

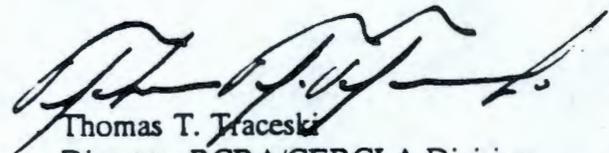
memorandum

DATE: FEB 10 1993
REPLY TO: EH-231
ATTN OF:
SUBJECT: Superfund Reform: EPA 30-Day Study and DOE Environmental Restoration Implications
TO: Distribution

The Environmental Protection Agency (EPA) has administered the Superfund program pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) for 12 years. In recent years, implementation of the Superfund program has been subjected to intense scrutiny and criticism, as public awareness and Congressional oversight have focused on the progress of cleanup at contaminated hazardous waste sites nationwide. To improve the effectiveness and efficiency of the Superfund program, the EPA Administrator requested that the Office of Solid Waste and Emergency Response (OSWER) conduct several management analyses and undertake a series of reform efforts to streamline the cleanup process and improve the Agency's administration of the program. In 1991, OSWER conducted a 30-day program assessment, the purpose of which was to assess ways that EPA could obtain the greatest reduction of risk to human health and the environment in a cost-effective, expedited, and fair manner.

Over the past year, the Office of Environmental Guidance, RCRA/CERCLA Division (EH-231), has reviewed the OSWER memoranda which describe EPA reform efforts, and monitored the Agency's progress with implementation of recommendations from the 30-Day Study that are relevant to the DOE environmental restoration program. The attached report entitled: "*Superfund Reform: Environmental Protection Agency 30-Day Study and Department of Energy Environmental Restoration Implications*" summarizes selected recommendations from the 30-Day Study, describes EPA's actions to implement these recommendations, assesses how the recommendations may influence DOE's environmental restoration program, and identifies certain DOE initiatives related to these recommendations.

Questions regarding the attached report may be directed to Katherine Nakata, EH-231, at (202) 586-0801.



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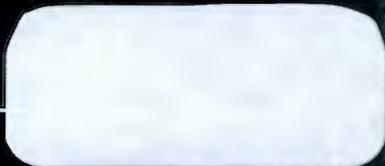
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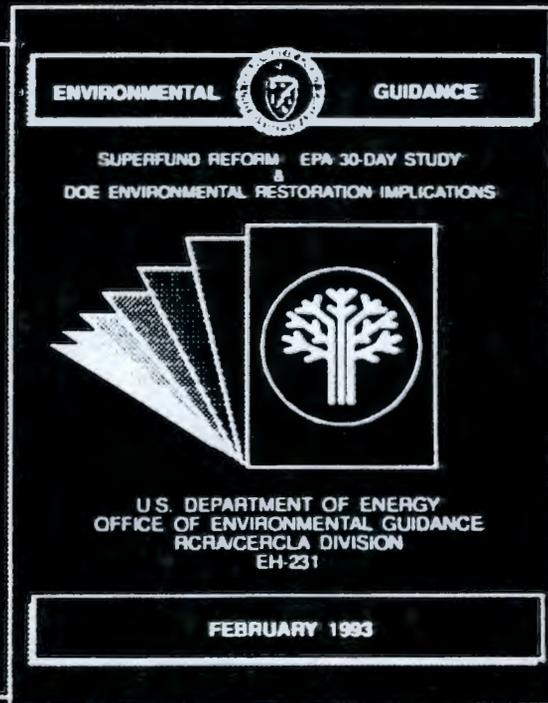
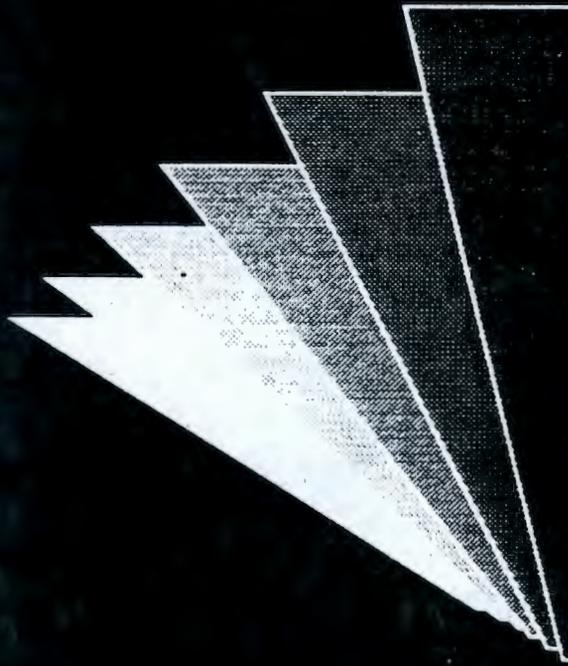


