

PLANNING FOR DOE'S EVOLVING ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT PROGRAM

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ABSTRACT

The Department's Environmental Restoration and Waste Management Program is facing a significant challenge to effectively plan and manage a program which has undergone rapid growth in scope and funding since its inception in 1989. The program has inherited an assortment of problems, the scope of which the Department is only now beginning to comprehend and the solutions to which are still to be found. Planning for the program requires aggressively adhering to the Department's formal but still evolving planning process while putting in place key planning elements necessary for the program's success. Paramount in the planning arena is the annual update of the Five-Year Plan. Planning elements being put in place to support EM in its Five-Year Planning include: an updated Strategic Plan to identify key strategies necessary to meet the long-range goals of the program; "Roadmaps" to assist in identifying and resolving issues that can block the successful completion of the EM mission; and policy planning to ensure critical issues are adequately identified and addressed.

INTRODUCTION

Anticipating future events and planning responsive programs has been a challenge for DOE's Environmental Restoration and Waste Management (EM) Program since its inception. The need for a more comprehensive approach to the environmental problems facing the DOE complex led to a re-evaluation of the small, uncoordinated efforts underway before EM was formed. The process established under the first Five-Year Plan signalled the advent of a new, comprehensive approach to planning at DOE. This approach has evolved over time, but has also uncovered some inherent problems within the EM process. As the program continues to mature and expand the scope of its mission, the challenge for DOE will be to adapt quickly to new problems through proactive planning and innovative technology.

EM's ROOTS

Strategic planning as used by EM today has developed as the EM program has matured. The origins of the program date back to the 1970s, when waste management activities were still subordinated to DOE's primary mission of weapons production, and the President's Stockpile Memorandum was the key annual planning document. Although there were some early environmental initiatives--such as defense and civilian Decontamination and Decommissioning (D&D) and attempts at addressing Uranium Mill Tailings issues--these efforts were viewed solely as support activities, and their planning was integrated into the production mission. Buried as they were under the larger, more prominent projects, waste management activities received low priority and low visibility. It was not until 1983 that, at the suggestion of Senator Henry M. Jackson (D-Wash.), a national waste management pro-

gram was mapped out in the Defense Waste Management Plan.

In the mid-to-late 1980s, attention began to focus on DOE's environmental restoration responsibilities, particularly within the Defense complex. The 1988 Defense Authorization Act established a program to begin cleanup of environmental contamination across all DOE facilities. That same year, DOE, at the request of Senator John Glenn (D-Ohio), completed a report examining the environmental problems within the complex. This report attempted to identify all of the activities, and their life-cycle costs, required to clean up contamination at DOE sites. The potential scale of the project detailed by the "Glenn Report" prompted an examination of DOE's non-defense activities. The so-called "Salgado Report" was the first attempt to address DOE's massive environmental problems, but, like the Glenn report, it was limited by the lack of a strong planning base.

In March 1989, recognition of the inherent planning weaknesses in these two documents led the new Secretary of Energy, Admiral James Watkins, to require the creation of the first Five-Year Plan for Environmental Restoration and Waste Management. A major innovation of this new five-year planning process was to detail, in one plan, all of the near-term activities necessary to bring the defense and major non-defense complexes into compliance. The Plan was based on a "bottoms up" approach to planning, and used Activity Data Sheets (ADSs) to collect data at the installation level. These ADSs have accompanied each successive Five-Year Plan. Another major feature of the first Five-Year Plan was DOE's commitment to a 30-year goal for cleanup of the 1989 inventory of inactive sites. This goal was established largely in response to recommendations from the State and Tribal Government Working Group (STGWG).

An important and logical next step for DOE was to create a mechanism to implement its newly developed Five-Year Plan. To this end, in November 1989, three months after the Plan's publication, DOE established the Office of Environmental Restoration and Waste Management (EM). Changes to EM's planning process began almost as soon as the program came into being. For example, the goals committed to in the Five-Year Plan highlighted a need for improved technology. EM therefore responded by incorporating a separate, detailed Technology Development section in the following year's Five-Year Plan. Moreover, the Office of Technology Development is now a cornerstone of the EM program.

