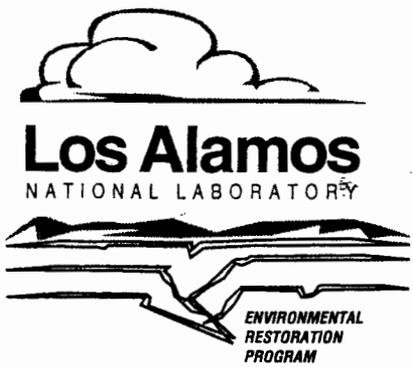


2029
General



ENVIRONMENTAL RESTORATION UPDATE

December 1993

PUBLIC INFORMATION MEETINGS December 7, 8, 9, 1993

**Attend an
Environmental
Restoration Program
Meeting and Open
House for the
Los Alamos
National Laboratory**

Española

Tuesday
December 7, 1993
6:30-8:30 pm
NNM Community College
Administration Building Rotunda

Los Alamos

Wednesday
December 8, 1993
6:30-8:30 pm
Hilltop House Hotel
Taos/Tyooni Rooms

Santa Fe

Thursday
December 9, 1993
6:30-8:30 pm
Sweeney Center
Room 3

**FOR MORE
INFORMATION
CALL 665-7112
or 665-2127**

*Watch for an ad in the New
Mexican, Albuquerque Journal,
Los Alamos Monitor, and the
Rio Grande Sun*

The major focus of these meetings will be on the Laboratory's method of prioritizing sites for investigation and its risk management approach to making decisions about environmental investigations and cleanup at the Laboratory.

The DOE and LANL Environmental Restoration (ER) Programs are implementing the site prioritization system. The objective of this system is to provide a mechanism for stakeholders to participate in deciding how limited funding will be applied to the tasks necessary to complete environmental restoration at the Laboratory. A brief presentation will introduce the prioritization system and how it will be integrated in the risk management framework.

In addition to these topics, the meetings will present the following exhibits in an open-house format:

- septic tank removal
- update on TA-21 sampling
- update on Mixed-Waste Disposal Facility
- Operable Unit 1140
- Operable Unit 1157

As usual, the ER Program will have displays and technical personnel available for one-on-one discussions.

Field Work Continues at Several Operable Units

Field work continues at Operable Unit 1078 (former Technical Area 1, part of the Los Alamos townsite) with sampling the hillsides at Los Alamos Canyon and at selected areas on top of the mesa. We are in the process of validating the data, and the ER Program hopes to have a copy of the data report in the Community Reading Room and the information repositories early next year. The findings so far are much as expected from the Alquist report of the TA-1 investigation and cleanup in the mid-1970s.

At TA-33 (OU 1122), the area near Bandelier, drilling that has been going on for several months was completed recently. The deepest drill hole went to a depth of 314 feet. No perched water was found anywhere at drilling locations during this field season. Verified and quality-assured data will be available in the Community Reading Room and the information repositories at the public libraries in Los Alamos, Santa Fe, and Española as soon as the process is completed.

Drilling has recently started at TA-54. We do not have any results to share yet because sampling analyses are in process. We'll keep you updated.

At TA-21, DP Site, field sampling has been going on all summer, according to plan. Because this is the first site where the ER Program started sampling, we have some results, which Operable Unit Project Leader Gary Eller will be happy to share with you at public meetings in December. These meetings showed above-background contamination, with these

sampling areas. Drilling started on the edge of DP Canyon this summer; field screening instruments have not found anything we did not expect to find.

Updates on several of these areas will be provided during the December meetings.

Information Repositories

Community Reading Room
1450 Central Avenue, Suite 101,
Los Alamos
(505) 665-2127
Hours
Monday-Friday
9 am-12:00 Noon
1:00-5:00 pm

Española Public Library
314A Oñate Street
(505) 753-3860
Hours
Monday, Tuesday, Thursday
and Friday 10 am-6 pm
Wednesday 10 am-8 pm
Saturday 10 am-1 pm

Mesa Public Library
1741 Central, Los Alamos
(505) 662-8250
Hours
Monday-Thursday
10 am-9 pm
Friday 10 am-6 pm
Saturday 9 am-5 pm
Sunday 11 am-5 pm