ENVIRONMENTAL



GUIDANCE

**SUPERFUND REFORM: EPA 30-DAY STUDY
&
DOE ENVIRONMENTAL RESTORATION IMPLICATIONS**



**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL GUIDANCE
RCRA/CERCLA DIVISION
EH-231**

FEBRUARY 1993

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*Superfund Reform:
Environmental Protection Agency 30-Day Study
and
Department of Energy Implications*



FEBRUARY 1993

Prepared by

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL GUIDANCE
RCRA/CERCLA DIVISION
(EH-231)
Washington, D.C.**

Technical support by

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EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency's (EPA's) Superfund program is approximately 12 years old. During this time, this program's cost and complexity have grown far beyond the scope originally planned when the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was passed in 1980. During this time, EPA's implementation of the program has been delayed by litigation and conflicting expectations.

As part of a continuing effort to improve the effectiveness and efficiency of the Superfund program, EPA Administrator William Reilly in 1991 requested that EPA's Office of Solid Waste and Emergency Response (OSWER) address two issues as part of a 30-day assessment:

- What are EPA's options for accelerating the rate of cleanups at the nation's Superfund sites?
- Does the Superfund program use realistic assumptions when evaluating and managing the risks at a Superfund site?

This 30-Day Study was a follow-up to an earlier EPA study, *A Management Review of the Superfund Program* (otherwise known as the 90-Day Study), that addressed a variety of Superfund reform issues. The purpose of the 30-Day Study was to assess ways that EPA could obtain the greatest reduction of risk to human health and the environment in a cost-effective, expedited, and fair manner. This report will discuss recommendations from the 30-Day Study that are most relevant to the U.S. Department of Energy (DOE), identify EPA's actions to implement these recommendations, assess how the recommendations may influence DOE's environmental restoration program, and identify DOE initiatives related to these recommendations.

CERCLA, the National Contingency Plan, and Executive Order 12580 are the primary regulatory drivers underlying DOE's environmental restoration activities. Three of the findings and options identified in the 30-Day Study that are important to DOE include:

- EPA should standardize the remedial planning and remedy selection process, to the extent possible given the variety of site conditions.
- EPA should seek review of its Superfund risk assessment guidance to examine the way in which EPA regions and other programs interpret the risk assessment guidance and to improve public understanding of the Superfund program's risk assessment policies.
- EPA should convene an intra-Agency work group to develop guidance on a variety of risk management issues.

EPA's actions implementing these options likely will continue to have significant impacts on DOE's environmental restoration program. Many of the generic remedies that EPA will designate may apply to a large number of DOE operable units. EPA's efforts to ensure uniformity in approach to risk assessments at Superfund sites among its regional offices should help DOE develop a consistent and workable risk assessment

policy for environmental restoration. With respect to risk management issues, the degree to which EPA allows the use of institutional controls or sets required levels of groundwater cleanup are examples that directly apply to DOE's environmental restoration work.

As part of its efforts to implement the 30-Day Study recommendations and other CERCLA reform efforts, such as the Superfund Accelerated Cleanup Model (SACM), it is likely that EPA will identify statutory and regulatory obstacles to otherwise legitimate cleanup strategies. The upcoming reauthorization of CERCLA offers one opportunity to address these statutory and regulatory roadblocks.

DOE's Office of Environmental Guidance, RCRA/CERCLA Division (EH-231), will monitor EPA's implementation of the 30-Day Study results and will develop guidance and training materials as appropriate. DOE has already initiated a number of activities potentially related to EPA's 30-Day Study recommendations. For example, DOE has studied ways to streamline the Superfund process at its sites on the National Priorities List and has briefed many of its field offices on the use of the observational approach during the remedial investigation/feasibility study phase. DOE and EPA have agreed that the two agencies will jointly develop a "pilot project" implementing DOE's decision framework--the Streamlined Approach for Environmental Restoration (SAFER) at one or more DOE sites. DOE is also studying the development and use of consistent human health and ecological risk-based standards that may be useful in implementing reforms.

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1.0 INTRODUCTION

1.1 PURPOSE

As part of an ongoing effort to reform and restructure the U.S. Environmental Protection Agency's (EPA's) Superfund program, the EPA Administrator on October 21, 1991, announced several key programmatic reforms. These reforms are a result of the *Superfund 30-Day Task Force Report* (30-Day Study, EPA 1991a), an effort carried out by EPA's Office of Solid Waste and Emergency Response (OSWER). The EPA OSWER oversees environmental cleanup activities under a number of statutory authorities, including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund). CERCLA and its implementing regulation, the National Contingency Plan (NCP), establish a regulatory framework to govern the cleanup of existing, and often abandoned, hazardous waste sites.