As the mission of many DOE sites changed from weapons production to environmental restoration, EM's responsibilities were soon expanded to include management of two major DOE sites, Fernald and Hanford, and "landlord" activities at several other major sites. Starting with only Waste Management responsibilities, the EM Program has grown to include Environmental Restoration, Technology Development and Decontamination and Decommissioning (see Fig. 1). Funding has likewise increased until it now represents over 27 percent of DOE's budget, resulting in additional Office of Management and Budget (OMB) and Congressional scrutiny.

In light of the changes taking place in global security (i.e., the end of the Cold War), EM is anticipating further growth and changes to its mission. A major focus of DOE is to ensure that sites are handled in an environmentally sound manner. For instance, EM's expanding D&D Program is an attempt to ensure that surplus facilities do not become future environmental problems. As the number of DOE sites undergoing D&D increases, EM's responsibilities will necessarily increase. In addition, DOE laboratories can also expect to play a larger role in addressing the technology problems associated with EM's mission.

CURRENT EM PLANNING PROCESS

EM planning has evolved to a point where we can focus on the program "drivers," the underlying problems and desired outcomes, rather than simply addressing the surface issues. Major innovations in EM's planning during 1991 and 1992 have focused on the "front end," or the strategic part, of EM's planning process. One major initiative begun last year, Strategic Planning, has already become a major element of the EM process. EM's Strategic Plan is incorporated into the Five-Year Plan and outlines the major thrusts of the program's policies (see Fig. 2). The EM Strategic Plan and the

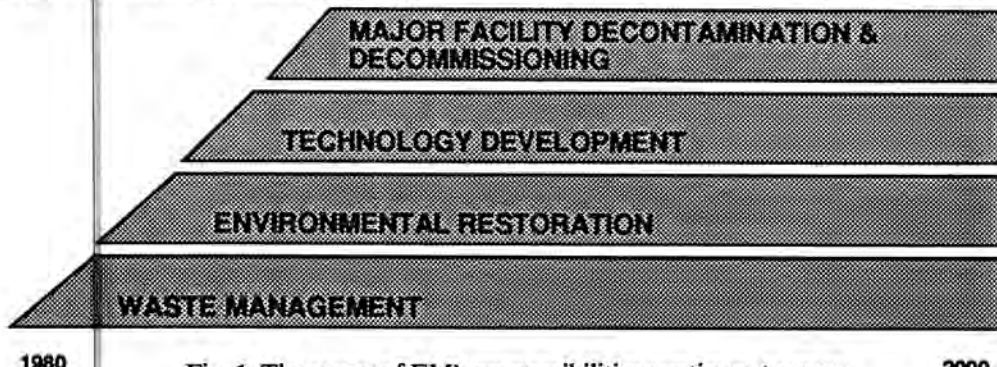


Fig. 1. The scope of EM's responsibilities continues to grow.