Santa Fe Public Library
145 Washington Avenue
(505) 984-8780
Hours
Monday-Thursday
10 am-9 pm
Friday-Saturday
10 am-6 pm
Sunday 1-5 pm

12459



Update on the Mixed-Waste Disposal Facility

A decision was made recently to dispose of operational waste, in addition to ER Program-generated waste, at the Mixed-Waste Disposal Facility. The decision was based on economic reasons and the risks of transporting waste through New Mexico and other states. It would be very expensive to send operational waste off-site or to construct a separate facility. We are conscious of using taxpayers' dollars and sensitive about being as cost-effective as we possibly can. Transportation costs for disposing of operational wastes

off-site could add significantly to the Laboratory's waste management budget.

Since the last public meeting, progress has been made on the environmental assessment and the site performance assessment. Check with Darrell Bultman at the December public meetings for the latest information.

Risk Assessment Workshops

In order to provide additional information on the risk assessment process that will be introduced at the December public meetings, the ER Program

is planning some follow-up workshops, probably early next year. These workshops will be used to explain the way we evaluate the sites and use risk management to make decisions about how much money is spent to clean up different sites. All areas and communities surrounding the Laboratory have a stake in what is going to happen to lands now under DOE jurisdiction, and we need your feedback.

Laboratory Reorganization

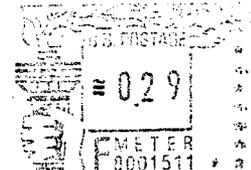
The ER Program will be part of the new Environmental Restoration/Waste Management (ER/WM)

directorate. At this time, the acting Program Director is Jim Shipley. The functions of the ER Program will not be affected, and the program continues to carry out its mission of dealing with all potential release sites at the Laboratory in a cost-effective way. In addition, the ER Program will continue to hold regular public meetings in the community.

We always enjoy hearing from you. We have attached a self-addressed, stamped card for your convenience to use for questions, requests, or comments. Please let us hear from you.



Environmental Restoration Program
Los Alamos National Laboratory
Box 1663, MS M733
Los Alamos, New Mexico 87545



Bill Honker
Branch Chief, RCRA Permits, EPA
1445 Ross Avenue
Dallas, TX 75202

AGENDA

ENVIRONMENTAL RESTORATION PROGRAM PUBLIC INFORMATION MEETINGS 6:30 - 8:30 EACH EVENING

**ESPAÑOLA, DECEMBER 7, 1993
LOS ALAMOS, DECEMBER 8, 1993
SANTA FE, DECEMBER 9, 1993**

6:30-7:00 p.m. Open house -- visit with ER staff and view exhibits

7:00 p.m. Presentations:

- 1. Mixed Waste Disposal Facility**
- 2. Site prioritization system (Steve Slaten, DOE/LAAO;
System Manager, Charlene Kellner)**

7:45 p.m. Open house continues until 8:30 p.m.

Exhibits (prepared by Patricia Leyba)

Risk management/exposure settings (Lars Soholt)

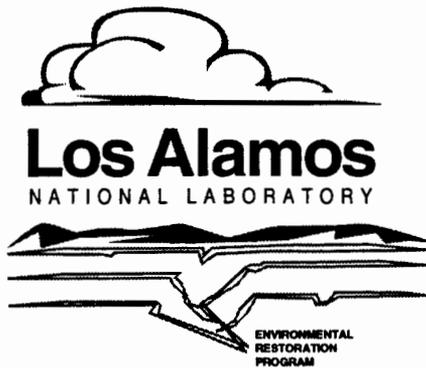
**Septic tank and ordnance removal, Operable Unit 1071
(Jim Aldrich, Project Leader; Jan Novak, Asst. Project Leader)**

**Update on Operable Unit 1106 sampling (Technical Area 21)
(Gary Eller, Project Leader)**

**Update on Mixed-Waste Disposal Facility (Darrell Bultman,
Project Leader)**

Operable Unit 1140 (Roy Michelotti, Project Leader)

Operable Unit 1157 (Tracy Glatzmaier, Project Leader)



Fact Sheet for the Environmental Restoration Program

December 1993

Acronyms

CERCLA

Comprehensive Environmental Response, Compensation, and Liability Act

DOE

Department of Energy

EPA

Environmental Protection Agency

ER

Environmental Restoration (Program)

HSWA

Hazardous and Solid Waste Amendments

PRS

Potential release site

RCRA

Resource Conservation and Recovery Act

This fact sheet provides general information on the ER Program. More detailed information on the 24 individual operable units is provided in a separate fact sheet for each.