The manner in which EPA implements the recommendations of the 30-Day Study and other Superfund reforms will have significant implications for the U.S. Department of Energy (DOE). CERCLA, the NCP, and Executive Order 12580 are the primary regulatory drivers for DOE's environmental restoration program. A number of the study's recommendations, if fully implemented, will have a direct effect on DOE programs.

The purposes of this report are to 1) review the background and recommendations of EPA's 30-Day Study, 2) identify and discuss the initiatives from the 30-Day Study that may impact DOE's environmental restoration mission, 3) report on EPA's progress in implementing the selected priority initiatives, and 4) describe potentially related DOE activities.

1.2 BACKGROUND

The 30-Day Study is only one recent EPA effort directed at identifying issues, problems, and reform

initiatives related to the Superfund program. During confirmation hearings before Congress for the position of EPA Administrator, William Reilly promised to carry out a 3-month review (the 90-Day Study) of the Superfund program. The resulting report, *A Management Review of the Superfund Program*, was completed in June 1989. That report made a number of sweeping recommendations, including:

- strengthening Superfund enforcement and maximizing responsible party work at Superfund sites
- accelerating and improving remedial actions
- encouraging the greater use of innovative technologies at Superfund sites
- initiating an aggressive program of community involvement
- improving overall management of the Superfund program (EPA 1989a).

In addition, numerous groups outside of EPA conducted studies of the Superfund program and issued reports recommending restructuring and reforms in the program. These groups include the General Accounting Office (GAO), the Office of Technology Assessment (OTA), Congressional committees, and various environmental, public interest, and business groups. The general consensus of EPA's 90-Day Study and various other reports was that the cleanup of Superfund sites was proceeding far too slowly, costs were too high, and EPA's management of the program needed a new long-term strategy. EH-231's report *Superfund Program Analysis--Lessons Learned* summarizes the findings of these reports (DOE 1991).

In carrying out the 30-Day Study, OSWER solicited comments and ideas from several offices within EPA as well as the U.S. Department of Justice. The

study identifies a series of options, not all of which were recommended, related to accelerating the Superfund process and managing risks. Only those options that were recommended by the 30-Day Task Force (EPA 1991a) and that will most significantly impact DOE are discussed in this report. The 30-Day Study is intended to build upon the 90-Day Study in that the recommended options are refinements and adjustments to further revitalize the Superfund program.

On October 1, 1991, EPA issued an additional report, *Superfund 30-Day Study Task Force Implementation Plan*, which focused on the implementation of the 30-Day Study recommendations. EPA has used a senior management task force chaired by the Deputy Assistant Administrator, OSWER, to facilitate the implementation of the 30-Day Study recommendations. Funds have also been made available to EPA regional offices to develop pilot projects and innovative ideas for speeding up site cleanups. The plan also sets schedules for implementing each of the recommended options (EPA 1991b).

A backdrop to EPA's considerable activity to reassess and redirect the Superfund program is the reauthorization of CERCLA, currently anticipated for 1994. While much of the efforts that EPA currently plans to undertake to reform the Superfund program will not require statutory changes, it is certain that Congress and various interest groups will closely monitor EPA's progress in this area in order to determine the need for legislative initiatives.

EPA is also embarking on an effort to restructure the entire Superfund program based on a Total Quality Management (TQM) effort by EPA staff that is independent of, yet complementary to, the 30-Day Study reform initiative. Adopted three years ago by EPA, TQM is a management philosophy that seeks the goal of increased quality and heightened productivity through efficient use of staff and resources. An initiative derived from the TQM effort is the Superfund Accelerated Cleanup Model (SACM).

EPA plans for implementation of SACM are now in the formative stages, but include efforts to remove the current programmatic distinctions between removal and remedial actions with the intent to speed cleanups and address serious health and environmental problems in an expedited manner. This new EPA approach consists of:

- a continuous process for assessing site-specific conditions and the need for action
- regional management teams to serve as "traffic cops" to direct all sites to early action to reduce immediate risks and to long-term cleanup to restore the environment
- a combination of enforcement, community relations, and public involvement throughout the entire process.

SACM is currently being pilot tested by EPA regional offices. EPA headquarters has issued guidance to its regional offices describing SACM in order to ensure that it is applied in compliance with CERCLA and the NCP (EPA 1992a). The guidance emphasizes that SACM does not provide independent authority to carry out actions that are not authorized by existing statutes and regulations.