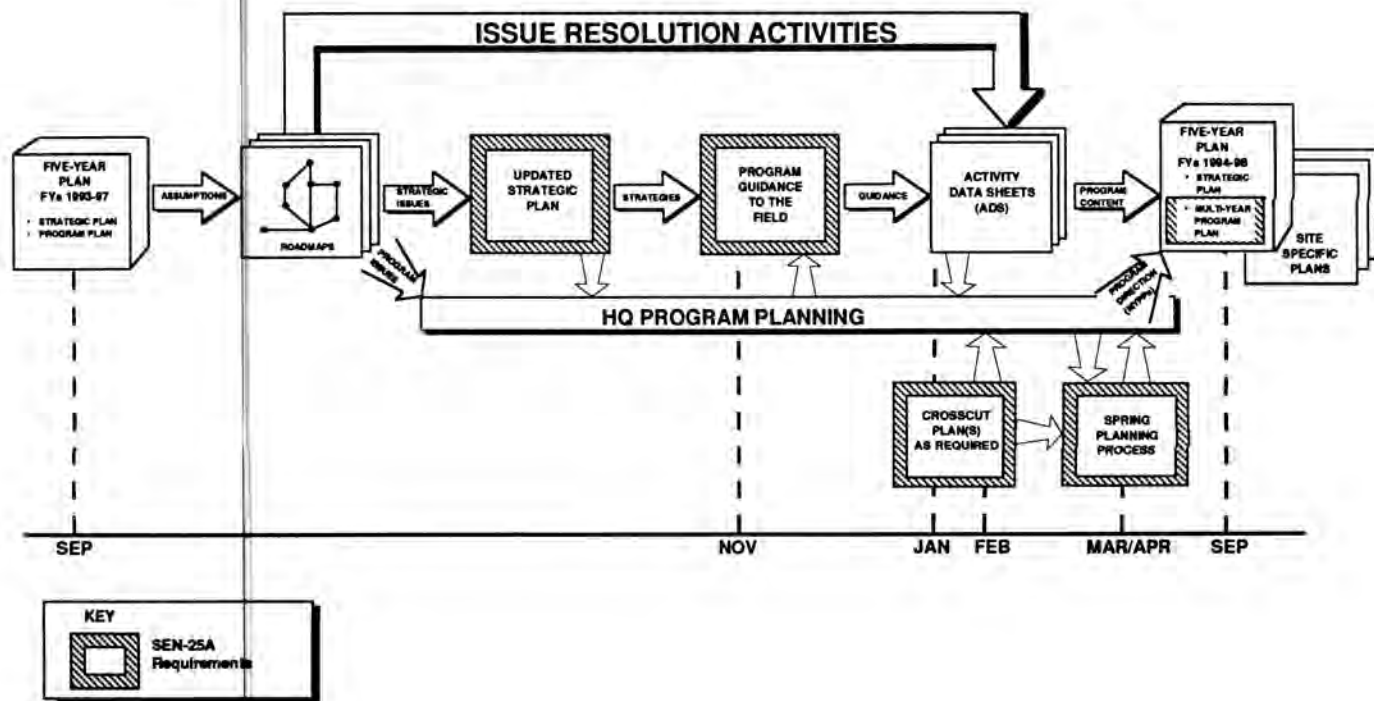


Fig. 2. Current EM planning activities are integrated by the five-year planning process.

EM-30, EM-40, and EM-50 multiyear program plans are designed to support the DOE-wide planning activities requested by the Secretary of Energy, and described in a Secretary of Energy Notice (SEN-25A).

At the corporate EM level, a major revision to the Strategic Plan--identification of seven major program objectives--has just been completed. The objectives, as they will be stated in this year's Five-Year Plan, are as follows:

1. **Credible Decisionmaking through Sound Planning:** Improve the credibility and effectiveness of DOE decisionmaking through an integrated, documented planning process that incorporates anticipated land-use decisions and significant opportunities for public participation.

A critical challenge to be met is reconciling land-use planning with NEPA and CERCLA requirements. One element of EM's approach to this is a cooperative effort with the program's stakeholders to define and put in place acceptable land-use methodologies.

2. **Facilities Transfer, Conversion, and Decommissioning:** Recycle, transfer, convert, decontaminate, and decommission facilities and sites to accommodate DOE's rapidly changing mission and priorities.

The contraction and consolidation of the DOE weapons complex is dramatically expanding the scope and size of this effort. Management of this growing workload will be guided by a total-systems planning approach, with particular emphasis on maximum recycling of existing facilities.

3. **Eliminate Unacceptable Risk:** Clean up all surplus facilities and inactive sites, and treat, store, and dispose of hazardous, radioactive, and mixed waste so that unacceptable risk to the environment, public, and worker health and safety is neither posed nor remains. A major stumbling block is the lack of agreed-to definitions of "acceptable risk" and "how clean is clean." Achieving agreement will require the active participation of independent, nationally recognized experts and a close, cooperative, and open working relationship between EM and its stakeholders.

4. **Regulatory Compliance:** Bring all DOE facilities and sites into, and operate them in, compliance with applicable laws, regulations, and agreements aimed at protecting public health, worker safety, and the environment.

Success on this objective will require, among other things, development of national cleanup priorities and standards based on risk. EM's approach entails constructive involvement of STGWG, affected local publics, and other stakeholders in compliance-related activities.

5. **Pollution Prevention:** Build pollution prevention, including waste minimization, recycling, and reuse of materials, into all EM activities.

Activities in support of this objective must be designed to support all relevant facets of the National Energy Strategy. To this end, EM is leading a DOE-wide waste-minimization/pollution prevention planning effort to establish an aggressive program throughout the Department.

