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STREAMLINING INITIATIVES:

IMPACT ON FEDERAL FACILITIES CLEANUP PROCESS

Final Draft

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EXECUTIVE SUMMARY: NEW DIRECTIONS IN FEDERAL FACILITIES CLEANUPS

Purposes of Report

Over the past 6 years, the U.S. Environmental Protection Agency (EPA) and Federal Facilities (Department of Defense (DOD) and Department of Energy (DOE)) have undertaken a number of initiatives designed to streamline the cleanup of contaminated sites. A variety of pilot studies and demonstration projects related to these initiatives have taken place to demonstrate cost and time savings, and quality improvements resulting from these initiatives. Taken together, these various initiatives offer a potential new framework -- consistent with existing laws and regulations -- to speed the cleanup of Federal (and private) Superfund Facilities.

The purposes of this report are:

1. To review some of these innovative projects/programs/initiatives and to examine both the manner and the degree to which they have successfully changed and/or streamlined the traditional Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at Federal Facilities.

2. To compare each initiative to issues/problems and streamlining recommendations identified in major reports on cleanup at Federal Facilities prepared by various organizations. The purpose of this comparison is, in part, to determine the progress being made in responding to the many thoughtful ideas and suggestions for improvement articulated by various individuals and groups interested in accelerating the cleanup of Federal Facilities.

3. To increase the reader's comfort level with the initiatives reviewed as viable alternatives for implementation of cleanups at Federal Facilities, and to provide insights as to how impediments may be overcome.

4. To facilitate information transfer among EPA and the Federal Facilities to encourage the spread of innovative ideas.

Findings

Common Themes of the Initiatives

Many initiatives addressed by EPA and the Federal Facilities have related themes. In addition, taken together, these initiatives serve to structure and focus the development of effective data quality objectives (DQOs). The themes addressed by the initiatives include:

- **Collaborative Decision-Making:** use of partnering as a foundation for CERCLA decisions;
- **Risk Screening; Early Focus on Remedies:** supports early actions;
- **Early Actions/Faster Decisions:** undertaking a variety of early actions through removal and interim remedial actions as information becomes available. Phased responses with contingency planning to support rapid action taken concurrently with on-going studies;
- **Process Standardization:** use of generic approaches that standardize parts of the process;
- **Regulatory Integration:** integration of regulatory authorities (e.g., RCRA/CERCLA) to support bureaucratic efficiencies; and
- **Technical Tools:** specific technical means by which the efficiency of the CERCLA process is enhanced.

Effectiveness of Initiatives in Addressing Streamlining Recommendations

Over the last 7 years, numerous committees and panels have recommended a host of suggestions for both legislative and process reforms to improve efficiency and to make the cleanup of contaminated sites more cost effective. Recommendations contained in five major reports were reviewed for this study. A comparison of the initiatives in this study to the many process improvement recommendations contained in various reports of these committees shows that taken together, the initiatives have addressed a majority of the recommendations. Chapter 2 provides a detailed review of the recommendations and how the initiatives address them.

Numerous streamlining recommendations in the five studies analyzed addressed streamlining through improved funding flexibility and continuity. The review of existing initiatives indicates that this area may not have changed greatly. Only one contracting initiative was reviewed for this study -- Performance-Based Contracting. Unlike funding, however, a great deal of attention has been paid to improving the contracting process to streamline cleanup, and numerous reforms are being developed and implemented. Because most contracting initiatives are designed to remove problems in the contracting process that create impediments to the CERCLA process, these initiatives are not addressed in this study.

Criteria for Selecting Initiatives

The criteria used to select initiatives and projects for evaluation in this study included the following:

- The initiative must be recognized, advocated, and provided with sufficient resources at either the site, regional, or headquarters level of the agency responsible for its implementation.
- The initiative must have explicit objectives of saving either time or money or both and/or streamlining the traditional CERCLA process.[1]
- The initiative must have been implemented at one or more facilities and must be far enough along in the implementation to have begun to document or estimate time and cost savings and process changes.[2]

List of Initiatives Reviewed in This Study

The following table lists the 16 initiatives included in this study and the agencies primarily responsible for their development and/or implementation. All of these initiatives were developed in cooperation with the U.S. EPA. In turn, the EPA initiatives have served as a platform for the development of streamlining approaches by other Federal agencies.

Initiative	Responsible Agency(s)
Partnering	Department of Defense, U.S. Navy
Streamlined Oversight	U.S. Air Force, Air Combat Command
Base Closure Teams: Fast-Track Cleanup	Department of Defense
Soil Screening Framework	U.S. EPA Headquarters

[1] Many recommendations for improving cleanup of Federal Facilities cleanups have focused on flexible funding, contracting reforms, and public involvement. Initiatives associated with these issues are not the focus of this study and, therefore, are not addressed. Only those initiatives that change or streamline the basic CERCLA process were reviewed.

[2] One exception to this is the initiative called Preferred Alternatives Matrices (PAMs). Although not yet implemented, it was reviewed and included in this study because DOE has spent considerable resources developing the conceptual framework for the initiative. It appears to have considerable streamlining potential and is expected to be implemented soon.

Initiative	Responsible Agency(s)
Rational National Standard Initiative (RNSI)	U.S. Air Force, Air Combat Command
Land Use Guidance	U.S. EPA Headquarters
Superfund Accelerated Cleanup Model (SACM)	U.S. EPA Headquarters
SAFER Initiative	Department of Energy
Presumptive Remedies	U.S. EPA Headquarters
Presumptive Remedy Engineering Evaluation Cost Analysis (PREECA)	U. S. Air Force, Air Combat Command
Preferred Alternative Matrices (PAMs)	Department of Energy
Plug-in Records of Decision (RODs)	U.S. EPA, Region 9 Pilots
RCRA/CERCLA Integration	U.S. EPA, Headquarters
Lead Agency Division of Labor	U.S. EPA, Region 10 Pilot
Environmental Data Management and Decision Support (EDMDS)	U.S. Air Force, Air Combat Command
Performance Based Contracting	Department of Energy and Department of Defense

Documented and Estimated Time and Cost Savings

A wide range of time and cost savings have been documented for the various initiatives; however, it is difficult to use these numbers for any comparative analyses among the initiatives because so many different factors and variables affect the savings calculations. Examples of time and cost savings associated with some of the initiatives include the following:

- In general, the Air Force estimates that up to 19 months and $500,000 per site can be saved by using the *Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA) Initiative* compared to conventional removal action procedures.

- DOE estimates that EPA's *RCRA/CERCLA Integration Initiative* will save about $20,000 per decision document and can reduce the duration from Remedial Investigation (RI) initiation to Record of Decision (ROD) from 3 years to about 1.5 years.

- For the DOE *Streamlined Approach for Environmental Restoration (SAFER) Initiative*, time savings range from reducing the RI field work at one site from 11 to 4 months to reducing the overall remediation schedule at another facility by 2 years. Cost savings vary widely from $450,000 at one site to a 25 percent savings of over $10.3 million over a 4-year period at another site.

- Savings from the *Partnering Initiative* vary widely from completion of a project 3 to 4 years ahead of schedule to reducing the costs and time of an investigation initially scoped for $200,000 and 2 years to $20,000 and 6 months.

- DOD estimates that savings from all Base Realignment and Closure Act (BRAC) installations during a 2-year period (1993-95) where the *Fast-Track Cleanup Program* is being implemented included 80 years from the environmental cleanup process and $100 million in costs.

- It is estimated that the *Rational National Standard Initiative (RNSI)* saved $2 million at Shaw Air Force Base (AFB).

- Piloting the *Streamlined Oversight Initiative*, Langley AFB saved over $2.5 million and between 8 - 10 months over a period of 20 months compared to experience prior to implementing the initiative.

Fact sheets on each initiative, located in Appendix A, contain more detailed information on time and cost savings.

Vision of the Changed CERCLA Process

Taken together, the 16 initiatives could significantly change in the way the CERCLA process is implemented. This new process rests on the continuous involvement of a variety of players to ensure that decisions on site work are made once, and are made early in the process as appropriate to quickly initiate risk reduction activities. This changed process may require a new way of looking at roles and responsibilities by a variety of individuals at CERCLA sites. The ability to implement institutional or cultural change may be the major limitation in the ability to move forward with faster, smarter cleanups.

Organization of the Report

The report that follows is organized into four chapters and an appendix. Chapter 1 provides an introduction to the study, the identification of initiatives to be examined, and summarizes major findings. Chapter 2 provides a comparative analysis of the initiatives. Chapter 3 examines the way these initiatives may be integrated at different types of sites to expedite the investigation and cleanup process. Chapter 4 relates initiatives to the various streamlining recommendations that have been made through major reports on expediting Federal Facilities cleanup. Finally, Appendix A contains Fact Sheets on each major initiative, and provides back-up for tables contained in the body of the report that describe how the traditional cleanup process may be altered with the implementation of the initiatives.

CHAPTER 1. INTRODUCTION/FINDINGS

1.1 Purposes of Study

Over the past 6 years, the U.S. Environmental Protection Agency (EPA) and Federal Facilities[3] have undertaken a number of initiatives designed to streamline the cleanup of contaminated sites. A variety of pilot studies and demonstration projects related to these initiatives have taken place to demonstrate cost and time savings, and quality improvements resulting from these initiatives. Taken together, these various initiatives offer a potential new framework -- consistent with existing laws and regulations -- to speed the cleanup of Federal (and private) Superfund Facilities.

The purposes of the report are:

1. To review some of these innovative projects/programs/initiatives and to examine both the manner and the degree to which they have successfully changed and/or streamlined the traditional Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at Federal Facilities.

2. To compare each initiative to issues/problems and streamlining recommendations identified in major reports on cleanup at Federal Facilities prepared by various organizations. The purpose of this comparison is, in part, to determine the progress being made in responding to the many thoughtful ideas and suggestions for improvement articulated by various individuals and groups interested in accelerating the cleanup of Federal Facilities.

3. To increase the reader's comfort level with the initiatives reviewed as viable alternatives for implementation of cleanups at Federal Facilities, and to provide insights as to how impediments may be overcome.

4. To facilitate information transfer among EPA and the Federal Facilities to encourage the spread of innovative ideas.

1.2 Initiatives Examined

The past 6 years have been a time of innovation for the Superfund program in general, and the Federal Facilities cleanup program, in particular. During this time, a series of Administrative Reforms were initiated that have altered the way EPA and the States manage and oversee cleanup activities. Even as Congress debates Superfund reform efforts, the shape of the landscape has changed.

The Federal Facilities program, itself, has been the target of major reform efforts. Numerous studies have recommended changes to the implementation of the Federal Facilities cleanup program, ranging from changes in institutional relationships, to public involvement, to setting priorities in limited funding environments, to contractual and funding streamlining, to statutory and legislative changes. One of the most significant of these reports is the Federal Facilities Environmental Restoration Dialogue Committee report, released in April 1996, focusing largely on stakeholder involvement in budgeting and priority setting. A number of other major reports had a somewhat different focus, including streamlining of site cleanup.

The criteria used to select the 16 initiatives and projects evaluated in this study include:

- The initiative must be recognized, advocated, and provided with sufficient resources at either the site, regional, or headquarters level of the agency responsible for its implementation.

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[3]The term "Federal Facilities" is often used in this report to encompass more than just an individual installation. The term may include Federal Departments and Agencies (e.g., DOD, DOE, and the Air Force), Major Commands, and Service Centers (AFCEE and COE) that support the individual installations.

- The initiative must have explicit objectives of saving either time or money or both by streamlining the traditional Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. (Note: Eliminated from this construct were initiatives designed to bring innovative technology on line, initiatives designed to improve public involvement, initiatives oriented toward setting funding priorities, initiatives oriented around the nature of the remedy to be selected, and management improvement initiatives that are fundamentally not related to the CERCLA process, such as contracting initiatives.)

- The initiative must have been implemented at one or more facilities and must be far enough along in the implementation to have begun to document or estimate time and cost savings and process changes. (Note: as research of the selected initiatives was conducted, several were found to have not been as widely implemented as initially believed. One initiative, the U.S. Department of Energy (DOE) Preferred Alternatives Matrices (PAMs), has not yet been implemented at all. It was not dropped from the list of initiatives, however, because substantial development work is underway, and it will be implemented shortly. In addition, the "Plug-in RODs" (Records of Decision) initiative has only been implemented at one Federal Facility site. The Plug-in RODs are included because of their consistency with other initiatives, their promise in streamlining the ROD process, and the lack of clear impediments.

The 16 initiatives were initially "owned" by different parties involved in the process of Federal Facility cleanup. Several initiatives were started by EPA as part of its administrative reform efforts. Other initiatives were started by either the U.S. Department of Defense (DOD) or DOE. Some of these were a direct result of initiatives started by EPA and adapted by DOD or DOE for the needs of their agencies. Some initiatives have moved outside their initial "owner" agency, while others are still primarily implemented by the originating agency.

1.3 Relationship to the DQO Process

In reviewing the variety of initiatives developed by EPA and other Federal agencies, it quickly becomes clear that many of these initiatives serve to put structure around, and focus on, data collection planning as well as the use and gathering of data. The data quality objective (DQO) process is defined in EPA guidance[4] as "a series of planning steps based on the scientific method...to ensure that the type, quantity, and quality of environmental data used in decision-making are appropriate for the intended application." The technical steps of the DQO process include:

1. Determine the study/problem and objective. What is the basic question(s) you want to answer (e.g., Is action required)?

2. Define data to accomplish objective. What information is required to answer the basic questions?

3. Determine appropriate conditions from which to collect the data. What quality and quantity of analytical data will give results sufficiently reliable to answer the identified questions with a reasonable level of certainty? What sampling and analytical procedures are required?

4. Establish decision rules, limits on decision errors, and contingency plans. What level of precision is required? How will the data relate to the decisions to be made?

5. Optimize design for obtaining data. Create a sampling design that is focused on item 1, and takes into account the requirements of items 2 through 4. Design a cost efficient sampling strategy that collects the quantity and quality of data required to make the decisions - no more, no less.

Most of the initiatives identified directly relate to different aspects of the DQO process. While most are oriented to optimizing the sampling design with a focused approach on what information is needed to achieve study objectives, Table 1 summarizes the elements of each initiative that relate directly to items 1 through 5 above.

[4] Data Quality Objectives Process for Superfund, Interim Final Guidance. EPA/540/G-93/071. September 1993.

Table 1. Relationship of Streamlining Initiatives to the DQO Process

Initiative	Team Process Problem/ Objective	Define Data	Define Conditions	Decision Rules, Errors, and Contingency Plans	Optimize Sampling Designs
Partnering	√	√	√	√	√
Streamlined Oversight	√	√	√	√	√
BRAC: Fast-track Cleanup Program	√	√	√	√	√
Soil Screening Framework		√	√	√	√
Rational National Standards Initiative	√	√	√	√	
Directive on Land Use in the CERCLA Remedy Selection Process	√	√	√		
Superfund Accelerated Cleanup Model	√	√	√	√	√
SAFER Initiative	√	√	√	√	√
Presumptive Remedies		√	√	√	
Presumptive Remedy Engineering Evaluation/Cost Analysis		√	√	√	
Preferred Alternatives Matrices		√	√	√	√
Plug-in Records of Decision		√	√	√	√
RCRA/CERCLA Integration	√				
Lead Agency Division of Labor	√				
Environmental Data Management and Decision Support	√	√			
Performance-based Contracting			√	√	

1.4 Findings/Common Themes

The 16 initiatives examined for this report were initiated by EPA, by the DOD and its component services, and by the DOE. Many of these contain common themes and variations on a theme. Although Table 2 characterizes each initiative in one theme category, many initiatives actually address multiple themes or concerns. Collaborative decision-making and early identification of remedy cut across most of the initiatives. The following areas represent the most dominant or significant themes:

- **Collaborative Decision-Making** -- Federal Facilities working together in a partnership environment with the regulators, various other stakeholders, and contractors for efficient/effective decision-making.

- **Risk Screening; Early Focus on Remedies** -- Use of standardized contaminant screening levels to identify contaminants and areas of concern, to eliminate some areas of concern from continuing evaluation, and to support an early focus on remedies potentially available to address those contaminants.

- **Early Actions/ Faster Decisions** -- Support for remedy implementation as early as information is available to support the decision process. Define acceptable levels of uncertainty that either do not affect the implementation of the remedy, or present problems solvable with appropriate contingency plans.

- **Process Standardization** -- Take advantage of what has been learned through 17 years of Superfund history to select remedies early and to standardize documentation.

- **Regulatory Integration** -- Integration and coordination of regulatory authorities to improve the efficiency of the cleanup process.

- **Technical Tools** -- Technical means of improving cleanup program efficiencies.

The 16 initiatives examined are listed in Table 2, and organized according to their main purpose or theme.

Table 2. Streamlining Initiatives

a. Collaborative Decision-Making	b. Risk Screening; Early Focus on Remedies	c. Early Actions/ Faster Decisions	d. Process Standardization	e. Regulatory Integration	f. Technical Tools
Partnering	Soil Screening Levels	Superfund Accelerated Cleanup Model (SACM)	Presumptive Remedies	RCRA/ CERCLA Integration	Environmental Data Management and Decision Support (EDMDS)
Streamlined Oversight	Rational National Standards Initiative (RNSI)	Streamlined Approach for Environmental Restoration (SAFER) Initiative	Presumptive Remedy Engineering Evaluation Cost Analysis (PREECA)	Lead Agency Division of Labor	Performance Based Contracting
Base Closure Teams: Fast Track Cleanup	Land Use Guidance	Also, items in **a**, **b**, and **f**.	Preferred Alternatives Matrices (PAMs)		
	Also, items in **f**.		Plug-in RODs		

1.5 Common Impediments

Initiatives identified for this report have been successfully initiated in one or more locations (except Preferred Alternative Matrices [PAMs]), and have proven to have some streamlining and/or cost saving benefits. All have run into impediments for implementation, suggesting that change is not easy and instantaneous implementation is not assured.

- ***Establishing a true partnership to support collaborative decision-making is not easy.*** A common definition of partnering suggests that a partnership exists when two or more representatives of different organizations combine their efforts to achieve common goals. True working partnerships establish joint accountability and responsibility across organizations. Partnering provides the central focus of collaborative decision-making, and

of many other initiatives that depend upon collaborative decision-making. Yet, experience suggests that establishing a true partnership, breaking down barriers between organizations and individuals, and establishing joint ownership and accountability are difficult. Just because a group is meeting together regularly in a nonadversarial setting, does not mean it embraces the attributes of a partnership. Issues such as personalities, organizational cultures, numbers of potential players, near-term time constraints (even when it is understood that long-term payoffs in time savings are great), lack of understanding of a true partnership, and many others create impediments to partnering.

- ***Perceptions of risk taking by participants on project teams.*** Even the decision to launch into a partnership requires some amount of trust. Although legal responsibilities as "lead" agent and regulator do not change, the participant's freedom to exercise these responsibilities may be affected by the decision to begin partnering. For example, the lead agency must trust that regulators are willing to understand their financial and management concerns and will seek to help them address these concerns instead of initiating enforcement actions prior to consultation. The regulators must, in turn, trust that the "lead" agent will responsibly move forward to implement the agreed upon program. They may perceive their participation in partnering efforts as placing them under pressure to reduce formal enforcement efforts.

- ***Difficulty in focusing on decisions that have not reached crises proportions.*** Many individuals participating in Federal Facility cleanups that are in greatest need of streamlining are juggling numerous balls and "crises" at the same time. It is often difficult to get these individuals out of a crisis mode, and focused on longer term decisions that can put in place a more efficient process, or on issues that will be on the critical path some time in the future.

- ***Failure to focus on stakeholder concerns early in the process.*** A common theme of many of the initiatives is early decision-making and standardization -- of remedy selection, land-use, selection of contaminants of concern, etc. Failure to obtain buy-in to this early decision-making and standardization by citizen groups and by other stakeholders may lead to undercutting the benefits of the initiative. Implementation of presumptive remedies, for example, requires citizen and regulatory understanding of why the presumptive remedy is suitable and the rationale and benefits of the early focus on remedy. In a number of instances, lack of stakeholder support has resulted in extensive study of a number of remedies, even though the situation appeared to call for a standard presumptive remedy.

- ***Lack of understanding of how some of these initiatives fit into the current statutory and regulatory framework.*** All initiatives examined in this report can be implemented within the current regulatory/statutory framework. Many of them, however, have suffered from uneven understanding of how they fit, and a sense on the part of the implementing community (Federal Facility, contractors, regulators, etc.) that these successful "pilot" studies cannot be implemented broadly because of regulatory and statutory impediments.

All of these impediments, and many more, can and have been overcome.

CHAPTER 2. COMPARATIVE ANALYSIS OF INITIATIVES

2.1 Types of Initiatives

Many of the 16 initiatives examined in this report address, either directly or indirectly, several streamlining themes. In fact, virtually all of the initiatives depend upon, are enhanced by, or are designed to promote collaborative decision-making or partnering. However, in order to facilitate analysis of the various initiatives in a systematic way, the initiatives have been grouped based on the streamlining theme primarily addressed by each initiative.

In all, six streamlining theme groupings were identified. These include:

- Collaborative decision-making;
- Screening/early focus on remedies;
- Early actions/faster decisions;
- Process standardization;
- Regulatory integration; and
- Technical tools.

The sections that follow briefly describe each thematic group of initiatives. Table 3 at the end of the chapter provides more detail on each separate initiative covered. The table includes the following information: a brief description of the initiative, the streamlining focus of the initiative, the agency that developed and/or advocates the initiative, the initiative's impact (actual or potential) on the CERCLA process, and the level of acceptance at the project execution level and acceptance by other agencies[5] (agencies other than the agency responsible for the initiative). Finally, the table summarizes types and amounts of documented savings and identifies where the initiative has been implemented. Fact Sheets in Appendix A provide a detailed overview of the components of each initiative.

2.1.1 Collaborative Decision-Making Tools.

The initiatives in this grouping include:

- Partnering initiatives (Navy and others);
- Streamlined Oversight initiative developed by the Air Force with U.S. EPA; and
- DOD's Base Realignment and Closure Act (BRAC) fast-track cleanup program.

All three initiatives seek to streamline the site cleanup and decision-making process through establishing an empowered project team, or partnership, composed of the facility, regulators, and other affected stakeholders. Such partnerships have demonstrated their effectiveness in breaking down barriers to communication; promoting high quality, cost effective decisions; eliminating redundancy; and supporting creative problem solving.

Partnerships, the mechanics of which were developed in a Navy initiative, form the foundation for the other two initiatives in this category, as well as initiatives described in other categories such as DOE's Streamlined Approach for Environmental Restoration (SAFER) initiative and the Air Force's Rational National Standard Initiative (RNSI). The BRAC Fast-track Cleanup Program is unique in that it is only designed to be implemented at facilities subject to BRAC.

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[5]Although not addressed in Table 3, the reader is cautioned that some, or even many, of the initiatives may not be widely accepted and/or implemented within the agency that is responsible for them, let alone other agencies.

The BRAC Fast-track Cleanup Program is used to address National Environmental Policy Act (NEPA) issues and facility re-use, as well as CERCLA cleanups. Streamlined Oversight (originally referred to as Variable Oversight by the Air Force) enhances the streamlining aspects of partnering alone by focusing most of its attention on the regulatory oversight process. It goes beyond partnering with systematic use of a series of specific tools that can be applied to facilitate changes in the basic oversight process.

Partnering and collaborative decision-making have an almost universally high degree of official acceptability. Virtually every major report recommending streamlining of remediation programs recommends some form of the partnership process. However, numerous institutional impediments to partnering exist. Successful partnerships depend on trust among the partners and, therefore, do not just happen but must be built. Different institutional cultures, lack of partnering experience or training, historically adversarial relationships, organizational power struggles, and difficulties in developing and sharing common objectives are common impediments to partnering. To use the tools of Streamlined Oversight (including partnering) to dramatically alter the oversight process presents its own related challenges. The mix of economic and social pressures involved with base closures further muddies the water. As a result, the up-front time required to build the partnership or to determine if personnel changes are necessary can lead to frustration and impatience. Sometimes project team members are unwilling or unable to take the time and effort to address these issues in the face of other pressing business. This is true even though substantial evidence shows that effective partnering almost always saves money in the long term.

2.1.2 Screening/Early Focus on Remedies.

The initiatives in this grouping include:

- EPA's Soil Screening Framework (SSF);
- The Rational National Standards Initiative (RNSI) developed by the Air Force; and
- EPA's Directive on Land Use in the CERCLA Remedy Selection Process.

All three initiatives are designed to allow early focus on the key remedial decisions that must be made for sites by screening out certain parameters and areas of concern that do not need to be extensively addressed by analysis and cleanup decisions. SSF allows contaminants, pathways, and areas of a site that will not be of concern to be screened out of further consideration. RNSI combines land use analysis, soil screening levels, and information to identify likely remedies at an early stage and to support a sensitivity analysis based on realistic exposure scenarios and costs of achieving cleanup levels based on land use. EPA's directive on land use encourages an early focus on a single or limited number of exposure scenarios to support early identification of cleanup levels and remedies. Public involvement in the selection of land uses is considered central.

Soil screening levels (SSLs) have been used for a number of years -- long before the formal SSF was promulgated in the spring of 1996. EPA Regions 3 and 9 developed SSLs, based on standard risk and exposure assumptions found in the Risk Assessment Guidance for Superfund (RAGS).[6] These have been utilized around the country to focus on contaminants and areas of concern. The recently promulgated Soil Screening Framework built on this experience, and added values based on additional pathways including inhalation and groundwater, as well as allowing for easy development of site specific numbers. The concept of SSLs is generally well accepted throughout the Superfund program. However, they are perceived as having limited value because the traditional Superfund risk process does not screen out background levels before completion of a full-blown risk assessment and because of the lack of ecological screening values. (This latter issue is being addressed.)

RNSI was developed by the Air Force to provide two kinds of assistance. It is designed to be used to prioritize cleanup activity as well as provide a tool for evaluating the potential impact of difference land use scenarios and related remedies on overall costs. Using soil screening numbers consistent with those generated by the regulators, the RNSI initiative provides tools to compare cleanup levels and costs for different exposure and land use scenarios. Treatment

[6]Risk Assessment Guidance for Superfund (RAGS), Interim Final, EPA/540/1-89/002, December, 1989.

technologies are associated with potential cleanup levels to allow project teams to conduct a sensitivity analysis that can inform the team and the public as to the costs associated with different cleanup approaches, and thereby focus early on the potential remedy. The RNSI process is not meant to take the place of a risk assessment or any of the traditional CERCLA risk management decision processes. When project team discussions fail to distinguish the RNSI decision assistance tool with these decision-making processes, it becomes controversial, and its utility is undercut.

EPA's directive on land use (Office of Solid Waste and Emergency Response [OSWER] Directive Number 9355.7-04) is also designed to allow an early focus on a single land use (if appropriate and supported by the public) so that appropriate cleanup levels and related technologies can be identified early in the process. This directive originated from a desire to streamline remedy selection with an early development of cleanup levels and from a concern by Federal Facilities and industry that too many cleanups are driven by residential land use. However, early decision-making in land uses that involve some kind of nonresidential use scenario has proven difficult in communities that surround DOD facilities due to fears that such facilities will eventually close. In addition, recent EPA studies have suggested that land use only drives the remedy about 24 percent of the time and that protection of groundwater for drinking water use may be a far more formidable factor in many cases in the selection of cleanup levels and remedies than surface land use.