INTRODUCTION

Los Alamos National Laboratory is located on the Pajarito Plateau on the eastern flank of the Jemez Mountains in north-central New Mexico, approximately 25 miles northwest of Santa Fe (Figure 1). The Pajarito Plateau consists of a series of fingerlike mesas separated by deep canyons. The tops of the mesas range in elevation from approximately 7,800 feet on the flank of the Jemez Mountains to about 6,200 feet at their eastern terminus, which rises between 300 and 900 feet above the Rio Grande valley. The Laboratory site covers 43 square miles and lies at an elevation of about 7,000 feet.

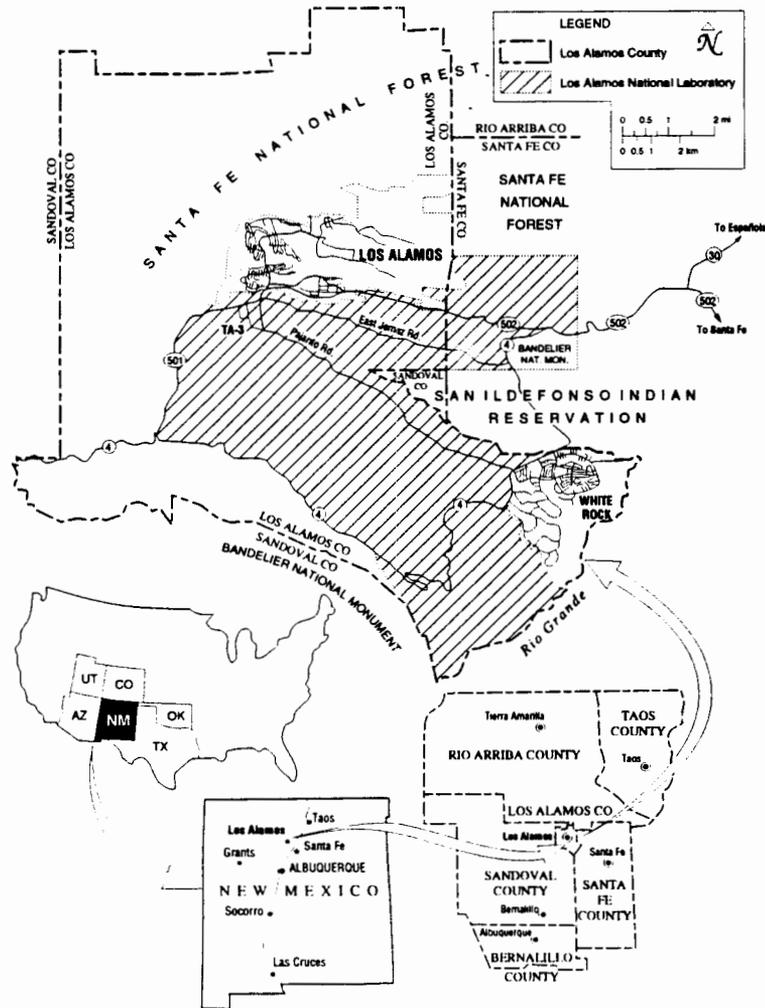


Figure 1. Location map of Los Alamos National Laboratory.

The Laboratory was established in 1943 to design, develop, and test nuclear weapons. This effort is supported by research programs in nuclear physics, hydrodynamics, conventional explosives, chemistry, metallurgy, radiochemistry, and biology. In addition, Laboratory personnel are involved in medium-energy physics; space nuclear systems; controlled thermonuclear fusion; laser research; environmental research; geothermal, coal, and fossil energy research; nuclear safeguards; biomedical research; and space physics. In 1992, the Laboratory expanded its mission to include development of programs in three nationally significant areas for which it has special capabilities: health and biotechnology, environmental technologies, and industrial partnerships. The technical areas at which the Laboratory's weapons development and environmental research are conducted are shown in Figure 2.