The EPA guidance acknowledges that the NCP affords EPA considerable discretion in carrying out removals and remedial action at CERCLA sites. Nonetheless, it recognizes that some SACM pilot projects may involve deviations from EPA policies in order to test a new approach to site evaluation or response. In addition, SACM pilot projects may prompt changes in national policies. The EPA guidance anticipates that situations will be identified where regulatory or statutory requirements prevent EPA from pursuing a promising approach. At present, the SACM concept is only being applied to EPA's Superfund program. EPA is developing supplemental guidance on unique issues associated with implementation of SACM at Federal facility sites. Information obtained from the pilot projects may be used by EPA headquarters to

initiate regulatory reform or to identify issues for CERCLA reauthorization.

In addition, EPA is instituting a number of actions to address shortcomings in the Agency's contract management practices. These actions include increasing senior managers' and organizational accountability for contract management, providing clear distinctions between contractors and EPA staff, reviewing EPA's long-term contracting policy, and elevating EPA's procurement functions. EPA recently organized a Standing Committee on Procurement to define essential reforms and ensure their implementation (EPA 1992b).

EPA also initiated a series of visits to EPA regional offices to identify practices in streamlining the Superfund process and contracts management to serve as models of cleanups nationwide. The visits will culminate in a report to all of the regions.

1.3 GOALS AND FINDINGS OF 30-DAY STUDY

OSWER was requested to respond to two fundamental issues in the 30-Day Study:

- What are EPA's options for accelerating the rate of cleanup at the nation's Superfund sites?
- Does the Superfund program use realistic assumptions when evaluating and managing the risks at a Superfund site?

As a result of the 30-Day Study, EPA has established a number of goals for its Superfund program. These include:

- streamlining the Superfund process by 2 to 3 years from the 7 to 10 years it currently takes for the average site to pass from listing on the National Priorities List (NPL) through final cleanup
- setting aggressive cleanup targets, such as tripling the number of cleanup completions by the end of 1993

- reducing program management costs of Superfund contracts from 25% to less than 20% of total contract costs
- appointing a national Superfund director within OSWER
- creating a 20- to 30-person team of troubleshooters for the Superfund program.

The 30-Day Study made a series of recommendations that were accepted by EPA for implementation. Three of these (standardizing the remedial planning and remedy selection process, seeking outside review of EPA risk assessment guidances and policies, and evaluating the potential for standardizing risk management decision making) are most relevant to DOE's environmental restoration program and will be discussed in greater detail below. The study also made the following recommendations for EPA actions:

- establish site completion targets through the year 2000
- expand the flexibility of design/construction contracts
- elevate issues causing site-specific delays
- limit "mid-stream" takeovers of site characterization and cleanup work by private parties
- begin site remedial design before entry of a consent decree with private parties
- increase public awareness of Superfund accomplishments by expanding measures of success
- segregate more accurately Federal facilities in future listings of the NPL.

The 30-Day Study does not directly address the effect its recommendations may have on DOE. However, this assessment of the 30-Day Study identifies the three recommendations from the 30-Day Study that are most relevant to DOE. In

subsequent sections of this report, the recommendations will be summarized and an assessment of its impact on DOE's environmental restoration pro-

gram will be made. Then, a brief review of ongoing DOE activity related to the specific recommendation will be provided.

2.0 STANDARDIZING THE REMEDIAL PLANNING AND REMEDY SELECTION PROCESS

To achieve its goal of streamlining the Superfund process, EPA has focused on a recommendation from the Superfund 30-Day Study Task Force Implementation Plan to standardize the remedial planning and remedy selection process. The portion of the CERCLA process that includes the analysis of site conditions to determine the appropriate course for environmental restoration (i.e., the remedial investigation and feasibility study [RI/FS]), takes, on average, over 3 years to complete. The current EPA process treats each site as a unique problem. This approach places the burden on technical staff (EPA regional offices or private potentially responsible parties) to repeatedly develop site-specific risk assessments and cleanup levels and to find the optimum technical solution to meet the specific-site conditions.

Under this recommendation, EPA would standardize the remedial planning process to the extent possible given the variety of site conditions. Actions that EPA will consider related to this recommendation include developing:

- regulations that establish presumptions that certain technologies are appropriate for specific categories of sites (e.g., soil fixation for lead in soils)
- a technology-based approach for remedies (i.e., specific remedies in advance, based upon best available technologies [BAT], similar to the BAT approach of the Clean Air Act and the best demonstrated available technology [BDAT] from the Resource Conservation and Recovery Act [RCRA])
- standards or guidelines for contaminated soils (and possibly groundwater contaminants for which there are no maximum contaminant levels).

