DOE) and EM. In analyzing the issues, EM recognized that many of them could only be addressed from a national, complex-wide perspective. EM merged these "national issues" into a "National Issue Statement." To clearly articulate the issues to be decided and chart the resolution path for these issues, EM developed this "National Action Plan" that describes its decision making process and mechanisms, and describes how stakeholders can be involved. A secondary purpose for this National Action Plan is to describe the overall decision process and related stakeholder involvement process being planned for implementation during the remainder of 1997. These efforts will focus discussions at the site level, in national discussion forums, and in specific dialogue with the elected officials and regulators. At the end of these activities, EM hopes to make and document decisions that can be supported by the stakeholders and therefore be sustainable, providing a solid path forward for the EM program.

Recommendations for increasing efficiency and cost savings have been identified by the Complex-Wide EM Integration Team, a team composed of DOE contractors. These recommendations have been submitted for DOE's consideration, and are discussed in this National Action Plan. Also, the Department will soon release a Waste Management Programmatic Environmental Impact Statement (PEIS). This PEIS presents important analyses of the potential roles of major DOE sites in the management of five waste stream types. Stakeholder discussions scheduled for the remainder of 1997 will also include consideration of the Integration Team recommendations and the Waste Management PEIS analyses. By discussing EM programmatic options, along with the Integration Team recommendations and WM PEIS analyses, stakeholders are provided the full view of strategic options which the EM program must now consider to respond to budget pressures. Stakeholders can view and discuss all of the strategic options before decisions must be made by the EM Assistant Secretary.

National Issue Statement

EM needs an overall, consistent, and integrated approach to address national policy issues relating to programmatic, cross-programmatic, or intersite decisions, including but not limited to, intersite transfer of waste and plutonium, mixed low-level waste, low-level waste, and transuranic waste disposal, and transportation.

The National Action Plan

EM is developing an efficient and effective system for managing wastes and plutonium that may require shipment between sites. Pending decisions regarding the configuration of storage, treatment, and disposal sites, and the mode and volume of transportation, are of great interest and concern to Tribal Nations, regulators, State and local governments, and the public. Many of the concerns center around equity; that is, "Is my state or community taking more than its fair share of 'dangerous' waste and material?" or "What is the benefit to me of this waste or material coming to/through my community?"

To date, DOE/EM has used a variety of decision making processes. These decision processes will continue to be used, and will document and formalize the decisions made by EM based on its discussions with stakeholders and consideration of environmental and budgetary impacts, efficiency, and cost savings.

Some of DOE's decision processes are based on statutory requirements, such as those in the National Environmental Policy Act (NEPA), the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Federal Facility Compliance Act (FFCAct). Others have been developed by DOE/EM, such as the budget decision making process and strategic planning. All decision processes involve input from state governments, Tribal Nations, regulators, and stakeholders to some degree, and require various levels of evaluation and analysis of options.

What is an Action Plan?

Developed with input from state governments, Tribal Nations, regulators, and stakeholders, an action plan describes the approach EM will use to resolve long-term issues. Action plans identify who the decision maker is and include schedules and stakeholder involvement opportunities. In addition to this National Action Plan, site-specific action plans have been developed at the Operations and Field Offices to address site-specific issues.

Issues Included in the National Action Plan

- Low-Level Waste Disposal Configuration
- Mixed Low-Level Waste Disposal Configuration
- Rocky Flats Plutonium Residues and Scrub Alloy Treatment
- Plutonium Disposition
- Management of Greater-Than-Class C Waste
- Transportation
- Requirements for Onsite Disposal of LLW under CERCLA and the DOE Order on Radioactive Waste Management
- Disposal of Transuranic Waste

(Appendix A to this document provides a more detailed discussion. Figure A.1 in Appendix A illustrates how these issues have been grouped.)

For example, DOE-host States raised equity concerns during the development of FFCAct mixed waste¹ Site Treatment Plans. To resolve those concerns, DOE and the States developed a set of State's Principles to guide the decision making process. The principles focus on minimizing cross site transfers, and establish a protocol for cross site transfers when they do occur. Working closely with the States, DOE developed a configuration for mixed waste treatment that was integrated and cost-effective, and also minimized transfer of waste. DOE now has enforceable Site Treatment Plans and Orders approved by the States, governing mixed waste treatment at 32 sites. As an outgrowth of the FFCAct, DOE continues to work with the States in identifying, from among the sites currently storing or expected to generate mixed low-level waste (MLLW), those that might be suitable for the disposal of MLLW.

Building on what has been learned through the FFCAct and similar processes, the National Action Plan provides an overall, consistent approach to address national policy issues relating to programmatic, cross-programmatic, or intersite decisions, including but not limited to, intersite transfer of waste and nuclear materials, transuranic waste (TRU), MLLW, and low-level waste (LLW) disposal, and transportation. The topics addressed in the National Action Plan are listed in the above box. Appendix A provides a more detailed description of the resolution path for each issue.

Process, Participants, and Schedules

A team of EM representatives has worked to develop the resolution pathway for issues identified in this National Action Plan, along with other issues/decisions which are intersite and cross-programmatic in nature. DOE has demonstrated its concern for the issues by taking an "overall programmatic approach" in the development of this National Action Plan. The decision maker for the National Action Plan is the Assistant Secretary for Environmental Management. Collaboration with Tribal Nations and stakeholders will be sought and maintained.

The issues facing EM are in various stages of readiness for decision making, depending on the level of discussion, analysis, and magnitude of the issue. To enable the identification of appropriate processes, participants, and schedules, EM has divided the issues and the decisions into three categories, as listed below. Appendix A provides more detail regarding the decisions to be made and the analyses underway to support them. Although not officially accepted by EM as issues requiring resolution, the recommendations of the Complex-Wide EM Integration Team are discussed in Appendix B and identified according to their potential resolution pathway.

1. Issues that are ready for near-term decision making.

DOE expects to make these decisions after release of the Waste Management Programmatic PEIS and after public comments are received on the National and Site Discussion Drafts.

Included in this group are decisions concerning:

- *LLW treatment*
- *MLLW treatment*
- *TRU waste treatment and storage*
- *TRU waste disposal at WIPP*

¹Mixed waste is waste that contains both hazardous waste and radioactive material.

2. Issues that require more discussion.

State, Tribal Nation, regulator, and stakeholder input concerning these issues and the decision making process will be sought through the ongoing NEPA processes and a series of local, and national workshops. Although not raised as an issue during discussions on the July 1996 draft Site Ten-Year Plans, high-level waste storage will be addressed in this process. Included in this group are decisions concerning:

- *LLW disposal*
- *MLLW disposal*
- *High-Level Waste (HLW) storage*
- *Rocky Flats Plutonium Residues and Scrub Alloy treatment*
- *Plutonium disposition*
- *Greater-Than-Class C (GTCC) low-level waste disposal*
- *Transportation*

The processes follow a dual-track approach. The first track supports detailed discussions on the 2006 Plan and focuses on workshops at major sites to inform, discuss, and receive comments on the Site and National Discussion Drafts. The Waste Management PEIS and the Complex-Wide EM Integration Team recommendations will also be discussed at these workshops. In addition, a National Stakeholder Video Conference is planned to focus on the overall 2006 Plan review process and EM budget formulation. Feedback from these workshops will feed into the second track.

The second track is a series of educational meetings to be conducted as part of the planned National Dialogue, focusing on decisions to be made with respect to EM and other DOE waste and material transfers (emphasis on disposal and transportation). The Waste Management PEIS and the Complex-Wide EM Integration Team recommendations will also be discussed. Additional meetings may be held later to discuss options for addressing equity, should such issues be raised through public comments on the Discussion Drafts.

3. Decisions that will be made with state government, Tribal Nation, regulator, and stakeholder input through processes other than those previously described.