2.1.3 Early Actions/Faster Decisions. The initiatives in this grouping include:

- EPA's Superfund Accelerated Cleanup Model (SACM); and
- DOE's Streamlined Approach for Environmental Restoration (SAFER) initiative.

The SACM initiative is one of EPA's oldest Superfund Administrative reforms. It was designed to support integration of Superfund pre-remedial, removal, and remedial programs for faster, common sense cleanup. Data collected for one part of the program (e.g., preremedial) could be designed to meet the DQOs required for another part of the program (e.g., risk assessment or removal). In this manner, multiple rounds of sampling activities could be reduced. Simple, short-term soil cleanup activities (e.g., soil removal) would be addressed by the response authority that makes the most sense (i.e., removal or remedial) to ensure that rapid cleanup occurs.

DOE's SAFER initiative takes advantage of the opportunities presented by SACM to use a collaborative decision-making approach and DQOs in combination with an observational field approach to define early actions. It includes extensive use of removal actions and interim remedial actions, as well as a formal uncertainties analysis that helps guide when enough information is available to make decisions. Both the SACM and SAFER initiatives integrate other tools such as presumptive remedies and soil screening approaches as appropriate to the needs of the site.

Most of the SACM approach is a widely accepted throughout the Federal family as a framework for streamlining. However, with a large number of sites potentially resolved through "no action," Federal Facilities are often reluctant to conduct more expansive sampling than they perceive is necessary for this more limited decision. Integration of data collection from pre-remedial to remedial is limited at many Federal Facilities. The SAFER adaptation of the SACM initiative is receiving increasing attention both inside and outside of DOE. It provided one cornerstone of EPA's Streamlined Oversight directive, and has received a great deal of attention and support from organizations such as the Hazardous Waste Action Coalition and the Corps of Engineers.

2.1.4 Process Standardization. The initiatives in this grouping include:

- Presumptive remedies;
- The Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA) initiative developed by the Air Force;
- DOE's Preferred Alternatives Matrices (PAMs); and
- Plug-in Records of Decision (RODs).

The initiatives in this grouping are designed to take advantage of the "lessons learned" and experience gained by the Superfund program and the similarity of actions taken at similar sites. Specifically, the presumptive remedies and PREECA initiatives both focus on streamlining the remedies selection process and are based on the premise that certain remedies are consistently selected at certain types of sites and, therefore, the remedy can be presumed for these types of sites. The PREECA initiative is an adaptation designed for the removal action process. If certain circumstances are present, a presumptive remedy is applied. Site specific conditions and contaminant levels are integrated into a pre-formulated engineering evaluation/cost analysis (EE/CA) to ease the documentation process. The plug-in RODs initiative streamlines the process of ROD development by generating a generic ROD for site types - specific sites that meet the criteria for the site types can then be plugged into the generic ROD. PAMs are designed to generate a range of acceptable options for solving environmental problems in one of four focus areas (waste treatment, remediation, site characterization, and deactivation/decommissioning). PAMs are seen as important aspects of streamlining the alternatives selection process and are also designed to support performance-based contracting.

The presumptive remedies concept is well accepted as a potential streamlining activity throughout the implementation of Federal Facility cleanup. The PREECA concept is largely implemented in the Air Combat Command, but is gaining acceptance throughout the Air Force and DOD. Plug-in RODs have been used on a very limited basis, and PAMs are a new initiative, which has yet to be used in practice.

All of these standardized approaches have experienced some road blocks vis-a-vie stakeholder involvement. It is one thing for EPA to agree that the presumed remedy for a municipal landfill is containment, with some hot-spot removal. However, the State or community may still demand that removal of the entire landfill be evaluated. The value of the presumptive remedy process to streamline analysis will then be lost.

2.1.5 Regulatory Integration.

The initiatives in this grouping include:

- Resource Conservation and Recovery Act (RCRA) CERCLA Integration; and
- The lead agency division of labor initiative.

These initiatives attempt to streamline the process by attempting to eliminate or minimize duplication, overlap, and conflicts between regulatory programs and/or agencies. The RCRA/CERCLA integration initiative urges that a lead regulatory authority (either RCRA or CERCLA) be chosen on either a facility-wide or site basis, and that decisions made under one authority satisfy the requirements of the other. The division of labor initiative streamlines the process by dividing oversight responsibilities between EPA and the State, eliminates duplication of effort, and optimizes use of scarce regulator resources.

The RCRA/CERCLA guidance was just recently issued (September 1996) and has not been **formally** implemented on a widespread basis. However, the guidance was modeled on a number of RCRA/CERCLA integration efforts at a variety of facilities such as DOE's Idaho National Engineering and Environmental Laboratory (INEEL). The division of labor initiative has been successful in the few instances where it has been attempted. It is important to note, however that many EPA Regions and States have been formally and informally dividing oversight responsibilities.

2.1.6 Technical Tools.

This grouping includes:

- Environmental Data Management and Decision Support (EDMDS), and
- Performance-Based Contracting (PBC).

EDMDS and PBC are both tools that can be used by a facility and/or project team to streamline the cleanup process. EDMDS is a data base linked to a Geographic Information System (GIS) that is designed to be used interactively by project teams to facilitate an efficient, streamlined review of data; identification of data needs; and joint decision-making. PBC streamlines the process by identifying cleanup levels early in the process without specifying the remedia

technology. Contractors are then free to use the most effective, efficient method to reach the cleanup levels. Where used, GISs, such as EDMDS, have proven to be a valuable tool for project teams.

PBC has yet to be used on widespread basis. At this time, a great deal of uncertainty remains as to how PBC fits with current contracting and cleanup law. However, as case studies are emerging, a number of ways that PBC can be made consistent with existing law and regulation are beginning to be identified.

Table 3. Initiatives Summary Table

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
COLLABORATIVE DECISION-MAKING TOOLS						
Partnering						
This initiative is designed to streamline decision-making by creating a project team that jointly owns projects and can generate creative solutions to problems, and by eliminating rework by building quality in up-front.	High level of acceptance when trust is built; community concerns in some instances about "collusion with regulators." In some cases, the amount of time needed to build the partnership is reported to be frustrating and not perceived to be cost-effective.	Joint decision-making; up-front buy-in by regulators, other stakeholders.	Changed relationships and more effective communication; improves and accelerates real-time decision-making, and allows teams to cut through bureaucracy to focus on both practical and innovative site solutions. Substantial time and cost savings have been documented. These vary from facility to facility.	DOD (primarily Navy, Base Closure Agencies, Air Force), DOE.	At Federal Facilities across the Nation. Examples include Shaw AFB, SC; Naval Air Station, FL; and MCB Camp Lejeune, NC.	High level of acceptance by EPA and many State agencies.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
COLLABORATIVE DECISION-MAKING TOOLS (continued)						
Streamlined Oversight (formerly known as Variable Oversight)						
Built on a foundation of partnering. Integrates a variety of other tools (basewide documents, consensus agreements, alternative deliverables, joint scoping) to build quality (and agreement) into the front end of projects, and streamline the document review process by making it focused and less redundant. Supports prioritization of sites for oversight and allows targeting of the types of oversight activities to the priority of the site and the nature of the decisions to be made.	Moderately high level of acceptance. Acceptance level is increasing as project teams and technical support gain familiarity with using and integrating Streamlined Oversight tools. Teams are challenged to build their own vision of how the tools will work best for them. This can be a difficult exercise for some teams.	Reduction in timeframes associated with document review and response. Up-front decisions to avoid rework.	Teams spend more time at the front end of the process, establishing standard operating procedures (SOPs) and approaches that can be applied to all sites at a facility. Joint scoping results in more focused scopes of work and reduces the need for rework. Basewide SOPs, standard report formats, and consensus agreements reduce the number of documents drafts, review times, and comments. The investigation and assessment phases are accelerated. Savings documented in a 20-month period at Langley AFB included a savings of 8-10 months and over $2-million.	DOD - Air Force, Air Combat Command.	A pilot demonstration was initiated at Langley AFB in April 1995 and is on-going. A second pilot was started at Naval Base Norfolk in October 1996 and is on-going. Aspects of Streamlined Oversight invented/ implemented at numerous facilities with partnerships.	High level of acceptance at EPA headquarters level. In November 1996, EPA issued a Directive on Federal Facility Streamlined Oversight that incorporates the principles of "Variable Oversight." The name Variable Oversight has since been changed to be consistent with EPA guidance.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
COLLABORATIVE DECISION-MAKING TOOLS (continued)						
BRAC: Fast-Track Cleanup Program						
Designed to create a partnership with the regulators and the community to streamline decision-making on critical issues, including land use and transfer of property.	High level of acceptance.	Focused decision-making to streamline data collection and risk management decisions. Integration of RCRA/ CERCLA, NEPA, and base re-use planning. Extensive stakeholder involvement.	Joint project team scoping results in more focused remedial investigations. Use of interim remedial actions and removals concurrent to on-going study has been successful by project teams. Document review and response to comments times have been reduced, and work traditionally done sequentially is being done concurrently. Substantial time and cost savings have been documented and vary from facility to facility. According to DOD reports, at the 77 BRAC installations where the fast-track cleanup program has been implemented (between 1993-1995), the cummulative projected cleanup duration has been reduced by 80 years and $100 million in cleanup costs have been avoided.	EPA/DOD.	Between 1993-1995, implemented at 77 BRAC installations across the country.	Presidential order. High level of acceptance by all agencies involved.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
SCREENING, EARLY FOCUS ON REMEDIES						
Soil Screening Framework (SSF)						
Designed to allow early narrowing of selected aspects of the risk assessment by supporting rapid identification of chemicals and areas of concern. In addition, **may** be used in voluntary simple cleanups to accelerate cleanup activities by providing early preliminary remediation goals (PRGs).	The use of some form of screening levels has a high degree of acceptance.	Allows early elimination of contaminants, pathways, and/or sites or areas of a site from further consideration.	The use of SSFs can streamline the process by allowing a no further action decision at sites with low levels of contamination without a risk assessment. At other sites, can focus additional investigations and risk assessment by eliminating contaminants, pathways, and/or areas of a site that are not of concern. EPA recently issued guidance on the use of SSFs (April 1996); consequently, documentation on savings is not yet available.	EPA.	Soil Screening Levels (SSLs), whether national or regional, have been used at numerous facilities across the country.	Due to their conservative nature, SSLs have a high degree of acceptance for analysis of human health risks. When used as PRGs or cleanup standards, may run into resistance on the part of some of the regulated community. Lack of accepted ecological screening levels may present impediments to achieving the full power of SSLs.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
SCREENING, EARLY FOCUS ON REMEDIES (continued)						
Rational National Standards Initiative (RNSI)						
Combines early land use analysis with soil screening levels and typical remedy types for a particular situation to identify most likely remedies for a site, and to conduct an economic/sensitivity analysis of the cost of cleanup to different land uses. Also, can be used to facilitate early assessment of priorities at sites by identifying operable units/sites that may be safe for current uses, even if they will require cleanup for future uses.	Use within Air Combat Command. Controversial in some EPA Regions.	Project scoping and investigation; earlier remedy identification.	Can accelerate the process and reduce costs by reducing the number of constituents of concern that are carried through the remediation investigations (RI) and risk assessment. Remedies can be selected based on relative costs for achieving cleanup goals. The design phase can be started earlier and design criteria can be tied to cleanup goals. To date, some savings have been documented (e.g., $2 million saved at Shaw AFB).	DOD- Air Force (note: five EPA Regions and 16 State regulatory agencies actively participated in the development of RNSI).	Currently, being tested at 18 Air Combat Command installations nationwide.	Increasing acceptance within DOD. Army and Navy are evaluating RNSI for use in their cleanup programs. Controversial in its use with some EPA Regions.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
SCREENING, EARLY FOCUS ON REMEDIES (continued)						
Directive on Land Use in the CERCLA Remedy Selection Process						
The directive has two primary objectives: 1. It promotes early discussions with local land use planning authorities, local officials, and the public regarding reasonably anticipated future uses of the property on which an NPL site is located. 2. It promotes the use of that information to formulate realistic assumptions regarding future land use and clarifies how these assumptions fit in and influence the baseline risk assessment, the development of alternatives, and the CERCLA remedy selection process.	High level of acceptance, especially when stakeholders are included in process of reaching agreement on future land uses.	Early focus on risk management objective. Stakeholder involvement.	Designed to allow early focus, as appropriate, on a single or limited number of exposure scenarios early in the remedial investigation process. Can serve to narrowly focus the risk assessment, development of alternatives, and selection of a remedy. Has potential to result in considerable cost and time savings. Savings from the guidance have not been systematically documented. At one DOE facility, however, implementation of the guidance played a substantial role in overall reducing the life-cycle cleanup cost by $1 billion.	EPA	Hanford Nuclear Reservation (DOE); Langley Air Force Base (DOD).	Acceptance by States and communities is sometimes controversial if residential land use is not chosen.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
EARLY ACTIONS/FASTER DECISIONS						
Superfund Accelerated Cleanup Model (SACM)						
Integrates investigation phases of standard CERCLA process to streamline decisions and reduce investigatory costs. Uses Regional Decision Teams to better integrate removal and remedial program, using the optimum regulatory approach to ensure rapid attention to problems that can be addressed in the short term.	High level of acceptance.	Increased number of removals, fewer sequential rounds of sampling.	Timeframes for early action cleanups are reduced, the assessment process is compressed/accelerated, and steps traditionally performed sequentially are performed concurrently. The sampling strategy early in the process is designed to be used for multiple purposes so that decisions related to both removals and long-term action can be made earlier. Although some early SACM pilot projects did document savings, SACM is now so fully integrated into the Superfund cleanup process that isolating and calculating savings associated with SACM would not be possible.	EPA.	Since 1992, SACM has been implemented at private party and Federal Facility sites across the Nation.	SACM concepts appear to have a high level of acceptance from other agencies. Streamlining initiatives developed by other agencies have incorporated the fundamentals of SACM (e.g., DOE's SAFER initiative).

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
EARLY ACTIONS/FASTER DECISIONS (continued)						
Streamlined Approach for Environmental Restoration (SAFER)						
Initiated in 1993, integrates team oriented decision-making with Data Quality Objectives, the observational approach to investigation, and explicit attention to uncertainties analysis and decision rules to streamline the investigation process and move quickly to cleanup.	Successes reported from pilot studies indicate a high level of acceptance. However, lessons learned reveal need for "champion" to drive process and importance of building trust. Because of significant up-front time investment required to ensure streamlining at later stages, may not be seen as cost-effective.	Nature of investigations, timing of action, use of removals.	Project teams work together from the outset to develop more focused site strategies and work scopes, reach agreement on innovative technologies and approaches to save time and money, shorten review and revision cycles, eliminate redundancy, perform work concurrently where practicable, and do a better job of managing uncertainty. Time and cost savings are documented from a number of pilot projects initiated in 1993. These vary from facility to facility and range from $450,000 to $10.3 million. Following the initial pilots, DOE's efforts have been engaged in integrating the SAFER initiative into day-to-day work. Additional documentation of savings has not been a focus.	DOE.	As of year end 1995, pilot tested through joint DOE-EPA effort at four DOE facilities: Savannah River, Oak Ridge National Laboratory, Mound Plant, and Hanford. On-going training is focused on implementation throughout the DOE weapons complex, as appropriate.	Pilot tests show high level of acceptance from EPA and States, although lessons learned from pilots indicate there may have been some frustration with significant up-front time investments that did not always translate into accelerated schedules due to other factors (e.g., contracting, budgeting issues).

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
PROCESS STANDARDIZATION						
Presumptive Remedies						
Based on the premise that certain remedies are consistently selected at certain types of sites (e.g., municipal landfills). EPA has developed presumptive remedies for specific site types based on the remedies previously selected at similar sites and an evaluation of these remedies using the National Contingency Plan (NCP) criteria to determine whether the remedy is the most appropriate for that specific site type. As a result, for specific site types where a presumptive remedy has been established, the remedy can be presumed up-front. Presumptive remedies have been developed for numerous types of sites. These, as well as remedies in various stages of development, are listed in the presumptive remedy fact sheet in Appendix A.	Moderate.	Remedy selection.	The use of presumptive remedies can greatly streamline or, in fact, eliminate the development of alternatives and feasibility process, and streamline the risk assessment process. Using a presumptive remedy can also allow design to be initiated during the Remedial Investigation/Feasibility Study (RI/FS). Presumptive remedies can also be used to streamline the removal process. (See PREECA on the next page.) Based on a study of presumptive remedies at municipal landfills, EPA estimates time savings of 45 percent and cost saving of 60 percent as compared to an average RI/FS.	EPA.	Numerous sites, mostly at municipal landfills. This is because the landfill remedy was the earliest one developed. Other remedies are newer and, therefore, are not yet as widely implemented.	Wide acceptance by other agencies. Community members may not be familiar with the concept of presumptive remedies and, therefore, may not be comfortable presuming the remedy. May also be concerned that innovative technologies were not considered.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
PROCESS STANDARDIZATION (continued)						
Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA)						
Presumptive remedy guidance for use in the removal program. This guidance draws upon the EPA Presumptive Remedies approach to create remedy profiles for typical CERCLA site situations. If a site matches a remedy profile and is eligible for a removal action, it can be "plugged" into a standardized approach to an EE/CA for a specific remedy.	Moderate.	Remedy selection portion of the EE/CA justification of a non-time critical removal action.	PREECA substantially streamlines or eliminates the remedy selection portion of a non-time critical removal action. The Air Force estimates that up to 19 months and $500,000 per site can be saved by using PREECA as compared to a conventional removal action process.	DOD - Air Force.	Shaw AFB and numerous Air Combat Command bases.	EPA endorses the use of presumptive remedies, and the EE/CA process is a standard part of the CERCLA non-time critical removal process. PREECA, therefore, should have the same level of acceptance as presumptive remedies. (See above.)

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
PROCESS STANDARDIZATION (continued)						
Preferred Alternatives Matrix						
Combines the concepts of presumptive remedies and performance-based contracting to provide site managers with a tool to quickly identify technologies that are effective for various application in one of four "technology focus areas." These focus areas are: waste treatment/processing, site characterization/monitoring, remediation, and deactivation and decommissioning. PAM scores technologies based on their ability to solve specific problems, and is organized around the type of problem (e.g., groundwater, landfill). It is intended to assist in the remedy selection process and to promote performance-based contracting in the four technology focus areas. (See performance-based contracting below.)	PAMs have yet to be finalized.	Site characterization/ investigation process; early identification of a range of viable potential remedies.	PAMs can streamline the alternative screening process as well as the process of detailed analysis, and support consideration of alternatives early in the scoping of a study to integrate design data into the RI/FS. PAMs have yet to be finalized; therefore, there are no data on savings.	DOE.	PAMs have yet to be finalized.	Unknown at this time.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
PROCESS STANDARDIZATION (continued)						
Plug-in Records of Decision (RODs)						
Designed to streamline the remedy decision process by recognizing the similarity of site problems in some instances. Designed for use at facilities with a large number of sites or subsites that have similar characteristics. Once a remedy is selected and ROD developed for the site type, each subsequent site or subsite that match the predefined conditions are "plugged" into the generic ROD. Individual site RODs are developed that differ only in the site-specific data and information that are developed.	Not widely implemented.	Remedy selection.	Streamlines the remedy selection process at sites with the same or similar physical and chemical characteristics because sites can be "plugged" into a remedial decision prior to full characterization; can allow design and construction activities to begin earlier in the process.	EPA Region 9.	Indian Bend Wash-South (IBW-South) Superfund site, Tempe, Arizona, and Ford Ord in California (no further action ROD).	Not widely implemented.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
REGULATORY INTEGRATION						
RCRA/CERCLA Integration						
Designed to integrate RCRA and CERCLA requirements in a manner that eliminates overlap, duplication, and conflicts. Recently issued guidance suggests that a lead regulatory authority be selected and that decisions under that regulatory authority satisfy requirements under the other. In addition, recent guidance suggests that risk-based closures can be used for regulated units as well as Solid Waste Management Units (SWMUs).	National guidance just recently issued; data on acceptability not yet available.	Avoid duplication of effort and/or delays associated with satisfying requirements of multiple regulatory authorities.	Duplication of effort can be avoided for all parts of the process, if a single regulatory authority can be established for each site. This is a new initiative; therefore, data on savings are not yet available.	EPA.	This is a new initiative; therefore, data on where it has been formally implemented are not yet available. Informal implementation prior to issuance of the formal guidance is known to have occurred (e.g., at Rocky Flats).	This is a new initiative; data on acceptability are not yet available.
Lead Agency Division of Labor (Region 10)						
Under this concept, oversight work is divided between EPA and the State to minimize duplication of effort and streamline the review process. This division of labor may be with regard to an entire site within a facility, an entire facility, or a phase of work for a site.	No national guidances. Used in selected States such as Washington and Texas.	Avoid redundant oversight effort.	Avoid duplication of effort by regulatory agencies. Optimizes use of scarce regulator resources. May not change the process, per se, just the number of resources devoted to the process.	EPA Regions 10, 6, and several States.	Washington State and Texas.	Not widely used.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
TECHNICAL TOOLS						
Environmental Data Management and Decision Support (EDMDS)						
Use of central data base linked to a GIS to facilitate team approach to review of data and identify data needs. Designed to expedite decision-making by team and technical reviewers.	Whenever GIS tools are available, their use is accepted. Limitations have to do with amount of up-front hardware/ software investment at small bases.	Real-time team decisions on investigations and ROD.	All parts of cleanup process are affected because project teams have centralized source of project data and information in a format that enables rapid real-time decisions and the ability to perform "what if?" scenarios. RI scoping, report preparation, and review can be streamlined by assisting team with identifying appropriate scenarios to be addressed in RI report. Because the Air Force is using EDMDS in conjunction with other streamlining initiatives, savings specifically attributed to EDMDS have not been documented.	DOD - Air Force.	A pilot of EDMDS was started in 1994 at 19 active Air Combat Command bases.	Acceptance by other agencies limited by willingness to invest resources.

Table 3. Initiatives Summary Table (continued)

Brief Description	Acceptance at Project Execution Level	Focus of Streamlining	Impact on Process/ Documented Savings	Agency Owner/ Advocate	Where Implemented (Example Sites/ Facilities)	Acceptance by Other Agencies
TECHNICAL TOOLS (continued)						
Performance-Based Contracting						
By establishing remedial objectives (i.e., cleanup levels) early in the process, facilities can then allow private sector companies with appropriate technologies to bid on meeting the performance specification. Incentives built into the contracting process further foster acceleration of cleanup and use of innovative technologies. Anticipated time and cost savings.	Not widely implemented in the cleanup process at this point.	Integration of design and construction phase. Incentive for contractors to cleanup quickly, cost-effectively. Reduces costs of remedies.	May alter nature and timing of ROD. Can eliminate extensive design review management time. Documented time and cost savings by Air National Guard of 2 years and >$2-million per site at 4-5 sites.	DOE, DOD.	Piloted at several Air National Guard facilities, as well as at DOE's Idaho National Engineering and Environmental Laboratory. A form of PBC embodied in Air Force's Total Environmental Restoration Contracts (TERC).	Not yet widely accepted.

CHAPTER 3. NEW APPROACHES TO FEDERAL FACILITY CLEANUPS

This chapter describes the integration of the streamlining initiatives to frame new approaches to Federal Facility cleanups that are consistent with existing statutory and regulatory constraints. The chapter describes four common scenarios, each of which combines the use of streamlining initiatives in different ways to create a new approach to cleanup. There is no one new approach, because each site has different needs. However, taken together, the various initiatives suggest a streamlined site decision-making process that gets to cleanup faster. Although four approaches, based on different types of site circumstances, are presented in Section 3.2, each has certain management activities in common. These management styles are described in Section 3.1.

In discussing these "new approaches" to site cleanup, it should be emphasized that some of these "new" activities are as old as the cleanup programs themselves. Language can be found in the National Contingency Plan (NCP) to support "early actions," use of interim remedial actions (IRAs), identification of preliminary remediation goals (PRGs), and initiation of concurrent remedial investigations and feasibility studies (RI/FS). Yet, for a wide range of reasons, the standard traditional process, as it was implemented at National Priorities List (NPL) sites was more sequentially oriented. The power and the promise of the recent initiatives is to build on experience and knowledge to implement streamlined cleanup approaches broadly across the country.

3.1 Management Styles That Frame New Approaches

Although the new approach for a Federal Facilities process to get to cleanup is not really one approach -- but the application of streamlining tools to create a number of possibilities -- this new approach shares a number of key attributes that relate to foundation management activities. These attributes are described below. They are difficult to diagram as a new process flow for remediation activities, but they enable new process flows and streamlining to occur.

- ***Collaborative Decision-Making*** -- Whether called ***partnering or collaborative decision-making***, the new approaches rely on project teams working together to identify end-point objectives, and ensure that the process is managed to attain those objectives in the most cost-effective manner. Both key methodological and risk management decisions are made by the project team in consultation with the community. Extensive use of ***Streamlined Oversight*** communication tools means that most decisions are made in advance of report preparation, so that the traditional reports prepared for the RI/FS and Remedial Design process are smaller, clearly written around issues of concern to the regulators and the community, and are no longer central to the decision process. Many of these documents are put into the Administrative Record for documentation of decisions, but are not central to the discussion. Both the community and the regulators are fully aware and involved in the discussions that lead to the approaches embodied in these documents.

- ***Flexibility*** -- The new approaches use the "observational approach" embodied in the ***SAFER*** approach for field decision-making. With a collaborative team overseeing field activities, not all decisions have to be locked in stone prior to starting work. Action is taken as soon as the need becomes clear. As suggested by the ***SACM*** initiative, removal actions and IRAs are used frequently to address soil contamination problems and to begin groundwater treatment or containment, as appropriate to the site and contaminants. Potential uncertainties of an investigation, design, or remediation plans are identified, and contingencies developed to manage those uncertainties.

- ***Regulatory Integration*** -- In the streamlined management approaches discussed in this chapter, management efficiency is the hallmark of cost effective site cleanup. **Streamlined Oversight** tools enhance the ability of the partnership or project team to cut through the time spent in unproductive arguments over methodology and time spent in document review and response. ***RCRA/CERCLA integration*** ensures that decisions are made early as to which regulatory authority the cleanup will take place under, and ***Lead Agency*** determinations will ensure that EPA and the State do not duplicate each other's efforts.

- ***Early Identification of Remedy; Focus on the End Goal*** -- In the new model, "characterization of the site" is never the objective. End-point objectives are clearly specified and are oriented toward the anticipated outcome of the site -- and completion of site closeout. The end-point objectives may be to determine if action is necessary, or they may be to put a remedy in place. If the latter, the end-point objective will encourage the early identification of remedies, and the use of tools such as ***Presumptive Remedies.*** Use of ***SSLs, RNSI***, and EPA's ***Land Use Guidance*** further supports early identification of remedy through identification of contaminants of concern, areas of concern, and the exposure scenarios on which cleanup will be built.