SANTA FE NATIONAL FOREST

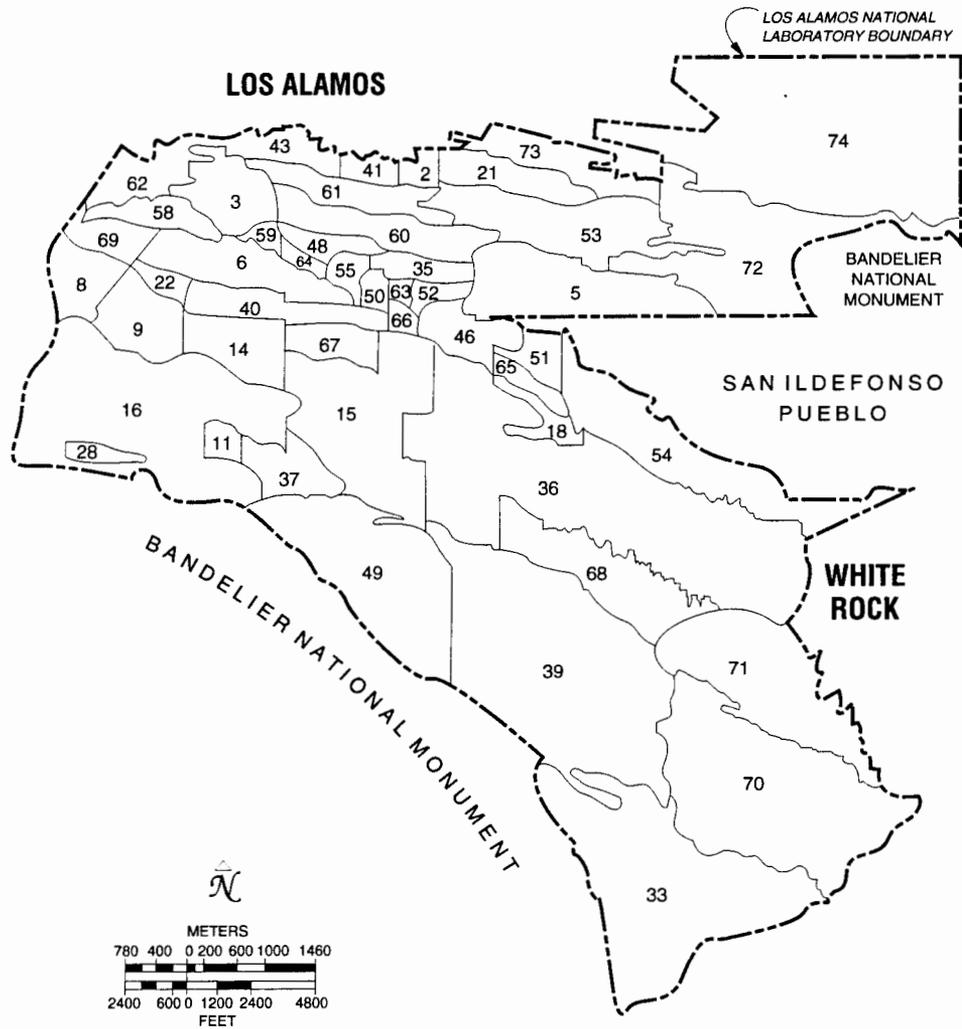


Figure 2. Technical areas at Los Alamos National Laboratory.

ENVIRONMENTAL SETTING

Geology and Hydrology

The Jemez Mountains are part of the Jemez volcanic field, which consists of some 432 cubic miles of volcanic rocks. The latest eruption in the Jemez Mountains occurred about 130,000 years ago, and vestiges of volcanic activity in the form of hot springs and fumaroles continue today.

Surface water occurs primarily as intermittent streams created by run-off from thunderstorms and snowmelt and by effluents from Laboratory operations. Nearly every drainage on the Laboratory site has received treated liquid industrial or sanitary effluents. With travel downstream, most of the contaminants bind to sediments and remain near the surface of the stream channel; other contaminants evaporate or move downward into the alluvium. All surface water and groundwater discharges from the Pajarito Plateau eventually arrive at the

Rio Grande. The main water table in the Los Alamos area lies at depths that range between about 600 and 1,200 feet below the mesa tops. Sixteen deep wells driven into the water table provide most of the water for the Laboratory, Los Alamos, and White Rock.