6. **Infrastructure:** Ensure sufficient infrastructure to complete EM's mission by effectively estimating, developing, and providing the program's human-resource and capital-asset requirements.

A key obstacle to meeting this objective is the continuing shortage of qualified personnel. EM is developing broad-spectrum outreach and education programs to support its long-term human resource requirements.

7. **Efficient Use of Resources:** Aggressively pursue innovative approaches to development, acquisition, and management of resources.

To meet this objective, EM is continually making improvements in its program planning, analysis, and management systems and methods, laying particular emphasis on an improved process for prioritizing program needs and resource reallocations.

Strategic plans are also being developed at the EM-30, EM-40, and EM-50 level, including a planning effort focusing on Department-wide waste minimization. In addition, DOE is applying lessons learned in the Five-Year Plan in the development of a DOE-wide Health and Safety Five-Year Plan. In many regards analogous to the EM Five-Year Plan, the plan for Health and Safety will address key issues facing EM and other DOE programs.

Another recent innovation in the EM planning process is the development of Roadmaps, which are designed to allow better planning by highlighting obstacles to program success at the installation level. First piloted at four sites in 1991, EM expanded the roadmap concept nationwide in 1992. Roadmaps are systematic, site-specific plans which form a bridge between the broader level strategic planning and activity-based program planning. Roadmaps focus on the key environmental restoration and waste management objectives of EM's field offices and are designed to help determine technological, financial, and human resource needs. Roadmaps facilitate a planning process by which EM can identify actions to be taken and issues to resolve that define where we are and how to get to where we want to be. Findings from the Roadmap process include:

1. Joint planning between EM-30 and EM-40 is required for Treatment/Storage/Disposal of waste. Joint planning is also necessary between the Waste Management and Environmental Restoration field programs to ensure facilities will be available to handle waste from Environmental Restoration cleanup activities.
2. It is necessary to clearly identify where the waste streams from each site will be treated and disposed.
3. Analytical laboratory capability is available to support all DOE facilities.
4. Consistent milestones and Interagency Agreements are needed among Activity Data Sheets, Site Specific Plans, baselines and Roadmaps.

The nationwide roadmapping effort is phased over an 18-month period to provide information to national waste-stream specific analyses. These crosscut analyses will identify programmatic issues affecting the complex as a whole and will assist EM in the planning of the ultimate configuration of the waste complex.

Further planning efforts include the Programmatic Environmental Impact Statement (PEIS) and the related Weapons

Complex Configuration Study, which are designed to address many of the issues confronting the program's planning process. In 1991, management of the PEIS and the Configuration Study was raised to the Assistant Secretary level in recognition of their importance in guiding the program. EM is looking to the PEIS as a key mechanism for addressing the major policy issues confronting the program. The emphasis placed on full public involvement in the National Environmental Policy Act serves as an example for EM to follow and could assist in the PEIS process in gaining public input. EM sites, such as Hanford, also have been developing mission or master plans, and have been actively seeking stakeholder involvement in their development.

In addition to these major "front end" initiatives, EM has also been focusing on the "back end" of the process. The FY 1993-1997 Five-Year Plan placed greater emphasis on progress tracking. To provide a clearer understanding of the program's accomplishments, EM provided a National Planning Chart, which conceptually lays out the major phases of the program over time (see Fig. 3). As displayed in the Five-Year Plan, most of the EM program activities on the National Planning Chart are associated with the near-term phases of the program. Thus, many of the accomplishments in the restoration program are described as assessment and characterization efforts, while progress in the area of waste management is for the most part described in terms of provision of permitted storage facilities. The programs are also initiating efforts for stabilizing waste, carrying out closures to reduce near-term health risks, and planning for longer term treatment and disposal.

Another feature added to the FY 1993-1997 Five-Year Plan are Progress Charts, which identify the major commitments necessary to achieve the objectives of the specified planning period. Provided for each major installation, as well as the national program, Progress Charts will be used in the FY 1994-1998 Plan to show EM successes in meeting prior

commitments. Accomplishments, plans, and funding levels are also provided in the Five-Year Plan Installation Summaries.