- ***Early Community Involvement*** -- The new approaches incorporate a number of approaches that suggest that early community involvement will be essential. Use of **Streamlined Oversight tools** to streamline and change the document review and response process requires community support and understanding. Other streamlining tools that identify a narrow number of alternatives early in the process (or even one based on presumptive remedies), as well as early decisions on land use, cleanup levels, soil screening to narrow areas of concern, and use of **Performance-Based Contracting** (PBC) also require early attention to public involvement. Absent this early involvement, public concerns expressed at a later point could undercut early streamlining decisions and require substantial rework.

The new management approaches can play out at the site level in a number of different ways. One of the most significant ways is that most decisions are made in face-to-face meetings, facilitated with the use of Streamlined Oversight communications tools. Because decision-making takes place in a collaborative, trusting environment, technical support is shared by the project team, and technical resource staff are no longer in short supply.

3.2 New Cleanup Approaches

Although the new approach to remediation at Federal Facilities has a number of characteristics in common, the process approach will be different from site-to-site. Four alternative approaches are described below, each using some or all of the tools described in Chapter 2. Management assumptions described above are not specifically spelled out (e.g., partnership, community involvement). Each of these approaches uses a "mix and match" approach to the tools. Although the approaches focus on one tool, a number of tools can frequently be used in concert with each other to create a streamlined process.

The most significant process changes that occur may be driven by a desire to conduct PBC. This approach will suggest a less definitive ROD (i.e., a performance-based ROD), and use of contractor proposals to conduct the detailed analysis. Depending upon the nature of the ROD signed, final remedy selection could be a contracting decision, or it could involve community review of contractor submissions.

Note that the figures used to describe each alternative process do not provide a detailed flow of CERCLA process, but instead attempt to show where new initiatives may fit in. These initiatives are outlined with dotted lines to show they are optional.

3.2.1 Approach #1: Traditional Site with Uncomplicated Surface Removal.

Figure 1 diagrams an **SACM** approach to a simple removal. In this case, the team scopes the project and determines that the site is a candidate for a simple soil removal. Cleanup levels are set based on anticipated future land use, and the community is involved in reviewing the land use selection. **RNSI** can be used to facilitate dialogue with the community and to assist the project team in determining cost issues that may be associated with cleanup to different land uses and exposure scenario levels (e.g., residential versus industrial). **SSLs** may be used to eliminate areas of concern. A standard risk assessment process is used to select cleanup levels. A **Plug-in ROD** may be useful in simple soil removals conducted as IRAs instead of removal actions.

3.2.2 Approach #2: Traditional Site with Presumptive Remedy (e.g., treatment or treatment and containment).

The Figure 2 model uses a combination of early site screening and establishing

Figure 1.
Approach #1. Traditional Site with Uncomplicated Surface Removal

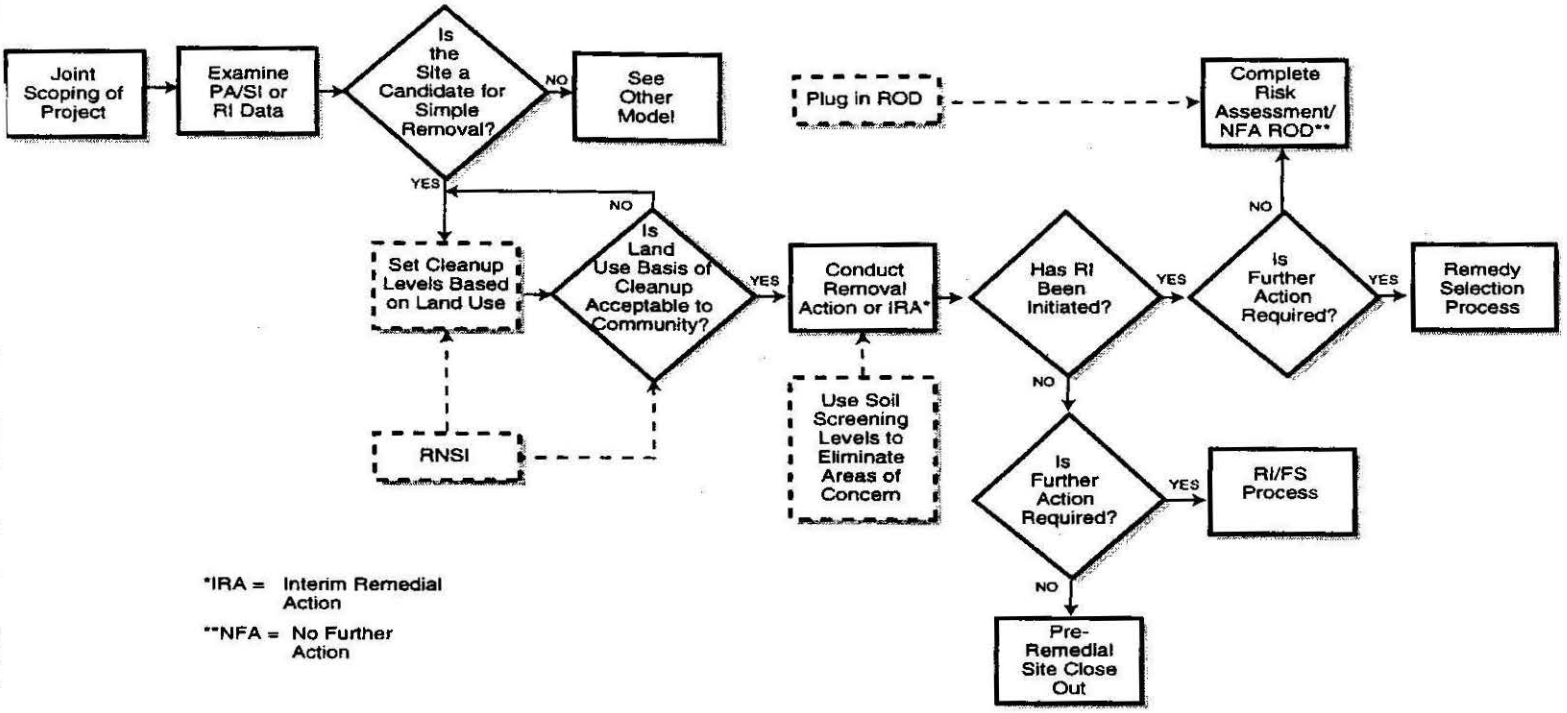
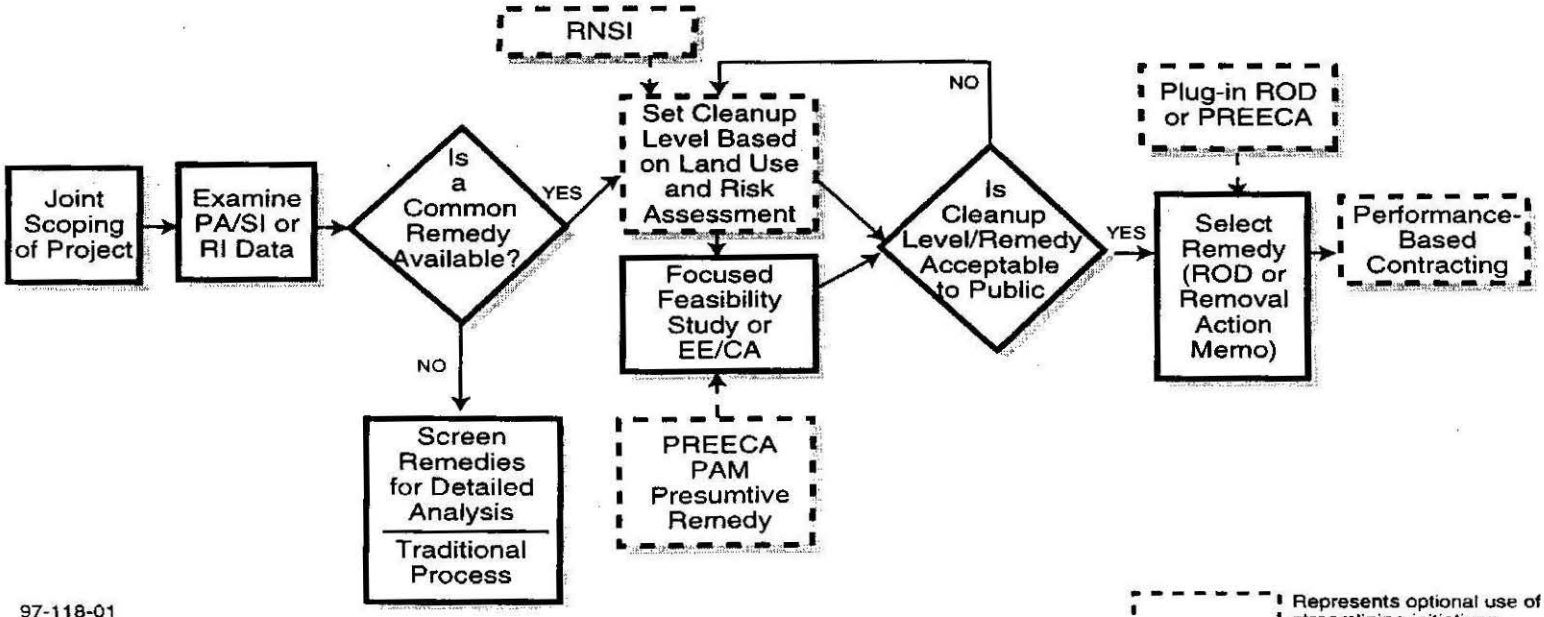


Figure 2.
Approach #2. Traditional Site with Presumptive Remedy



cleanup levels and **presumptive remedies** to move rapidly to remedy selection. In this model, the **RNSI** process can again be used to facilitate dialogue with the community on cleanup to different exposure scenario levels. The traditional risk assessment process is used to set cleanup levels, as appropriate to the remedy. The focus on a **presumptive remedy** results in a narrowly focused feasibility study (focused on one or two remedies), and is implemented by either a remedial action or a non-time critical removal action with an EE/CA. EPA's presumptive remedy guidance, the Air Force's **PREECA** initiative, or DOE's **PAMs** can all be utilized as tools to analyze and document the selected remedy. Again, a **Plug-in ROD** may be a useful tool to implement a presumptive remedy through the remedial program. Although this approach specifies the remedy, a performance-based decision document (e.g., containment of landfill to prevent infiltration of more than x...) could support a **PBC** approach.

3.2.3 Approach #3: Traditional Site with No Presumptive Remedy Using Performance- Based Contracting Option.

Figure 3 describes a traditional site with no Presumptive Remedy. In this instance, cleanup levels based on reasonable exposure scenarios (using **RNSI** and standard risk assessment tools) are established. Remedies are screened to establish a range of alternatives to be examined in more detail using **PAMS, RNSI, or PREECA presumptive remedies**. No feasibility study is conducted by the government. Contractors are invited to submit bids that will achieve cleanup levels in a fixed time period -- technologies are not limited to those screened, because the screening process simply presents expectations. The contractors are asked to submit detailed analysis of their proposed cleanup solutions in accordance with the CERCLA nine criteria. Public review of the contractor submission supports the government's remedy selection, which is documented in a ROD. The contractor is then responsible for achievement of cleanup levels.

3.2.4 Approach #4: Complex Site with No Presumptive Remedy: Performance Based Contracting Option.

Figure 4 describes a complex site with no presumptive remedy. In this model, the government screens a range of remedies for potential detailed analysis. **PAMs** and **RNSI** tools may be used to assist this process. The purpose of the screening process is not to determine all of the remedies that could be considered by contractors, but rather to set expectations as to what kinds of remedies one might expect to see analyzed. In this complex site, a number of variables could affect the cost and effectiveness of a selected remedy. Two pathways are identified. A decision is made as to whether cleanup levels can reasonably be established prior to the nine criteria analysis. In pathway 1, establishing clear cleanup levels prior to remedy selection (and without full information on the remedy) is reserved for the end. The government conducts a detailed analysis sufficient to make a determination of the type of remedy. A ROD is signed after remedy selection. Remedy selection remains performance oriented (e.g., use of soil vapor extraction to achieve x levels). A performance-based request for proposal (RFP) is released that invites contractor bids. The contracting process selects the lowest priced, technically-qualified contractor to perform the remedy.

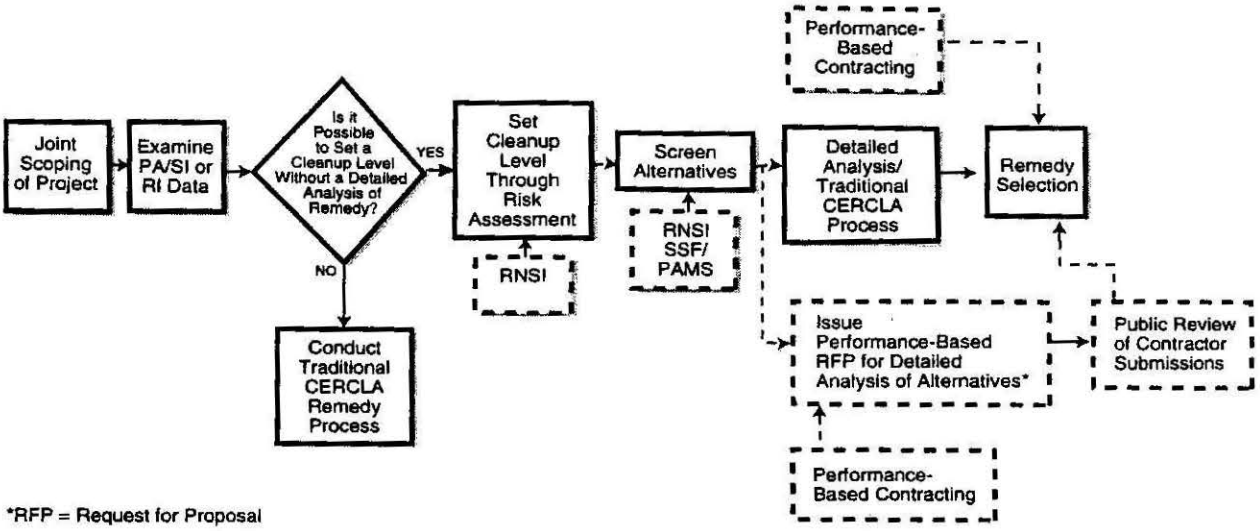
The second pathway finds that it is possible to set cleanup levels without full information on remedy selection. In this case, a number of potential remedies have a similar cost and probable similar effectiveness. In this instance, a ROD can be signed based on cleanup levels alone. The contracting process can select the lowest priced technically-qualified contractor. Public review of the qualified proposals can satisfy the public acceptance criterion. The contracting process and the project team then select the remedy.

3.3 Issues To Be Addressed in New Approaches to Cleanup

As research has shown (and as documented in the Fact Sheets on each initiative in Appendix A), many of the streamlining tools are not new. All can be implemented in a manner consistent with existing statutory and regulatory authority. They have been implemented in a variety of locations, some more broadly than others. The approaches offered above suggest ways of combining these initiatives in ways that may enhance the power of each initiative.

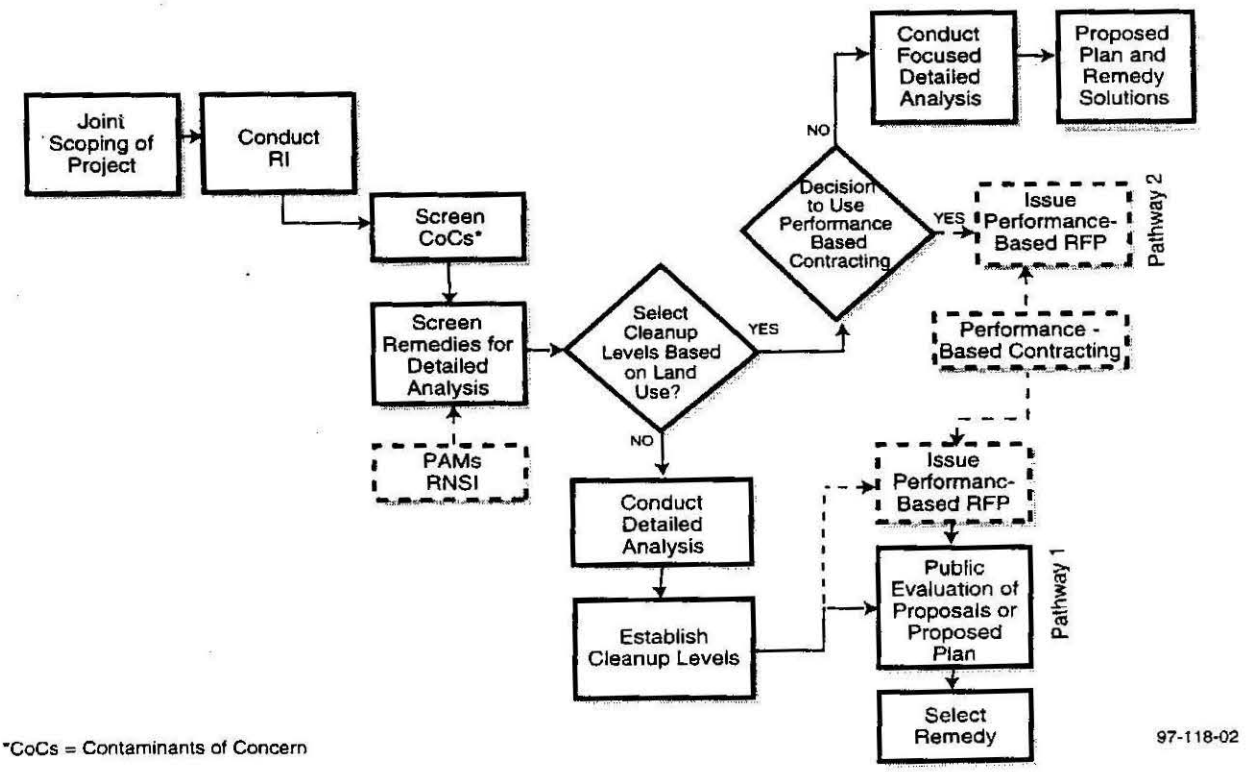
A number of issues may need to be addressed in order to take full advantage of the power of these initiatives. A few of these issues include:

Figure 3.
Approach #3. Traditional Site with No Presumptive Remedy. Option for Performance-Based Contracting



*RFP = Request for Proposal

Figure 4.
Approach #4. Complex Site — No Presumptive Remedy Option for Performance-Based Contracting



*CoCs = Contaminants of Concern

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- The nature and structure of a performance-based ROD;
- The types of contracting mechanisms that should be used to implement a performance-based ROD, and under what circumstances;
- Potential expansion of formal presumptive remedy tools; and
- Ensurance that public involvement is early in remedy selection, when remedy determinations are made long before a ROD is signed.

All of these issues have solutions. These issues may be answered by creative project teams, or by national policy makers working together.

CHAPTER 4. RELATIONSHIP OF INITIATIVES TO STREAMLINING RECOMMENDATIONS

Over the past 5 years, various reports have offered ideas and recommendations for streamlining the CERCLA process, as well as a variety of other recommendations (e.g., prioritization site of funding, public involvement, etc.). In order to ascertain how far the Federal community has come collectively in meeting these recommendations, five of the broader-based reports were selected for detailed analysis. These reports included:

- *A Remedy for Superfund. Designing a Better Way of Cleaning Up America. Consensus Recommendations by the Clean Sites Board of Directors.* February 1994.
- *Final Report of the Federal Facilities Environmental Restoration Dialogue Committee.* Consensus Principles and Recommendations for Improving Federal Facilities Cleanup. April 1996.
- *Report of the Defense Environmental Response Task Force.* October 1991.
- *Improving Federal Facilities Cleanup. Report of the Federal Facilities Policy Group.* Council on Environmental Quality; Office of Management and Budget. October 1995
- *Expedited Cleanup Subcommittee Report on Streamlining Environmental Site Remediation.* Hazardous Waste Action Coalition/U.S. Army Corps of Engineers. November 1995

Each of these reports was reviewed, and streamlining recommendations from each identified. The various initiatives discussed above were then evaluated to determine which, if any, of the streamlining recommendations were addressed by the initiative.

4.1 Summary of Types of Recommendations Addressed by Initiatives.

A comparison of the major streamlining recommendations to the initiatives that are the focus of this study suggests that substantial efforts are underway to implement these recommendations. Those recommendations that have received most attention are those that relate to streamlining the process through **collaborative decision-making, early actions, and standardization of the decision process**. Table 4 presents a summary of the streamlining recommendations addressed by the various initiatives. The Table also describes how effective the initiatives have been in implementing the recommendations, the degree of implementation, and impediments to implementation.

4.2 Summary of Streamlining Recommendations Not Addressed by Initiatives Examined:

A review of streamlining recommendations embodied in the reports cited notes a few areas not addressed by the initiatives identified. One area, contracting, is a deliberate omission from this analysis. Numerous activities have been undertaken to streamline the contracting process. Each service has developed its own approach to contracting, with an emphasis on contractor accountability and minimizing handoffs at different parts of the CERCLA process. These initiatives were not evaluated, because they are so numerous, because evaluation of their effectiveness is beyond the scope of this report, and because they remove impediments to the CERCLA process, but do not fundamentally change it. A second area, standardization of the design process, has not been addressed as a major initiative. However, the U.S. Army Corps of Engineers (USACE) and other contracting agencies have developed a number of internal guidances addressed to this area.

Funding is a major area that has received a great deal of attention in streamlining recommendations. Three of the five reports analyzed make a number of specific recommendations concerning maintaining continuity of funding, and establishing flexibility in funding during execution years so that projects do not have to stop due to changed conditions.

The USACE/HWAC report, written by individuals with extensive program implementation experience, places particular emphasis on this area. Examples of these recommendations are provided in Table 5.

The number and type of players affect the ability of Federal agencies to respond to some of the funding recommendations. Congressional requirements, Office of Management and Budget requirements, and those of the financial management community all impact how funding is allocated and spent. Considerable efforts have been spent by Senior DOD and EPA officials in ensuring stable funding for the cleanup programs -- an effort that bore fruit in this year's budget. Attention to recommendations concerning flexibility in funding execution does not yet appear to have been systematically addressed.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
COLLABORATIVE DECISION-MAKING TOOLS			
Partnering			
This initiative is designed to streamline decision-making through creation of a project team that jointly owns projects and can generate creative solutions to problems, and eliminate rework by building quality in up-front.	Early buy-in and continual dialogue with the regulators are essential to ensure a project's timely success....To avoid costly rework, previously agreed-to cleanup requirements must be implemented during project execution by the regulators when they change staff or the regulations are interpreted anew....Federal, State, and local regulator participation as stakeholders is critical to a streamlined project approach. (HWAC/USACE, 1995.) When potentially responsible parties (PRPs) demonstrate a willingness to cooperate, EPA should adopt a more collaborative process for decision-making and for reviewing remedial designs. (CLEAN SITES, 1994.) "...implement a more collaborative decision-making process..." (CLEAN SITES, 1994.) "Another way to avoid delay is for DOD to involve EPA and State regulatory agencies as appropriate, as early as possible in the process of investigating and cleaning up contaminated sites." (DERTF, 1991.)	Extensive documentation of time and cost savings through partnering. Partnering initiatives have been directly targeted toward these recommendations and, where implemented successfully, have been highly effective.	Extensive adoption by DOD, DOE, and EPA as a streamlining initiative. Impediments are facility-specific and are similar to Streamlined Oversight impediments. (See below.)