Climate

Los Alamos has a semiarid, temperate mountain climate. Forty percent of the 18-inch annual precipitation normally occurs from thundershowers during July and August. Winter precipitation falls primarily as snow, totaling about 51 inches annually. Because of the complex terrain, surface winds in Los Alamos often vary greatly with time of day and location. The predominant winds are southerly to northwesterly over western Los Alamos County and southwesterly and northeasterly toward the Rio Grande valley. Strong winds with gusts exceeding 60 mph are common during the spring. Clear skies and light winds can cause formation of strong, shallow surface inversions, particularly in winter.

Flora and Fauna

Six major vegetative complexes containing 350 plant species are found in Los Alamos County. The predominant community types on the Laboratory site are ponderosa pine and piñon-juniper woodlands and juniper-grassland. Natural wetland areas occur in some canyons, and additional wetlands have developed as a result of effluent outfalls. Almost 350 plant species have been identified. The grama grass cactus, which is proposed for inclusion in the federal endangered species list, has been found on the dry mesa tops of Los Alamos County. Nine species of plants protected under New Mexico rule have been documented in the vicinity of Los Alamos County, although, to date, none has been found on Laboratory property.

The Laboratory site affords suitable feeding locations for herbivores, especially deer and elk, and adjacent timbered canyon slopes provide cover for these species. Sheer canyon walls at lower elevations serve as important nesting habitats for birds of prey. One federally listed endangered species, the peregrine falcon, is known to inhabit Los Alamos County. The Jemez Mountain salamander, listed as endangered by the state and federal governments, has been found in the moist upper reaches of the canyons, usually at an elevation higher than that of the Laboratory, and, in 1985, one specimen was found on Laboratory property.

Cultural Resources

As required by the National Historic Preservation Act, Environmental Restoration (ER) Program activities are evaluated with the state historic preservation officer to determine possible effects on cultural and historic resources. In the very small percentage of cases in which it is determined that adverse effects could occur, a mitigation plan is prepared and implemented.

Population

Population estimates for 1990 place about 208,000 persons within a 50-mile radius of Los Alamos. Los Alamos and White Rock together have about 19,300 residents. About one-third of the people employed in Los Alamos commute from other counties.

ENVIRONMENTAL MONITORING AND PAST CLEANUP EFFORTS AT THE LABORATORY

Activities at the Laboratory have generated and will continue to generate wastes that result from processing effluents, separating isotopes, manufacturing, conducting research and development programs in basic and applied chemistry, testing and manufacturing explosives, cleaning chemically contaminated equipment, and working with radioactive materials. Since 1972, the Waste Management Group (EM-7) at the Laboratory has taken steps to minimize and manage waste.

In the past, as sites at the Laboratory were taken out of active use, they were decontaminated and decommissioned in accordance with standards in effect at the time. In 1974, the Atomic Energy Commission initiated a program entitled Formerly Utilized Sites Remedial Action Program to determine whether previous cleanups met current guidelines. In 1984, the Department of Energy (DOE) implemented an environmental cleanup program entitled the Comprehensive Environmental Assessment and Response Program. This program remained in effect until 1989, when it was replaced by the ER Program.

In 1949, the US Geological Survey began a surface- and groundwater-monitoring program, which the Laboratory assumed and expanded to include air monitoring in the late 1960s and 1970s. These programs were designed to identify releases from Laboratory operations that could pose a health risk to individuals living in the communities surrounding the Laboratory. Data gathered under this program indicate that no contamination that threatens the health or safety of local residents exists on private property.

ENVIRONMENTAL RESTORATION PROGRAM AT THE LABORATORY

The ER Program was established to identify the extent of contamination at the Laboratory and the appropriate means of cleaning it up under applicable laws and regulations. The program provides formal and informal mechanisms through which all interested parties, [e.g., DOE, Environmental Protection Agency (EPA), New Mexico Environment Department, and the public] can participate in the corrective action review process at the Laboratory.