EPA hopes that the implementation of this recommendation would yield significant long-term benefits through the efficiencies of standardization, but realizes that it will take at least 3-6 years to develop appropriate regulations and guidances. EPA predicts that this process of standardization would significantly reduce the time required for the RI/FS process (possibly eliminating or reducing the need for feasibility studies in many instances) and improve consistency in remedy selection across the EPA regions. Implementation of this recommendation may require changes to CERCLA that mandate attainment of Federal and state standards. There is also a concern that the use of presumptive remedies will hamper the development of innovative technologies.

2.1 EPA PROGRESS IN IMPLEMENTATION

In November 1991, EPA established a work group, with several subwork groups, to study and assess means for implementing this recommendation. DOE representatives are included in these subwork groups. The work group met for the first time in February 1992 and began a review of CERCLA records of decision (RODs) for the prior 6 months. The various subwork groups will first consider standard remedies for municipal landfills and wood preserving sites. Sites contaminated with PCBs and electroplating and lead battery sites will also be considered. EPA's current direction is to develop guidance that will suggest a "predominant" remedy for a type of site, and then to suggest several alternative options if specific-site conditions make the recommended remedy infeasible. EPA planned to prepare draft fact sheets by the end of 1992 that list technology selections that may be appropriate for different types of sites.

EPA also initiated efforts to determine consistent action levels that indicate when soil contamination may call for more investigation or cleanup.

Indications are that EPA will eventually issue guidance to its regional offices explaining how to implement the presumptive remedy option. EPA also will likely place a notice in the *Federal Register* announcing its specific choices of presumptive remedies and allow an opportunity for public comments and suggestions of alternatives.

EPA is making a specific effort to integrate the use of presumptive remedies into the implementation of SACM. EPA headquarters has requested that the regional offices, in defining pilot projects involving presumptive remedies, consider how to apply technical guidances in a manner that both saves time and sufficiently documents the basis for selecting the remedy.

2.2 POTENTIAL IMPACT ON DOE

There is a substantial probability that EPA's plan to designate presumptive remedies for certain types of contaminants at NPL sites will directly impact many DOE environmental restoration sites. As with the privately controlled NPL sites, any successful effort to shorten the time and effort required to study and select remedies for DOE sites not only will streamline environmental restoration work but also minimize the costs of such efforts.

Initial EPA efforts are directed at types of sites or contamination that are not typical problems for DOE (e.g., municipal landfills and wood preserving sites). Nonetheless, since many DOE sites have common types of contaminated media, it is likely that the DOE complex may be suitable for the application of presumptive remedies in some instances. Candidates for presumptive remedies would be both types of sites that DOE has in common with private sites, such as groundwater contaminated by volatile organic compounds (VOCs) or sites that have contamination unique to DOE, such as soils contaminated with radioactive mixed waste. DOE-specific presumptive remedies could be developed for these latter types of sites.

DOE should proactively work with EPA to develop presumptive remedies that are most suitable for site conditions that DOE may encounter. DOE could also suggest unique site conditions and propose technologies that could be developed as presumptive remedies. Use of such common technological solutions to environmental contamination is also a logical outgrowth of DOE's current integrated demonstration projects, which seek to test and demonstrate technologies and approaches for common DOE problems.

While the use of presumptive remedies and the development of standards for groundwater and soils have the potential to expedite cleanups and save money, these measures need to be developed and applied in a manner consistent with EPA's and DOE's interest to utilize innovative technologies in remediating sites. There is concern that when there is a specified "preferred" technology or remedy for a certain site scenario, regulators will be reluctant to approve anything different. In addition, technology developers may be less willing to pursue new technologies if they perceive difficulties in gaining regulatory approval for the new technologies. There will also be a need to ensure that the presumptive remedies that are proposed are consistent with RCRA land disposal restrictions (LDRs) that may be imposed at CERCLA sites as applicable or relevant and appropriate requirements (ARARs).

Accordingly, the implementation of the presumptive remedies should be closely monitored with these concerns in mind.

2.3 POTENTIALLY RELATED DOE ACTIVITY

Various components of DOE, including EM and EH, have developed additional strategies for streamlining the CERCLA RI/FS process. The Streamlining Approach For Environmental Restoration (SAFER) combines elements of two recognized processes developed for managing uncertainty: the Data Quality Objective (DQO)

process developed by EPA and the observational approach, whose roots are in traditional geotechnical engineering applications.

