

COMPREHENSIVE ENVIRONMENTAL ASSESSMENT AND RESPONSE PROGRAM

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ABSTRACT

The U.S. Department of Energy's (USDOE) Albuquerque Operations Office installations are being evaluated under its Comprehensive Environmental Assessment and Response Program (CEARP). The installations consist of eight weapons development and production facilities, which are located across the United States. The evaluation covers the major environmental regulations, with emphasis on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and on the Resource Conservation and Recovery Act (RCRA). The CEARP is intended to help fulfill USDOE obligations for federal facilities under the U.S. Environmental Protection Agency (USEPA) CERCLA Program and constitutes the same basic approach as contained in USEPA guidance to federal facilities. The Program is a phased program to identify, assess, and correct existing and potential environmental concerns relative to these regulations. The five phases are Phase I - Installation Assessment, Phase II - Confirmation, Phase III - Technological Assessment, Phase IV - Remedial Action, and Phase V - Compliance and Verification. Phase I activities and reports should be completed during 1986. The Phase II generic sampling plans, data management plans, health and safety plans, and quality assurance/quality control plans will be prepared during 1986. Significant characterization of CERCLA sites will be initiated during 1987.

INTRODUCTION

U.S. Department of Energy (USDOE) facilities operate under a policy of full compliance with applicable environmental regulations. The USDOE's Albuquerque Operations Office (AL) initiated the Comprehensive Environmental Assessment and Response Program (CEARP) in mid-1984 to help fulfill that commitment at installations within the AL Complex (Kansas City Plant in Kansas City, Kansas; Los Alamos National Laboratory in Los Alamos, New Mexico; Mound in Miamisburg, Ohio; Pantex Plant in Carson County, Texas; Pinellas Plant in St. Petersburg, Florida; Rocky Flats Plant in Golden, Colorado; Sandia National Laboratories in Albuquerque, New Mexico; and Sandia National Laboratories in Livermore, California). The Program assists USDOE in setting environmental priorities and in justify funding enhancements of existing programs or remedial actions. Implementation of CEARP is being accomplished through the combined efforts of AL, individual USDOE Area Offices, USDOE Prime Contractors, and Los Alamos National Laboratory.

PURPOSE AND SCOPE

The Program is a phased program that identifies, assesses, and corrects existing or potential environmental concerns. The scope includes the review of major environmental regulations [i.e., Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Resource Conservation and Recovery Act (RCRA); National Environmental Policy Act (NEPA); Clean Air Act (CAA); Clean Water Act (CWA); Safe Drinking Water Act (SDWA); Toxic Substances Control Act (TSCA); and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)] with emphasis on CERCLA and RCRA. The regulatory review identifies compliance with environmental regulations and evaluates the interaction of CERCLA with other environmental regulations (e.g., permitted releases under CWA or CAA and reportable quantity requirements under CERCLA; RCRA-CERCLA interactions for remedial activities). The scope also includes evaluation of management practices for hazardous substances. Additionally, assessment of environmental pollution control and environmental

monitoring programs for hazardous substances emphasizes both adequate understanding of environmental pathways and regulatory compliance.

METHODOLOGY

The Program is intended to help fulfill USDOE's obligations for federal facilities under the U.S. Environmental Protection Agency's (USEPA) CERCLA program as described in the USEPA Federal Facilities Program Manual for Implementing CERCLA Responsibilities of Federal Agencies (final draft). The CEARP is being implemented in five phases (Phase I - Installation Assessment, Phase II - Confirmation, Phase III - Technological Assessment, Phase IV - Remedial Action, Phase V - Compliance and Verification). These five CEARP phases are linked as indicated in Fig. 1. The correspondence among CEARP phases and USEPA CERCLA Program elements is presented in Table 1. The phases of CEARP are described below.

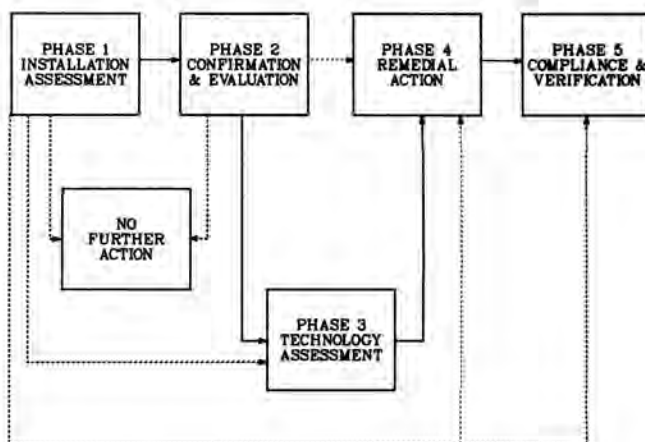


Fig. 1. CEARP Decision Flow Chart.