This includes issues concerning CERCLA and the DOE Order on Radioactive Waste Management and the comprehensive decision for disposal of all TRU waste. Following is the decision making process that will be used for these decisions.

CERCLA and DOE Order on Radioactive Waste Management

In May 1996, the Department issued a policy requiring development of a roadmap to demonstrate that a LLW disposal facility that is evaluated, designed, constructed, and operated under CERCLA will also meet the substantive requirements of DOE Order 5820.2A, Radioactive Waste Management. DOE Order 5820.2A is currently being revised, and among the changes is incorporation of this May 1996 policy. A draft of the revised order (which will be renamed DOE Order 435.1) will be made available for public review and comment, currently scheduled for June 1997. The revisions should resolve a concern expressed by stakeholders where it appeared that "different rules" were being used for LLW disposal facilities built under CERCLA compared to those operating under the authority of the Atomic Energy Act.

Because the DOE Order on Radioactive Waste Management will have a discrete public comment period as part of its revision process and because it does not involve future decisions about intersite transfer of waste, DOE proposes that it not be included in the stakeholder discussions expected to occur as part of the 2006 Plan collaborative process. If comments are received contrary to this opinion, DOE will reconsider the need to blend the two public involvement processes.

Comprehensive Decision for Disposal of All TRU Waste

Certain TRU waste does not meet the acceptance requirements for disposal at the Waste Isolation Pilot Plant (WIPP) including non-defense generated waste or waste exceeding defined physical and/or radiological characteristics. Based on ongoing discussion with state government, Tribal Nations, and stakeholders, about one year after the initiation of WIPP disposal operations, DOE will develop the Comprehensive Disposal Recommendation. This report will make a recommendation on disposition of this waste.

The recommendations made by the contractors in the Complex-Wide EM Integration Report are not ready for decision making. Through the action plan process and the site and cross-site discussions, input will be gathered to assist DOE in their decision making on acceptance or rejection of the contractor recommendations.

Conclusion

EM will continue to address the concerns of state government, Tribal Nations, regulators, and stakeholders, and will work to incorporate their ideas into a revised National Action Plan to support the release of the draft 2006 Plan later this year.

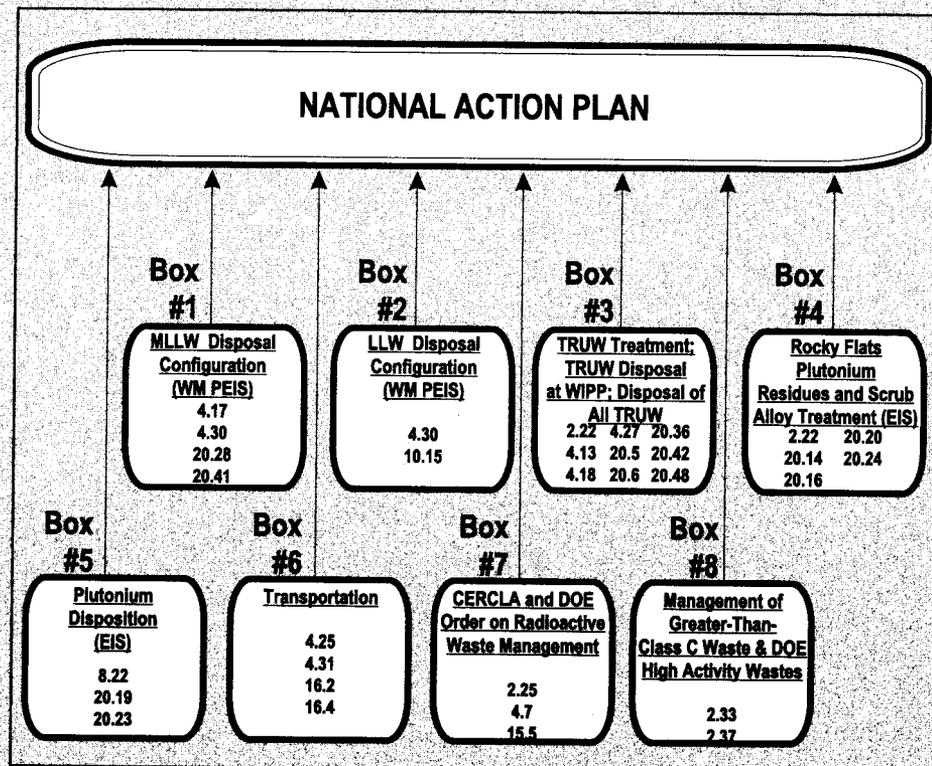
APPENDIX A OF ATTACHMENT G

Descriptions of Issues and Decision Process

In accordance with its overall stakeholder involvement policy, DOE has worked to involve stakeholders in the development of the 2006 Plan. In July 1996, DOE shared draft Site Plans with some of its stakeholders, and worked to consider the comments from the stakeholders, regulators, DOE staff and contractors in further developing the 2006 Plan. These issues and opportunities were catalogued in the December 20, 1996, Guidance, which directed the sites to develop Action Plans on those issues that would not be addressed within the June 1997 time frame.

As the Department worked with these issues and comments, the intersite transfer of waste and materials emerged as an issue that needed to be addressed at the national level because of its cross-cutting, intersite and policy implications. In order to identify the important components of this issue, DOE defined eight groups of like issues and comments, as depicted in Figure A.1 and described in this Appendix.

Figure A.1



Other comments have since been resolved through clarification or changes to the 2006 Plan development process or by incorporation into the June 1997 Discussion Drafts. The disposition of individual issues can be obtained by calling the Center for Environmental Management Information at 1-800-736-3282.

Low-Level Waste Disposal Configuration - DOE has LLW disposal capability at the Nevada Test Site, Hanford Site, Los Alamos National Laboratory, Idaho National Engineering and Environmental Laboratory, Oak Ridge Reservation, and Savannah River Site. The Department is constructing a facility at the Fernald Environmental Management Project to be used for disposal of LLW generated by onsite cleanup activities. DOE also uses commercially available LLW disposal. Through the development of the Waste Management PEIS, various disposal configuration alternatives were analyzed.

The Waste Management PEIS and subsequent discussions regarding the disposal of LLW will drive the decision to select a LLW disposal configuration. A disposal decision is needed to support the continued compliant management of LLW, and to meet the goals of the 2006 Plan. A coordinated strategy and configuration for future disposal of LLW will be developed, and will use the analyses done under the Waste Management PEIS and by the Low-Level Waste Disposal Cost Study. A draft strategy including commercial disposal options will be developed and then refined, leading to the development of a ROD under the Waste Management PEIS.

Two LLW issues are being addressed by the WM PEIS process (Box #2 in Figure A.1 has issue 10.15 and 4.30)

Mixed Low-Level Waste Disposal Configuration - While the FFCAct established plans for treatment of MLLW, it did not specifically address disposal of the treated MLLW. DOE has MLLW disposal capability at the Nevada Test Site (for onsite generated waste only) and at the Hanford Site (not yet operational), and also uses commercial disposal. Through the development of the Waste Management Programmatic Environmental Impact Statement (WM PEIS), various disposal configuration alternatives were analyzed. Additionally, DOE established the FFCAct Disposal Workgroup to work with the States in identifying, from among the sites currently storing or expected to generate MLLW, those that might be suitable for the disposal of MLLW.

The WM PEIS and subsequent discussions regarding the disposal of MLLW will drive the decision to select a MLLW disposal configuration. A disposal decision is needed to support the continued compliant management of MLLW, and to meet the goals of the 2006 Plan. A coordinated strategy and configuration for future disposal of MLLW will be developed, and will use the analyses done under the WM PEIS and by the FFCAct Disposal Workgroup as the basis for discussion under the NGA facilitated process (shown in Figure 1). A draft strategy including commercial disposal options will be developed and then refined, leading to the development of a ROD under the WM PEIS.