The DQO process focuses on establishing the quality and quantity of data required for decision making by linking data collection with problem resolution. The observational approach provides a framework for managing uncertainty and planning decision making throughout the environmental restoration process.

The SAFER method combines the best elements of the DQO and observational approach processes with a focus on achieving:

- enhanced emphasis on planning
- linked data collection and decision making needs
- explicit recognition and management of uncertainty
- direct and efficient application of information gained as planning and remediation proceed
- early convergence on a remedy
- assured participation and consensus from key stakeholders (Dailey and Smith 1992).

EM and EH have proposed that a joint effort be undertaken by DOE and EPA to develop a pilot project implementing SAFER at one or more DOE sites.^(a) The EPA Office of Federal Facilities Enforcement has agreed with DOE's proposal to conduct the SAFER pilot project

(a) Letter (dated July 29, 1992) proposing a joint pilot project to implement SACM and SAFER from the Deputy Assistant Secretary of Technology Development; Deputy Assistant Secretary of Environment, Safety, and Health; and Deputy Assistant Secretary of Environmental Restoration at DOE to the Director of the Superfund Revitalization Team, Office of Solid Waste and Emergency Response, and Acting Deputy Assistant Administrator for the Federal Facilities Office of Enforcement at EPA.

under the aegis of the SACM initiative, providing that the pilot project formally embraces the SAFER concept of stakeholder participation and consensus decision making. EPA has suggested that DOE formally designate a "stakeholder decision team" that would be responsible for most, if not all, decisions and deliverables at a site, and which would move the locus of decision making as close as possible to the field. This should significantly improve the timeframes for site remediation.^(b)

EH is also working with program offices and field elements to determine the feasibility of developing risk-based standards for contaminants where no such standards or guidances exist. The purposes of this project are to identify areas where standards are needed by DOE and to develop, or support the development of, needed standards.

In addition, EH is working with EPA and the U.S. Army Corps of Engineers to develop a computerized system to facilitate the selection of applicable or relevant and appropriate requirements (ARARs) for Superfund sites. This system, the EnviroText Retrieval System (formerly known as ARARs-Assist), is a computer database and expert system that will provide the user with the ability to thoroughly review the regulations and be able to more accurately and efficiently match site conditions and remedial actions with regulatory requirements (DiCerbo 1992).

Various components of DOE have also supported the development of the Remedial Alternative Assessment System (RAAS). This is an expert computer system intended to match appropriate technologies with site conditions and contaminants.

(b) Letter (dated December 22, 1992) agreeing to conduct a joint pilot project to implement SAFER/SACM at one or more DOE sites from the Acting Deputy Assistant Administrator for Federal Facilities Enforcement at EPA to the Deputy Assistant Secretary of Environment, Safety, and Health; Deputy Assistant Secretary of Technology Development; and Deputy Assistant Secretary of Environmental Restoration at DOE.

3.0 REVIEW OF EPA'S SUPERFUND RISK ASSESSMENT GUIDANCE

EPA recognized that there may be issues concerning its Superfund risk assessment policies that should be addressed on an agency-wide basis. In addition, there was a perceived need to have its risk assessment policy reviewed by outside groups, including those representing industry and environmental organizations.

Under this recommendation, OSWER will seek review of its risk assessment program by EPA's Office of Research and Development, Risk Assessment Council, Science Advisory Board, and outside groups. As part of this process, OSWER will examine the way in which EPA regional offices and other program offices interpret and apply Superfund's risk assessment guidance. The purpose of this effort will be to determine if the guidance is being appropriately and consistently implemented. If this review identifies any problems, OSWER will develop appropriate modifications to the risk assessment policies.

3.1 EPA PROGRESS IN IMPLEMENTATION

EPA has initiated a number of actions to implement this recommendation. In November 1991, a briefing was held for EPA's Science Advisory Board on a biokinetic uptake model for lead risk assessment. A review of all fiscal year 1991 risk assessments was also initiated in November 1991. EPA has also requested a review of risk assessment policies by the Science Advisory Board and is developing a process to identify and invite outside parties to participate in a review of Superfund risk assessment policies.

Although not directly related to the recommendations in the 30-Day Study, EPA recently issued a two-part guidance that follows up on EPA's basic Superfund risk assessment guidance document, *Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A)* (EPA 1989b). The two-part guidance is *Part B,*

Development of Risk-Based Preliminary Remediation Goals" and *Part C, Risk Evaluation of Remedial Alternatives.*" Among other things, these documents establish a series of generic equations to be used for each chemical and a formal framework for evaluating the risk of each remedial technology being considered for a site (EPA 1991c, EPA 1991d).