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Collaborative Decision-Making Tools (Continued)			
Streamlined Oversight (also known as Variable Oversight)			
Integrates a variety of tools (partnering, basewide documents, consensus agreements, alternative deliverables, joint scoping) to build quality (and agreement) into the frontend of projects, and streamline the document review process by making it focused, and less redundant. Supports prioritization of sites for oversight and allows targeting of the types of oversight activities to the priority of the site and the nature of the decisions to be made.	Clarify responsibility for decision-making during the remedial selection and design phase and implement a more collaborative decision-making process. (CLEAN SITES, 1994.) Early buy-in and continual dialogue with the regulators are essential to ensure a project's timely success....To avoid costly rework, previously agreed-to cleanup requirements must be implemented during project execution by the regulators when they change staff or the regulations are interpreted anew. (HWAC/USACE, 1995.) When PRPs demonstrate a willingness to cooperate, EPA should adopt a more collaborative process for decision-making and for reviewing remedial designs. (CLEAN SITES, 1994.) "Efforts to streamline the cleanup process should focus on reducing paperwork and moving away from adversarial relations toward cooperation and the arbitrary capping of funding for studies." (FFPG, 1995.) Level of external oversight of Federal Facility cleanups necessary to ensure a credible and effective cleanup program will depend on the nature and extent of environmental contamination or hazard at any site. (FFERDC, 1996.)	Demonstration at Langley AFB showed initiative to be highly effective in saving both time and money. Over $2.5 million and 8 to 10 months saved. Similar activities at partnerships around the country have also documented considerable cost and time savings.	Implemented partially at a number of bases with active partnerships. Impediments include organizational cultures, distrust of Federal Facilities and lead agency, and regulatory responsibility mind-sets. New guidance issued by EPA designed to enable changed process.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Collaborative Decision-Making Tools (Continued)			
BRAC Fast-Track Cleanup Program			
Designed to create a partnership with the regulators and the community to streamline decision-making on critical issues, including land use and transfer of property.	See partnering recommendations above.	Highly effective where implemented. Extensive case study documentation of time and cost savings.	Widely implemented. Resources provided to EPA and the States to enable continual involvement of team. Impediments are those associated with building a true team, and the associated trust that comes with it. (See Streamlined Oversight.)
Screening, Early Focus on Remedies			
Soil Screening Framework (SSF)			
Designed to allow early narrowing of selected aspects of the risk assessment by supporting rapid identification of chemicals and areas of concern. In addition, **may** be used in voluntary simple cleanups to accelerate cleanup activities by providing early preliminary remediation goals (PRGs.)	"EPA should continue with their efforts to initiate the soil trigger level as an important screening tool to identify contaminant levels below which there is no concern and above which further site-specific evaluation would be warranted." (HWAC, 1995.)	Soil screening numbers have been used by a number of regions at Federal and private facilities to focus in on contaminants of concern and to eliminate areas of concern as contaminated sites. Prior to the issuance of new Soil Screening Guidance, SSLs used were those calculated values by Regions 3 and 9. Effectiveness has not been documented at this time.	National soil screening guidance recently promulgated. Not all pathways are addressed by guidance. Although successful at many sites in reducing numbers of contaminants and areas of concern early in the process, SSLs are less useful when ecological risk is present, because chemicals/areas cannot easily be screened out.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Screening, Early Focus on Remedies (continued)			
Rational National Standards Initiative (RNSI)			
Combines early land use analysis with soil screening levels and typical remedy types for a particular situation to identify most likely remedies for typical sites, and to conduct an economic/sensitivity analysis of the cost of cleanup to different kinds of land uses. Also, can be used to facilitate early assessment of priorities at sites by identifying operable units/sites that may be safe for current uses, even if they will require cleanup for future uses.	"....link remedial decision-making with reasonably anticipated future land use at a site." (CLEAN SITES, 1994.) Consider the future use of the site, and the implications for the surrounding community in which a site is located to be of central importance in the remediation process. (FFPG, 1995.) "Better consideration of cost and risk issues." (FFPG, 1995.) (See also recommendations related to SSLs above.)	The RNSI initiative offers a tool to assess the relationship of land use, potential remedy, and cost and conduct an early sensitivity analysis of the cost of achieving cleanup to different levels of land use. In this manner, it potentially ties together a variety of recommendations related to linking decision-making to land use and to improved understanding of costs. Documented effectiveness in facilitating an early focus on land use and cleanup levels. Integrates early consideration of cost and risk.	Has been implemented on a limited basis within the Air Combat Command. Controversial in some regions and States in that the initiative uses terms and approaches that are not totally familiar to regulators.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Screening, Early Focus on Remedies (continued)			
Land Use Directive			
The directive has two primary objectives: 1. It promotes early discussions with local land use planning authorities, local officials, and the public regarding reasonably anticipated future uses of the property on which an NPL site is located. 2. It promotes the use of that information to formulate realistic assumptions regarding future land use and clarifies how these assumptions fit in and influence the baseline risk assessment, the development of alternatives, and the CERCLA remedy selection process.	"....link remedial decision-making with reasonably anticipated future land use at a site." (CLEAN SITES, 1994.) "Consider the future use of the site, and the implications for the surrounding community in which a site is located to be of central importance in the remediation process." (FFPG, 1995.) "Establish land use restrictions at the beginning of the project. Direct the data collection efforts in the RI to determine the level of risk reduction based on future land use..." (HWAC, 1995.) "Reasonably anticipated future land use, not just current or anticipated land use, should be considered in cleanup decisions." (FFERDC, 1996.)	Effectiveness of initiative in basing cleanup on restricted land use (e.g., industrial) limited by controversies over the future of closed bases, and by stringent cleanup levels based on the need to protect groundwater. Detailed analysis determines the remedy selected.....may not achieve reasonably anticipated future land use over the entire site.	Implementation is limited by the fact that the remedy at many sites is not driven by surface land use, but by the need to protect groundwater to drinking water standards (by cleaning up the source at or below residential land use levels), or to protect ecosystems. Continued issue at Federal Facilities is Federal Facility responsibility if property changes hands.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
EARLY ACTIONS/FASTER DECISION			
. Superfund Accelerated Cleanup Model (SACM)			
Integrates investigation phases of standard CERCLA process to streamline decisions and reduce investigatory costs. Uses Regional Decision Teams to better integrate removal and remedial program, using the optimum regulatory approach to ensure rapid attention to problems that can be addressed in the short term.	"Incorporate opportunities in the remediation process for quick action to address obvious problems that can be solved promptly." (CLEAN SITES, 1994.) "The RI/FS process should be streamlined using staged remedies..." (HWAC/USACE, 1995.) "Begin remediation as soon as sufficient information is available about site remediation." (HWAC/USACE, 1995.) "Begin remediation when hot spots or underground contamination is mostly understood." (HWAC/USACE, 1995.)	Extensive use of removals and Interim Remedial Actions (IRAs) at Federal Facilities demonstrates high level of effectiveness in implementing recommendation(s).	Widespread implementation of the quick response/removal aspects of SACM initiative. Integration of pre-remedial and remedial data less successful. Large number of no action sites at Federal Facilities have led to routine use of site inspection (SI) to determine if RI is needed (not just for listing). SI data are often not suitable for RI, and for many DOD facilities, additional sampling (and in some cases redundant sampling) may be required to meet data quality objectives (DQOs) associated with RI/FS.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Early Actions/Faster Decisions (continued)			
Streamlined Approach for Environmental Restoration (SAFER) Initiative			
Designed to integrate team oriented decision-making with DQOs, the observational approach to investigation, and explicit attention to uncertainties analysis and decision rules to streamline the investigation process and move quickly to cleanup.	See collaborative decision-making recommendations above (Partnering, Streamlined Oversight). The RI/FS process should be streamlined using staged remedies, and concurrent rather than sequential steps and recommended by the observational method. (HWAC/USACE, 1995.) Allow for parallel rather than sequential steps to focus RI data collection. (HWAC/USACE, 1995.) Start the design as soon as sufficient information is available about site restoration. (HWAC/USACE, 1995.) "Observational Approach...Work should begin and proceed based on what is known, using good engineering judgement to move forward, then returning to more detailed data collection as the need arises." (HWAC/USACE, 1995.) "Contingency Plans for each design are incorporated into the remediation design." (HWAC/USACE, 1995.) Incorporate opportunities in the remediation process for quick action to address obvious problems that can be solved quickly. (CLEAN SITES, 1994.)	Highly effective effort with extensive documentation of savings at pilot studies. Integrates a number of initiatives into one package.	Training program on SAFER initiative currently being given throughout DOE Complex. This remains primarily a DOE initiative, although numerous other initiatives (including contracting initiatives such as TERC)[7] have been designed to support a collaborative, observational effort.

[7] Note: TERCs are discussed in the Fact Sheet on Performance-Based Contracting.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
STANDARDIZATION OF PROCESS			
Presumptive Remedies			
Based on previous experience with type of site and nature of chemicals and waste matrix. Rebuttable presumption may allow a reduced number of alternatives to be identified early in the cleanup/ investigation process. Designed to quickly narrow the range of alternatives that must be considered in the RI/FS process to both streamline the feasibility study process and support early collection of design data to accelerate moving to cleanup.	"All sites should be screened for classical types of contamination that do not vary in characteristics and have a few well-developed and reliable technologies for cleanup." (HWAC/USACE, 1995.) "Establish presumptive remedies appropriate to specific site categories." (HWAC/USACE, 1995.) "Standardize the remedial planning process for some categories of sites to apply presumptive remedies." (HWAC/USACE, 1995.)	A limited number of "formal" presumptive remedies have been issued. However, EPA Regions, States, and Federal Facility Remedial Project Managers (RPMs) are using the presumptive remedy concept to hone in quickly on a narrower range of alternatives than has been considered in the past. Other initiatives (PREECA, PAM) are taken from and rely on the basic Presumptive Remedy approach. Widespread use suggests high level of effectiveness in streamlining. However, little quantitative data have been collected.	Implemented widely across the country. Potential impediments include State and community acceptance when there is a lack of buy-in to a focus on a few remedies.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Standardization of Process (continued)			
Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA)			
Presumptive remedy guidance for use specifically in the removal program. This guidance addresses typical Air Force situations and draws upon the EPA Presumptive Remedy approach to create standard approaches to EE/CA used by the removal program to plan non-time critical removal actions.	"DOD, EPA, and State regulatory agencies should develop and use generic responses to recurring types of contamination wherever possible." (DERTF, 1991.)	Significant documented cost and time savings by the Air Combat Command, where it has been most widely implemented.	Implementation at this point has been largely limited to the Air Force, and specifically the Air Combat Command. There are no particular impediments to it being used by other Federal Facilities and DOD services. Site specific limitations include community and State acceptance. (See above.)
Preferred Alternatives Matrices (PAMs)			
This approach keys off EPA's presumptive remedy approach. It provides "guidance on practices that are effective for various applications and which should be used unless an unusual situation dictates otherwise." It scores technologies based on their ability to solve specific problems, and is organized around the type of problem (e.g., groundwater, landfill). It is designed to streamline the alternative screening process as well as the process of detailed analysis, and to support consideration of alternatives early in the scoping of a study to integrate design data into the RI/FS.	See recommendations concerning Presumptive Remedies and PREECA.	Effectiveness unknown; has not yet been implemented.	DOE version of presumptive remedies. Impediments have to do with community and regulation acceptance, and with uniqueness of site specific circumstances.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Standardization of Process (continued)			
Plug-In RODs			
Designed to streamline the remedy decision process by recognizing the similarity of site problems in some instances. Designed for use at facilities with a large number of sites or subsites that have similar characteristics. Once a remedy is selected and ROD developed for the site type, each subsequent site or subsite that matches the predefined conditions is "plugged" into the generic ROD. Individual site RODs are developed that differ only in the site-specific data and information.	"DOD, EPA, and State regulatory agencies should develop and use generic responses to recurring types of contamination wherever possible." (DERTF, 1991.)	Plug-in RODs are a form of generic response. They have not been used at Federal Facilities.	Has not be implemented widely; not implemented in Federal Facility community. Impediments include controversy over cleanup levels.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
REGULATORY INTEGRATION			
RCRA/CERCLA			
Designed to integrate RCRA and CERCLA requirements in a manner that eliminates overlap, duplication, and conflicts. Recently issued guidance suggests that a lead regulatory authority be selected (normally in the case of Federal Facilities this will be CERCLA) and that decisions under that regulatory authority satisfy requirements under the other. In addition, recent guidance suggests that risk-based closures can be used for regulated units as well as Solid Waste Management Units (SWMUs).	Integration of the CERCLA cleanup process and RCRA substantive requirements should be done by agreement between the regulatory agencies and DOD. (DERTF, 1991.) The local EPA Region and the applicable State environmental/health department share regulatory authority at many sites. They need to coordinate their efforts, give clear and consistent regulatory guidance for the project, and assume responsibility for determining the regulatory climate at the site. (HWAC/USACE, 1995.)	Facilities such as Idaho National Engineering and Environmental Laboratory (INEEL) have shown that when RCRA and CERCLA are effectively integrated substantial time and cost savings can be realized.	A number of DOE and DOD facilities have specifically addressed this issue in Interagency Agreements (IAGs.) Widespread implementation has been impeded by State concerns over their management of Federal Facility sites and by a variety of legal issues. New guidance from EPA should help facilitate RCRA/CERCLA integration. However, individual authorized States will have to "buy-in" to the concepts of the guidance in order to impact the cleanup process.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
Regulatory Integration (continued)			
Lead Agency Division of Labor (Region 10)			
Under this concept, oversight work is divided between EPA and the State to minimize duplication of effort and streamline the review process. This division of labor may be with regard to a site within a facility, an entire facility, or a phase of work for a site.	Independent State regulatory oversight is necessary to achieve effective environmental results at Federal Facilities. Duplicative oversight should, however, be avoided and a lead regulator (Federal or State) should be designated whenever possible. (FFPG, 1995.) "States should consider adopting a process recently agreed to by California and DOD addressing the environmental restoration and the reuse of non-NPL military bases. EPA should also, upon the state's request, consider letting the state keep the "lead regulatory" agency role after the non-NPL base is listed on the NPL, on a case-by-case basis, in order to maintain consistency throughout the cleanup process." (DERTF, 1991.)	National guidance is under preparation and has not yet been issued with regard to this issue. However, individual Regions are developing agreements along these lines. RCRA/CERCLA guidance also begins to take a step in this direction. (See below.)	Limited applicability to date at National Priorities List (NPL) and Base Closure Federal Facility sites. Controversy over potential statutory impediments to implementation has slowed down preparation of national guidance.

Table 4. Relationship to Streamlining Recommendations; Implementability of Initiatives (cont.)

Description	Related Streamlining Recommendations and Source	Effectiveness of Initiative in Implementing Recommendation	Degree of Implementation; Impediments to Widespread Implementation
	TECHNICAL TOOLS		
	Environmental Data Management and Decision Support (EDMDS)		
Use of central data base and GIS support to facilitate team approach to review of data, and identification of data needs. Can be used to streamline RI report development and review by facilitating real-time review of data by team to identify appropriate "what if" scenarios to be addressed in RI report. Designed to expedite decision-making by technical reviewers.	"Efforts to streamline the cleanup process should focus on reducing paperwork and moving away from adversarial relations toward cooperation and the arbitrary capping of funding for studies." (FFPG, 1995.) (See also recommendations listed under Collaborative Decision-Making.)	Where implemented, highly effective in providing tools for collaborative consideration of data by project teams, and up-front decision-making prior to generation of paperwork.	Specific initiative is being implemented systematically by Air Combat Command. However, GIS under increasing use in various services and is used as a streamlining tool in Navy partnering efforts in Region 4. Limitations are related to equipment and manpower to input initial data.
	Performance-Based Contracting (PBC)		
By establishing remedial objectives (i.e., cleanup levels) early in the process, facilities can then allow private sector companies with appropriate technologies to bid on meeting the performance specification. Incentives built into the contracting process further foster acceleration of cleanup and use of innovative technologies. Anticipated time and cost savings.	"Federal Facility environmental cleanup contracts should be managed as efficiently as possible by using contract mechanisms that specify, measure, and reward desired outcomes and efficiencies rather than simply reimburse for effort or pay for an end product." (FFERDC, 1996.)	Pilot projects under way at Air National Guard and DOE's INEEL. Pilots under development at Air Combat Command. Both Air National Guard and TERCs demonstrated substantial time and cost savings.	Perceived as inconsistent with contracting and remediation law. May require different approval to selection of remedy. Differing definitions of the purpose and goals of PBC.

CLEAN SITES: *A Remedy for Superfund. Designing a Better Way of Cleaning Up America.* Consensus Recommendations by the Clean Sites Board of Directors. February 1994.

FFERDC: *Final Report of the Federal Facilities Environmental Restoration Dialogue Committee.* Concensus Principles and Recommendations for Improving Federal Facilities Cleanup. April 1996.

DERTF: *Report of the Defense Environmental Response Task Force.* October 1991.

FFPG: *Improving Federal Facilities Cleanup*
Report of the Federal Facilities Policy Group.
Council on Environmental Quality; Office of Management and Budget. October 1995.

HWAC/USACE: *Expedited Cleanup Subcommittee Report on Streamlining Environmental Site Remediation.* Hazardous Waste Action Coalition/US Army Corps of Engineers. November 1995.

Table 5. Recommendations Related to Funding Issues

Continuity of Funding	Flexibility of Funding	Contingency Planning
Funding continuity is essential... Keep the project fully funded through good installation planning so that the delivery team avoids multiple stops and starts in the project life cycle. (HWAC/USACE, 1995.)	The funding cycle must provide some flexibility to respond to changing project requirements. The current programming cycle will not allow a continuum of project execution when estimates developed years before are exceeded or several less costly phases can be bypassed to proceed directly to construction. (HWAC/USACE, 1995.)	More in-depth planning at the beginning of the project could build contingency into the projects that seem most likely to be executed using more innovative approaches. A contingency fund should be set aside for these situations and used only when it can be demonstrated that significant savings will occur in jumping from the RI to the RA. (HWAC/USACE, 1995.)
"...Establish a multi-year incremental funded program that has a must-fund commitment to ensure work will continue until no further action is required..." (HWAC/USACE, 1995.)	In order to ensure that the limited Federal resources are used as wisely as possible, budgets should be readily adaptable to new information, budget constraints, and changing circumstances. (FFPG, 1995.)	In light of current Defense Environmental Restoration Account (DERA) funding shortfalls, MACOMS/MAJCOMS should prioritize funding for projects identified on the fast track and streamlined process. This must-fund project list should be guaranteed to receive continual funding across fiscal years. (HWAC/USACE, 1995.)
	Funding mechanisms for cleanup should provide flexibility in the timing of expenditures and ensure that cleanup activities are conducted as efficiently as possible. (FFERDC, 1996)	

Appendix A

Fact Sheets

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Streamlining Initiative Summary
PARTNERING: U.S. NAVY

Overview:

Partnering is a collaborative, consensus-based strategic planning and problem-solving process, focused by building solid working relationships. It is a process through which two or more organizations with shared interests act as a team to achieve mutually beneficial goals. Typically, partners are organizations that in the past have worked at arm's length, or have even had competitive or adversarial relationships. Federal Facilities, including U.S. Department of Defense (DOD) and Department of Energy (DOE), have embraced partnering as a streamlining tool for cleanup to break down barriers to communication, promote better and more efficient decisions, eliminate redundant reviews, and identify creative ways to solve problems. In partnering, organizations work together to maximize each other's resources and produce a synergy that is superior to their individual efforts. The outcome is greater than the sum of its parts.

The term partnering should not be used as a generic term to cover all efforts to work together in a cooperative manner. When partnerships are effective, they involve shared goals and mutual accountability. Not all workgroups achieve that level of performance.

Where Implemented:

Partnering has been implemented extensively at Federal Facilities across the country, particularly at DOD and DOE facilities (DOE sometimes calls it collaborative decision-making). DOD uses partnering on all levels - policy, program, and project. In addition to installation cleanup, partnering is also used to benefit compliance, pollution prevention, and conservation programs.

Affected Parts of the Process:

Partnering changes the cleanup process from beginning to end, without prescribing any specific changes, through the inherent efficiencies created from changed communication and teamwork. Each partnership will be unique, as will the way it effects specific process changes. Improved communication usually results in shortened timeframes and reduced costs for everything from scoping and investigation through design and construction.

In a partnering context, many more decisions are made in team meetings with buy-in from all the necessary parties. Partnerships push the envelope to cut through unnecessary bureaucratic processes and procedures. Documents are reviewed faster (some teams perform on-board review of documents at a 2-3 day meeting), and technical issues are decided more quickly and cost-effectively. Some teams may eliminate the need for multiple rounds of document review, and others may find creative and innovative ways of eliminating entire phases or studies. Regulatory comments and questions are focused on substantive issues rather than questions asked due to lack of information.

Partnerships focus on the shortest path to remedial actions and site closure. In a partnership, regulators are involved with how and why projects are funded. The team works together to prioritize requirements as they work toward a common goal.

Lessons Learned/Successes and Impediments to Implementation:

One major lesson learned about partnering is that teams must be built -- they just don't happen. A significant upfront investment, including team building training, may be required to form the team. There must be a commitment to make that upfront investment and then stick with it. Experience has shown that the initial resource investment usually saves staff time over the life of the program or project, including costs of litigation and overhead.

One barrier to implementing partnering is the attitude that building relationships is a luxury, something done when there is plenty of time. In fact, it is often problems with relationships that create extra work - and work that is nonproductive.

The success of partnering is greatly enhanced when there are active involvement and full support of senior management. Management must provide strong incentives for taking risk.

Independent facilitation should be considered to help teams design effective meetings. Facilitators can take care of the *process* so that the team can focus on the *content* of the meeting.

In addition to the time and cost savings attributable to partnering, a major success of the partnering concept, as evaluated by people who have participated in partnerships, is the improved working environment associated with the team construct.

Documented Savings:

There are many examples of savings attributable to partnering. A selection of examples from a *Partnering Guide for Environmental Missions of the Air Force, Army, and Navy* (July 1996) and other sources are presented below:

- At MCB Camp Lejuene, a partnering team developed an expedited process that is intended to shorten study time from an average of 38 months to 19 months. On the first site where the process was used, the team was able to complete a Record of Decision (ROD) in 10 months. At other sites where the process is currently being applied, the team estimates it will beat the old process by at least 13 months.

- The Bayou Bonfouca remediation project is projected to be completed 3 to 4 years ahead of schedule.

- The Navy and its contractor, the U.S. Environmental Protection Agency (EPA), and the State of Florida have established a partnering team to oversee all Navy restoration activities in Florida. The Navy estimates cost savings of $2,034,000 in the time period from December 1993 - July 1994, with more to come in subsequent months. Savings of $996,000 resulted from cost avoidance of actual or implied penalties, and the remainder was from reduced cycle time and process improvements.

- At Shaw Air Force Base (AFB) in South Carolina, remedial design and remedial action phases were eliminated for two operable units, saving almost $1.8 million. Draft final report submittals have been eliminated because the team resolves issues in team meetings. Savings for seven documents are estimated to be 210 days and $70,000.

- At Naval Air Station in Florida, by scoping projects as a team, an investigation that was initially scoped for $200,000 was accomplished for $20,000 in 6 months rather than 2 years.

- At Marine Corps Air Station (MCAS), Cherry Point, North Carolina, an estimated $18,000 to $30,000 were saved for each operable unit by eliminating the preliminary draft and draft-final documents. In addition, for those documents submitted, review periods were significantly reduced, saving 60 days for each operable unit.

Overlap/Consistency with other Streamlining Initiatives:

Partnering is focused on changing the process by changing relationships. It does not prescribe any specific steps or methods of changing the process itself; these evolve out of the changed relationships. Partnering is consistent with, can, and perhaps should be used as foundation for most, if not all, other streamlining initiatives. In fact, other initiatives, such as Streamlined Oversight, Streamlined Approach for Environmental Restoration (SAFER), and Base Realignment and Closure (BRAC) Fast-Track Cleanups are designed to be implemented in a partnership context.

Additional Information:

To obtain additional information on this initiative contact:

Jon Johnston, U.S. Environmental Protection Agency, Region 4, (404) 562-8527
Edward Carreras, U.S. Department of Energy, (404) 347-3555, ext. 6436

References:

General:

Partnering Guide for Environmental Missions of the Air Force, Army, Navy, prepared by a Tri-Service Committee: Air Force, Army, Navy. July 1996.

Naval Facilities Engineering Command. *Guide to Partnering for Environmental Projects*. September 1994.

U.S. Army Corps of Engineers. *Total Environmental Restoration Contract - A Success Story: Partnering Fact Sheet.*

Cost/Time Savings:

U.S. Department of Energy. *Blueprint for Action and Cost Control at Hanford*, Hanford Home Page: http://www-proxy.rl.gov:1050/whc/press/blueprnt.html.

U.S. Environmental Protection Agency, Region 4. *Elements of Success at Lower East Fork Poplar Creek Site*, Oak Ridge, Tennessee. EPA 505-D-96-001 (a cooperative effort between EPA Headquarters, EPA Region 4, DOE, and the State of Tennessee). September 1996.

U.S. Department of Energy. *Interagency Cleanup Efforts Achieve Significant Results.* DOE Home Page, Posted March 11, 1996.

The Management Edge. Compilation of Partnering Successes from Various U.S. Department of Defense installations.

Streamlining Initiative Summary
STREAMLINED OVERSIGHT: U.S. AIR FORCE; U.S. EPA

Overview:

The Streamlined Oversight process was developed by the U.S. Air Force in collaboration with an External Review Group (ERG), comprised of representatives from a broad base of organizations including U.S. Environmental Protection Agency (EPA), several States, U.S. Army Corps of Engineers, and several public interest groups. The process outlined by the ERG was published in the report *Moving Site Faster Through Streamlined Oversight*, dated August 1995. Streamlined Oversight was developed in response to evidence suggesting that 60 percent or more of a typical 4-year remedial investigation/feasibility study (RI/FS) is spent on review of documents and response to comments - the heart of the regulatory oversight process. A specific goal of Streamlined Oversight is to significantly reduce the amount of time and effort spent on document review, response, and comment.[8]

As a streamlining initiative, Streamlined Oversight is a common sense approach to cleanup that combines altering the type or level of regulatory oversight at individual sites with streamlining concepts and specific tools that can be applied to all sites at a Federal Facility. The vehicle for implementing Streamlined Oversight is a partnership between the Federal Facility, the regulators, and the community. The Streamlined Oversight process reduces adversarial relationships and can shorten the time and reduce risk and costs associated with the cleanup process. The initiative builds on a variety of techniques that have been successfully demonstrated across the country to streamline decision-making. Systematic application of these techniques is used to change the nature of an oversight process that is typically driven by after the fact review of major documents by regulators and responses to comments by Federal Facilities. In addition to partnering, the tools used to implement the Streamlined Oversight process include:

1. A joint scoping process that results in agreement on end-point objectives and the data required to answer the questions necessary to meet those objectives.

2. Formal Consensus Agreements (and numerous informal agreements) concerning major methodological decisions that underpin the way analysis is undertaken to answer required questions (e.g., exposure scenarios in the risk assessment, decision rules for risk screening, approaches to hydrogeological investigations, etc.).

3. Basewide Standard Operating Procedures (SOPs) that cover multiple sites, with site specific checklists to note deviations or changes from the basewide SOPs.

4. Active use of a variety of tools to improve communications including standard report formats, focused "mini" reports (e.g., maps, tables) to facilitate meeting discussions, Geographic Information Systems (GIS) to review data results, and site ranking to establish common understanding of priorities for oversight of the different sites.

[8] Originally called Variable Oversight, the name has been changed to Streamlined Oversight for consistency with national policy.

Where Implemented:

Although pieces of the Streamlined Oversight process have been demonstrated by numerous partnerships, the power of systematic application of a combination of tools was piloted at Langley Air Force Base, Virginia, in April 1995 and is ongoing at that facility. A second demonstration was begun in October 1996 at Norfolk Naval Base, Virginia. NASA Wallops Island, Virginia, and Edwards AFB, California, have also implemented Streamlined Oversight tools to achieve time and cost savings.

Affected Parts of the Process:

Streamlined Oversight is designed to streamline all parts of the cleanup process, from beginning to end. The fundamental efficiencies come from reaching agreements upfront, and avoiding costly comment/response to comment process and rework that are frequently associated with regulatory oversight of Federal Facilities. The actual changes to the process will be facility and site-specific and can vary from facility to facility.

Pre-Remedial:

- Partnering, joint scoping, and other Streamlined Oversight tools enhance the ability of the team to make an early decision on the right kind of information in an action/no action decision, and may facilitate site close out.

Removal:

- Continued collaboration by the project team will foster early consultation and decision-making on potential removal actions.

Scoping and Workplan Preparation:

- This phase of work is substantially shortened by joint decision-making by the project team, and eliminating document preparation, review, and response as the focal point of the decision to get in the field. Additional benefits to later phases of work come from up-front agreements that minimize rework as the RI/FS is being completed.

- The project team jointly reviews existing data, determines the end-point objective of any data collection, and develops a site investigation strategy to answer the questions and reach the end-point objective.

- Because the basewide SOPs for quality assurance, health and safety, investigation derived waste, and applicable or relevant and appropriate requirements (ARARs) have already been approved to cover most site circumstances, the only documentation prepared in the workplan is site specific checklist that validates that the basewide SOPs will be followed, and identifies (as appropriate) the pieces of the basewide SOPs relevant to the site, as well as any exceptions or changes.

- Because the scopes of work were developed by the project team, and Consensus Agreements on major methodological issues reached, the workplan review is simply a verification of agreements made. A standard report format for the workplan pulls together the pieces agreed to in scoping, along with the checklists associated with the SOPs. When trust exists in the project team and the community involvement has already occurred, it is possible to get into the field prior to submission of a complete formal workplan.

Investigation Results (RI/FS):

- Project team jointly screens remedial alternatives and determines which alternatives require further analysis.
- Joint review of data through GIS support allows the team to consider a variety of options, and supports early team decision-making that an interim remedial action or a removal action may be more appropriate than completing a full RI/FS.
- Up-front decisions on risk assessment scenarios, assumptions, and other methodological questions (e.g., an ecological assessment strategy) allow the team to focus meeting discussions on outcomes. Standard report formats facilitate review of RI and FS reports. RI report review may not be a major focus, because the team has already reviewed the data. Proposed plans and Records of Decisions (RODs) may be jointly drafted by the team.

Design:

- Continuing team discussions during the RI will facilitate initiation of the design concurrently with the RI, and/or collection of design-oriented data during the RI. Design phase is likely to be significantly shortened.
- Review of progress during team meetings will likely minimize the amount of formal design document review by regulators at many sites.
- Construction activity can be initiated without a completed design in specific circumstances if the team agrees that more detailed design is unnecessary.