Four MLLW issues are being addressed by the WM PEIS process (Box #1 in Figure A.1 has issues 4.17, 4.30, 20.28, and 20.41).

Rocky Flats Plutonium Residues and Scrub Alloy Treatment - Although a NEPA analysis has been completed and activities are underway to stabilize approximately 106 metric tons of solid plutonium residues for storage at Rocky Flats (as required to meet commitments in response to Defense Nuclear Facilities Safety Board Recommendation 94-1), further or alternative treatment of approximately 43 metric tons of the residues (and about 0.7 metric tons of scrub alloy) is required to enable disposal or other disposition of this material. Since this additional or alternative treatment is not discussed in other NEPA analysis, DOE is preparing an EIS to evaluate alternatives for treatment. Alternatives being considered include both onsite treatment or processing at Rocky Flats and the offsite shipment and subsequent treatment or processing of some of this material at three sites: the Savannah River Site, Los Alamos National Laboratory, and Lawrence Livermore National Laboratory.

Five issues will be addressed in the Rocky Flats Plutonium Residues and Scrub Alloy Treatment EIS process (Box #4 in Figure A.1 has issues 2.22, 20.14, 20.16, 20.20, and 20.24).

Plutonium Disposition - DOE issued a ROD for the storage and disposition of weapons-usable fissile materials on January 14, 1997. Based on the storage decisions in this ROD, Rocky Flats pits will be shipped to the Pantex Plant and Rocky Flats non-pit metal and oxide will be shipped to the Savannah River Site for storage pending disposition, if a subsequent decision is made to immobilize plutonium at the Savannah River Site. The storage of EM owned or managed plutonium at the Hanford Site will remain in their 2006 Plan baseline until the ultimate plutonium disposition decision is made.

DOE will prepare a follow-on EIS that will examine reasonable alternatives for the siting, construction, and operation of the facilities needed to disposition surplus plutonium. These facilities include a pit disassembly and conversion facility, an immobilization facility, and a mixed oxide fuel fabrication facility. The EIS will be based upon the decisions reached in the January 14, 1997, ROD, in that the disposition facilities will be located at one or more of the four sites - the Hanford Site, Idaho National Engineering and Environmental Laboratory, Pantex Plant, and Savannah River Site.

Although EM is responsible for the stabilization, storage, and stewardship of EM owned or managed surplus plutonium until disposition occurs, disposition is not part of the EM mission. Therefore, EM needs to assure that the Departmental element charged with implementing the plutonium disposition mission is adequately funded, and determine how this new mission will impact the EM mission at affected sites and adjust accordingly.

Three issues will be addressed through the Plutonium Disposition EIS (Box #5 in Figure A.1 has issues 8.22, 20.19, and 20.23).

Management of Greater-Than-Class C Waste and DOE High Activity Wastes - GTCC waste programmatic interim storage and disposal decisions need to be defined. Approximately 2,000 cubic meters of GTCC wastes are expected to be produced by the commercial sector. DOE has the responsibility for the disposal of these wastes. By regulation, these wastes will require disposal methods other than shallow land disposal. In addition, DOE has some high activity wastes which will also require enhanced disposal. DOE is currently examining options for the management of these wastes. Starting with information garnered through the 2006 planning process and National Dialogue discussions, DOE will evaluate its alternatives and, in cooperation with Tribal Nations and stakeholders, embark upon the most appropriate decision making process.

Two issues are being addressed on Greater-Than-Class C Waste (Box #8 in Figure A.1 has issues 2.33 and 2.37).

Transportation - Transportation and packaging stand out as major elements in decisions about treatment, storage, and the ultimate disposition of plutonium and wastes resulting from cleanup of DOE's sites. Options for keeping materials on site or consolidating shipments may emerge from NEPA and CERCLA transportation analyses and from public input on the alternative actions. Although transportation is a sub-issue to the larger decisions about where treatment and disposal occur and the technologies to be used, it is of interest to Tribal Nations and a variety of stakeholders because transportation decisions may affect many communities. The concerns range from mode of shipment (rail versus truck), scheduling shipments, packaging performance, to routing and issues of emergency preparedness and response along the shipping corridors.

The National Transportation Program is tasked with identifying the transportation issues related to 2006 Plan decisions, and identifying the technical and data needs associated with the Plan. That information will be integrated with the overall National Action Plan processes. DOE has outlined a transportation planning process with a three tier resolution approach for transportation issues. The first tier, defined by the 2006 Plan process and its interface with national transportation stakeholder groups and state government, Tribal Nations, would identify transportation issues and concerns related to the Plan. These groups, which include the Local Government Network and the Transportation External Coordination Working Group (TEC/WG), enable DOE/EM staff to reach national and regional associations of Tribal, State, and local governments; professional and technical organizations concerned with transportation and emergency preparedness; and industry and trade associations.

The second tier is defined by the institutionalization of a transportation planning process that has been used by various DOE Program Offices for the past several years. The development of a National Transportation Plan, utilizing transportation recommendations adopted during the first tier, would be developed for each material type addressed in the 2006 Plan. DOE will directly consult with key Tribal Nations, State and local officials, and stakeholders near DOE sites and along transportation corridors as these National Transportation Plans are developed. National Transportation Plans would be developed within 6-9 months after the issuance of the relevant ROD. Features of the Plan would include implementation information, such as the responsible DOE organization, schedules for activities, processes to involve stakeholders, and a description of packaging and general logistical information.

The third tier of the process is concurrent with the development of the National Transportation Plan. Site-specific and material-specific transportation plans would be developed by the site, with programmatic responsibility for the shipment 6-12 months after the ROD, and would be consistent with the National Transportation Plan and its overall procedures developed during the second tier process. These specific plans are developed by convening a working group of the appropriate regional and Tribal Nation organizations (e.g., Southern States Energy Board, Western Governors' Association, Council of State Governments, etc.), cognizant Federal agencies other than DOE (e.g., Department of Transportation, Nuclear Regulatory Commission, EPA, Federal Bureau of Investigation, etc.), and other State and local officials directly impacted by the shipping campaign. These site-specific plans provide operational detail about roles and responsibilities, shipment mode, general schedules,

communication and public information protocols, shipment tracking, routing, security, and emergency preparedness procedures. The National Transportation Program sponsors assistance (e.g., specific information materials, equipment, and expertise), provided through a DOE regional technical assistance program, to implement the transportation specific plan. The National Transportation Emergency Preparedness Program is another element which provides training and technical assistance to the external training community for response to DOE transportation accidents. DOE provides technical assistance through DOE headquarters, regional offices, and cognizant program offices.

Four issues are concerned with transportation of materials and are subsets of other decisions on disposition and/or storage (Box #6 in Figure A.1 has issues 4.25, 4.31, 16.2, and 16.4).

Requirements for Onsite Disposal of LLW under CERCLA and the DOE Order on Radioactive Waste Management - A number of sites have identified a preference for use of onsite disposal cells under CERCLA to dispose of wastes generated by site cleanup activities. Some stakeholders have expressed a concern that the requirements for disposal of operational LLW under DOE Order 5820.2A, Radioactive Waste Management, are not the same as the waste disposal requirements under CERCLA, and therefore may lead to different conclusions on the acceptability of siting a new waste disposal facility.

For any new DOE disposal facility built under the authority of CERCLA, sites are expected to use the "Policy for Demonstrating Compliance with DOE Order 5820.2A for Onsite Management and Disposal of Environmental Restoration Low-Level Waste Under the Comprehensive Environmental Response, Compensation, and Liability Act, May 31, 1996." The implementing requirements of the referenced policy call for a "roadmap" to be developed for each onsite CERCLA LLW disposal facility. The roadmap is to demonstrate that a facility that is evaluated, designed, constructed, and operated under CERCLA will also meet the substantive requirements of DOE Order 5820.2A.