EPA also has issued a third document, "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors." The purpose of that directive was to transmit the interim final standard exposure factors guidance to be used in the RI/FS process. This document was developed to reduce unwarranted variability in the exposure assumptions used by the EPA regional staff to characterize the baseline risk assessment exposures to human populations (EPA 1991e). Standard default exposure factors are to be used for calculating reasonable maximum exposure (RME) estimates for each applicable exposure scenario at a site. The goal of using the RME is to combine upper-bound and mid-range exposure factors so the result represents an exposure scenario that is both protective and reasonable; not the worst possible case.

On February 26, 1992, the EPA Deputy Administrator issued a memorandum, "Guidance on Risk Characterization for Risk Managers and Risk Assessors" (EPA 1992c). The purpose of this memorandum was to provide guidance for managers and assessors on describing risk assessment results in EPA reports, presentations, and decision packages. The memorandum noted that when presented to decision-makers and the public, risk assessments are often reduced to single point estimates of risk. This approach to risk assessment does not fully convey the range of information considered and used in developing the assessment. The memorandum urges risk assessors to, among other things, be completely candid about the confidence and uncertainties in describing risk and to describe

information on the range of exposures derived from exposure scenarios and on the use of multiple risk-descriptors.

3.2 POTENTIAL IMPACT ON DOE

Since the results of the human health risk assessments at Superfund sites are frequently the primary driver for setting cleanup standards, any action by EPA in this area is likely to have a substantial impact on DOE environmental restoration activities. Specifically, efforts by EPA to ensure uniformity of approach by its regional offices in the application of risk assessment policies should help DOE implement a consistent, complex-wide approach to risk assessment. In addition, a move by EPA to use more realistic, less conservative default assumptions for risk assessments may help DOE develop effective and cost-efficient remedies for many of its sites.

3.3 POTENTIALLY RELATED DOE ACTIVITIES

EH is currently carrying out activities parallel to those of EPA to ascertain whether EPA risk assessment policy is being applied consistently across EPA regions. EH has begun developing a baseline risk assessment graphical guidance document to

explain how the baseline risk assessment process is actually applied in the field. This document will provide DOE elements with an understanding of the data necessary for the interpretation of and negotiation on the reasonableness of site-specific risk estimates. The guidance document will include 1) an overview of the EPA requirements as they have emerged and evolved over time, 2) an analysis of key components underlying the current risk assessment protocol, 3) an evaluation of instances where EPA regional baseline risk assessment requirements differ from EPA headquarters, and 4) a "road map" that identifies key source materials and documentation pertaining to each topic.

In addition, various DOE entities are working to develop guidance related to the assessment of ecological risk posed by environmental contamination at DOE sites and the potential ramifications on establishing cleanup standards.

DOE has also commented to EPA about the role and use of institutional controls at DOE NPL sites. DOE plans to continue work to assess the appropriate role of using institutional controls at DOE sites to address risks posed by environmental contamination. The DOE efforts regarding investigating the development of risk-based standards, discussed in Section 2.3, are also related to these risk assessment issues.

4.0 DEVELOP GUIDANCE ON RISK MANAGEMENT ISSUES

Under another recommendation from the 30-Day Study Task Force Implementation Plan, EPA would convene an intra-Agency work group to build upon earlier work in evaluating risk management issues. This work group would consider a number of issues including:

- Under what circumstances should an industrial site be cleaned up for future residential use?
- Should contaminated groundwater be cleaned up to drinking water quality?
- Is the NCP preamble too conservative regarding the required point of compliance for cleaning up groundwater?
- How should the Superfund program handle the increasing number of state ARARs?
- Which site conditions generally warrant treatment versus containment with institutional controls?

The work group will consider these and other issues and will develop a strategy for addressing the most important ones. EPA's stated objective is to improve the "reasonableness" and regional consistency in making risk management decisions.

4.1 EPA PROGRESS IN IMPLEMENTATION

The work group to study the risk management issues was formed in December 1991. The work group completed a draft issue paper on the highest priority issues in April 1992. Complete guidance documents reflecting EPA decisions on technical and policy risk management issues are scheduled to be completed in June 1993.

4.2 POTENTIAL IMPACT ON DOE

Decisions that EPA makes regarding risk management issues will ultimately set the framework for the DOE environmental restoration mission. Many of these issues relate directly to the central question for many DOE sites, "How clean is clean?" The answer to this question has obvious impacts on the costs and schedules for DOE environmental restoration. For example, groundwater contamination is a problem at many of the DOE former nuclear weapons facilities. Cleaning up the groundwater to drinking water levels at these sites, even though it may not be used for that purpose, will pose significant costs. In addition, for many types of the contaminated media, including groundwater, there are no existing technologies that will achieve those stringent remediation goals. Decisions will need to be made about these types of pollution scenarios regarding the level of risk that is acceptable.