Table I
Correlation of USDOE CEARP and
CERCLA Program

<u>USDOE CEARP Phase</u>	<u>USEPA Program Elements</u>
Phase I (Installation Assessment)	Federal Facility Site Discovery and Identification, Preliminary Assessment & Initial Site Inspection
Phase IIA (Monitoring Plan)	Remaining Site Inspection & Remedial Planning (Remedial Investigation Sampling Plan)
Phase IIB (Site Characterization)	Remedial Planning (Remedial Investigation)
Phase III (Technology Assessment)	Remedial Planning (Feasibility Study & Remedial Action Selection)
Phase IV (Remedial Action)	Remedial Implementation (Design & Action)
Phase V (Compliance and Verification)	Final Site Inspection/Closeout & Monitoring Part of Operation and Maintenance

Definition of USEPA CERCLA Program Elements

1. **Preliminary Assessment:** The process of collecting and reviewing available information about a known or suspected hazardous substance site or release and using this information to determine the magnitude of the hazard, source and nature of a release or potential release, and the identity of a responsible party, in order to formulate response management decisions.

2. **Site Inspections:** The activity of collecting field data from a hazardous substance site for the purpose of characterizing the magnitude and severity of the hazard posed by the site. The objectives are to gather information necessary to score the site utilizing the Hazard Ranking System (HRS) and to determine whether the site presents any immediate danger to the surrounding community that would require a removal action. The site inspection builds on information obtained during the preliminary assessment and includes onsite sampling and monitoring, surveys, tests, or other information gathering techniques.

3. **Remedial Planning:** The planning phase of a remedial response is initiated at a site prior to implementing the remedial action.

4. **Remedial Investigation:** The portion of a subactivity in remedial planning involving an investigation to gather the data necessary to: (a) determine the nature and extent of problems at the site; (b) establish remedial response criteria for the site; (c) identify preliminary alternative remedial actions; and (d) support the technical and cost analyses of the alternatives.

5. **Sampling Plan:** The actual work plan for all field activities in the remedial investigation. The sampling plan entails: (a) a specific outline of every aspect of the work that is to be conducted, including sample types, analyses, location and frequency; (b) a schedule with cost estimates to conduct each task; and (c) identification of project needs, such as operation plans, materials, recordkeeping, sampling team personnel needs, and sampling procedures. The sampling plan also ensures that quality assurance and health and safety issues are integral considerations in all site work.

6. **Feasibility Study:** Portion of a subactivity in remedial planning involving a study to: (a) evaluate alternative remedial actions from a technical, environmental, and cost effectiveness perspective; (b) recommend the most appropriate remedial action; and (c) prepare a conceptual design, cost estimates for budgetary purposes, and a preliminary implementation schedule for that action.

7. **Remedial Implementation:** The remedial activity which begins after remedial planning has been completed. For federal agency-lead projects, remedial implementation encompasses the subactivities of remedial design, remedial action, initial remedial measure, and operation and maintenance.

Remedial Design: A subactivity in remedial implementation where the selected remedy is clearly defined and/or specified in accordance with engineering criteria (i.e., a site action plan, a relocation plan, or engineering drawings and specifications) in a bid package, enabling immediate implementation of the remedy.

Remedial Action: A subactivity in remedial implementation involving actual implementation, following design, of the selected source control and/or off-site remedial measure.

8. **Operation and Maintenance:** The treatment or collection systems and monitoring that are continued at a site after a remedy has been implemented.