The ER Program at the Laboratory is regulated by the Resource Conservation and Recovery Act (RCRA), which governs the day-to-day operations of hazardous waste management treatment, storage and disposal facilities; established a permitting system; and set standards for all hazardous-waste-producing operations at these facilities. Under this law, the Laboratory must have a permit to operate its facilities. RCRA, as amended by the Hazardous and Solid Waste Amendments (HSWA) in 1984, prescribes a specific corrective action process for all potentially contaminated sites. In accordance with these laws, the Laboratory's permit to operate includes provisions for mitigating releases from facilities currently in operation and for cleaning up inactive sites. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a framework for remediating Laboratory sites containing radioactive materials not covered by RCRA.

The Laboratory is obligated to meet the hazardous waste management requirements of RCRA and HSWA; however, compliance with CERCLA is a voluntary measure on the part of DOE and the University of California, who recognize that contaminants not covered by RCRA are of concern and cannot be separated from concerns about hazardous wastes.

The Laboratory follows a three-step corrective action process at all of its potential release sites (PRSs):

- The *RCRA facility investigation* is designed to identify the nature and extent of contamination that could lead to exposure of human and environmental receptors. In certain instances, the Laboratory will take voluntary corrective action, which is an option for accelerated cleanup.
- If investigation indicates that corrective measures are needed, a *corrective measures study* will evaluate cleanup alternatives to reduce risks to human and environmental health and safety in a cost-effective manner.
- *Corrective measures implementation* carries out the chosen remedy, verifies its effectiveness, and establishes ongoing control and monitoring requirements.

Approach to Corrective Action

The approach to the corrective action process at the Laboratory includes an approach to making decisions based on risk. This approach takes into account the great variety of PRSs and the complexity of the natural environment of the Pajarito Plateau. In addition, the framework provides for identifying important problems early and for assigning priorities to all PRSs so that corrective actions can be implemented in a timely fashion. Significant monetary, social, and legal consequences are also considered. Chapter 4 of the Installation Work Plan for Environmental Restoration at Los Alamos National Laboratory provides a detailed account of the process.

The technical approach uses phased sampling to ensure that any environmental impacts associated with past and present activities are investigated in a manner that is both cost-effective and in compliance with the Laboratory's permit to operate under RCRA. The Phase I sampling strategy involves surface and subsurface investigations throughout the operable units that focus on determining the presence or absence of hazardous, radioactive, or explosive contaminants.

When sample results for a PRS are above a specified level, either health-based risk assessments may be conducted or the contamination may be immediately addressed by voluntary corrective action. If conducted, the risk assessment will be used to determine the need for possible remedial action. If the data from Phase I sampling are insufficient to support a risk assessment, the site will undergo additional sampling (Phase II) to provide the necessary data.

Data collected during both Phase I and Phase II sampling will be used for risk assessment and, if necessary, for corrective measures studies. Field investigations will be conducted so that data needs can be re-evaluated after each phase to determine whether they are adequate for a risk assessment.

Schedule for Corrective Action

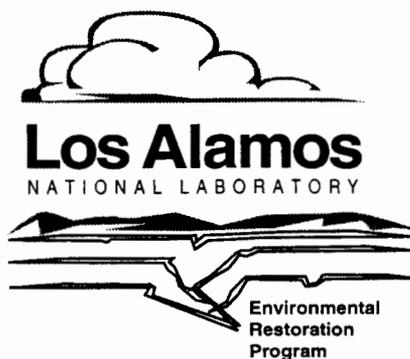
To facilitate the corrective action process, the PRSs at the Laboratory have been grouped, based on geographic proximity and/or similar operational histories, into 24 areas called operable units. In accordance with regulatory requirements, the RCRA facility investigations will be completed by approximately May 1995 and the corrective measures studies by approximately May 2000.

Reporting Requirements

To comply with applicable regulations and to keep all interested parties informed of progress made during the corrective action process, the ER Program prepares several types of plans and reports. The Installation Work Plan for Environmental Restoration is the master plan for the ER Program and is updated annually. The other major plans and reports are associated with the three phases of the corrective action process. The RCRA facility investigation requires a work plan, closure plans, and a final report. The corrective action process and the implementation phase require both a plan and a final report. Interim reports, called phase reports, are provided as necessary throughout the corrective action process to update information and to revise previously published plans. In addition, project leaders for all of the operable units prepare monthly and quarterly technical progress reports. All of these plans and reports are sent to the EPA, DOE, and New Mexico Environment Department, as required by each agency, and all are available to the public in the information repositories maintained by the ER Program.