Construction:

- Construction activity is likely to be phased, and may be initiated as interim remedial action (IRA) during the RI process, or while the design is on-going.
- Problems encountered during the construction phase can be rapidly addressed with partnership discussion by the project team to avoid delays associated with transferring letters and documents back and forth.

Lessons Learned/Successes and Impediments to Implementation:

To date, the pilot project at Langley AFB has demonstrated the following successes, lessons learned, and impediments.

Successes:

In addition to time and cost savings at Langley AFB discussed below, other success include:

- Field work was initiated prior to formal workplan submittal/approval.
- The workplans submitted were a confirmation of agreements already made, and comments from EPA and the State were minimal and required no effort to resolve.

- Use of the basewide documents, alternative deliverables, and standard report formats facilitated the scoping, workplan preparation, and initial reporting of sampling results to the partnership.

- A certain level of streamlining can be accomplished prior to the partnership reaching a "high-performing" phase simply through systematic application of the tools of Streamlined Oversight and the communication efficiencies they achieve.

Impediments/Lessons Learned:

- Partnership and trust provide the foundation. Implementation of streamlining limited without this.

- Organization/institutional culture issues can be associated with building a high-performance team that cuts across organizational boundaries. Team members may have to change the way they exercise their responsibilities. Building a high performing team takes time and attention.

- Technical staff have limited availability for up-front meetings. The team must develop a strategy for obtaining efficient input from technical support and for managing that input.

- Federal Facility procedures for prioritizing, budgeting, and awarding funds for phases of projects may sometimes hinder the team's ability to accelerate projects. The team will need to pay careful attention to project funding to ensure consistency with streamlined schedules.

- Attention to up-front planning, team building, and decision-making can be frustrating and initially appear to delay "real work." This time spent is critically important to streamlining efforts later.

Documented Savings:

- For the 20-month period that the Langley pilot has been underway (April 1995 - December 1996), cost savings include over $2.5 million in study and design investigation costs; time savings are between 8 to 10 months, compared to previous experience at the facility from the point of obligation of funds to initiation of field work. An agreement made by the team to reduce the number of analytes sampled for during the second round of sampling resulted in additional cost savings.

- At Edwards AFB, it is estimated that the joint scoping process may have save $50 million for a single project.

- After only 6 months of implementing Streamlined Oversight, Naval Base Norfolk cost savings are estimated at $150,000. Based on agreements made to date, time savings are currently projected to range from 6 months to 3 years for each of the nine sites.

- At NASA, Wallops Island, Virginia, use of Streamlined Oversight tools allowed the contractor to meet very tight time constraints and to begin field work 6 months ahead of schedule.

Overlap/Consistency with other Streamlining Initiatives:

Streamlined Oversight builds on partnering and takes many of the best ideas and tools already being used and expands on them. Oversight is consistent with the National Contingency Plan (NCP). The Streamlined Oversight initiative

contains some similarities and elements of both the U.S. Department of Energy (DOE) Streamlined Approach for Environmental Restoration (SAFER) model and EPA's Superfund Accelerated Cleanup Model (SACM). For example, both Streamlined Oversight and SACM emphasize forward thinking in the collection of data early in the process to suit multiple needs for current and later phases of work. The Streamlined Oversight process emphasizes initiating and preparing the FS concurrently with the RI as does the SAFER model. In addition, presumptive remedies are identified as a site/remedy type suitable for a changed oversight process.

A unique aspect of the Streamlined Oversight initiative, as compared to other initiatives, is the heavy emphasis placed on changing and improving the communication aspects of the process with a particular focus on the content, form, and use of written and verbal communications to achieve dramatic streamlining results.

The Streamlined Oversight process has been documented in OSWER Directive No. 9230.0-75 for Federal Facilities.

Additional Information:

To obtain additional information on this initiative contact:

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Clem Rastatter, Versar, Inc., (703) 642-6776

References:

General:

Headquarters Air Combat Command. *Implementation of Streamlined Oversight, Beyond Partnering, Lessons Learned.* Project No. MUHJ957070. Prepared by Versar, Inc., April 1997.

Headquarters Air Combat Command. *Moving Sites Faster Through Streamlined Oversight.* Project No. MUHJ947070. Prepared by Versar, Inc., August 1995.

U.S. Air Force, Air Combat Command, and the U.S. Environmental Protection Agency. Brochure: *Variable Oversight: Taking the Bureaucracy Out of Cleanup for Faster, More Cost-Effective Results.* Prepared with the assistance of Versar, Inc.

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Federal Facilities Streamlined Oversight Directive.* Directive No. 9230.0-75, November 29, 1996.

Volume 1 of 2 of *Defense Environmental Restoration Program Annual Report to Congress for FY 1995.* March 11, 1996.

U.S. Army Corps of Engineers Environmental Initiatives. *Variable Oversight Initiative.* USACE Homepage (http://www.mrd.usace.army.mil/mrded-h/access/variable.html)

U.S. Congress. House. National Security Committee, Procurement Committee and Readiness Subcommittee, Environmental Security Programs. *Congressional Testimony, Sherri Wasserman-Goodman,* Deputy Undersecretary of Defense for Environmental Security, Answer to Question 4(a), Questions for the Record. March 21, 1996.

Cost/Time Savings:

Air Combat Command. Volume 6 of the Langley Demonstration Newsletter: Partnering for Faster Cleanup. May 1997.

Headquarters Air Combat Command. *Implementation of Streamlined Oversight, Beyond Partnering, Lessons Learned (Appendix D: "Langley Streamlined Oversight Metrics").* Project No. MUHJ957070. Prepared by Versar, Inc. April 1997.

Streamlining Initiative Summary
BRAC: FAST-TRACK CLEANUP PROGRAM: Department of Defense

Overview:

President Clinton introduced the Fast-Track Cleanup Program in July 1993 as part of his Community Reinvestment Program aimed at speeding the economic recovery of communities affected by Base Realignment and Closure (BRAC) actions. The Fast-Track Cleanup initiative outlines an approach for accelerating environmental cleanup and transferring property to communities at closing U.S. Department of Defense (DOD) bases, while ensuring human health and the environment are protected. DOD published highlights of its continuous self-evaluation efforts in a report entitled *Fast-Track Cleanup, Successes and Challenges, 1993-1995.*

The initiative is being implemented using a partnership model for project teams and calls for the formation of a BRAC cleanup team (BCT) comprised of representatives from DOD, the State, and U.S. Environmental Protection Agency (EPA), as appropriate. The project team is empowered to make decisions on issues affecting execution of cleanup, including expediting cleanup, and is charged with taking a common sense approach to environmental cleanup by developing common goals and then making decisions and setting priorities based on those goals. As an initial step, the BCT conducts a "bottom up" review of the cleanup program to identify opportunities for acceleration and develop a cleanup plan (a strategy or roadmap for expedited cleanup). The Fast-Track Cleanup Program encourages teams to accelerate cleanup by[9]:

- Identifying opportunities for application of presumptive remedies;
- Using immediate removal actions to eliminate "hot spots," while investigations continue;
- Identifying overlapping phases of the cleanup process;
- Using improved contracting procedures;
- Interfacing with community reuse plan and schedule;
- Embracing a bias for cleanup instead of studies;
- Validating proposed remedy technology to ensure conformance with cleanup objectives; and
- Using innovative management, coordination, and communication techniques (e.g., partnering).

Where Implemented:

As of the end of 1995, the initiative was being implemented at 77 DOD installations slated for closure or realignment where property is available to transfer to the community.

Affected Parts of the Process:

The Fast-Track Cleanup Program affects all parts of the cleanup process from scoping through design and construction. Specific actions that project teams are doing to change the process include:

[9] The Fast-Track Cleanup Program also incorporates a provision to streamline National Environmental Policy Act (NEPA) requirements at BRAC installations. NEPA streamlining is not addressed in this fact sheet because it does not specifically affect the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

Scoping and Workplan Preparation:

- Joint, up-front scoping of projects that creates buy-in and agreement on the direction of project from the outset, thus reducing the need for potential rework and producing more focused studies.

Removals:

- Increasing the use of interim remedial actions and nontime critical removal actions to eliminate "hot spots" and achieve early risk reduction. Studies can continue concurrent with carrying out interim actions.

Investigation and Design:

- Establishing cleanup standards based on existing and reasonably anticipated future uses of property;
- Improving technology transfer, reviewing technology for application of expedited solutions; and
- Identifying opportunities for application of presumptive remedies.

Streamlining Techniques Used in All Phases of Cleanup:

- Streamlining document review through concurrent review of documents and in-person review of comments and resolution of issues (at team meetings for example);
- Facilitating coordination and communication between environmental restoration and reuse planning;
- Addressing critical path technical and/or administrative issues before they become impediments to cleanup;
- Using improved contracting procedures;
- Recognizing parity between CERCLA remedial actions and Resource Conservation and Recovery Act (RCRA) corrective actions and integrating them where possible; and
- Using innovative management, coordination, and communication techniques (e.g., partnering).

Lessons Learned/Successes and Impediments to Implementation:

Successes of particular note are:

- Project teams have been successful at quickly addressing contamination by applying interim cleanup actions throughout the process as contamination is discovered and studied. The use of interim remedial actions has increased significantly since the Fast-Track Cleanup Program began.
- Funding for earlier rounds of cleanup is paying off with an increased number of completed cleanups.

Findings of a survey conducted by the Fast-Track Cleanup Implementation Group (part of the Defense Environmental Response Task Force) of 14 installations reported the following lessons learned:

- A team approach of shared common goals is the most effective means to accelerate cleanup.
- Empowerment of the project team members by their respective agencies is successful in accelerating cleanup.
- Early, consistent, and frequent dialogue and coordination with all BRAC participants, including the community, is essential for success.
- Because Fast-Track Cleanup requires extensive contracting support, the contracting support team needs to involved in all scheduling and planning sessions.
- Successful implementation of the Fast-Track Cleanup Program requires that all DOD management levels pay close attention to setting goals, monitoring progress, and making necessary adjustments to the program to keep it on track. This requires on-going program evaluation.
- Continuity of and flexibility in funding are essential to expedited cleanup.
- The Fast-Track Cleanup process is not for every site. It works best where there is a high level of community interest and a clearly established end use for the facility.
- Although the BCTs have a major role in defining the cleanup strategy at a facility, they do not control the funding decisions, which often drive the cleanup program.

Although not specifically cited in the above mentioned survey, additional lessons learned include the fact that all project teams do not necessarily operate as true partnerships. Building high performing teams and involving the community can be difficult. (See Lessons Learned: Partnering Fact Sheet.)

Documented Savings:

Many of the time and costs savings associated with the Fast-Track Cleanup Program can be attributed to efficiencies and innovations created simply by working in a partnership (e.g., real-time decision-making). Other cost and time savings are directly attributable to the use of specific streamlining principles outlined by the initiative, such as greater use of presumptive remedies and removal actions. It should be noted, however, that the ability to apply and effectively use these methods is greatly enhanced by the partnership construct. For the 2-year period 1993-1995, savings from all BRAC installations where the initiative is being implemented include eliminating a total of 80 years from the environmental cleanup process and avoiding $100 million in costs. Some specific examples include the following:

- The project team at Loring Air Force Base (AFB) in Limestone, Maine, saved 2 years and avoided $10 million in costs by electing to landfill contaminated soil onsite rather than treat it offsite.
- The project team at Fort Devens in Devens, Massachusetts, used expedited decision-making and integrated environmental investigation to cut 4 years and reduce costs by $5 million.
- The project team at Woodbridge Research Facility in Woodbridge, Virginia, used improved contracting procedures and reduced sampling requirements by 80 percent, while maintaining the same level of certainty, saving 1.5 years.
- The project team at Homestead AFB in Homestead, Florida, produced its own reports/documents and reduced the review times for documents, saving 4 years. (Note: when the team was told that it would

take a contractor 4 months to produce a site investigation report, the team decided to prepare the report itself and completed it in 2 days.)

- The project team at Naval Base Charleston in Charleston, South Carolina, saved a total of 6 years conducting multiple investigations and overlapping the investigations and assessments. In addition, field work was initiated with a draft workplan, rather than waiting for the final approved workplan.

The project team at KI Sawyer AFB in Marquette, Michigan, accelerated the schedule by reducing the number of samples, took early action to implement an interim action while the study for a long-term action was underway. Five years were saved by shortening document development and review time and minimizing sampling data.

- The project team at Bergstrom AFB in Austin, Texas, integrated separate site investigations into a single site investigation, reduced the number of samples and document generation, and agreed on a removal action rather than long-term, more expensive remedial action.

Overlap/Consistency with other Streamlining Initiatives:

Designed specifically for BRAC installations, the Fast-Track Cleanup initiative parallels and incorporates many of the elements and principles of EPA's Superfund Accelerated Cleanup Model (SACM), DOE's Streamlined Approach for Environmental Restoration (SAFER), and the Air Force's Streamlined Oversight initiatives. It does not appear to be inconsistent with any other streamlining initiative.

Additional Information:

To obtain additional information on this initiative contact:

John Shearer, U.S. Army Corps of Engineers, BRAC Environmental Team Leader, (202) 761-4693
James Woolford, U.S. Environmental Protection Agency, Director, Federal Facilities Restoration and Reuse Office, (202) 260-1606
Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup), Attn: Fast-Track Cleanup (703) 697-7475

References:

General:

U.S. Deputy Secretary of Defense. *Memorandum on Fast Track Cleanup at Closing Installations and DOD Guidance on Establishing Base Realignment and Closure Cleanup Teams.* Washington, D.C., September 9, 1993.

Office of the Deputy Under Secretary of Defense (Environmental Security). Brochure: *Keys to Opening The Door to BCT Success.* Endorsed by the Defense Environmental Response Task Force (DERTF).

Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup). *Fast-Track Cleanup: Successes and Challenges, 1993-1995.*

Cost/Time Savings:

Tremblay, Deborah. *EPA Helps Tackle Nation's Largest Environmental Problem, Accelerating Cleanups at Federal Facilities Through Teamwork, Innovation and Community Involvement,* U.S. EPA Homepage.

Streamlining Initiative Summary
SOIL SCREENING FRAMEWORK: U.S. EPA

Overview:

The primary purpose of the Soil Screening Framework initiative is to allow site managers to rapidly closeout sites or areas of a site that do not pose a risk to human health and the environment and to identify contaminants of concern early in the process. Using the Soil Screening Framework and methodology developed by the U.S. Environmental Protection Agency (EPA), site managers may either calculate site-specific Soil Screening Levels (SSLs) or utilize the conservative, generic SSLs that have been developed for 107 chemicals, and compare these levels to the levels of contamination at the site. In general, areas of the site where contamination levels are below the SSLs will not require further assessment unless a pathway or chemical not addressed by the Soil Screening Framework is found, or an ecological risk is considered to be present. Contamination levels above the SSLs do not necessarily dictate a response action; however, further risk assessment is appropriate in these instances to determine the need for action. In addition, the site-specific or generic SSLs can be utilized as preliminary remediation goals (PRGs) if the conditions found at the specific site are similar to the conditions assumed in developing the SSLs.

SSLs can be calculated using one of three approaches: simple, detailed, or generic. The least costly, but the most conservative method is the "generic" approach, which uses conservative (not necessarily worst-case) default parameters to generate SSLs for 107 specific chemicals and exposure pathways. Conversely, the least conservative and most costly method is the "detailed" approach, which requires using a significant amount of site data to develop a more complex fate and transport model. However, the detailed approach generates higher (but protective) SSLs, which lead to a higher potential for sites to be eliminated from further investigation. The "simple" method is somewhat of a balance between cost and accuracy, and requires a small amount of readily obtainable site-specific parameters to be input into standardized equations. The "goal" is the same for which ever approach is selected (i.e, to calculate SSLs for comparison against soil sampling data).

Where Implemented:

Because this initiative was just recently formalized (April 1996)on a national level, EPA does not have any data on where it has been implemented. However, chemical specific SSLs developed by Regions 3 and 9 (and based on Superfund Risk Assessment guidance) have been used at numerous sites throughout the country. Consequently, it has been demonstrated that the Soil Screening Framework can be used as a tool to promptly identify the contaminants and exposure areas of concern during remedial (and some removal) actions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Affected Parts of the Process:

Pre-remedial:

- Use of the Soil Screening Framework at Federal Facilities allows facilities to screen sites out of the CERCLA process without going through an remedial investigation/feasibility study

(RI/FS). It can provide a basis for no further action if the appropriate number and type of samples have been taken.

Removal:

- At simple sites, the Soil Screening Framework can be used to determine how much soil must be addressed by a removal action if the pathway is direct contact, inhalation or soil to groundwater.

Remedial:

- The Soil Screening Framework allows early no further action decisions that can reduce time and money by enabling the FS to be skipped if the contaminants don't exceed SSLs. At action sites, the framework supports early focus on remedy selection by early identification of most likely contaminants and areas of concern. This, in turn, can lead to an early identification of appropriate, cost effective remedial actions. (See discussion on Rational National Standards Initiative [RNSI] for additional information on use of precalculated soil screening numbers to compare potential remedies and costs).

Remedial Design:

- Early focus on remedy may support initiation of design oriented work (e.g., better identification of volume of waste) during the RI/FS. Used in conjunction with presumptive remedies (formal or informal), the Soil Screening Framework may enhance the ability of the remedy design to be initiated prior to completion of the RI/FS.

Lessons Learned/Successes and Impediments to Implementation:

Federal Facilities have found the use of SSLs particularly helpful when they have a large number of potential Installation Restoration Program (IRP) sites that may be safe (i.e., within the CERCLA risk range). SSLs have been successfully utilized to support an active pre-remedial program that can determine that individual sites on a facility do not require further investigation. In many cases, the SSLs used by Federal Facilities come from two conservatively generated Regional EPA lists (Region 3 and Region 9), rather than numbers generated from the Soil Screening Framework. At Langley Air Force Base (AFB), for example, four sites that have gone through the pre-remedial process are in the process of receiving regulatory concurrence on no further action (NFA) as a result of comparisons to Region 3's screening levels. The use of SSLs to quickly narrow the range of chemicals and areas of concern has been successfully used across the country at Federal Facilities for several years.

The Soil Screening Framework is likely to offer greater opportunity for screening out sites. The "simple" site specific approach will allow some accounting for site specific factors that affect risk and will, therefore, support a less conservative approach (and allow a greater number of sites out of the system earlier).

Several concerns about the use of SSLs have been raised: (1) streamlined sampling could miss chemicals and pathways of concern; (2) other chemicals and pathways (for which "precalculated" soil numbers have not been established) may not be adequately addressed; (3) additive risk may not be adequately addressed; and (4) conservatively-derived generic levels designed to trigger further investigation may become the expected cleanup levels for all sites, which could lead to unnecessarily high cleanup costs.

Another potential drawback is that while the Soil Screening Framework can address many common types of sites and situations, it does not have "unlimited" applicability to all Superfund sites. To use the SSLs, site managers must first develop a conceptual site model of their site and compare it with the SSL conceptual model to determine the applicability

of the SSL framework. The SSL conceptual site model is based on a 30-acre property that has been divided into lots for residential use. The contamination has been assumed to be uniformly distributed across the site, and extends from the surface to the aquifer. The conceptual site model should be similar to the SSL model (e.g., less than 30 acres, etc.) before the use of SSLs are considered. Also, the Soil Screening Framework that is used to calculate the SSLs is based on three pathways of exposure (ingestion of soil; inhalation of volatiles and fugitive dusts; and ingestion of contaminated groundwater), and these must be equivalent to the pathways that are being investigated for the site.

Documented Savings:

Because this initiative was recently formalized (April 1996), EPA does not have any data on where the headquarters EPA guidance on SSLs has been implemented. In addition, EPA does not have data on cost or time savings associated with the use of other SSLs (e.g., SSLs prepared by Regions 3 or 9). However, it is believed that site managers will be able to reduce or eliminate the time and money associated with conducting various parts of the remedial process that are impacted by using SSLs. These include the following: the scope of the site assessment can be reduced; the preliminary assessment/site inspection (PA/SI) can be focused; the RI/FS can be streamlined, and; the design can be partially completed before the Record of Decision (ROD) is signed, leading to early initiation of the remedial action.

Overlap/Consistency with Other Streamlining Initiatives:

The Soil Screening Framework is similar in its purpose to the Rational National Standards Initiative (RNSI). That initiative uses precalculated numbers based on specific risk scenarios to establish priorities among sites, to identify contaminants and areas of concern, and for early sensitivity analysis of the costs of a particular cleanup action to land use and the nature of the remedy. Precalculated numbers used by RNSI are based on numbers that have been approved by regulatory agencies, such as the SSLs.

Additional Information:

To obtain additional information on this initiative contact:

David Cooper, U.S. Environmental Protection Agency Headquarters, (703) 603-8763

References:

General:

U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. *Soil Screening Guidance: User's Guide.* EPA/540/R-96/018. April 1996.

U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. *Soil Screening Guidance: Technical Background Document.* April 1996.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
RATIONAL NATIONAL STANDARDS INITIATIVE (RNSI): U.S. AIR FORCE

Overview:

The U.S. Air Force's Rational National Standards Initiative (RNSI) combines preliminary screening of risk, early focus on land use, and known understanding of appropriate technologies (including presumptive remedies) to identify priorities for remediation, and early attention to the cost of alternative cleanup goals and technology approaches for consideration by the Project Team.

- Soil screening levels developed by the regulatory agencies and tied to four different land use types (residential, industrial, recreational, and open space) are used in several ways: to identify contaminants and chemicals of concern; to develop preliminary remediation goals against which selected remedies (and costs) can be assessed; and to prioritize potential sites and releases.

- Realistic exposure assumptions are identified by the project team and used to further narrow the exposure scenarios to be considered.

- Appropriate technologies and technology costs identified from the Air Force's technology screening guide and Remedial Action Cost and Requirements System (RACER) estimates are used to conduct a sensitivity analysis that can help determine a relative difference in cost for different cleanup options.

The desired result of using these tools in a collaborative, systematic manner is the identification by the project team of sites that are at or below reasonable exposure scenarios and for which a lower priority may be assigned, the costs of cleanup under different exposure scenarios, and the ability to compare costs of gathering more information to the cost of just moving on with cleanup. All aspects of the RNSI process are designed to facilitate early attention to risk management decisions.

According to the Air Force, five U.S. Environmental Protection Agency (EPA) Regions and 16 State agencies have actively participated in the development of RNSI.

Where Implemented:

RNSI is currently being tested by the U.S. Air Force's Air Combat Command (ACC) in cooperation with the Command's 18 installations nationwide. Examples include Barksdale Air Force Base (AFB), Avon Park AFB, and Shaw AFB. In addition, the U.S. Army and Navy are also evaluating RNSI for use in their cleanup programs.

Affected Parts of the Process:

Cost saving benefits of RNSI include:

- Identifying no further action sites early in the process; and

- Reducing the number of constituents found that are recommended for further study/remediation, and prioritizing site cleanup based on the level of risk each poses to human health and the environment.

It affects specific parts of the process in the following ways.

Pre-Remedial:

- RNSI may assist project teams in identifying potential no further action sites and screening them out early in the process.

Scoping and Workplan Preparation:

- If the suite of analytes targeted in the site investigation (SI) is sufficiently comprehensive and the SI sampling plan is sufficiently thorough, using RNSI for screening early in the process may help narrow the target analyte list for further site investigations and the areas to be investigated.
- RNSI can facilitate screening of remedies during the workplan phase, so the feasibility study (FS) can start concurrently with the remedial investigation (RI).
- RNSI brings the land use issue into focus early, and can facilitate a focus on one or two reasonable land uses, thus potentially narrowing the pathways to be investigated.

Investigation:

- RNSI may be used to evaluate results as they become available to establish realistic cleanup goals and to help identify the most cost effective remedy early in the process.
- RNSI is used to evaluate both the cost and effectiveness of specific technologies to meet cleanup levels. Sites with exorbitant remedial costs and technically unattainable cleanup levels will provide the waiver justification to establish alternative, technology-based cleanup levels.
- In a feasibility study with remedies identified early, the design of the appropriate remedy could begin while the investigation is on-going.

Design:

- RNSI can lead to initiation of the design concurrently with the RI/FS.

Construction:

- Construction can be potentially initiated earlier.

Lessons Learned/Successes and Impediments to Implementation:

No statutory, regulatory, or contracting impediments appear to be associated with RNSI; however, several functional impediments may include:

- A fundamental aspect of RNSI is that it brings remedy selection and costs into focus very early in the process, and costs necessarily become a highly visible factor in decision-making when RNSI is being used. Because of this, care must be taken to involve the relevant stakeholders in the process.

- Initially, RNSI lacked an ecological screening component. However, the Air Force is currently developing ecological screening criteria.

- A perception by regulatory agencies that early screening is biased to nonresidential scenarios.

- Concerns by some regulators that RNSI may be used to set cleanup levels or otherwise take the place of the risk assessment.

Documented Savings:

The first phase of the RNSI pilot test has been completed, and the second phase, which is to present cleanup plans using the RNSI approach to the community and regulators at each installation, is currently underway. In the first phase, savings attributable to RNSI included, for example:

- The partnership (project team) at Shaw AFB used the RNSI approach to avoid the use of expensive traditional technology, saving over $2 million.

- At Barksdale AFB in Louisiana, RNSI data saved months of cleanup time by identifying areas that did not pose health risks.

- At Beale AFB in California, RNSI information helped determine that the cost difference to clean groundwater contamination to a more stringent level was insignificant; therefore, the more protective level was used.

The U.S. Army Corps of Engineers has calculated substantial cost savings for ACC bases, however these estimates are being reviewed internally and have not yet been released.

Overlap/Consistency with Other Streamlining Initiatives:

RNSI is designed to be integrated with an Air Force presumptive remedy initiative known as Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA). Together, the two initiatives attempt to provide a practical solution to the dilemma faced when implementation of the current regulatory guidance results in establishing overly stringent site-specific cleanup standards that cannot be achieved cost effectively with existing technology. The solution is to first establish reasonable cleanup targets on the basis of future land use, and then determine proven technology's ability to "hit" the cleanup target.

RNSI is a specific tool that is consistent with EPA's land use guidance and could easily be integrated into other broader streamlining initiatives such the EPA Superfund Accelerated Cleanup Model (SACM), or U.S. Department of Energy's (DOE) Streamlined Approach for Environmental Restoration (SAFER). It is also consistent with U.S. Department of Defense's (DOD) goal to establish "generic" remedies.

Additional Information:

To obtain additional information contact:

Terrie Warren, U.S. Air Force, Air Combat Command, (757) 764-6249
Larry Janis, U.S. Army Corps of Engineers, (402) 697-2637
Kathleen Alsup, Radian International LLC, (512) 419-5902
Paul Bechtel, Radian International LLC, (512) 419-6263

References:

General/Cost Savings:

U.S. Air Force. Brochure: *Air Combat Command, Leader in Environmental Restoration.*

U.S. Department of Defense. Status Report Brochure: *Relationship and Integration of the Rational National Standards Initiative (RNSI) and the Presumptive Remedy EE/CA (PREECA).* Prepared by the Radian Corporation.