Phase I - Installation Assessment. Phase I will assist in determining present compliance with environmental laws and ascertaining the magnitude of potential environmental concerns. Where insufficient data exist to accomplish this, information needed to complete the evaluation will be identified. The CEARP Phase I reports will provide documentation for USEPA CERCLA Pre-remedial Activities, which include Federal Facility Site Discovery and Identification Findings (FFSDIF), Preliminary Assessment (PA), Site Inspection (SI), and Hazard Ranking System (HRS) Evaluation. Sites where negative findings result for the CERCLA FFSDIF process (e.g., potential sites that are found not to exist or spills that were removed through past remedial action) or sites determined to pose no threat of release for the USEPA CERCLA PA process (e.g., potential sites where a hazardous substance has completely decayed) will be recommended for no further action. Sites not posing a release threat will not be scored using the USEPA HRS and/or the USDOE Modified HRS (MHRS). This approach to HRS scoring is consistent with guidance provided to federal facilities by USEPA in the Federal Facility Program Manual for Implementing CERCLA Responsibilities of Federal Agencies, final draft (Fig. 2). The HRS is used by USEPA to establish the National Priorities List (NPL) of facilities for attention under CERCLA. Effective February 18, 1986, federal sites meeting USEPA criteria for listing on the NPL can be listed.

The USEPA HRS does not discriminate among different radioisotopes relative to their potential risk at potential CERCLA sites. Therefore, USDOE developed the MHRS (the MHRS was developed by Battelle, Pacific Northwest Laboratories), which is a conceptually minor modification/addition to the HRS. The MHRS permits a better assessment of existing radiological risks. Therefore, potentially radioactive sites will be scored with USDOE's MHRS; and non-radioactive sites requiring HRS Evaluation will be scored with USEPA's HRS. Sites having significant potential for release of hazardous substances, that is, sites meeting USEPA criteria for being listed on the NPL, will be recommended for future action in order to quantify the potential hazardous substance migration problem under CEARP Phase II activities. Sites not meeting USEPA criteria for listing on the NPL, but exceeding other applicable USDOE remedial action criteria/guidelines (e.g., guidelines for the USDOE Surplus Facilities Management Program), and/or sites posing potential

regulatory compliance concerns (e.g., RCRA-related remedial activities), may also receive future attention under CEARP.

Phase II - Confirmation. Phase II will (1) obtain needed information identified during Phase I, and (2) confirm the presence or absence of potential environmental concerns identified in Phase I. This will be accomplished through planning and carrying out measurement and sampling programs designed to examine potential sources of contaminants and potential environmental pathways.

Phase II consists of Phase IIa (Monitoring Plan) and Phase IIb (Site Characterization). The two components of the Monitoring Plan are Description of Current Situation and Description of Plans (i.e., sampling plan; data management plan; health and safety plan; and quality assurance/quality control plan). A three-tiered approach will be used to develop the Monitoring Plan. The CEARP generic monitoring plan (GMP) will cover aspects of the Monitoring Plan salient to all AL CEARP installations. The GMP will encompass the full range of methods and procedures required for CEARP Site Characterization activities by providing reference methods/procedures for various media and contaminants, including USEPA-approved methods/procedures. The installation monitoring plan (IMP) will cover aspects of the Monitoring Plan salient to a given AL CEARP installation. Pertinent information contained in the GMP will be incorporated into the IMP by reference. The site-specific monitoring plan (SSMP) will cover each site or aggregation of sites, as appropriate, at a given AL CEARP installation. Thus, several SSMPs may be prepared for an installation. The SSMP covers aspects of the Monitoring Plan that are salient to the site or aggregation of sites. Pertinent information contained in the GMP and IMP will be incorporated into the SSMP by reference.

Phase II will provide documentation for two USEPA CERCLA Remedial Planning program elements: Remedial Investigation Sampling Plan and Remedial Investigation.

Phase III - Technological Assessment. Phase III will propose and assess alternative technologies/approaches for eliminating or controlling the environmental problems identified in Phase II. The evaluation will include assessment of technology effectiveness; impacts on health, safety, and the environment; and cost-benefit analysis, where appropriate. Phase III also will include identifying and developing site-specific criteria for field application and performing environmental impact evaluation as required by the National Environmental Policy Act. Phase III reports will provide documentation for two Remedial Planning program elements of USEPA CERCLA: Feasibility Study and Remedial Action Selection.

Phase IV - Remedial Action. Phase IV will implement recommended site-specific remedial measures identified in Phase III. This could include applying engineering design and construction for remediation or control of environmental concerns. Phase IV will encompass requirements of Remedial Implementation program elements in USEPA CERCLA (i.e., Design and Action).

Phase V - Compliance and Verification. Phase V will (1) verify and document the adequacy of remedial actions carried out in Phase IV, and (2) identify and plan for monitoring requirements. Phase V will encompass requirements of USEPA Final Site Inspection/Closeout and Monitoring.