DOE Order 5820.2A was issued in 1988, and has not been updated to include the above-referenced May 1996 policy. Currently, DOE Order 5820.2A is being revised and will be renamed DOE Order 435.1. One of the proposed changes to the Order acknowledges LLW disposal cells built under CERCLA authority, and incorporates the crosswalk and equivalency determination requirements that are in the May 1996 CERCLA/DOE Order 5820.2A Policy. The schedule for developing DOE Order 435.1 is as follows:

- *June 1997 - draft DOE Order 435.1 expected to be issued for public comment*
- *September 1997 (tentative) - issue DOE Order 435.1*

Because the DOE Order on Radioactive Waste Management will have a distinctive public comment period as part of its revision process, and due to the fact that this issue does not involve future decisions about intersite transfer of waste, DOE proposes that it not be included in the stakeholder discussions expected to occur as part of the 2006 Plan collaborative process. If comments are received contrary to this opinion, DOE will reconsider the need to blend the two public involvement processes.

Three issues are concerned with the requirements for siting a new LLW disposal facility under CERCLA as compared with the requirements of DOE Order 5820.2A, Radioactive Waste Management (Box #7 in Figure A.1 has issues 2.25, 4.7, and 15.5).

Disposal of All Transuranic Waste - A comprehensive path forward for the treatment and disposal of all TRU waste is needed; the issues which must be addressed include WIPP acceptance criteria and treatment standards, potential for retrieval of pre-1970 TRU waste, the capacity of the WIPP, and the disposal of non-defense TRU waste. DOE policy for the disposition of TRU waste is driven by the WIPP Land Withdrawal Act of 1992 and the WIPP Land Withdrawal Amendments of 1996. These laws define TRU waste that can be disposed at WIPP, the DOE regulator, the criteria by which TRU waste will be managed and ultimately disposed, as well as limits for the current disposal capacity. EPA standard (40 CFR 191) and compliance criteria (40 CFR 194) are being used to certify WIPP.

Certain TRU waste does not meet the acceptance requirements for disposal at WIPP, including non-defense generated waste or waste exceeding set physical and/or radiological characteristics. Based on ongoing discussion with state government, Tribal Nations, regulators, and stakeholders about one year after the initiation of WIPP disposal operations, DOE will develop the Comprehensive Disposal Recommendation. This report will make a recommendation on disposition of this waste.

The current WIPP program has proven to be an excellent example of an integrated transportation program. The WIPP's Supplemental Environmental Impact Statement-II (SEIS-II) is considering this integrated program in the decisionmaking process. Extensive outreach programs with Tribal, State, regional, and local governments were utilized during the development of WIPP's integrated transportation planning for TRU waste truck shipments. DOE developed a truck versus rail study for TRU waste in February 1994. The DOE's current policy is to use trucks to transport TRU waste to WIPP in Type B containers (TRUPACT-II); however, this would not preclude the possibility of further study for rail transport. All waste types will be reviewed and modal choice will be further refined during implementation planning.

Nine TRU waste issues had been identified for resolution in the December 1996, Ten-Year Plan Guidance and are now included in this Action Plan. These issues are being addressed through the NEPA process and the Comprehensive Disposal Recommendation Report (Box #3 in Figure A.1 has issues 2.22, 4.13, 4.18, 4.27, 20.5, 20.6, 20.36, 20.42, and 20.48).

Other Issues - This National Action Plan incorporates issues and opportunities raised as of December 1996. It is anticipated that the National Action Plan will be revised over time to incorporate additional issues raised in public comments and other DOE initiatives, such as the Complex-wide EM Integration Team described in Appendix B.

APPENDIX B OF ATTACHMENT G

Complex-Wide EM Integration Team Recommendations

Complex-Wide EM Integration Team Process

In July 1996, senior executives of eleven major Environmental Management site contractor organizations were challenged to look for innovative breakthrough strategies to achieve the vision of maximizing cleanup in a decade. The result of this challenge was formation of a team to independently identify, analyze, and recommend technical integration opportunities which reduce costs and risks, shorten cleanup schedules, and further the goals of the 2006 Plan. Using a systems engineering approach, this team identified numerous opportunities, which if adopted, could result in significant potential cost savings over the life-cycle. Recommendations of the team have been developed independently and must now be carefully evaluated by EM. These recommendations are included here for comment and will be discussed during workshops during the summer of 1997. This Discussion Draft requests input on some of these recommendations. Some of these recommendations may be incorporated into later versions of the 2006 Plan, included in revised versions of this National Action Plan, or have separate Action Plans written for their resolution.

The Complex-Wide EM Integration Team's recommendations are included in a discussion draft report, *A Contractor Report to the Department of Energy on Environmental Management Baseline Programs and Integration Opportunities*, May 1997. Copies of the report are available by writing to:

U.S. Department of Energy
Mr. Gene Schmitt
P.O. Box 44818
Washington, D.C. 20026-4481
FocusOn2006@EM.DOE.GOV

Many of the recommendations developed by the contractors may not be acceptable to the Department or stakeholders and in fact may need further environmental analysis. DOE has reviewed the draft report and believes that there are 25 recommendations that should be further considered. EM would appreciate comments and advice on these alternatives. More details are provided in the contractors' draft report.

Eleven recommendations reflect cross-site transfer alternatives and will be considered further through development and implementation of action plans:

- *Consolidate Transuranic Waste Storage from sites with small inventories to sites with greater inventories.*
- *Pursue a Path Forward for Disposal of All Transuranic Waste not currently acceptable at the Waste Isolation Pilot Plant.*
- *Maximize Use of Existing DOE Operating Facilities for Mixed Low-Level Waste Treatment to achieve the best cost efficiency.*

- *Use Combination of DOE and Commercial Mixed Low-Level Waste Disposal Capacity by continuing disposal at existing commercial facilities and initiating centralized disposal at Hanford Site with Nevada Test Site, as backup, to achieve cost efficiencies.*
- *Consolidate Low-Level Waste Disposal Operations at Nevada Test Site and Hanford Site to obtain cost efficiencies.*
- *Disposition Special Case Low-Level Waste through a defined final disposition path.*
- *Use Existing Idaho National Engineering and Environmental Laboratory Cesium/Strontium Storage Capacity for long-term storage of separated cesium/strontium wastes from Hanford Site (includes both existing cesium/strontium capsules and cesium/strontium wastes resulting from potential future pretreatment) to minimize new facilities.*
- *Move West Valley Demonstration Project High-Level Waste Canisters to Savannah River Site by developing and deploying a process for shipment of vitrified high-level waste canisters from West Valley to Savannah River Site for interim storage.*
- *Transport and Store Idaho National Engineering and Environmental Laboratory High-Level Waste at Hanford to expedite completion of Idaho National Engineering and Environmental Laboratory high-level waste vitrification, AND*
- *Use Hanford Vitrification Capabilities for Idaho National Engineering and Environmental Laboratory High-Level Waste to minimize new facilities.*
- *Reduce Hanford High-Level Waste Volume disposal costs by obtaining significant volume reduction of Hanford Site high-level waste through aggressive pretreatment similar to a process proposed for the Idaho National Engineering and Environmental Laboratory. This enables better separation of the low-activity waste fraction reducing volumes and better dissolution of solids in the high-activity sludge.*

Other recommendations developed by the Complex-Wide EM Integration Team are not particularly related to cross site decisions. DOE is requesting comments and advice on these alternatives also. Eleven alternatives that are site-specific or national in nature will be considered further through development and implementation of action plans:

- *Improve Transportation Systems for Transuranic Waste by expanding or developing improved transportation methodologies for the shipment of both contact-handled and remote-handled transuranic waste to improve efficiency, avoid large-scale fixed-plant operations, and overcome current limitations.*
- *Use Consolidated Procurement for Mixed Low-Level Waste Analytical Services to obtain necessary characterization and certification of mixed low-level waste in lieu of individual site contracts, thereby minimizing the number of audits conducted at the same facility.*
- *Establish De Minimus Radioactivity Levels for Mixed Low-Level Waste levels for radionuclide content in mixed low-level waste to enhance capability to segregate "below-regulatory-concern" hazardous-only and mixed low-level waste.*

- *Standardize Mixed Low-Level Waste Characterization based on common characterization standards which satisfy requirements that are necessary and sufficient to allow mixed low-level waste to be accepted at any treatment, storage, or disposal facility in the complex without multiple characterization steps.*
- *Expand Use of National Procurement Contracts for Mixed Low-Level Waste to enable treatment of mixed low-level waste that can not be treated through existing DOE capabilities.*
- *Accelerate Calcine Separation of Idaho National Engineering and Environmental Laboratory high-level waste.*
- *Implement Risk-Based High-Level Waste Retrieval and Tank Closure (e.g., remove waste from tanks that pose highest health and safety risks first) primarily at Hanford Site and Idaho National Engineering and Environmental Laboratory*
- *Establish Performance-Based Spent Nuclear Fuel Storage and Disposal requirements for geological disposal of spent nuclear fuel based on assessment of fuel groups that verify acceptable performance during interim storage and enable direct disposal as a viable alternative for a significant portion of the unprocessed spent nuclear fuel. This will minimize repackaging and enable cost-effective repository acceptance of the majority of DOE-owned spent nuclear fuel.*
- *Establish Complex-Wide Uniform Radiological Cleanup Standards for Environmental Restoration to reduce costs and schedules associated with remedial activities at each site and accelerate cleanup. Promulgate 10 CFR 834 with clear unambiguous "as low as reasonably achievable" criteria. Have a formal, mutually acceptable land use agreement with stakeholders and have remedial action based on an established set of future land use assumptions.*
- *Implement Accelerated Remedial Process for Environmental Restoration to reduce costs and schedules associated with remedial action reports/plans, streamline report/plan preparation, review, and approval cycles for environmental restoration activities across the complex.*
- *Share Environmental Restoration Expertise and Resources through an established system across DOE installations.*

In addition to the above, three of the contractors' recommendations are already being implemented and do not require action plans:

- *Use Mobile (Transportable/Modular) Systems for Transuranic Waste for transuranic waste preparation, packaging, treatment, and loading to avoid redundant systems at several sites.*
- *Accelerate Transuranic Waste Shipments and Closure of Waste Isolation Pilot Plant, in keeping with the Departmental policy being pursued to clean-up sites as efficiently as possible.*
- *Minimize Storage and Treatment of Low-Level Waste to minimize cost and personnel exposure; direct dispose of low-level waste and process only when cost effective and/or where required.*

ACRONYMS USED IN ATTACHMENT G

| | |
|--------|---|
| CFR | Code of Federal Regulations |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DOE | Department of Energy |
| EIS | Environmental Impact Statement |
| EM | Environmental Management |
| EMI | Environmental Management Integration |
| EPA | U.S. Environmental Protection Agency |
| FFCAct | Federal Facility Compliance Act |
| GTCC | Greater-Than-Class C Waste |
| HLW | High-Level Waste |
| LLW | Low-Level Waste |
| MLLW | Mixed Low-Level Waste |
| NEPA | National Environmental Policy Act |
| NGA | National Governors' Association |
| PEIS | Programmatic Environmental Impact Statement |
| RCRA | Resource Conservation and Recovery Act |
| ROD | Record of Decision |
| SEIS | Supplemental Environmental Impact Statement |
| TEC/WG | Transportation External Coordination/Working Group |
| TRU | Transuranic Waste |
| WIPP | Waste Isolation Pilot Plant |
| WM | Waste Management |

This page is intentionally left blank.

ATTACHMENT H: ENVIRONMENTAL MANAGEMENT PLANNING SCENARIOS

Operations/Field Offices submitted their draft Site Ten-Year Plans and the supporting Project Baseline Summary (PBS) spreadsheets to Headquarters on February 28, 1997. Upon receipt at Headquarters, each site plan and PBS was reviewed for completeness and to ensure that no double counting or inadvertent exclusions existed. Discussions were held with sites in March 1997 to discuss data gaps and to notify the sites of some adjustments that were necessary to make all of the plans consistent with the overall accelerated cleanup vision.

- *Costs for Federal salaries and support (that is, "Program Direction") were removed from each Operations/Field Office estimate and consolidated into a single "National Programs and Carlsbad" account.*
- *Funding to handle newly generated waste was removed for FY 2000 and beyond since this plan assumes that these costs will be transferred back to the generating program.*
- *Non-EM costs were removed.*

Preliminary planning projections contained in this attachment are based on the initial site submissions. Significant data gaps have been filled in iterative discussions with the sites and the aforementioned adjustments have been made. The data are presented in current year dollars (that is, the actual dollar amounts contained in future budgets) and constant FY 1998 dollars (that is, buying power of the budget dollars adjusted for projected inflation). Sites submitted their data in current year dollars; the data were adjusted to constant FY 1998 dollars using the inflation factor of 2.7 percent per year recommended by the Office of Management and Budget.

The tables that follow provide annualized planning projections for each Operations/Field Office through FY 2006. The "National Programs and Carlsbad" line consolidates the annualized planning projections for the following activities:

- *EM Headquarters and Program Direction (that is, Federal salaries and support at Headquarters and in the field).*
- *Carlsbad Area Office (the Waste Isolation Pilot Plant).*
- *National Science and Technology Development Program.*
- *Environmental Management Science Program.*
- *Pollution Prevention Program.*
- *National Transportation, Characterization, and Risk Programs.*
- *National Environmental and Regulatory Analysis.*

H.1 Preliminary Planning Projections (as submitted with adjustments)

Table H.1 presents the annualized planning projections through FY 2006 based on the initial (that is, February 28, 1997) submission of the High and Low Planning Scenarios. Parts (a) and (b) of Table H.1 are in current year dollars, consistent with how the sites developed their estimates. These planning levels have been adjusted relative to what was submitted by the sites as discussed above. Parts (c) and (d) of Table H.1 have been corrected for inflation and are presented in constant FY 1998 dollars. These constant 1998 numbers are consistent with the numbers presented in Chapter 3 of this Discussion Draft.

Table H.1 Annual Planning Projections (as submitted by the Field with adjustments)