Volume 1 of *Defense Environmental Restoration Program Annual Report to Congress for FY 1995.* March 11, 1996.

U.S. Air Force, Air Combat Command. Briefing: *Installation Restoration Program Initiatives.*

Alsup, K.; A. Meyer; V. Wang; and T. Warren. *Rational National Standards Initiative: Planning Tool for Remediation to Future Land Use.* Paper prepared for the 89th Annual Meeting of the Air and Waste Management Association, Nashville, Tennessee, 1996.

Streamlining Initiative Summary
DIRECTIVE ON LAND USE IN THE CERCLA REMEDY SELECTION PROCESS

Overview:

Reasonably anticipated future use of land at National Priorities List (NPL) sites is a starting place for determining levels of surface cleanup that will be protective to surface land users. When there is a relationship between surface land use and cleanup levels, this relationship can have a significant bearing on cleanup costs.

In May 1995, the U.S. Environmental Protection Agency (EPA) issued guidance that explicitly links remedial decision-making with the reasonably anticipated future land use at a site. (Note: applies to surface land use, not groundwater.) This guidance represents an administrative reform effort that is expected to yield significant time and cost savings at many Federal Facilities by encouraging early identification of land use.

The primary purpose of EPA's land use directive/guidance is to encourage early identification of site land use and to obtain early community involvement in considering site land uses with a particular focus on the community's desired future uses of the site to assist in more expedited, cost effective cleanups. Other benefits of the process outlined in the directive include more democratic decision-making and greater community support for remedies selected.

Generally, the potential for more cost effective remedies is primarily tied to how land use assumptions affect the level of effort in the baseline risk assessment, how many and what kind of remedial alternatives are developed, and which remedies are selected. The directive will have less of an impact if the need to protect groundwater by removing surface contamination drives the remedy.

This guidance is appropriate for both Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (private party and Federal Facilities) and Resource Conservation and Recovery Act (RCRA) facilities.

Where Implemented:

There has been no systematic survey to identify where the guidance has been applied. Anecdotal evidence, however, suggests that the guidance is widely accepted. One example includes the following:

Since April 1995, Langley Air Force Base (AFB), Virginia, has been implementing a systematic streamlined approach to the cleanup of the Base. The Langley team identified selection of future land use early in the process as an issue that could yield both cost and time saving benefits throughout the process. Working in a partnership context, the Langley team jointly discussed, selected, and agreed on the most probable future land use for 17 sites currently being worked on. None of the 17 sites are currently residential, and based on best available information and projections, there was no reason to believe that future use would be residential. Therefore, none of the sites were assigned a future residential use. This agreement has allowed the team to develop a more focused sampling strategy (reducing both numbers and types of sampling) and will also serve to focus the risk assessments and ultimately set reasonable cleanup goals.

- A number of U.S. Department of Energy (DOE) facilities (e.g., Hanford and Fernald) have relied upon community support for less restrictive land uses for less costly cleanups.

In addition, other streamlining initiatives, such as the U.S. Air Force's Rational National Standards Initiative (RNSI), which is being implemented at 18 Air Force installations nationwide, have explicitly incorporated the early identification of land use as a major streamlining component.

Affected Parts of the Process:

The Land Use Directive will affect the process from the scoping phase through remedy selection.

Scoping and Workplan Preparation:

- Early discussions about land use with local land use planning authorities, appropriate officials, and the public will help to establish reasonably anticipated future land uses.

- Remedial action objectives are then focused on the reasonably anticipated future land use(s). Priority exposure pathways for investigation can be established, while others are eliminated. For example, an agreement to cap a landfill and use it for recreational use will obviate the need for extensive surface and subsurface soil sampling.

Investigation and Remedy Selection:

- Both time and money can be saved by narrowing the baseline risk assessment to scenarios associated with the anticipated future land use(s), rather than performing the risk assessment for all land use categories.

- A single cleanup level can be identified early, thereby, allowing early focus on remedy (e.g., what remedies are appropriate) and can narrow the number and type of remedies to be evaluated.

- Remedial action decisions should be made based on assumptions of the reasonably anticipated land use, rather than on the least restrictive land use.

- The degree to which the risk assessment, development of alternatives, and selection of remedy can be more narrowly focused in terms of the land use will depend on the level of certainty that can be achieved in the reasonably anticipated future land use.

Design and Construction:

- Could lead to choosing a more cost effective remedy.

Lessons Learned/Impediments to Implementation:

This guidance helps to establish that EPA does not always advocate selecting the most restricted exposure scenario (i.e., residential land use) when common sense and best available information suggest otherwise. Instead, it asks facilities to use a common sense, rational, and democratic approach to selecting reasonably anticipated future land uses whatever they may be.

Impediments to implementing and realizing the streamlining benefits inherent in the guidance include:

- If stakeholders are not included in the process of reaching agreement on future land uses (a fundamental principle of the guidance), there may be a lack of acceptance.

- A high degree of uncertainty about the reasonably anticipated future land use.

- When groundwater is "driving" the remedy, the benefits derived from guidance may not be as significant because a surface source may need to be cleaned up to levels that are appropriate for groundwater protection.

Although there are few serious impediments to implementing this guidance, several issues should be given careful consideration when deciding whether and how to target the risk assessment and remedy selection based upon an anticipated future use.

- In *some* cases, the cost and delay associated with determining and evaluating the impact of future use may be greater than simply selecting the most stringent cleanup standard or remedy.

- If evaluation of the future land use scenario results in a remedy that does not clean the land to unrestricted use, it will probably be necessary to implement institutional controls to protect human health and the environment, and preserve the integrity of the cleanup remedy. There is a cost to institutional controls, and these should be considered when evaluating the savings achieved by implementing the less stringent cleanup standard. In addition, the use of institutional controls may be controversial, particularly in closing bases.

- Cleanup decisions may have to be re-evaluated if the property is later transferred and subject to land uses different than those upon which the cleanup decisions were based.

Documented Savings:

According to EPA, no studies have been undertaken to specifically document the savings attributable to the guidance. An informal review of Records of Decision (RODs) signed in the year and a half since the guidance was published, suggests that the land use categories upon which remedies are based have not changed (i.e., the ratio of residential, industrial, etc. appears to be constant).

A DOE report entitled *Estimating the Cold War Mortgage, the 1995 Baseline Environmental Management Report* estimates that alternative land use scenarios (under current law and existing technologies) can affect the estimated cleanup cost as much as twofold. An example from DOE highlights the significance and potential savings for Federal Facilities associated with EPA's reform. At DOE's Fernald facility, the future land use initially projected by remedial planners included potential use of the site as a residential and agricultural area, requiring large quantities of soil be removed and disposed of offsite. The Fernald Citizens Advisory Group evaluated alternative land use options, including industrial and recreational uses. The group ultimately recommended land uses with fewer potential pathways for human exposure to contamination. As a result, cleanup plans called for removal of less contaminated soil, while removing the primary sources of groundwater contamination. It is estimated that this reduced the life-cycle cleanup costs by approximately $1 billion.

Overlap/Consistency with other Streamlining Initiatives:

There are no inconsistencies with other streamlining initiatives. The land use guidance should be able to be integrated and serve to enhance the effectiveness of other streamlining initiatives. In fact, the U.S. Air Force's Rational National Standard Initiative (RNSI) includes early selection of land use as a major streamlining component.

Additional Information:

To obtain additional information on this initiative contact:

Sharon Frey, U.S. Environmental Protection Agency, (703) 603-8817

References:

General:

U.S. Environmental Protection Agency. *Superfund Administrative Reforms Fact Sheet: Land Use Directive.* May 25, 1995.

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Land Use in the CERCLA Remedy Selection Process.* Directive No. 9355.7-04. May 25, 1995.

Federal Facilities Policy Group. *Improving Federal Facilities Cleanup.* October 1995.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
Superfund Accelerated Cleanup Model (SACM): U.S. EPA

Overview:

The Superfund Accelerated Cleanup Model (SACM) was introduced by the U.S. Environmental Protection Agency (EPA) in April 1992, as a streamlined approach to Superfund cleanups. SACM was developed to address public and congressional criticism raised concerning the pace and focus of hazardous waste cleanups. In developing SACM, EPA incorporated experience gained and lessons learned about what works and what does not over a decade since the Superfund Program inception.

In the traditional Superfund process, separate phases of investigation (site investigation, removal investigation, remedial investigation, and design investigation) were expensive, time consuming, and often redundant. Because of a lack of integration of these phases, data from one phase were often not usable in another. In addition, investigations and studies often continued even after all or parts of the required action became clear.

The heart of SACM is an approach that fosters immediate action at a site, at the same time that necessary studies are being conducted, addressing immediate high-risk problems first and deferring final remediation until later. It encourages looking for ways to conduct certain activities concurrently rather than sequentially and emphasizes early risk reductions. By encouraging early action (either removal or remedial) to reduce site risk, SACM removes the artificial distinction between removal, site evaluation/study, and long-term remediation, allowing improved planning and coordination between early actions and long-term actions. Data needs, resources, and study could potentially be consolidated at several stages. For example, an emergency response might be expanded to eliminate the need for later long-term action at a site. Site evaluation sampling to support National Priorities List (NPL) ranking could be augmented to include tests that could assist in selecting a remedy later in the process. In broad terms, the SACM model seeks to accomplish three objectives:

1. Establish a continuous integrated process for the assessment of site-specific conditions and the need for action.

2. Achieve prompt risk reductions through early actions (removal or remedial).

3. Ensure the appropriate cleanup of long-term environmental problems.

Where Implemented:

This initiative has been implemented extensively throughout the country.

Affected Parts of the Process:

SACM takes advantage of and maximizes the flexibility of the National Contingency Plan (NCP). Timeframes for early action cleanups are reduced, the assessment process is compressed/accelerated, and steps are performed in parallel rather than sequentially. The SACM site assessment process incorporates multiprogram data gathering at the front-end of the

Superfund investigation process. The single integrated assessment may be designed to satisfy up to four sampling objectives:

1. Preliminary Assessment and Site Inspection (PA/SI) sampling for the Hazard Ranking System (HRS).

2. Data to both determine the appropriateness of a time critical or emergency response and allow the action to be completed.

3. Information to assist in determining the scope of a nontime critical removal.

4. For sites with apparent long-term impacts to human health or the environment, better characterize the extent of the problem, provide information so that a long-term action may be taken early in the process, and assist in the selection of the appropriate remedy (remedial investigation/feasibility study [RI/FS]).

SACM promotes performing risk assessment and RI activities earlier in the assessment process when data indicate remedial action will be needed.

SACM stresses consistent data collection approaches and appropriate data quality objectives (DQOs) that serve the needs of early action, long-term action, and NPL listing.

In advocating more frequent use of early actions and interim measures, SACM is not intended to alter the process necessary to accomplish final cleanup, rather it provides managers with an opportunity to improve project planning and make increased use of early action and interim measures when warranted.

Pre-remedial:

- May change DQOs at the pre-remedial stage to meet RI risk assessments, needs, and removal needs.

- Data collected during the pre-remedial site investigation phase should be able to be used for multiple purposes with a view toward being able to support decision making needed at later stages. For example, samples taken as part of an evaluation for possible removal action may often be used to support, or begin, an evaluation of the need for remedial action, site scoring (HRS), and, in some cases, the remedial investigation.

- Under SACM, it is possible to combine a PA, SI, and even an RI. Note: In pilots, significantly more samples were collected at this phase than would typically be taken in a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) SI; however, the total amount of sampling required to get to cleanup when compared to the traditional Superfund process is expected to be much less and offset by the ability to make early action decisions.

Removal:

- Information obtained in the site assessment phase is immediately available to support remedial and removal decision-making. Use of nontime critical removals to reduce risk and accelerate cleanup should be considered.

RI/FS:

- Increased use of early actions (removals and interim remedies). The scope of data collection is focused both for use in the RI and, where appropriate, the design.

Design:

- The design can be streamlined by collecting data during the RI that are appropriate for the design. Time and costs are reduced.

Construction:

- Construction of removal and interim remedies can be carried out concurrently with the investigation. In some cases, interim remedies may end up being the final remedy.

Lessons Learned/Successes and Impediments to Implementation:

Federal Facilities have been successful at implementing the portion of the SACM initiative that advocates use of early removals and interim remedies. In addition, many Federal Facilities have placed emphasis on collecting design data during the RI. In general, Federal Facilities have not had as much success with integrating the site assessment and RI/FS data collection efforts. Federal Facilities, typically have a large number of "potential" sites, many of which end up being no action sites. The SI is used by Federal Facilities as a screening tool to "weed out" low risk sites that do not warrant an investment of a large amount of resources. It is only after a site makes it through the SI "screening" that more significant resources are allocated toward additional data collection.

Documented Savings:

The SACM initiative is now 5-years old and has moved well beyond the demonstration phase. The early implementation of the initiative was primarily at private party sites, rather than Federal Facilities and time and cost savings for the private site pilots are well documented in EPA progress reports on the initiative. As noted earlier in this fact sheet, Federal Facilities, have adopted certain aspects of SACM (e.g., increased use of early actions) in combination with other streamlining initiatives. Therefore, a portion of the time and cost savings at Federal Facilities implementing various streamlining initiatives could be attributed to SACM; however, that portion has not been separately quantified and documented.

Overlap/Consistency with Other Streamlining Initiatives:

SACM is consistent with CERCLA and the NCP, and provides the foundation for numerous other streamlining initiatives. SACM also enhances opportunities to use both presumptive remedies and innovative technologies. Presumptive remedies will help environmental program managers focus data collection efforts during site investigations under SACM and reduce the technology evaluation phase (engineering evaluation/cost analysis [EE/CA]) and/or FS for certain types of sites.

Additional Information:

To obtain additional information on this initiative contact:

Tracy Hopkins, U.S. Environmental Protection Agency, (703) 603-8788

References:

General:

U. S. Environmental Protection Agency. *Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP.* Directive No. 9203.1-03. July 7, 1992.

U.S. Environmental Protection, Office of Solid Waste and Emergency Response. *SACM Short Sheets/Interim Guidance (9203.1-051).* December 1992.

U.S. Environmental Protection, Office of Solid Waste and Emergency Response. *Regional Applications of Superfund Accelerated Cleanup Model (SACM).* Quick Reference Fact Sheet, publication 9202.1-03FS.

U.S. Department of Energy, Office of Environmental Guidance. Memorandum: *EPA Superfund Accelerated Cleanup Model (SACM).* October 21, 1992.

Reauthorization of Superfund: Superfund Accelerated Cleanup Model/OERR Streamlining Goals. Internet Article, EPA Superfund Homepage, September 1996.

U.S. Department of Energy. *SACM and the RCRA Stabilization Initiative: Similarities of Principles and Applicability.* CERCLA Information Brief, Office of Policy and Assistance, EH-413-067/0196, January 1996.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
STREAMLINED APPROACH FOR ENVIRONMENTAL RESTORATION (SAFER) INITIATIVE: Department of Energy

Overview:

The Streamlined Approach for Environmental Restoration (SAFER) initiative combines elements of two recognized processes developed for managing uncertainty: (1) U.S. Environmental Protection Agency's (EPA) Data Quality Objectives (DQO) Process, which defines both the problem and the type and quality of the data needed for problem resolution; and (2) the observational approach that has roots in traditional geotechnical engineering applications and provides an operational framework for managing uncertainty and planning decisions. An added dimension of the SAFER initiative is early and active regulator involvement. A fundamental premise of the SAFER initiative is that the goal of site characterization is not to fully understand the nature and extent of the problem, but to establish the probable conditions at a site. The term probable is quantitatively defined by the level of uncertainty negotiated by the project team. The project team, which includes the regulators, uses specific techniques such as decision rules, reasonable deviations, and contingencies, to optimize technical management and reduce uncertainty. As with many streamlining initiatives that seek to involve the key stakeholders in decision-making throughout the process, a certain amount of the efficiency gained using the SAFER initiative can be attributed to the enhanced communication among all the participants and their ability to work effectively as a team to reduce the need for extensive revisions and rethinking over time.

SAFER is an aggressive approach that complies with existing environmental regulations and is consistent with Federal Facility Agreements (FFAs) and Consent Orders.

Where Implemented:

As of the end of fiscal year 1995, SAFER had been pilot tested through a joint effort between the U.S. Department of Energy (DOE) and EPA at the following four DOE facilities: (1) Savannah River, South Carolina, remedial investigation (RI) stage; (2) Oak Ridge National Laboratory, Tennessee, remedial investigation/feasibility study (RI/FS) stage; (3) Mound Plant, Ohio, removal actions; and (4) Hanford, Washington, transitioning from RI/FS to remedial design/remedial action (RD/RA) stage. All pilot tests were initiated in 1993. DOE has created a training program from the SAFER initiative and is promoting it nationally.

Affected Parts of the Process:

The SAFER initiative is designed to apply to the entire remedial process, from scoping through design and construction. It can be used within a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Resource Conservation and Recovery Act (RCRA) regulatory context. As with many other streamlining initiatives being developed, many of the time and cost savings are a direct result of key stakeholder participation (including regulators) in the project team and regular face-to-face communication of the project team.

Removal:

- Increases the use of Engineering Evaluation/Cost Analysis System (EE/CAS) and nontime critical removal actions.

Scoping and Workplan Preparation:

- SAFER changes this phase by advocating early upfront involvement of key stakeholders in the scoping process to reach agreement on problem identification, with a focus on strategy for sampling and analysis. This allows for cost savings from more focused work scopes and agreement on the use of money-saving innovative technologies and approaches, savings later through shorter review and revision cycles, and a final product that satisfies everyone's concerns.

- As a result of the trusting relationship of the project team, in some cases, field work has been allowed to proceed in advance of an approved workplan; in other cases, an abbreviated workplan has been submitted, instead of the standard "full" workplan.

Investigation:

- In pilot projects, the SAFER initiative has reduced the time required to complete field work and has also accelerated the investigation phase by combining the RI and the FS, thus eliminating the review cycles and redundancies inherent in separate RI and FS reports. (Preliminary scoping for the FS is done concurrent with the RI investigation in order to incorporate FS data collection needs with the RI data collection.)

- SAFER emphasizes focusing on decision rules and agreements during this phase, which feed into and will help accelerate the next phases. For example, reaching agreement on cleanup levels that can be used as cleanup goals for actions.

- Use of uncertainty analysis by the team may identify a limited set of data needed to analyze the feasibility of remedial alternatives, and eliminate collection of all other data or postpone the collection until the design stage.

- The investigation may be shortened by explicitly recognizing that not all uncertainty can be resolved and the some uncertainties are acceptable and can be managed through contingency planning.

Design:

- In one pilot study, conceptual models, a matrix of probable conditions, possible deviations, and contingencies were used to demonstrate that a plan for further site characterization was not needed prior to implementing the remedial action (basically, the design and characterization stages were integrated). A simple and cost-effective contingency plan was identified that could be implemented quickly in the field to ensure effective operation of the remedial system.

- The design relies heavily on conceptual models and decision rules developed by the project team. Demonstration projects may be undertaken to help bracket costs and limit the uncertainties in the response actions. Information gathered during the demonstration project would feed directly into the design document.

Construction:

- SAFER helps to focus on, and in some cases, separate complex issues in a manner that expedites cleanup. Construction initiation has, in some cases, been accelerated because of agreements on approach and strategies made during the design or earlier phases. During construction, contingency plans developed by the project team have been successfully implemented so that work stoppages and schedule slippages are avoided.

Lessons Learned/Successes and Impediments to Implementation:

- As with any new initiative, the ultimate success depends on having a "champion" to drive the process. It is essential that someone at the site be available to maintain the focus and momentum and carry through on decisions.

- The degree of regulator buy-in and involvement in the process will directly affect the success of the project.

- The significant upfront time investment required to build consensus and reach agreements, especially at the scoping stage, can be frustrating and, from a short-term perspective, may appear to not be cost-effective.

- Sometimes, for reasons that are difficult to determine, successes achieved with streamlining the data and analysis process have not translated into schedule reductions. Regulators may be unwilling to invest significant time upfront, if savings are not translated into faster remediation.

- SAFER relies on the team's ability to make long-term planning decisions and to use contingencies. The DOE budget process makes this difficult and does not generally reward efficiency. In one case, budgetary uncertainties distorted the decision-making process and caused the site team to be unwilling to commit to accelerating the schedule with respect to FFA milestones. A more flexible and predictable budgetary process would make SAFER easier to implement.

- Adequate documentation of decisions reached by the project team is important to prevent revisiting the same issues time and time again.

Documented Savings:

Time and cost savings have been documented for pilot projects including Savannah River, Oak Ridge National Laboratory, Mound Plant, and Hanford and for several nonpilot projects (Ventron and Bear Creek Valley).

Time Savings:

Time savings are derived primarily from accelerating schedules through the use of a partnership approach, monthly meetings, team project scoping, reduction in time required to complete field work, combining RI and FS reports, joint contingency planning, maximizing the use of existing data, and managing higher levels of uncertainty. Time savings vary by site and facility, but range from reducing the RI field work at a site a Savannah River from 11 to 4 months to reducing the overall remediation schedule at Bear Creek Valley by 2 years.

Cost Savings:

Cost savings are derived primarily through efficiencies achieved working in a partnership context using real-time decision-making, decisions resulting in more focused data collection efforts, reduced numbers of samples

and avoided sampling characterization costs, use of uncertainty analysis to eliminate planned site characterizations, maximizing use of existing data, and streamlining reports by combining the RI and FS. Cost savings vary by site and facility, but range from $450,000 saved at one site at Savannah River as a result of a decision to use modeling rather than extensive sampling for a cost reduction of 25 percent and a savings of over $10.3 million over a 4-year period at Bear Creek Valley.

Overlap/Consistency with Other Streamlining Initiatives:

There is considerable overlap of the SAFER initiative with other "partnering" models, primarily some of those currently being developed and implemented by the U.S. Department of Defense (DOD) such as the DOD "Streamlined Oversight" initiative. It is also consistent with, although not as comprehensive as EPA's recent directive on Streamlined Oversight and EPA's Superfund Accelerated Cleanup Model (SACM) initiative.

Additional Information:

To obtain additional information on this initiative contact:

Richard Dailey, U.S. Department of Energy, (202) 586-7117
Steve Golian, U.S. Department of Energy, (301) 903-7791
Marianne Lynch, U.S. Environmental Protection Agency, (202) 260-5686

References:

General:

Daily, R.; D. Lillian; and D. Smith. *Streamlining Approach for Environmental Restoration (SAFER): An Overview.* U.S. Department of Energy, August 1992.

U.S. Department of Energy and U.S. Environmental Protection Agency. *Uncertainty Management: Expediting Cleanup Through Contingency Planning.* DOE/EH/(CERCLA)-002, December 1996.

U.S. Department of Energy. *Environmental Restoration Acceleration Report.* May 1, 1996.

Cost/Time Savings:

U.S. Department of Energy and U.S. Environmental Protection Agency. *Streamlined Approach for Environmental Restoration (SAFER), Pilot Project, Final Report.* 1996.

SAFER Process at Savannah River Saves Time and Money. U.S. Department of Energy Homepage.

Streamlining Initiative Summary
PRESUMPTIVE REMEDIES: U.S. EPA Headquarters

Overview:

When the Superfund law was enacted in 1980, many people presumed that every Superfund site would be unique, and that cleanups would need to be tailored to the specific needs of each site. While it is true that no two Superfund facilities are exactly alike, after many years of site cleanup experience, the U.S. Environmental Protection Agency (EPA) observed that certain remedies are consistently selected for certain types of sites. That is, certain types of sites have been addressed so many times by the Superfund program that the remedy can be presumed up front, based on the site characteristics (i.e, type of site or type of contamination).

Presumptive remedies are those technologies that EPA has identified as the most appropriate for a particular type of site, based on the previous remedy(ies) selected for similar sites. When developing a presumptive remedy, EPA evaluates the technologies that have been consistently selected at similar sites (using the remedy selection criteria established in the National Contingency Plan [NCP]). EPA then evaluates the currently available performance data on the application of these technologies to determine whether a particular remedy (or set of remedies) is the most appropriate for addressing that particular type of site. The results of these analyses, along with the scientific and engineering analyses of the performance data on technology application, provide support for EPA to develop a presumptive remedy.

If a site meets the criteria for using a presumptive remedy, the site manager is not prohibited from considering the use of other technologies, especially if site-specific circumstances indicate that the use of such technologies would be more appropriate. According to Section 300.430 of the NCP: "The number and type of alternatives to be analyzed shall be determined at each site, taking into account the scope, characteristics, and complexity of the site problem that is being addressed." However, in cases where a presumptive remedy has been established for a site type, it is expected that the presumed remedy will be used at that site. For such a site, the initial alternatives identification and screening steps can be eliminated. Presumptive remedies have been identified by EPA for: municipal landfill sites; soil, sediments, and sludges at wood treatment sites; sites with volatile organic compound (VOC) contamination; and contaminated groundwater sites. Presumptive remedies are in various stages of development for other site types including: manufactured gas plant sites; polychlorinated biphenyl (PCB) sites; grain storage sites; and sites containing metals in soil.

Where Implemented:

Presumptive remedies have been implemented at numerous sites throughout the country; however, most of the sites have been municipal landfills.

Affected Parts of the Process:

Pre-remedial:

- No impact.

Removal:

- The use of a presumptive remedy can support a rapid-response decision by outlining in advance the remedy to be used. The Air Force's Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA) initiative takes advantage of this feature of presumptive remedies.

Remedial Investigation/Feasibility Study:

- There are a wide variety of potential impacts on the remedial investigation/feasibility study (RI/FS) process. These include: elimination or substantial streamlining of the screening and development of alternatives; ability to initiate designs concurrently with the RI; elimination or substantial streamlining of the risk assessment (i.e., for municipal landfill surface containment remedy, once the existence of risk has been established, completion of the risk assessment is not deemed necessary).

Remedial Design:

- Design can be initiated during the RI/FS. The design phase can be substantially streamlined, or even eliminated as a sequential step in the process.

Remedial Construction:

- The construction process can start sooner because the design stage begins sooner. In addition, standard design elements can be created to further streamline the design and construction process for certain site types.

Presumptive remedies are designed to help regulators and site managers focus on certain portions of the cleanup process, and to streamline or eliminate others. For example, the use of presumptive remedies may focus or narrow the scope of the risk assessment. For example, for the presumptive remedy of capping a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) municipal landfill site, once the existence of risk and the need for action have been determined, there is no need to perform additional risk assessments in the cap area.

After a site is confirmed as a candidate for a presumptive remedy, a focused FS or alternatives analysis in the engineering evaluation/cost analysis (EE/CA) is prepared. The resulting FS or EE/CA requirements are reduced by the presumptive remedy because the focused FS or EE/CA do not need the technology identification or screening steps. The FS limits consideration to the no action alternative and the presumptive remedy technology(ies).

When presumptive remedies are used, site managers can focus data collection efforts during site investigations and begin collection of remedy design-oriented data during the FS. Site managers can also significantly reduce the technology evaluation phase for certain site categories by limiting the number of technologies considered. This promotes focused data collection, resulting in streamlined site assessments and accelerated remedy selection decisions, which achieve time and cost savings.