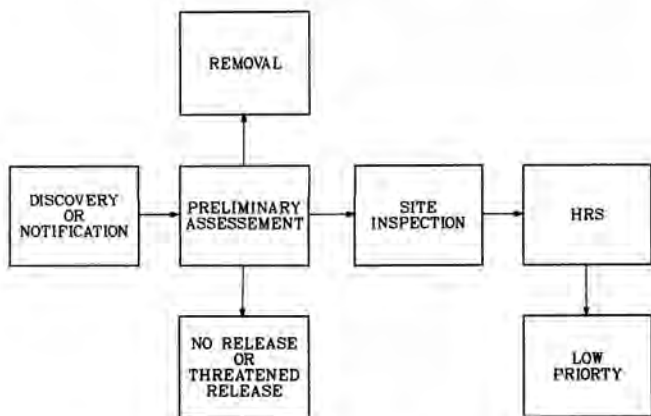


Fig. 2. Initial Phases of Federal Agency-Lead Superfund Response Activities and Events.

CEARP STATUS -- PHASE I

Phase I of CEARP is being carried out as number of tasks performed by personnel of the Los Alamos National Laboratory's Environmental Surveillance Group. Phase I activities and reports should be completed during 1986. The following tasks have been completed or are underway at the eight AL installations.

Records Search and Literature Survey. Existing documents in the following categories are being reviewed and evaluated.

- environmental documents
- standard operating procedures
- development or management plans
- appraisals, audits, inspections
- environmental monitoring reports
- contingency/emergency plans
- federal/state/local permits
- special/topical studies or reports
- operational records/documents
- history and mission documents
- safety analysis documents
- accident/incident investigation reports

Information that is directly CEARP-related is being included and referenced, as appropriate, in CEARP Phase I reports.

Employee Interviews. Past and current employees are being interviewed to identify undocumented incidents or management practices that could have resulted in environmental concerns. Employees being interviewed include (1) those familiar with or having responsibility for past and current hazardous substances management practices and (2) those potentially having knowledge of past leaks or spills of hazardous substances. The number of interviewees for a single AL installation has ranged from approximately 20 to more than 60. Interview notes are being compiled and returned to the interviewees for verification. Relevant information from the interview process, which is intended to cover the complete history of the installation, is being included in the CEARP Phase I reports. Names, positions, and period of position performance of the interviewees are being omitted to preserve their anonymity and ensure compliance with Employee Protection Requirements of CERCLA.

Information collected from the interview process is being accepted at face value as an indicator of potential environmental concerns, but cannot be taken as

documented proof of environmental perturbations. Any event or condition mentioned, that had and/or has significant potential for release of hazardous substances into the environment, is providing the basis for recommending that at least some confirmatory data be collected under CEARP Phase II. In some cases, where field verification has occurred, information obtained during the interview process has been more complete and accurate than that in installation records.

Operational Review. Present and past hazardous substances management practices are being evaluated, including compliance with applicable environmental regulations. Special emphasis is being placed on those regulations that interface with CERCLA (e.g., CWA or CAA permitted releases and reportable quantity requirements under CERCLA).

Identification of Potential CERCLA Sites. Sites that are contaminated or suspected of being contaminated as a result of historical or current practices, including leaks and spills, are being identified. Information for this process is being gathered during the CEARP records search and literature survey, employee interviews, and investigation of current operations at AL installations. Preliminary physical surveys are being conducted to validate the presence or absence of contaminated areas and to identify other signs of environmental stress or facility features that might indicate a potential for environmental concerns. Additionally, a preliminary evaluation of potential migration pathways for hazardous substances is being made. Information obtained during identification of contaminated areas is being used during the HRS/MHRS scoring process.

Hazard Ranking System/Modified Hazard Ranking System Scoring. Sites at AL installations meeting USEPA guidelines for scoring are being scored using the HRS or MHRS. The MHRS and HRS scores are being used for prioritizing sites potentially requiring remedial action during subsequent phases of CEARP.

CEARP STATUS -- PHASE II

The GMP and IMPs along with several SSMPs should be completed during 1986. Reconnaissance surveys (e.g., limited sampling of hazardous substances and geophysical surveys) will be conducted, as appropriate, to support SSMP development. Additionally, Site Characterization activities will be initiated for several high priority AL installation sites during 1986.