Table H.1(a) High Planning Scenario (Thousands of Current Year Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Albuquerque | \$ 351,161 | \$ 331,298 | \$ 242,954 | \$ 239,180 | \$ 229,501 | \$ 224,578 | \$ 188,194 | \$ 74,134 | \$ 47,252 |
| Chicago | \$ 48,949 | \$ 68,362 | \$ 38,392 | \$ 34,289 | \$ 32,403 | \$ 19,553 | \$ 2,396 | \$ 2,294 | \$ 1,913 |
| National Programs and Carlsbad | \$ 1,030,210 | \$ 1,012,327 | \$ 919,969 | \$ 907,562 | \$ 890,738 | \$ 860,504 | \$ 861,190 | \$ 846,731 | \$ 825,500 |
| Idaho | \$ 416,374 | \$ 449,052 | \$ 484,933 | \$ 518,039 | \$ 506,593 | \$ 500,173 | \$ 522,967 | \$ 558,768 | \$ 568,585 |
| Nevada | \$ 71,553 | \$ 71,975 | \$ 71,975 | \$ 71,975 | \$ 71,775 | \$ 71,575 | \$ 71,375 | \$ 71,175 | \$ 70,975 |
| Ohio | \$ 461,429 | \$ 517,480 | \$ 533,478 | \$ 549,290 | \$ 560,004 | \$ 572,577 | \$ 588,404 | \$ 604,277 | \$ 94,551 |
| Oakland | \$ 95,927 | \$ 99,096 | \$ 64,698 | \$ 65,010 | \$ 57,958 | \$ 51,311 | \$ 37,896 | \$ 34,681 | \$ 26,010 |
| Oak Ridge | \$ 772,221 | \$ 787,309 | \$ 779,370 | \$ 774,429 | \$ 778,124 | \$ 776,710 | \$ 779,179 | \$ 717,618 | \$ 630,209 |
| Rocky Flats | \$ 547,317 | \$ 550,157 | \$ 540,767 | \$ 540,767 | \$ 540,782 | \$ 537,578 | \$ 535,880 | \$ 538,523 | \$ 545,406 |
| Richland | \$ 1,063,965 | \$ 1,059,323 | \$ 1,052,339 | \$ 984,494 | \$ 1,030,720 | \$ 1,146,741 | \$ 1,211,194 | \$ 1,136,178 | \$ 1,028,034 |
| Savannah River | \$ 1,152,385 | \$ 1,211,856 | \$ 1,216,330 | \$ 1,247,707 | \$ 1,254,485 | \$ 1,285,170 | \$ 1,319,646 | \$ 1,356,065 | \$ 1,392,058 |
| Total | \$ 6,011,491 | \$ 6,158,237 | \$ 5,945,205 | \$ 5,932,743 | \$ 5,953,083 | \$ 6,046,469 | \$ 6,118,322 | \$ 5,940,444 | \$ 5,230,494 |

Table H.1(b) Low Planning Scenario (Thousands of Current Year Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Albuquerque | \$ 351,162 | \$ 303,895 | \$ 224,836 | \$ 223,711 | \$ 214,555 | \$ 209,632 | \$ 180,840 | \$ 139,921 | \$ 74,179 |
| Chicago | \$ 48,945 | \$ 46,749 | \$ 26,609 | \$ 28,485 | \$ 28,897 | \$ 28,878 | \$ 23,459 | \$ 19,545 | \$ 2,943 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 956,672 | \$ 882,327 | \$ 866,392 | \$ 845,234 | \$ 817,981 | \$ 815,466 | \$ 796,272 | \$ 763,575 |
| Idaho | \$ 387,967 | \$ 386,079 | \$ 411,991 | \$ 438,490 | \$ 425,365 | \$ 431,748 | \$ 521,200 | \$ 590,299 | \$ 580,005 |
| Nevada | \$ 65,553 | \$ 65,975 | \$ 65,975 | \$ 65,975 | \$ 65,775 | \$ 65,575 | \$ 65,375 | \$ 65,175 | \$ 64,975 |
| Ohio | \$ 412,705 | \$ 421,695 | \$ 427,444 | \$ 432,729 | \$ 432,630 | \$ 450,940 | \$ 456,062 | \$ 460,699 | \$ 283,823 |
| Oakland | \$ 95,927 | \$ 93,433 | \$ 60,245 | \$ 58,486 | \$ 56,833 | \$ 56,311 | \$ 50,996 | \$ 41,781 | \$ 26,510 |
| Oak Ridge | \$ 766,284 | \$ 719,234 | \$ 717,465 | \$ 711,570 | \$ 711,272 | \$ 710,707 | \$ 712,189 | \$ 653,261 | \$ 564,883 |
| Rocky Flats | \$ 555,276 | \$ 509,033 | \$ 453,451 | \$ 455,505 | \$ 457,269 | \$ 463,410 | \$ 461,756 | \$ 460,058 | \$ 472,206 |
| Richland | \$ 1,063,965 | \$ 1,059,323 | \$ 1,052,339 | \$ 984,494 | \$ 1,030,720 | \$ 1,146,741 | \$ 1,211,194 | \$ 1,136,178 | \$ 1,028,034 |
| Savannah River | \$ 1,152,385 | \$ 1,211,856 | \$ 1,216,330 | \$ 1,247,707 | \$ 1,254,485 | \$ 1,285,170 | \$ 1,319,646 | \$ 1,356,065 | \$ 1,392,058 |
| Total | \$ 5,913,821 | \$ 5,773,945 | \$ 5,539,012 | \$ 5,513,545 | \$ 5,523,036 | \$ 5,667,093 | \$ 5,818,183 | \$ 5,719,254 | \$ 5,253,192 |

Table H.1(c) High Planning Scenario (Thousands of Constant FY 1998 Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Albuquerque | \$ 351,161 | \$ 322,588 | \$ 230,347 | \$ 220,808 | \$ 206,301 | \$ 196,569 | \$ 160,392 | \$ 61,521 | \$ 38,182 |
| Chicago | \$ 48,949 | \$ 66,371 | \$ 36,188 | \$ 31,379 | \$ 28,790 | \$ 16,867 | \$ 2,007 | \$ 1,865 | \$ 1,510 |
| National Programs and Carlsbad | \$ 1,030,210 | \$ 985,713 | \$ 872,233 | \$ 837,847 | \$ 800,697 | \$ 753,183 | \$ 733,967 | \$ 702,672 | \$ 667,043 |
| Idaho | \$ 416,374 | \$ 437,247 | \$ 459,770 | \$ 478,245 | \$ 455,383 | \$ 437,792 | \$ 445,710 | \$ 463,702 | \$ 459,444 |
| Nevada | \$ 71,553 | \$ 70,083 | \$ 68,240 | \$ 66,446 | \$ 64,520 | \$ 62,648 | \$ 60,831 | \$ 59,066 | \$ 57,351 |
| Ohio | \$ 461,429 | \$ 503,875 | \$ 505,796 | \$ 507,096 | \$ 503,396 | \$ 501,166 | \$ 501,479 | \$ 501,468 | \$ 76,402 |
| Oakland | \$ 95,927 | \$ 96,491 | \$ 61,341 | \$ 60,016 | \$ 52,099 | \$ 44,912 | \$ 32,298 | \$ 28,781 | \$ 21,017 |
| Oak Ridge | \$ 772,221 | \$ 766,611 | \$ 738,929 | \$ 714,941 | \$ 699,467 | \$ 679,840 | \$ 664,071 | \$ 595,525 | \$ 509,238 |
| Rocky Flats | \$ 547,317 | \$ 535,693 | \$ 512,707 | \$ 499,228 | \$ 486,116 | \$ 470,532 | \$ 456,715 | \$ 446,901 | \$ 440,713 |
| Richland | \$ 1,063,965 | \$ 1,031,473 | \$ 997,734 | \$ 908,870 | \$ 926,529 | \$ 1,003,721 | \$ 1,032,264 | \$ 942,873 | \$ 830,699 |
| Savannah River | \$ 1,152,385 | \$ 1,179,996 | \$ 1,153,216 | \$ 1,151,864 | \$ 1,127,675 | \$ 1,124,885 | \$ 1,124,695 | \$ 1,125,350 | \$ 1,124,848 |
| Total | \$ 6,011,491 | \$ 5,996,335 | \$ 5,636,713 | \$ 5,477,018 | \$ 5,351,310 | \$ 5,292,363 | \$ 5,214,464 | \$ 4,929,760 | \$ 4,226,483 |