In order to establish a method for tracking progress over time, a major program emphasis has been the new Progress Tracking System (PTS). The PTS will enable EM to tie expenditures to planned activities at the ADS level, thus tying program execution and planning closer together.

Further innovations, some of which were started in 1991, but will continue into 1992, are designed to improve the cost and scheduling underpinnings of EM's planning. The most significant of these include baselining efforts in the restoration program, independent cost review requirements, and use of independent cost quality management audit teams.

Despite weaknesses that have surfaced over the years, the Five-Year Plan has proven to be a viable and valuable tool for addressing DOE's environmental problems. In recognition of its usefulness, Congress has adopted the Five-Year Plan in the FY 1992-1993 Defense Authorization Act. This legislation mandates annual updating of the Five-Year Plan and provides funding for EM to achieve some of its near- and long-term goals.

TRENDS

Both the "front end" and "back end" innovations that have been, or are being, implemented by EM are designed to help the program fulfill its mission. But, as EM's mission continues to expand and include more activities, further innovations will be needed to keep pace. EM is already anticipating future trends, some that might be caused by external forces and some the direct result of current policies. As discussed above, a major trend that has been heavily influenced by external forces is the impact that changes in the Nuclear Weapons Complex will have on the scope of EM's mission.

Discussion of DOE's Nuclear Weapons Complex and consideration of RCRA and CERCLA requirements

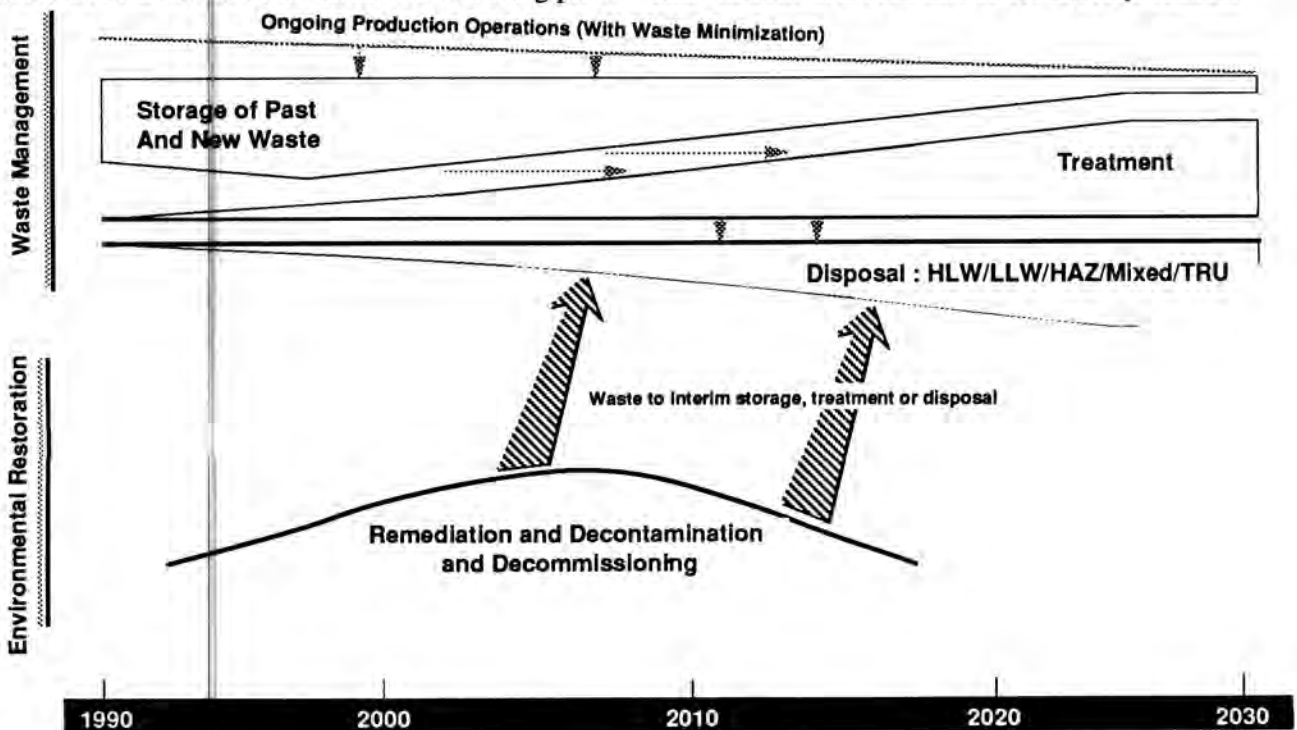


Fig. 3. National planning chart shows the EM long-range plan to treat and dispose of waste from prior storage, current production operations, remediation, and D&D.