The role of institutional controls is also a significant issue for DOE. Many of the DOE sites already have in place an extensive system of institutional controls, more extensive than those at the majority of private sites. For instance, it is anticipated that DOE will retain site ownership long into the future for many of its sites. Institutional controls could play a more prominent role at DOE sites than for private sites on the NPL.

DOE clearly has a significant interest in the risk management issues that EPA will be assessing. As with the other recommendations contained in the 30-Day Study, it is in DOE's interest to work with EPA in resolving these issues and to bring to EPA's attention many of the unique DOE problems.

4.3 POTENTIALLY RELATED DOE ACTIVITIES

DOE activities to assess the appropriate use of institutional controls at environmental restoration sites, discussed in Section 3.3, are clearly related to EPA's risk management initiative outlined in the 30-Day Study. On January 27, 1992 the DOE Institutional Controls Focus Group convened to assist EH in reviewing DOE field comments and prepare a consolidated response to EPA's guidance document entitled "Guidance on Use of Institutional Controls at Superfund Sites." DOE's response to EPA focused on the use of institutional controls at Federal facilities listed on the NPL and the need for clarification of Federal agencies' responsibilities for hazardous substances cleanup under CERCLA Section 120, the Federal Property Administrative Services Act, and relevant Government Services Administration (GSA) regulations (41 CFR 101, et seq.).

On October 20-21, 1992, EH participated with other Headquarters offices in a DOE Institutional Controls Coordination Workshop convened by EM to consider DOE's use of institutional controls in environmental restoration. As a follow-up to the workshop, EM proposed that DOE Headquarters will establish an institutional controls team. Future proposed activities of the DOE Headquarters will include:

- cooperative efforts with EPA and the U.S. Department of Defense (DoD) to establish a liaison group to facilitate institutional controls activities
- preparation of guidance for DOE field elements on institutional controls, especially regarding the use of such controls during the CERCLA RI/FS process and preparation of the ROD under NCP requirements
- investigation of prospects for coordination with the National Governors Association and the National Council for State Legislatures
- establishment of an institutional controls communications network and preparation of a newsletter
- review of DOE Orders to clarify the Department's rationale for using institutional controls.

In addition, DOE's use of the EnviroText Retrieval System, currently under development as discussed in Section 2.3, will aid DOE to make supportable risk management decisions. By providing easy access to a comprehensive compendium of environmental standards, this system will help ensure that DOE makes consistent and supportable risk management decisions.

5.0 SUMMARY

There is likely to be considerable activity over the next several years related to the review and assessment of EPA's Superfund program, to implement various reform efforts, and to identify issues to be addressed as part of the reauthorization of Superfund in 1994. The 30-Day Study is only the latest in a series of EPA efforts intended to increase the effectiveness and cost efficiency of the Superfund program. In addition, as Superfund reauthorization approaches, the number of external reviews of the EPA Superfund program by groups such as GAO, OTA, and environmental and industry groups also will likely increase. These groups will identify deficiencies in the Superfund program and propose reform measures.

EPA is now considering a variety of reform initiatives, ranging from efforts to streamline the CERCLA process to changing the manner in which it manages Superfund contracts. EPA initiatives resulting from its 30-Day Study can ultimately have a significant impact on DOE's environmental restoration program. These reforms, such as the use of presumptive remedies in appropriate circumstances and improving risk management decisions, have the potential to result in more effective cleanups completed in a more timely and cost-effective manner. From DOE's perspective, these and other reforms could reduce both the 30-year timeframe for the nuclear complex cleanup and the attendant costs.

While DOE has numerous environmental restoration sites and problems that share many common characteristics with private CERCLA sites, DOE must address a wide variety of technically complex environmental problems that have few commonalities with the private sector. It is therefore essential that DOE, both at Headquarters and field office levels, actively monitor EPA's efforts to develop and implement the 30-Day Study initiatives, as well as other Superfund reform activities where appropriate. It would also be advantageous for DOE to continue to work closely with EPA to jointly develop Superfund reform measures that support further progress on environmental restoration. DOE needs to ensure that reform initiatives are crafted and implemented in a manner that recognizes the unique and complex problems that DOE must confront in its environmental restoration program.

EH will continue to monitor all EPA Superfund reform efforts, including those related to the 30-Day Study, and assess their potential impact on DOE. DOE field office and relevant Headquarters components will be kept informed of these developments through established mechanisms, such as fact sheets, information briefs, special reports, and other communications.

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