Table H.1(d) Low Planning Scenario (Thousands of Constant FY 1998 Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Albuquerque | \$ 351,162 | \$ 295,906 | \$ 213,170 | \$ 206,527 | \$ 192,866 | \$ 183,487 | \$ 154,125 | \$ 116,115 | \$ 59,940 |
| Chicago | \$ 48,945 | \$ 45,387 | \$ 25,082 | \$ 26,068 | \$ 25,675 | \$ 24,910 | \$ 19,647 | \$ 15,892 | \$ 2,323 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 931,521 | \$ 836,544 | \$ 799,840 | \$ 759,793 | \$ 715,964 | \$ 694,997 | \$ 660,797 | \$ 617,004 |
| Idaho | \$ 387,967 | \$ 375,929 | \$ 390,613 | \$ 404,807 | \$ 382,367 | \$ 377,901 | \$ 444,203 | \$ 489,868 | \$ 468,671 |
| Nevada | \$ 65,553 | \$ 64,241 | \$ 62,552 | \$ 60,907 | \$ 59,126 | \$ 57,397 | \$ 55,717 | \$ 54,086 | \$ 52,503 |
| Ohio | \$ 412,705 | \$ 410,609 | \$ 405,264 | \$ 399,489 | \$ 388,897 | \$ 394,699 | \$ 388,688 | \$ 382,317 | \$ 229,342 |
| Oakland | \$ 95,927 | \$ 90,977 | \$ 57,119 | \$ 53,993 | \$ 51,088 | \$ 49,288 | \$ 43,462 | \$ 34,673 | \$ 21,421 |
| Oak Ridge | \$ 766,284 | \$ 700,325 | \$ 680,236 | \$ 656,911 | \$ 639,372 | \$ 622,069 | \$ 606,978 | \$ 542,118 | \$ 456,452 |
| Rocky Flats | \$ 555,276 | \$ 495,651 | \$ 429,921 | \$ 420,516 | \$ 411,046 | \$ 405,614 | \$ 393,541 | \$ 381,786 | \$ 381,565 |
| Richland | \$ 1,063,965 | \$ 1,031,473 | \$ 997,734 | \$ 908,870 | \$ 926,529 | \$ 1,003,721 | \$ 1,032,264 | \$ 942,873 | \$ 830,699 |
| Savannah River | \$ 1,152,385 | \$ 1,179,996 | \$ 1,153,216 | \$ 1,151,864 | \$ 1,127,675 | \$ 1,124,885 | \$ 1,124,695 | \$ 1,125,350 | \$ 1,124,848 |
| Total | \$ 5,913,821 | \$ 5,622,147 | \$ 5,251,597 | \$ 5,090,021 | \$ 4,964,735 | \$ 4,960,302 | \$ 4,958,665 | \$ 4,746,202 | \$ 4,244,824 |

H.2 Preliminary Planning Projections (with Enhanced Performance Goals)

Table H.2 presents annual planning projections with the enhanced performance goals applied as discussed in Chapter 4. These planning levels also have been adjusted relative to what was submitted by the sites as discussed at the beginning of this attachment. The overall impact of achieving enhanced performance is the ability to accomplish additional work scope for a given planning level. This is the main mechanism that will permit accelerated cleanup.

In the process of developing the scenarios with enhanced performance it was necessary to address the cases in the initial site submissions where sites exceeded their allocation of the \$6.0 billion or \$5.5 billion per year ceiling. Therefore, the following tables include the necessary adjustments to meet the \$6.0 billion or \$5.5 billion per year limitation. Additionally, some shifting of planning levels among sites occurred to support the accelerated site closure objectives discussed in this report. Parts (a) and (b) of Table H.2 are shown in current year dollars; parts (c) and (d) are in constant 1998 dollars, consistent with the numbers discussed in Chapter 4.

Table H.2 Annual Planning Projections (with Enhanced Performance Goals)**Table H.2(a) High Planning Scenario with Enhanced Performance (Thousands of Current Year Dollars)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Albuquerque | \$ 315,146 | \$ 328,903 | \$ 242,954 | \$ 239,180 | \$ 229,501 | \$ 224,578 | \$ 188,194 | \$ 74,134 | \$ 47,252 |
| Chicago | \$ 50,564 | \$ 51,969 | \$ 38,392 | \$ 34,289 | \$ 32,403 | \$ 19,553 | \$ 2,396 | \$ 2,294 | \$ 1,913 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 1,009,869 | \$ 911,952 | \$ 896,017 | \$ 874,859 | \$ 847,606 | \$ 845,091 | \$ 825,897 | \$ 793,200 |
| Idaho | \$ 397,774 | \$ 408,826 | \$ 424,826 | \$ 428,826 | \$ 448,826 | \$ 465,826 | \$ 522,967 | \$ 558,768 | \$ 568,585 |
| Nevada | \$ 68,978 | \$ 70,895 | \$ 70,895 | \$ 70,895 | \$ 70,895 | \$ 85,895 | \$ 85,895 | \$ 85,895 | \$ 85,895 |
| Ohio | \$ 451,825 | \$ 517,540 | \$ 533,478 | \$ 549,290 | \$ 560,004 | \$ 572,577 | \$ 588,404 | \$ 604,277 | \$ 94,551 |
| Oakland | \$ 97,160 | \$ 99,859 | \$ 64,698 | \$ 65,010 | \$ 57,958 | \$ 51,311 | \$ 37,896 | \$ 34,681 | \$ 26,010 |
| Oak Ridge | \$ 751,274 | \$ 772,147 | \$ 772,147 | \$ 772,147 | \$ 772,147 | \$ 772,147 | \$ 772,147 | \$ 717,618 | \$ 630,209 |
| Rocky Flats | \$ 518,250 | \$ 582,649 | \$ 605,000 | \$ 555,000 | \$ 555,000 | \$ 555,000 | \$ 555,000 | \$ 499,297 | \$ 450,341 |
| Richland | \$ 988,186 | \$ 1,021,123 | \$ 1,021,123 | \$ 984,494 | \$ 1,021,123 | \$ 1,021,123 | \$ 1,021,123 | \$ 1,021,123 | \$ 1,021,123 |
| Savannah River | \$ 1,110,837 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 | \$ 1,136,220 |
| Total | \$ 5,763,646 | \$ 6,000,000 | \$ 5,821,685 | \$ 5,731,369 | \$ 5,758,936 | \$ 5,751,836 | \$ 5,755,334 | \$ 5,560,204 | \$ 4,855,300 |

Table H.2(b) Low Planning Scenario with Enhanced Performance (Thousands of Current Year Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Albuquerque | \$ 315,146 | \$ 301,434 | \$ 224,836 | \$ 223,711 | \$ 214,535 | \$ 209,632 | \$ 180,840 | \$ 139,921 | \$ 74,179 |
| Chicago | \$ 50,564 | \$ 46,749 | \$ 26,609 | \$ 28,485 | \$ 28,897 | \$ 28,878 | \$ 23,459 | \$ 19,545 | \$ 2,943 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 956,672 | \$ 882,327 | \$ 866,392 | \$ 845,234 | \$ 817,981 | \$ 815,466 | \$ 796,272 | \$ 763,575 |
| Idaho | \$ 397,774 | \$ 380,467 | \$ 380,467 | \$ 380,467 | \$ 380,467 | \$ 380,467 | \$ 380,467 | \$ 380,467 | \$ 380,467 |
| Nevada | \$ 68,978 | \$ 65,975 | \$ 65,975 | \$ 65,975 | \$ 65,775 | \$ 65,575 | \$ 65,375 | \$ 65,175 | \$ 64,975 |
| Ohio | \$ 451,825 | \$ 421,695 | \$ 427,444 | \$ 432,167 | \$ 432,167 | \$ 432,167 | \$ 432,167 | \$ 432,167 | \$ 283,823 |
| Oakland | \$ 97,160 | \$ 92,933 | \$ 60,245 | \$ 58,486 | \$ 56,833 | \$ 56,311 | \$ 50,996 | \$ 41,781 | \$ 26,510 |
| Oak Ridge | \$ 751,274 | \$ 718,587 | \$ 717,465 | \$ 711,570 | \$ 711,272 | \$ 710,797 | \$ 712,189 | \$ 653,261 | \$ 564,883 |
| Rocky Flats | \$ 518,250 | \$ 495,702 | \$ 453,451 | \$ 455,505 | \$ 457,269 | \$ 463,410 | \$ 461,756 | \$ 460,058 | \$ 472,206 |
| Richland | \$ 988,186 | \$ 950,755 | \$ 950,755 | \$ 950,755 | \$ 950,755 | \$ 950,755 | \$ 950,755 | \$ 950,755 | \$ 950,755 |
| Savannah River | \$ 1,110,837 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 | \$ 1,056,942 |
| Total | \$ 5,763,646 | \$ 5,487,911 | \$ 5,246,516 | \$ 5,230,455 | \$ 5,200,166 | \$ 5,172,825 | \$ 5,130,412 | \$ 4,996,344 | \$ 4,641,258 |