Design requirements are also minimized by presumptive remedies by allowing site managers to use existing specifications. Additional time savings can be realized during the remedial design phase because early knowledge of the remedy may allow technology-specific data to be collected (and the design remedy begun) concurrent to the RI/FS process. By identifying the remedy early, the data requirements for the design of that remedy can be identified earlier, and when the design data are collected at the pre-ROD (Record of Decision) stages, the design can be partially completed before the remedy decision is signed.

Lessons Learned/Impediments to Implementation:

As the presumptive remedy concept extends across the country and is implemented at numerous sites, the ability of the presumptive remedy to streamline the process is not always well understood. For example, site managers and contractors who have always conducted the CERCLA process in the traditional manner may find it difficult to conceive that they can skip parts of the process (e.g., screening of alternatives) or significantly change it (e.g., concurrent designs).

In addition, presumptive remedies are not, and can not, be designed to apply to every situation encountered at the various presumptive remedy site types. For example, the presumptive remedy guidance for wood treatment sites does not account for sites with dioxin contamination.

Another issue associated with using presumptive remedies is the acceptance of the remedy by the community. For example, if members of the community are not familiar with the use or rationale of presumptive remedies, they may require additional evidence before they can be convinced that a remedy can be presumed for a site. Similarly, citizens may be concerned about whether innovative technologies were given the proper consideration if a presumptive remedy was used by the site manager.

A significant lesson learned from the early experience with presumptive remedies is that it is important to take the time to build support for the presumptive remedy approach. The site manager should think through the impact of the particular presumptive remedy on the RI/FS and remedial design (RD) processes. The changes that will be made should be identified along with the reasons why. Dialogue should also be engaged with the community and the State about the nature of the presumptive remedy, why it appears to the site manager to be justified, and how the CERCLA process could be streamlined as a result.

Documented Savings:

According to a recent study performed by the EPA, both time and money were saved in the RI/FS process at three municipal landfill sites by the use of presumptive remedies. As a result of this study, the estimated time savings ranged form 16 to 40 months as compared to control sites and 23 months as compared to the national average. These time savings translate into 36-56 percent as compared to the control sites and 45 percent as compared to the national average.

The study estimated cost savings as high as 60 percent compared to similar sites where the presumptive remedy initiative was not implemented. The highest cost savings documented was for a BFI site, where the cap was completed in 3 years; EPA estimated that $3 million were saved.

Time savings can also be realized during the remedial design because early knowledge of the remedy allows for the collection of design-specific data concurrently with the FS.

Overlap/Consistency with Other Streamlining Initiatives:

The use of presumptive remedies does not create any conflicts or inconsistencies with other streamlining initiatives in the Superfund cleanup program. As illustrated below, the approach of presumptive remedies is the basis upon which several other streamlining initiatives are built.

Plug-in RODs are designed to recognize the similarity of site problems, whereas presumptive remedies recognize that those similar site problems can be solved by using the same remedial approach.

The U.S. Air Force (Air Combat Command) has taken the concept of presumptive remedies one step further with its version of the Presumptive Remedies Engineering Evaluation Cost Analysis (PREECA) initiative. PREECA combines the concepts of a removal action with a presumptive remedy to eliminate the need for the remedy selection steps of a

standard removal action. If the site meets the criteria for a removal action and matches a presumptive remedy profile, the site can be "plugged" into a PREECA.

U.S. Department of Defense's (DOE) Preferred Alternatives Matrices (PAMs) initiative is similar to presumptive remedies. This initiative is designed to identify a range of acceptable technologies/applications for a variety of environmental situations.

Additional Information:

To obtain additional information, contact:

Scott Fredericks, U.S. Environmental Protection Agency Headquarters, (703) 603-8771
Andrea McLaughlin, U.S. Environmental Protection Agency Headquarters, (703) 603-9133

References:

General:

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Presumptive Remedies: Policy and Procedures.* Directive #9355.0-47FS. EPA 540-F-93-047. PB 93-963345. September 1993.

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Presumptive Remedy for CERCLA Municipal Landfill Sites.* Directive #9355.0-49FS. EPA 540-F-93-035. PB 93-96339. September 1993.

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils.* Directive #9355.0-48FS. PB 93-963346. September 1993.

Cost/Time Savings:

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Landfill Presumptive Remedy Saves Time and Cost.* Directive #9355.0-661. EPA 540/F-96/017. January 1997.

Streamlining Initiative Summary
Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA): Department of Defense

Overview:

The Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA) addresses typical U.S. Air Force situations and builds upon the U.S. Environmental Protection Agency's (EPA) presumptive remedy initiative to complete a standardized removal process.[10] Technical PREECA guidance developed by the Air Force creates remedy profiles consisting of information, descriptions, and quantitative physical data that define the conditions under which a remedy will be effective for the presumptive remedies of soil vapor extraction (SVE), bioventing, groundwater containment, capping, and multi-phase extraction. To be eligible for a PREECA, a site first must satisfy the criteria for a removal action. Next the site and contaminant characteristics are compared against the presumptive remedy profiles; if they match, the site can be "plugged" into a PREECA. The PREECA remedy profiles are guidelines that define the most effective, implementable, and least costly cleanup remedy. Consequently, if a site does not match one of the remedy profiles, it does not mean that another remedy can not, or will not eventually, be chosen, it simply means that the site is not PREECA eligible and must go through the standard remedy selection process.

The primary objective of PREECA is to reduce site cleanup time and cost. Because the only information that must be known about a site slated for a PREECA action is whether the site characteristics match the remedy profile, site characterization can focus on determining whether there is a match, thereby saving investigation costs and speeding site cleanup. PREECA also provides a generic Air Force-wide remedy selection mechanism to rapidly reduce risk at high risk sites by taking advantage of certain remedies that are consistently selected for certain types of contaminated sites at Air Force facilities. The PREECA approach identifies groups of sites with similar characteristics (e.g., similar groups of contaminants) as potential candidates for a remedy, and uses the presumptive remedy to address all similar sites. This procedure allows these sites to be cleaned up quickly, using the proven presumptive technology. The process supplies a generic remedy selection mechanism and enables the Air Force to rapidly reduce risk at high-risk sites by "plugging in" a presumptive remedy at sites that meet predefined remedy profile criteria. Other benefits that can be derived from using PREECA are that remedial solutions for contaminated sites are consistently applied; therefore, outcomes are predictable, and presumptive remedy cost and performance data are collected to support development of technology-based cleanup standards.

Where Implemented:

The Air Force has used PREECAs for various operable units (OUs) at several bases. Seymour Johnson Air Force Base (AFB), in North Carolina, was one of the first Air Force bases to successfully use the PREECA process. At the base, contamination in the soil had migrated from the site to the groundwater and to a surface water creek. EPA, the State, and the Air Force approved the PREECA bioventing remedy to address the soil contamination and the PREECA groundwater containment remedy to address the migration of contaminants to the creek.

At Ellsworth AFB, the presumptive remedies of groundwater pump and treat and SVE were implemented at a Fire Training Area and three landfill sites. At Holloman AFB, the presumptive remedy of Soil Vapor Extraction (SVE) was

[10] An engineering evaluation/cost analysis (EE/CA) document is the alternative analysis that is prepared to support the identification of the remedy for a removal action.

implemented at the Fire Department Training Area, the Officers' Club site, and at an aircraft maintenance hangar. Also, the presumptive remedy of bioventing was implemented at the petroleum, oil, and lubricant (POL) washrack discharge area. At Shaw AFB, four presumptive remedies were implemented at eight sites (four OUs), and Shaw AFB anticipates the use of presumptive remedies at four additional OUs. Nellis AFB used a PREECA Site Specific Action Memo (SSAM) for a landfill cap, and Pope AFB has received regulatory approval of a PREECA SSAM for bioventing.

Affected Parts of the Process:

Pre-remedial:

- PREECA can streamline site characterization by allowing it to focus on determining whether the characteristics of the site match those of a presumptive remedy profile.

Removal:

- Using the PREECA initiative, a cleanup action can be selected and implemented at sites that match one of the presumptive remedy profiles, without the need to determine the complete extent of the site contamination or to conduct a detailed analysis of the "nine criteria." Site characterization is focused on determining whether the characteristics of the site match those of the remedy. The remedy is predetermined by the nature of the site.

- After a site is confirmed as a candidate for using PREECA, a streamlined alternatives analysis in the engineering evaluation/cost analysis (EE/CA) is prepared. The resulting requirements are reduced because the focused EE/CA limits the cost analysis to the presumed technology(ies). Once a technology is presumed or selected for a site, the overall cost for the remedy is calculated based mainly on the length of time that the technology must operate, to achieve the cleanup goal.

Remedial:

- The ability to use a PREECA may eliminate the need for a standard remedial investigation/feasibility study (RI/FS). If the RI has already been initiated, more focused data collection and use of risk assessment to confirm that no additional action is needed will eliminate the need for an FS.

Design:

- The focus of the investigation is design-oriented. The design is initiated earlier, with more design-oriented information available.

Construction:

- Construction will be initiated earlier, because of a faster up-front investigatory and design process.

Lessons Learned/Successes and Impediments to Implementation:

PREECA is a plug-in remedy selection document that can be used at all appropriate Federal Facilities. By using PREECA approaches, site managers can accelerate remedy selection decisions and achieve time and/or cost savings in the remedy selection process.

EPA endorses the use of presumptive remedy technologies at appropriate sites. These technologies are accepted as the best remedies for certain site characteristics, and therefore, can be used regardless of the cleanup level. Where the PREECA guidance is used to implement a formally accepted presumptive remedy, impediments to the use of the PREECA are limited and may depend upon the level of community support. When the use of the term implies a more "informal" presumption (e.g., general acceptance of a specific technology for a specific set of circumstances), impediments may involve the reluctance of stakeholders to narrow the field of remedy selection.

State regulators have been also begun to accept categorizing contamination types with certain presumptive remedies. For example, New Mexico State regulators, who were directing the Holloman AFB cleanup, increased their acceptance of presumptive remedies after they became familiar with the PREECA concept. This acceptance was based on the assumption that the presumptive remedy would obtain the required cleanup level (1,000 parts per million [ppm] total petroleum hydrocarbon [TPH] in soils).

Documented Savings:

Time and cost savings associated with using PREECA will vary, depending on site-specific circumstances. At Seymour Johnson AFB, the Air Force estimates that the PREECA process has save 2 years and $250,000. In general, the Air Force estimates that up to 19 months and $500,000 per site can be saved by using PREECA, when appropriate, compared to conventional removal action procedures. Savings may be more significant when compared to the standard remedial process.

Overlap/Consistency with Other Streamlining Initiatives:

The PREECA initiative builds upon EPA's Presumptive Remedies initiative. In brief, PREECA uses the presumptive remedies approach to perform engineering evaluation and cost analysis under the nontime critical removal authority.

Additional Information:

For additional information concerning this initiative, contact:

Margaret Patterson, U.S. Air Force, Air Combat Command, (757) 764-6249

References:

General:

U.S. Army Corps of Engineers, Omaha District. *Air Combat Command (ACC) Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA).* Working Copy. January 1995.

Cost/Time Savings:

Patterson, Margaret, U.S. Air Force, Air Combat Command, (757) 764-6249. Personal communication.

Streamlining Initiative Summary
PREFERRED ALTERNATIVES MATRICES (PAMs): Department of Energy

Overview:

The Preferred Alternatives Matrices (PAMs) is an initiative undertaken by the Department of Energy (DOE) Office of Environmental Restoration (EM-40) to provide site managers with a tool for selecting remedial technologies by providing guidance on a range of applicable technologies that are effective for various site applications. PAMs are available for the following "Technology Focus Areas": Remediation/waste processing; Characterization/monitoring; and Decommissioning. Each PAM consists of a matrix that ranks the effectiveness (in terms of cost and performance) of proven, available technologies against various contaminants, materials, and environmental conditions. The matrices are screening tools intended to provide DOE site managers with a list of viable alternatives for the site that meet minimum cost and performance parameters. Thus, PAMs can be used to develop technology neutral decision documents (e.g., records of decision [RODs]) and support Performance-Based Contracting (PBC). In this way, PAMs allow the marketplace to drive technology selection because the bidding contractor may choose any technology on the list of viable alternatives and, therefore, are an important step toward PBC.

The initial technology rankings were developed through peer review and available information from sources such as DOE EM, national laboratories, DOE contractors, and U.S. Environmental Protection Agency (EPA data bases). As the PAMs evolve, each technology will have "Cost and Performance Reports" available as descriptions. If vendors wish to have their technologies included on the PAMs, a Cost and Performance Report documenting the data is required.

Where Implemented:

PAMs are not yet final; therefore, they have not yet been implemented. However, DOE expects to finalize the PAMs by April 1997. Once finalized, PAMs will be available on the DOE Office of Environmental Restoration homepage at http://www.em.doe.gov/define. DOE expects PAMs to be used at all DOE Facilities that are conducting remedial activities.

Affected Parts of the Process:

Pre-remedial:

- The use of PAMs can streamline the site characterization process by outlining in advance a list of acceptable potential characterization methods and techniques to be used.

Removal:

- The use of PAMs can support a rapid-response decision by outlining in advance a list of potential remedies to be used.

Scoping and Workplan Preparation:

- PAMs are designed to support consideration of remedies early in the scoping of a study so that design data collection can be integrated into the remedial investigation/feasibility study (RI/FS).

Remedial Investigation:

- There are a wide variety of potential impacts on the RI/FS process. These include: streamlining the site characterization process, elimination or substantial streamlining of the screening and development of alternatives, and ability to initiate designs concurrently with the RI.

Remedial Design:

- If the remedial design is started during the RI/FS process, the design phase can be substantially streamlined, or even eliminated as a sequential step in the process.

Remedial Construction:

- The construction process can start sooner because the design stage begins sooner.

Lessons Learned/Successes and Impediments to Implementation:

The PAMs are a new initiative and, therefore have not yet been implemented. However, because PAMs are designed to identify a range of acceptable technologies for a particular environmental problem instead of selecting a single solution, there should not be any major objections to using PAMs at DOE sites. The potential impediments to using PAMs are those that are similar to the difficulties associated with presumptive remedies and performance-based contracting. For example, citizens may be concerned about whether innovative technologies were given the proper consideration when a remedy is selected from a predetermined matrix of choices. In general, the PAMs present appropriate technologies to deploy based on the site-specific conditions. However, there is the possibility that unique aspects of a site may preclude the use of technologies listed on the PAMs.

Documented Savings:

Because PAMs are a new initiative and have not yet been implemented, documented results are not available. However, DOE anticipates potential time and cost savings anticipated with the use of PAMs, and is currently drafting cost and performance case studies to support the PAM initiative. In addition, technology Cost and Performance Reports will be required upon completion of all future projects and will be provided as back-up to the PAMs' rankings. As an example of how time and cost savings may be realized, time can be saved if site managers use PAMs to streamline the process of screening alternatives, and the cost of excessive treatability studies would also be eliminated because the effective, low-cost, commercially available technologies would already be screened, ranked, and preselected. Also, site managers and operating contractors can use PAMs to structure invitations to bid and requests for proposals (RFPs) on EM programs to promote the most cost-effective remedial strategies. Finally, time can be saved during the remedial design phase if remedies are considered early in the scoping of a study so that the remedial design commences during the RI/FS process.

Overlap/Consistency with Other Streamlining Initiatives:

DOE believes that PAMs will be an integral part of performance-based contracting because PAMs can provide the basis for developing a list of viable alternatives which can, in turn, be incorporated into the technology selection discussion

of a technology neutral Record of Decision (ROD). In this way, potential remedial design/remedial action (RD/RA) contractors are free to bid any of the technologies on the list, or propose a different one altogether given cost and performance data that shows how the technology fits into the list of viable technologies on the PAMs..

The PAM initiative is somewhat similar to EPA's presumptive remedies initiative. Both initiatives address similar sites and situations in a consistent manner. The two initiatives differ in that the PAMs are far less restrictive because they present a range of options to address the situation and rank these options according to their ability to solve a specific problem, while the intent of the presumptive remedies initiative is to present the best single solution for a specific site type.

Additional Information:

To obtain additional information contact:

Martha Bailey, U.S. Department of Energy, (301) 903-8098, martha.bailey@em.doe.gov
Mary McCune, U.S. Department of Energy, (301) 903-8152, mary.mccune@em.doe.gov

References:

General:

U.S. Department of Energy. Fact Sheet: *Preferred Alternatives Matrices, What Are They and How Are They Used?* Provided by Martha Bailey, (301) 903-8098.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
PLUG-IN Records of Decision (RODS): U.S. EPA Regional Pilots

Overview:

The concept of Plug-in Records of Decision (RODs) was pilot tested by the U.S. Environmental Protection Agency (EPA), Region 9. The purpose of the Plug-in RODs initiative is to streamline the remedy selection process by recognizing the similarity between sites and the appropriate remedies used to address those sites. The approach is used when a large site contains multiple areas or "subsites" that have similar physical and chemical (i.e, contamination) characteristics. A "plug-in" remedy is selected for each subsite prior to full characterization of the subsite. If the conditions at a subsite match certain predefined conditions, then the subsite will "plug-into" or attach to a remedial action. The ROD for the site contains the basis and process to be used for the "plug-in decision" that is required for each subsite. Following the prescribed process in the ROD completes the remedy for any particular subsite. Individual remedies are developed that differ based only on the site-specific data and information for a particular subsite. It is important to note that the existence of a Plug-in ROD does not commit the facility to use the ROD for all sites that will "fit," it simply provides a structure that the facility can use for similar sites.

Where Implemented:

The Plug-in ROD initiative was first applied to the Indian Bend Wash-South Superfund site (IBW-South) in Tempe, Arizona. Up to 30 multiple and separate facilities may have contributed volatile organic compound (VOC) contamination to the groundwater at this location. The IBW-South site area is about 3 square miles. VOCs in soils at all IBW-South subsites are being addressed by the single operable unit (OU) ROD as part of this pilot. The plug-in remedy for this site identifies Soil Vapor Extraction (SVE) as the standard remedial action (RA), and then defines the process to be used to determine whether the RA should be applied to a subsite. Rather, than selecting an RA for a specific subsite, the ROD selects an RA that can apply to any subsite exhibiting certain conditions, defines these conditions, and defines a process of determining if such conditions exist. In 1994, one subsite was "plugged-in" and has entered the design stage. Two additional subsites were scheduled to be "plugged-in" in 1995.

Fort Ord in California has also used plug-in RODs. Specifically, at Fort Ord two plug-in RODs were developed: one for no further action (NFA) sites and one for interim action (IA) sties. Sites requiring remedial investigation were combined into a basewide ROD. Both the NFA and IA plug-in RODs specify criteria that the site must meet in order to be plugged in. For example, the IA plug-in ROD is designed to cover only sites with shallow soil contamination from solvents, pesticides, metals, and petroleum hydrocarbons. The IA plug-in ROD provides for excavation with soil treatment, recycling, and/or disposal and provides criteria for selecting the type of treatment and/or disposal. For both the NFA and IA plug-in RODs, an Approval Memorandum is generated documenting that the site meets the criteria to be plugged in. This Approval Memorandum is submitted for public comment and to the regulators for review. Following the comment period, the memorandum is "signed off" by the regulators and serves as a decision document until the sites are ultimately incorporated into the Basewide ROD for the facility as a whole. At Fort Ord, the IA ROD has been applied to more than 40 sites, and the NFA ROD has been applied to over 10 sites.

Affected Parts of the Process:

Pre-remedial:

- No impact.

Removal:

- For the removal process, the concept is very similar to the U.S. Air Forces Presumptive Remedy Engineering Evaluation/Cost Analysis (PREECA) process. When a specific set of circumstances exist that are clearly and quickly linked to a presumptive remedy, limited, specific data are gathered to verify the suitability of the site and remedy, and planning and design of the remedy begins immediately. As used in the PREECA process, the data are "plugged" into a model engineering evaluation/cost analysis (EE/CA) for the specific type of presumptive remedy, and the EE/CA can be prepared on an expedited basis. Similarly, at Fort Ord, the use of a Plug-in ROD has been used to streamline the IA process. Fort Ord has a large number of similar sites requiring an IA (sites with smaller soil contamination) and used the Plug-in ROD to streamline the removal process.

Remedial :

- With Plug-in RODs, the selection of the cleanup technology is separate from the decision about its application at a particular subsite. Therefore, EPA can collect limited data to verify that the cleanup technology is appropriate immediately after all sampling data about the subsite are collected. Also, it is not necessary to evaluate and select a separate remedy for each subsite. The remedial design (RD) and removal action (RA) can begin at a subsite after it is "plugged into" the remedy. Investigation work is focused on the remedy early in the process because the remedy has been laid out ahead of time. With plug-in RODs, there is an earlier focus on data collection. The approach allows the remedial investigation (RI) and RD work to proceed simultaneously, and allows most subsites to move directly from RI to RD. The entire RI/FS/ROD process is completed sooner, and the actual site cleanup work starts sooner and moves more rapidly. If a subsite meets the criteria for the plug-in ROD, much of the RI data will double as RD data, and the design process will be shortened. However, the use of a plug-in ROD does not imply that the feasibility study (FS) has been eliminated. A generic FS still must be developed to support the Plug-in ROD; an individual FS does not need to be prepared for each site that is plugged in.

Lessons Learned/Successes and Impediments to Implementation:

The Air Force attempted to develop a Plug-in ROD for soils at McClellan Air Force Base (AFB), California. Due to the State's regional water control board's groundwater nondegradation policy, it became technically too difficult to separate remediation of the soils from groundwater remediation; therefore, the development of the Plug-in ROD for soils only was judged to be infeasible and was scraped. However, there are no known statutory, regulatory, or contracting impediments to using Plug-in RODs. In fact, EPA endorses the use of appropriate "presumptive" remedies by site managers, and Plug-in RODs are basically a variation on that approach. As a result, the potential impediments to using Plug-in RODs are similar to those for presumptive remedies. For example, if members of the community are not familiar with the use or rationale of Plug-in RODs, they may be reluctant to accept that a remedy can be "plugged in" to a subsite. Similarly, citizens may be concerned about whether innovative technologies were given proper consideration when a plug-in remedy was used.

Documented Savings:

While it is difficult to fully quantify the success of any initiative until the completion of the program, the following accomplishments were expected at the onset of the IBW-South pilot study:

- Savings of 10 years in overall soil site response time;
- RD began 1 to 5 years sooner; and
- The rate at which subsites enter RD phase was doubled.

Other benefits expected from this pilot program included:

- Redundant remedy selection processes would be eliminated (e.g., the preparation of a individual FS and ROD for each similar operable unit would not be necessary).
- The design and cleanup would begin sooner, or immediately, at subsites where the most common conditions existed.
- Remedial action would start sooner and proceed faster.
- By separating the RI and FS, the overall site cleanup process would not be delayed by one subsite's RI.
- Although cost savings could not be quantified up front, it was expected that a corresponding cost savings would be associated with the time savings.

At least one measurable result is directly attributable to the Plug-in RODs initiative at the IBW South site. If the more traditional approach to address the soils had been used, the ROD would not have been possible for about 3 years. With the use of the Plug-in ROD initiative, the ROD was completed immediately and, as a result, RD/RA activity began significantly earlier than would have been possible under a traditional process.

Although specific time and cost savings as a result of the use of the Plug-in RODs at Fort Ord have not been tracked, personnel at Fort Ord (which is a closing base) are confident that the Plug-in RODs have allowed a faster transfer of property to non-military uses.

Overlap/Consistency with Other Streamlining Initiatives:

The Plug-in ROD pilot project is a combination of a plug-in documentation with EPA's presumptive remedy approach. Plug-in RODs streamline the remedy selection process by recognizing that when a common remedy can be used to address similar subsites, it is not necessary to rewrite an entire document. The objective is to compress the time required to reach the RD stage at a "mega-site" (a large facility with many similar sites). As discussed above, the IBW-South site in Tempe, Arizona, is one such site, with up to 30 multiple and separate sources, covering about 3 square miles. This approach may have particular applicability at Federal Facilities that typically have multiple sites, often with similar kinds of contamination.

Other initiatives that use a plug-in or presumptive approach are the Presumptive Remedies Engineering Evaluation Cost Analysis (PREECA) used by the Air Force and the Preferred Alternative Matrices (PAMs) used by DOE.

Additional Information:

To obtain additional information on this initiative contact:

Jeff Dhont, U.S. Environmental Protection Agency Region 9. (415) 744-2399

References:

General:

U.S. Army Corps of Engineers. *Basewide Remedial Investigation Feasibility Study Fort Ord, California. Volume 1 - Background and Executive Summary.* Final, October 1995.

U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. End-of-year report: *Status of Regional Superfund Pilots.* Publication 9202.1-15A. PB 94-963216. December 1993.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
RCRA/CERCLA INTEGRATION: U.S. EPA

Overview:

In September 1996, the U.S. Environmental Protection Agency (EPA) issued guidance on the integration of Resource Conservation and Restoration Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanups. The guidance was designed to accomplish several objectives:

- To establish the premise that cleanup under one program is expected to be equally as protective as cleanup under the other program, and that studies completed under one program do not need be revisited by the other.
- To establish the principle that one authority (either RCRA or CERCLA) should be used, and that in general, potential cleanups under CERCLA will be deferred to RCRA (except for Federal facilities).
- To efficiently coordinate activities that avoid duplication of effort whenever deferral is not possible.
- To reaffirm existing policy that risk-based clean closure standards be set at RCRA regulated units.
- To announce a policy change from the clean-closure preamble that fate and transport models can be used as appropriate to support clean closure demonstrations.

Where Implemented:

Since formal national guidance on this initiative was just recently issued (September 1996), EPA Headquarters does not yet have data on where the guidance has been implemented.

Prior to the issuance of the formal guidance, however, a number of facilities had been addressing RCRA/CERCLA integration. For example, aggressive RCRA/CERCLA integration strategies were identified and are being implemented at a number of U.S. Department of Energy (DOE) sites. Idaho National Environmental Laboratory (INEL), Fernald, Lawrence Livermore National Lab, and Hanford are among the facilities that have parity statements in agreements or permits. In addition, some States and Regions use a risk-based approach to define unit-specific removals and decontamination standards during clean closure at RCRA regulated units.

Specifically, at INEL, the parties decided to divide regulatory duties. EPA is overseeing site cleanup activities, while the State is regulating the ongoing waste management activities. Similarly, at a private site in Region 10, in order to avoid duplication, an active RCRA/CERCLA oversight committee was formed to clearly define areas of responsibility for each committee member, based on geographical areas within the facility. By memorandum of understanding, all parties agreed to follow the CERCLA process and that work accomplished under one statute will satisfy the requirements of the other.

Affected Parts of the Process:

All parts of the process are potentially impacted by the ability of this approach to establish a lead regulatory construct and authority that reduce duplication of effort by the facility, EPA, and the State.

Pre-remedial:

- Prior to the initiation or remedial activities at sites potentially subject to both RCRA and CERCLA, the guidance encourages site managers to defer authority from one program to the other. In general, non-Federal Facilities should be deferred to the RCRA program. At Federal Facilities, however, it may be more appropriate for CERCLA or a State/Tribal "Superfund-like" program to take the lead.