naturally raises a number of land use issues. The more land within the DOE Complex that is turned over to EM for D&D, the greater the need to determine what to do with the land once it has been restored. The ultimate use of DOE lands can have a significant effect on the risks associated with remaining contaminants. Cleanup costs are also greatly affected by the level of restoration sought. In recognition of the importance of these issues, the Secretary directed EM to focus on the development of land use options in future Five-Year Plans. Therefore, one of EM's objectives is to stimulate public discussions concerning future land uses so that decisions concerning cleanup and waste management activities are kept consistent with agreed-upon uses.

Another developing trend is an emphasis on pollution prevention, which owes more to internal DOE initiative than outside forces. EM realizes that, without a priority on recycling and reuse, it faces a real possibility of creating mountains of slightly contaminated material as it fulfills its D&D mission. Also, the need, and opportunity, for pollution prevention was heavily stressed by the Weapons Complex Reconfiguration Study.

Due to the changing nature of the EM environment and the trends that are anticipated, it is clear that EM needs to look at its program on a broader level. EM already covers Defense Programs, Nuclear Energy, and Energy Research Programs in its Five-Year Plan, and closer cooperation between civil and defense waste programs, particularly with respect to technology development and waste treatment and disposal, would further enhance the program's effectiveness. Other federal agencies, such as the Department of Defense (DOD), share similar issues and expertise with DOE, and both agencies could benefit from joint planning efforts. DOE is currently participating with DOD in a number of planning-related discussions, most significantly the "Keystone Dialogue," and future cooperation seems highly probable. The international community, particularly the republics of the former Soviet Union, could also be a likely candidate for future cooperative cleanup efforts. DOE must be prepared and willing to offer guidance to international efforts based on its experiences developing and implementing the Five-Year Plan.

CONCLUSION

Although planning for EM has made for a challenging three years, we have learned a number of lessons that will help assure future success. We have learned that the legal issues underlying our program efforts play a dominant role in our

planning. The legal drivers behind any future activities will have to be carefully scrutinized before EM plans can be drafted or implemented. We recognize that we are mandated to include the costs of all legally required activities in our annual budget process. Therefore, ensuring that the legal underpinnings of all activities are understood and complied with is crucial to the success of EM planning.

Another key to future program success is to ensure stakeholder involvement in EM planning. While EM has been aggressively promoting public involvement in its planning process, we realize that our efforts are not moving fast enough. STGWG, the premier mechanism for external involvement at the national level, has proven to be a valuable channel for incorporating new and different perspectives on EM plans. We have made firm commitments to continue working closely with STGWG and to expand its role in the planning process.

Another excellent source of outside involvement at the national level has been the Stakeholders Forum, which includes representatives with a wide spectrum of viewpoints. In addition, public meetings are held in the field to discuss Site-Specific Plans and at other important junctures in the planning process. The impending creation of an Advisory Board to focus on PEIS issues ensures even greater external involvement in the planning process.

Future efforts in the realm of public participation will concentrate on building public involvement at the local level. Guidance for the FY 1994-1998 Five-Year Plan incorporated a requirement for public involvement, but allowed each field office to tailor its own program. As a result, we are seeing proposals for a wide variety of public involvement activities. In addition, EM plans make Roadmaps available and we anticipate that, as the Roadmapping process matures, public participation will increase and be incorporated earlier in Roadmap development.

Finally, perhaps the most important planning lesson EM has learned in its three-year history is the need for proactive planning. As discussed above, DOE has experienced tremendous change in the environmental arena and can expect a great deal more as its complex continues to evolve. These constant changes make planning very difficult; however, they are also the reason planning is so essential to the EM program. If EM is to fulfill its mission by 2019, it must anticipate such changes and map out strategies for dealing with them before they occur. A proactive approach to planning is the best way to ensure that EM meets all of its current and future commitments.