Table H.2(c) High Planning Scenario with Enhanced Performance (Thousands of Constant FY 1998 Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Albuquerque | \$ 315,146 | \$ 320,256 | \$ 230,347 | \$ 220,808 | \$ 206,301 | \$ 196,569 | \$ 160,392 | \$ 61,521 | \$ 38,182 |
| Chicago | \$ 50,564 | \$ 50,603 | \$ 36,400 | \$ 31,655 | \$ 29,128 | \$ 17,114 | \$ 2,042 | \$ 1,904 | \$ 1,546 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 983,319 | \$ 864,632 | \$ 827,189 | \$ 786,423 | \$ 741,894 | \$ 720,246 | \$ 685,382 | \$ 640,943 |
| Idaho | \$ 397,774 | \$ 398,078 | \$ 402,782 | \$ 395,886 | \$ 403,456 | \$ 407,729 | \$ 445,710 | \$ 463,702 | \$ 459,444 |
| Nevada | \$ 68,978 | \$ 69,031 | \$ 67,216 | \$ 65,449 | \$ 63,729 | \$ 75,182 | \$ 73,206 | \$ 71,281 | \$ 69,407 |
| Ohio | \$ 451,825 | \$ 503,934 | \$ 505,796 | \$ 507,096 | \$ 503,396 | \$ 501,166 | \$ 501,479 | \$ 501,468 | \$ 76,402 |
| Oakland | \$ 97,160 | \$ 97,234 | \$ 61,341 | \$ 60,016 | \$ 52,099 | \$ 44,912 | \$ 32,298 | \$ 28,781 | \$ 21,017 |
| Oak Ridge | \$ 751,274 | \$ 751,847 | \$ 732,081 | \$ 712,834 | \$ 694,094 | \$ 675,846 | \$ 658,078 | \$ 595,525 | \$ 509,238 |
| Rocky Flats | \$ 518,250 | \$ 567,331 | \$ 573,607 | \$ 512,368 | \$ 498,897 | \$ 485,781 | \$ 473,010 | \$ 414,349 | \$ 363,897 |
| Richland | \$ 988,186 | \$ 994,278 | \$ 968,138 | \$ 908,870 | \$ 917,902 | \$ 893,770 | \$ 870,273 | \$ 847,393 | \$ 825,115 |
| Savannah River | \$ 1,110,837 | \$ 1,106,349 | \$ 1,077,263 | \$ 1,048,941 | \$ 1,021,364 | \$ 994,512 | \$ 968,367 | \$ 942,908 | \$ 918,119 |
| Total | \$ 5,763,646 | \$ 5,842,259 | \$ 5,519,602 | \$ 5,291,113 | \$ 5,176,789 | \$ 5,034,476 | \$ 4,905,100 | \$ 4,614,213 | \$ 3,923,309 |

Table H.2(d) Low Planning Scenario with Enhanced Performance (Thousands of Constant FY 1998 Dollars)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Albuquerque | \$ 315,146 | \$ 293,509 | \$ 213,170 | \$ 206,527 | \$ 192,866 | \$ 183,487 | \$ 154,125 | \$ 116,115 | \$ 59,940 |
| Chicago | \$ 50,564 | \$ 45,520 | \$ 25,228 | \$ 26,297 | \$ 25,976 | \$ 25,276 | \$ 19,993 | \$ 16,220 | \$ 2,378 |
| National Programs and Carlsbad | \$ 1,013,652 | \$ 931,521 | \$ 836,544 | \$ 799,840 | \$ 759,793 | \$ 715,964 | \$ 694,997 | \$ 660,797 | \$ 617,004 |
| Idaho | \$ 397,774 | \$ 370,464 | \$ 360,725 | \$ 351,241 | \$ 342,007 | \$ 333,016 | \$ 324,261 | \$ 315,736 | \$ 307,495 |
| Nevada | \$ 68,978 | \$ 64,241 | \$ 62,552 | \$ 60,907 | \$ 59,126 | \$ 57,397 | \$ 55,717 | \$ 54,086 | \$ 52,303 |
| Ohio | \$ 451,825 | \$ 410,609 | \$ 405,264 | \$ 398,970 | \$ 388,897 | \$ 378,268 | \$ 368,323 | \$ 358,640 | \$ 229,342 |
| Oakland | \$ 97,160 | \$ 90,490 | \$ 57,119 | \$ 53,993 | \$ 51,088 | \$ 49,288 | \$ 43,462 | \$ 34,673 | \$ 21,421 |
| Oak Ridge | \$ 751,274 | \$ 699,695 | \$ 680,236 | \$ 656,911 | \$ 639,372 | \$ 622,069 | \$ 606,978 | \$ 542,118 | \$ 456,452 |
| Rocky Flats | \$ 518,250 | \$ 482,670 | \$ 429,921 | \$ 420,516 | \$ 411,046 | \$ 405,614 | \$ 393,541 | \$ 381,786 | \$ 381,565 |
| Richland | \$ 988,186 | \$ 925,759 | \$ 901,421 | \$ 877,723 | \$ 854,647 | \$ 832,178 | \$ 810,300 | \$ 788,997 | \$ 768,254 |
| Savannah River | \$ 1,110,837 | \$ 1,029,155 | \$ 1,002,098 | \$ 975,753 | \$ 950,100 | \$ 925,122 | \$ 900,800 | \$ 877,118 | \$ 854,058 |
| Total | \$ 5,763,646 | \$ 5,343,633 | \$ 4,974,279 | \$ 4,828,677 | \$ 4,674,503 | \$ 4,527,678 | \$ 4,372,498 | \$ 4,146,286 | \$ 3,750,353 |

ATTACHMENT I: LIST OF HIGH-VISIBILITY ENVIRONMENTAL MANAGEMENT PROJECTS/SYSTEMS

| List of High-Visibility Environmental Management Projects/Systems | |
|---|---|
| OFFICE | PROJECT/SYSTEM |
| Albuquerque | <ul style="list-style-type: none"> • Pinellas |
| Carlsbad Albuquerque Idaho Rocky Flats | <ul style="list-style-type: none"> • Transuranic Waste System |
| Idaho | <ul style="list-style-type: none"> • High-Level Waste System • Advanced Mixed Waste Treatment Facility • Pit 9 Federal Facility Agreement/Consent Order Interim Action • Spent Nuclear Fuel Program |
| Nevada | <ul style="list-style-type: none"> • Underground Test Area Environmental Restoration |
| Oak Ridge | <ul style="list-style-type: none"> • K-25 Process Deactivation and Decommissioning |
| Ohio | <ul style="list-style-type: none"> • West Valley Demonstration Project • Fernald Silos • Miamisburg (Mound) |
| Richland | <ul style="list-style-type: none"> • High-Level Waste System • Transition Program • K-Basin Spent Nuclear Fuel |
| Rocky Flats | <ul style="list-style-type: none"> • Special Nuclear Material Stabilization • 771/774 Cluster Closure • Industrial Zone Closure • Safeguards and Security • Waste Management Project |
| Savannah River | <ul style="list-style-type: none"> • High-Level Waste System • Canyon Stabilization |

This page is intentionally left blank.