Remedial Investigation:

- Remedial investigations (RIs) are allowed to proceed without duplication of effort (including oversight) and second-guessing, based on the premise that satisfying the requirements of one program will satisfy the requirements of both.

Design and Construction:

- Designs will be initiated sooner by ensuring that results of a RCRA investigation documented in a Statement of Basis will suffice for the CERCLA documentation or visa versa. The assumption is that the programs will yield similar remedies in similar circumstances and that actions under RCRA corrective action or CERCLA will satisfy the requirements of both programs. In addition, to avoid inconsistency and to better coordinate between different regulatory programs, the guidance encourages that the risk-based clean closure standards be developed for RCRA regulated units, such that when a risk-based CERCLA or RCRA corrective action cleanup is conducted in the surrounding area, the RCRA unit will not be the will not be required to meet different cleanup standards than the surrounding area (e.g., will not be required to be cleaned to background levels). In addition, the guidance changes a previous policy to allow the appropriate use of fate and transport models to establish risk-based clean closure standards. EPA states its intention in the September 1996 guidance to issue additional guidance on risk-based clean closure.

Lessons Learned/Successes and Impediments to Implementation:

Because most States are authorized under RCRA to administer the closure/post-closure program, and many are authorized to implement RCRA corrective action, coordination of RCRA and CERCLA will often involve the State as well as the EPA Region. Although this can be overcome, it may add a layer of complexity to the coordination process. Another area that must be addressed is the legal issues associated with the development of the language contained in RCRA permits and/or CERCLA decision documents (e.g., Records of Decision [RODs]) that allow deference to one regulatory authority. Also, if the entire facility is handled under RCRA, any RCRA corrective action permits or orders will need to address all releases from the CERCLA site; therefore, some of these permits may need to be modified.

Problems can arise if the RCRA "facility" and the CERCLA "site" are not defined by the same physical boundaries. CERCLA defines a site as the place where contamination has come to be located. The CERCLA listing will sometimes encompass areas outside a facility boundary. RCRA corrective action encompasses all contaminated areas within a facility (defined in terms of land ownership by a common owner/operator) and off-site contamination outside the facility boundary that comes from on-site releases. In cases where the Federal Facility was not listed from fenceline-to-fenceline, the CERCLA site may not encompass all the RCRA regulatory units.

The effective use of a RCRA/CERCLA strategy is complicated by the RCRA closure/post-closure requirements at sites that have operating RCRA units and are also CERCLA sites. EPA addresses this issue in its national guidance, and believes that a risk-based approach can be developed to satisfy both statutes. EPA also notes that some states may have more stringent requirements or policies than those in the September guidance.

Once all parties agree on a site remediation strategy and a RCRA/CERCLA integration plan, it should be documented in an agreement (e.g., memorandum of understanding or tri-party agreement) and/or incorporated into existing agreements (e.g., permits, orders, inter-agency agreements) to ensure that the responsibilities and duties of each party are clearly defined.

Documented Savings:

Because the national guidance on RCRA/CERCLA integration was recently issued (September 1996), EPA Headquarters does not yet have data on time and cost savings as a result of this initiative. Anecdotal evidence suggests, however, that the initiative has reduced duplication of effort and increased the efficiency of the regulatory oversight process.

As a result eliminating the duplication of effort associated with dealing with two regulatory programs (RCRA and CERCLA), DOE estimates that significant cost and time savings can be achieved. Specifically, DOE estimates that about $20,000 per decision document will be saved and the duration from the initiation of the remedial investigation (RI) to the ROD will be reduced from 3 years to about 1.5 years.

Overlap/Consistency with Other Streamlining Initiatives:

There are no known conflicts or inconsistencies between this and the other streamlining initiatives. This initiative is similar to the Region 10 "Lead Agency Division of Labor." The main purpose of both initiatives is to eliminate or minimize duplication of effort. However, this initiative attempts to minimize duplication by eliminating redundant parts of similar EPA programs, when possible. The Region 10 pilot study eliminates duplication via a division of labor between the Region and the State.

Additional Information:

For additional information about this initiative, contact:

Hugh Davis, U.S. Environmental Protection Agency Headquarters, (703) 308-8633

References:

General:

Herman, Steven, Assistant Administrator, Office of Enforcement and Compliance Assurance, and Laws, Elliott, Assistant Administrator, Office of Solid Waste and Emergency Response. Memo: *Coordination Between RCRA Corrective Action and Closure and CERCLA Site Activities* to RCRA/CERCLA National Policy Managers. September 24, 1996.

U.S. Department of Energy, Office of Environmental Activities, EM-22. *Draft Guidance on RCRA/CERCLA Integration.* December 15, 1995.

Cost/Time Savings:

U.S. Department of Energy, Office of Environmental Activities, EM-22. *Draft Guidance on RCRA/CERCLA Integration.* December 15, 1995.

Streamlining Initiative Summary
Lead Agency Division of Labor: U.S. EPA - Region 10

Overview:

The U.S. Environmental Protection Agency (EPA) Region 10 and the Washington State Department of Ecology have come to an agreement on a new framework for restructuring the working relationship between the two organizations at sites on the National Priorities List (NPL). This initiative, "Lead Agency Division of Labor" framework, is designed to focus limited resources on the mission of site cleanup by restructuring the two agencies' roles and responsibilities such that NPL sites will either be State lead or Federal lead. The specific objectives of the initiative are to:

- Reduce conflicts among regulatory staff;
- Conserve and maximize the effectiveness of agency resources and not duplicate effort; and
- Achieve environmental cleanups in a faster and more efficient manner.

Under this initiative, a lead regulatory agency (either the State or the Region) is designated for all NPL sites. At most sites, participation by the non-lead or support agency will be limited to participation in milestone briefings conducted a three specific phases of the project and are intended to be detailed enough to allow the support agency to meet its statutory obligations. The milestone briefings include:

- Project Planning Briefing - Lead agency presents the conceptual site model and a site management plan, including the investigation workplan.
- Remedy Selection Briefing - A proposed plan briefing to form the basis of concurrence for the proposed plan and Record of Decision (ROD). [Note: following the public comment period a second briefing may be needed.]
- NPL Delisting - This briefing and the delisting package prepared by EPA form the basis for delisting concurrence.

For the support agency, the milestone briefings are attended by agency management, no remedial project managers (RPMS) are assigned to the site.

EPA Region 10 has also initiated similar division of labor arrangement with the State at Idaho National Engineering Laboratory (INEL) in Idaho.

Where Implemented:

All Federal Facility and private party sites in the State of Washington have been designated as either State lead or EPA lead sites. At INEL, the Region and the State have divided the regulatory duties by geographic area. INEL is divided into nine Waste Area Groups (WAGs). EPA is overseeing site cleanup activities at eight WAGs, while the State is overseeing cleanup at the other WAG, as well as regulating the ongoing waste management activities.

Affected Parts of the Process:

All parts of the process are potentially impacted by the ability of this approach to establish a lead regulatory construct and authority that reduces duplication of effort by the facility, EPA, and the State.

Pre-remedial:

- No impact.

Remedial Investigation:

- Allows remedial investigations (RIs) to proceed without duplication of effort (including oversight) and second-guessing.

Design and Construction:

- Allows remedial implementation to proceed without duplication of effort (including oversight) and second-guessing.

Lessons Learned/Successes and Impediments to Implementation:

This initiative was an effort to improve the relationship between EPA Region 10 and the State of Washington. Since the initiation of the agreement, disputes over cleanup decisions have been significantly reduced.

The presence of the State of Washington's Model Toxics Control Act (MTCA) was an important pre-requisite for the initiative. MTCA, which is very similar to CERCLA, and in some cases more stringent, was an important factor for establishing confidence by EPA that State lead sites would be remediated in a manner consistent with CERCLA and with the EPA lead sites.

Due to the complexity of the site or some special technical skill requirements not available within the State, EPA has an "enhanced role" at some State lead sites.

Finally, the agreement is still evolving and, as a result, when unforseen situations arise, close cooperation between EPA and the State is required to resolve them.

Documented Savings:

Although the initiative is intended only to benefit EPA and the State, as a result eliminating the duplication of effort associated with dealing with two regulatory authorities, it is believed that some cost and time savings can be achieved be the Federal Facility as well.

Overlap/Consistency with Other Streamlining Initiatives:

No conflicts or inconsistencies are known between this and the other streamlining initiatives. This initiative is similar to the RCRA/CERCLA Integration initiative. The main purpose of both initiatives is to eliminate or minimize duplication of effort. However, this initiative eliminates duplication via a division of labor between the Region and the State, while the RCRA/CERCLA integration initiative attempts to minimize duplication by eliminating redundant parts of similar EPA programs, when possible.

Additional Information:

For additional information about this initiative contact:

Jim Woolford, U.S. Environmental Protection Agency, (202) 260-1606

References:

General:

U.S. Environmental Protection Agency and Washington State Department of Ecology. Memorandum: *Ecology/EPA Agreement on Roles and Responsibilities at NPL Sites* to Ecology Toxics Cleanup Program Personnel and EPA Superfund Personnel. October 14, 1994.

Cost/Time Savings:

N/A

Streamlining Initiative Summary
Environmental Data Management and Decision Support (EDMDS): U.S. AIR FORCE

Overview:

Environmental Data Management and Decision Support/Geographic Information System Protocol (EDMDS) is a U.S. Air Force - Air Combat Command (ACC) initiative designed to *enhance the decision-making process* by providing a comprehensive source of relevant environmental information that enables important information to be summarized and presented in an easy to understand graphical format and analyzed real time. The two basic products of the EDMDS geographic information system (GIS) are thematic maps depicting environmental conditions at the site and a desktop GIS containing all environmental data, drawings, and maps in electronic form. The desktop GIS is an on-line tool that can be used for interactive decision-making and to conduct "what if" analysis as well as to prepare briefings and reports.

Application of EDMDS Has Two Primary Goals:

1. To assemble relevant data from existing sources in order to meet local, State, and Federal environmental requirements and to facilitate *decision-making with stakeholders.*

2. To identify environmental factors present on bases that may affect future property transfer and land use.

Where Implemented:

EDMDS pilot was started in 1994 and was successfully installed at all (19) active Air Combat Command bases by December 1995.

Affected Parts of the Process:

Because EDMDS is an information management, decision-making, and communication tool, theoretically, it has the potential to affect the entire process from initial scoping through design and construction. It has the potential to save both time and money by putting information in a format that enables the project team to make rapid, real-time decisions, based on a centralized source of site information.

Scoping and Workplan Preparation:

- EDMDS could be used to easily review existing or previously collected data, as well as physical site characteristics to help the project team develop a focused or targeted sampling strategy.

- Some information contained in EDMDS may feed directly into the workplan, enabling the project team to develop the workplan more rapidly.

- It is also conceivable that regulator review of workplans could be accelerated by EDMDS because all data are available to any stakeholder, including regulators, via the Internet.

Investigation:

- As information from the investigation becomes available, it is added to the system to allow the project team to have an early understanding of results, to play "what if" scenarios, and ensure that the remedial investigation (RI) report addresses the right elements.
- This information can also be used by the project team to begin looking at alternatives for the feasibility study (FS), to assist in determining whether any additional sampling will be needed, or whether more focused analysis is appropriate for additional rounds of sampling.
- The need for intensive review of the RI may also be reduced.

Design and Construction:

- Data collected during the RI are made easily available to designers to facilitate the design process.

Lessons Learned/Impediments to Implementation:

Potential impediments to implementation:

- Stakeholders must have computer hardware/software to access the information and are likely to need on-going user support.
- In order to be used effectively, information must be updated regularly and in a timely manner.

Documented Savings:

From FY 94-96, the Air Force has invested a total of $3.6 million to develop and implement EDMDS (includes photo interpretation, installation support, hardware, training, upgrades, and updates).

- At Dyess Air Force Base (AFB), EDMDS was used during scoping to pinpoint a subsurface conduit for contamination. This information helped narrow the scope of the investigation to an area where contamination was likely, rather than the entire site.

Rather than attempt to document overall cost and time savings, ACC describes the return on investment in the following terms:

- Data are accessible and centralized.
- New data can be easily added from spreadsheets, management action plans, etc.
- Work products can be produced more efficiently.
- Decisions by technical reviewers can be expedited.
- The review process is expedited by allowing log-on to data (Restoration Advisory Board [RABs], regulators, contractors share information).

- Enhanced trust results from higher comfort with access to information.

Overlap/Consistency with Other Streamlining Initiatives:

Unlike some other streamlining initiatives that seek to fundamentally change some of the institutional/process aspects of the cleanup process, EDMDS is simply an information management tool designed to improve access to information and enhance and improve the efficiency of communication. EDMDS or other similar constructs can be successfully integrated with other streamlining initiatives and to support partnering and Streamlined Oversight.

Additional Information:

To obtain additional information on this initiative contact:

JoAnn Hubbard, U.S. Air Force, Air Combat Command, (757) 764-6249 or -3614

References:

General:

U.S. Air Force. Brochure: *Air Combat Command, Leader in Environmental Restoration.*

Better Environmental Information Management Results in Better Decision-Making for DOD. Success Story on EDMDS from the Radian International Homepage (http://www.radian.com/casestud/case9.htm), 1996.

Environmental Information Management at U.S. Military Installations, Getting it Right the First Time. Success Story on systems for managing environmental information from the Radian International Homepage (http://www.radian.com/casestud/case24.htm), 1996.

U.S. Air Force, Air Combat Command. Briefing: *Air Force Installation Restoration Program Initiatives.*

Hubbard, JoAnn, U.S. Air Force, Air Combat Command. Telephone and E-mail, November 1996.

Streamlining Initiative Summary
PERFORMANCE-BASED CONTRACTING: Department of Energy; Department of Defense

Overview:

The term Performance-Based Contracting (PBC) is used in a variety of ways to describe a type of contracting whereby the contractor's payment is directly tied to the quality of the end product rather than the accomplishment of specific activities. For the purpose of this document PBC is defined as:

> "The ability of the government entity to establish a performance level (e.g., cleanup level or other standard) and allow multiple contractors to compete to take responsibility for implementing effective cleanup."

It is important to recognize that PBC may be accomplished through fixed price or cost reimbursable contracting mechanisms. The ability to conduct PBC, however, always starts with a performance based remedy statement.

Performance-Based Contracting can be considered as a continuum. At one end of the spectrum (Case # 1), a results-oriented statement of work is issued, including performance-based criteria and measures, as well as performance incentives. In these instances, the government does not select or prescribe which technology must be used by the contractor to accomplish the specified site cleanup criteria. A competitive request for proposal (RFP) is released, describing the performance required, and multiple contractors propose a technology or technologies and provide a price for implementation. The contractor is paid at the completion of the project (with potential progress payments along the way), and only if the criteria established in the contract are met. The contract ultimately signed with the selected bidder will contain performance criteria such as reduction of contaminant concentrations in soil below certain levels and completing all remedial actions by a specified date.[1]

At the other end of the spectrum (Case # 2), PBC may go as far as to specify the general technology and identify other performance measures (e.g., cleanup levels, time). The technology design and implementation are left to the contractor, as long as the contractor meets the basic performance criteria at the end of the project. Careful monitoring of design and implementation decisions by the contract manager and the project team (including regulators and the community) ensures a collaborative decision-making process on all elements of the design is maintained. The Total Environmental Restoration Contracts (TERCs), managed by the Corps of Engineers for the U.S. Department of Defense (DOD) are typical of this type of contract.

The goals of PBC can be numerous, and it may be difficult to optimize for all of these goals simultaneously. These goals may be:

- Encouraging of the use of innovative technologies through a lack of prescription of a specific technology to achieve the performance objective.

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[1]Performance-Based Contracting is also being utilized in a reconfiguration of DOE's Management and Organization Contracts (M&O). In these cases, contractors' fees are based on their ability to respond to performance objectives. This is a different type of Performance-Based Contracting that is not addressed in this paper, because it does not have the same potential for fundamental changes in the remedial process.

- Transferring risk from the government to the private sector, which will bid on and manage the activity to meet a fixed price (i.e., a cleanup level is specified, and the contractor bids on a technology that can meet that level). *[Note: This goal would obviously not apply when cost reimbursable contracts are used.]*

- Reducing costs of remedy implementation through risk sharing with the contractor, competition and active use of incentives.

- Expediting cleanup through the utilization of commonly available technologies that can be applied as soon as it is clear that the factors that support the use of that technology are present.

Where Implemented:

Case 1, described above, has not been widely used in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup process. It has recently been piloted at the Idaho National Engineering Laboratory (INEL). In addition, Case 1 has been implemented by the Air National Guard for four projects at non-NPL (National Priorities List) sites over the last 2 to 3 years. Case 2 is the foundation of the DOD TERCs and has been used throughout the country.

Affected Parts of the Process:

Both Cases (#1 and #2) have the potential for significant impacts on the investigation, remedy selection, design, and construction processes. There are many potential variations. Descriptions of the changes provided below are simply examples.

Remedial Investigation/Feasibility Study:

Case # 1:

- Because there is little experience with PBC and many issues to be addressed, some of the potential changes are speculative. Cleanup levels are set through the risk assessment process. Contractors are then invited to submit bids on achieving those levels using different technologies. In this approach, information to support the detailed analysis required under CERCLA could be submitted by competing contractors, with the results put before the regulators and the public.

- If the goal of the PBC process is shifting business risk to the contractor, collection of more precise volume information, as well as more extensive nature and extent information than might normally be collected at this stage, may be important to ensure that modifications do not have to be continually issued due to changed field conditions.

- The government selects the remedy after performance measures are put in the market place.

- Intensive involvement of the public at much earlier stages of the process will be required when the parameters that bound remedy choice are set.

- Public review of the potential impacts of the technologies that are bid may be required before contract award.

Case # 2:

- Because the basic technology (e.g., soil washing, soil vapor extraction) may be established by the government, the Record of Decision (ROD) (and associated public involvement) may be more in line with the traditional CERCLA process.

- A ROD may be signed prior to contract award. The contractors' bid on the most cost effective version of the technology.

Remedial Design:

- In case #1, remedial design is left entirely to the contractor to accomplish. The contractor may be asked to demonstrate that the proposed technology will work on the particular soil or chemical matrix.

- In case #2, the contractor's design will be carefully monitored by the project team and the contract manager (e.g., the Corps of Engineers).

- Because the contractor will be accomplishing some design and construction elements concurrently and many decisions will have been left open in the remedial investigation/feasibility study (RI/FS) process, intensive involvement of the regulators and the community may be necessary throughout the process to review and provide input on specific decisions.

- A less formal remedial design and review process may expedite the cleanup by allowing actions to be initiated as soon as sufficient design decisions are made. Other design decisions may be made in the field, during construction or construction initiation.

- Some design steps may be eliminated.

- For Case #1, the formal document review and response process that can take up so much time is eliminated. In case #2, this process will be significantly reduced.

Construction:

- May be initiated more quickly.

- If the contracts are bid as fixed price, field changes necessitated by a change in conditions could cause work to come to a halt while new terms and conditions are negotiated. (This potential is always present in a fixed-price contract. It becomes a large issue in PBC if the attempt is to shift risk to the contractor, and the conditions of that work are not tightly specified.) Additional costs could be incurred.

- Conversely, fixed-price bids may result in reduced costs because it is in the contractor's interest to complete work quickly and cost effectively. Also, marketplace competition may further drive costs down

Lessons Learned/Successes and Impediments to Implementation:

Case # 1 has not been widely implemented. Two examples are available. One is a large cleanup activity at a U.S. Department of Energy (DOE) NPL facility. The second example is several non-NPL sites addressed in different States

by the Air National Guard. Lessons learned from these two examples suggest that at least initially the best opportunities for use of PBC may be with small, straightforward cleanup actions.

At INEL, PBC was used to implement a ROD at Pit 9 that specified cleanup levels and broad treatment categories using off-the-shelf technologies. Two contractors responded to a DOE RFP issued prior to signing the ROD. The RFP identified the remedy required broadly as containing chemical extraction, physical separation, and stabilization components. The two contractors who responded submitted proposals with "unique combinations" of the required components. After extensive public involvement, a contingent ROD was signed that would implement the ROD in three phases: a proof of process test by the two contractors, a limited production test, and full-scale remediation.

The Pit 9 procurement was a particularly large procurement that required a great deal of budgeting and planning coordination, as well as addressing a wide range of regulatory and contracting issues. The conflict between competing goals for PBC was apparent in implementation. (See overview.) Some of the lessons learned included:

- Use of a fixed-price contract for first of a kind projects with many unknowns, while shifting the risk to the contractors, may not be the most cost-effective means of managing the work. Uncertainties may result in large contingencies being built in to address many unknowns.

- Keeping responsibility on the contractor may mean changing roles and responsibilities for overseers. In order to keep liability and responsibility for success on the subcontractor, the focus of involvement by the overseers (in this case DOE, the regulators, and the management and organization contractor) is away from design of processes and facilities, and toward assuring the achievement of applicable or relevant and appropriate requirements (ARARs) specified in the ROD. Reviews concentrate on aspects that affect worker and public health and safety and the environment, and comments provided to the subcontractors identify issues and reference requirements but do not provide direction.

- Requirements definition can be a critical phase, and managers must be concerned both with unclear requirements, and imposing requirements that may not add value in a private sector type approach to contracting.

The second example has been implemented by the Air National Guard at several small non-NPL sites. In all four instances, the cleanup requirements have been fairly straight forward situations (e.g., petroleum contamination sites and fire training pits) where the potential solutions were not unique. In issuing the RFPs to the contractors, the Air Guard:

- Defined the nature and extent of contamination;

- Specified cleanup levels; and

- Specified the time of cleanup.

At one fire training pit, the Guard conducted a feasibility study and specified three cleanup choices -- requesting bids from contractors on implementation of one of these three remedies. The respondents were not limited to the three remedies specified, however, and could propose to conduct another remedy that would achieve the Guard's goals.

The Guard's contracting selection involves two steps. The first is a technical qualification step; all submissions are technically reviewed to ensure that they can achieve the specified requirements. Technical rejection rates have been less than 20 percent. The second step is selection of the lowest priced of the technically qualified contractors.

Responses from the private sector have been excellent. The lowest number of proposals received was 12, with the other sites receiving 18 to 30 proposals. The Guard's experience has been very positive. Two sites have completed construction, and the other two are underway. Both cost and time have been significantly reduced from previous estimates. In addition, there have been fewer change orders than normally anticipated, and the Guard's day-to-day involvement has been significantly reduced.

As noted earlier, **Case # 2** as exemplified by TERCs have been much more widely implemented and relies upon a much more traditional, cost reimbursable contracting approach. Nonetheless, there are a number of issues, including:

- For contract managers, who are used to the fixed-price way of doing business, the management of a cost-reimbursable contract requires a different mind-set in order to take advantage of the streamlining potential. In addition, cost reimbursable contracts will require more hands-on supervision and field management to assist the contractor in making day to day decisions.

- Design documents will vary considerably, and will only be developed to the degree needed to initiate construction. Therefore, field oversight may require more seasoned managers who can make field judgements, as opposed to simply reviewing a design and determining if the design is being implemented.

- A design/construct contractor is held accountable for full performance. Because the contractor manages both design and construction, there are no hand-offs and resulting delays. However, the contracting community has a long tradition of conflict of interest concerns if the same contractor conducts the design and construction phase. Contract managers may not be supportive of this approach, and may try to manage the contracts more as a fixed price contracts.

- Incentive fees can be used to reward the contractor for optimizing time or cost, or both. Constructing objective incentive fees can be complex, however, and this complexity may discourage the use of this nontraditional fee mechanism.

Application of PBC to the remediation field has raised a number of practical and statutory issues. As a practical matter, one issue of PBC is that the impact of achieving some of the goals listed above may undercut achievement of other goals. (For example, fixed price contracting that puts all of the risk on the contractor **could** have a negative impact on cost, or on selection of innovative technology.) While PBC is not a new concept, its use to achieve multiple objectives in the remediation field **is** relatively new. Pilot projects demonstrating appropriate use of PBC and the impact of different approaches on different goals are still being evaluated.

Statutory issues relate to public involvement in the CERCLA remedy selection process, the government's role in selecting a remedy, and the timing and nature of RODs and other decision documents. A number of solutions have been offered, including public involvement in the procurement process and specifications, public review of contractor responses to a PBC, and two-part decision documents (one for the selection of a cleanup level and another for the selection of a technology). Again, the experience gained in pilot projects will assist in identifying optional approaches to contracting and to achieving statutory requirements that may be workable with the general goals of PBC.

Documented Savings:

The Air National Guard has documented a number of savings. At a fire training pit where bio-remediation was the remedy, their initial estimate was 3 years and $1.5 million to conduct the remediation. Contractor estimates came in at $700,000 and 120 days. In another instance that was less successful in time savings (contractor problems resulted in the cleanup taking 2 years for what should have been a 1-year effort), the contractor has born the cost of delays. Documented PBC successes have also been noted in private party efforts. For example, PBC was used at a Superfund site in King of Prussia, New Jersey. Payment was a lump sum, with a contingency fund to handle any changes while the contract was in progress. Unused funds from this account were to be split between the remediation contractor and the Potentially Responsible Party (PRP). Because of this incentive, the site was cleaned up for one half of the cost and in one half of the time estimated in the ROD.

The U.S. Army Corps of Engineers (USACE) began using TERCs in 1993. Since then, USACE has documented significant cost and time savings. Examples of cost savings from 11 facilities where TERCs have been used range from approximately $200,000 up to $30 million. Time savings range from 2-3 months to 26 months. In addition, use of the

TERC enabled several facilities to avoid substantial costs associated with fines and penalties (e.g., $9 million at one facility and $20 million at another). Cost and time savings are attributed to:

- Reductions in procurement and management costs over traditional design and build approach.
- For a site with a lot of uncertainties, TERCs allowed assumptions to be confirmed or modified during remediation to fit site conditions and the available budget. Ability to respond rapidly to changing field conditions.
- Initiation of construction before the contract amount was fully negotiated.
- Implementation of significant changes during design/construction without impacting schedule.
- Negotiation of operations and maintenance of the remedy during construction.
- Reduced time for mobilizing and demobilizing.
- Simultaneous preparation of plans and mobilization of remediation and analytical forces.
- TERC flexibility allowed CERCLA phases to be overlapped.
- Grouping of sites at an installation thereby allowing more efficient use of resources and reducing stop and start inefficiencies.

Overlap/Consistency with other Streamlining Initiatives:

The DOE initiative that is directly related to PBC is the Preferred Alternative Matrices (PAMs). DOE officials believe that the matrices will be an integral link in DOE's shift toward PBC. Site managers and operating contractors can use the PAMs, developed by DOE, to structure invitations to bid and requests for proposals on environmental management (EM) and, thereby, incorporating the most cost-effective strategies into the remedial program. DOE's PAMs go beyond technology performance and include approaches to investigation. PBC may also be used particularly in other straight forward presumptive remedy situations.

The TERC type of PBC is particularly compatible with team-oriented collaborative decision-making, and with the observational approach to field decisions that is the heart of the DOE SAFER initiative.

Additional Information:

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Cost/Time Savings:

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U.S. Army Corps of Engineers. TERC Success Story Fact Sheets Series.