Additional information on the entire ER Program, as well as specific information on the individual operable units, may be obtained from

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Los Alamos, NM 87545
(505) 665-7112 or (505) 665-2127



Prioritizing Work at Environmental Restoration Sites

December 1993

Acronyms

DOE

Department of Energy

ER

Environmental Restoration

PRS

Potential release site

General information on the environmental setting of the Laboratory, past cleanup efforts, and ER Program requirements is provided in a separate fact sheet.

Introduction

In the past, Los Alamos National Laboratory's (the Laboratory's) Environmental Restoration (ER) Program has followed a policy of according highest priority for cleanup to sites located near or outside Laboratory boundaries. Because the ER Program's budget has been reduced annually over the last few years and will continue to fall short of original projections, the program has found it necessary to create a formal site prioritization system for the purpose of appropriately allocating limited funds. We will also use the system to provide an avenue for the public to be involved in deciding how to use limited dollars for environmental cleanup.

The system, which also addresses potential release sites (PRSs) at Sandia National Laboratories/New Mexico, was developed as a joint effort of Los Alamos and Sandia, the Department of Energy (DOE), and New Mexico and federal regulatory agencies. The purpose of this system is to explicitly show the relative risk posed by sites at the two laboratories so that we can decide which sites to address first. The system has two parts: the first is a site-ranking process; the second is a list of prioritization criteria that incorporates the numerical scores produced by the site-ranking process. The sites are ranked by summarizing the best data available using the judgment of persons with extensive knowledge of the sites at Los Alamos and Sandia. Because the system has a subjective component that may cause differences in rankings from different respondents, a technical review team was created to review the results of the site prioritization to ensure consistency. The team consisted of representatives of the two laboratories, DOE, and New Mexico personnel supported by the DOE's agreement in principle with the state. In future years, members of the public will be invited to join the review team. As more information about the PRSs and the environment becomes available, more objective estimates will be made and priorities will be reevaluated.

Site Ranking

The site prioritization system asks questions about the hazards at a site and how people may be exposed to these hazards. Three major categories are addressed:

- Potential Risk

This category includes questions about potential contaminants and concentrations of hazardous and radioactive constituents in soil, groundwater, surface water, and air.

- Pathways

The second category poses questions relating to the potential for contaminants to move in an uncontrolled manner through the biosphere.

- Receptors

The third category has questions that address the potential for humans or other species to come in contact with contaminants because of proximity or ease of access to a source.

Criteria for Prioritization

The second part of the system poses questions about other factors that may cause us to address a site earlier or later. These questions include the following:

- Is immediate cleanup required by applicable regulations?
- Is DOE planning to transfer ownership of the site in the near future?
- Can the site be cleaned up with currently available cleanup methods?
- Can we successfully carry out an early cleanup?
- Can we show that the site is not a problem with only a little sampling?
- Is the site of major concern to our neighbors?
- Does someone other than DOE now own the site?
- Can the site be used to develop new methods for cleaning up contaminated sites?
- Can we, with little cost, reduce risk or show that the site is not a problem?
- Is there available waste management capacity to allow cleanup to happen now?

Using the Results

We will use the relative priority of sites as an aid to allocating resources and developing schedules of activities. Generally, the higher-ranked sites are considered to have a higher priority for action and thus for resources. Other considerations related to effective field logistics, equipment scheduling, level of certainty, and source of information must also figure in any final decisions concerning resource allocations. The resulting priorities and schedules will probably require that a request to modify the permits at Los Alamos and Sandia be submitted to the Environmental Protection Agency.

The intent of developing this system was to find a fairly straightforward, simple, and technically supportable way to prioritize sites. The system had to be developed in time to allocate FY94 funds, and, unfortunately, early stakeholder input was not possible this year. Therefore, this year, we are requesting public input on the system itself. The resulting priorities and schedules can be reviewed during the public comment period for modifying the existing permit to respond to current funding. The prioritization process, however, will be repeated annually, and public involvement will be sought in all phases of this process in the future.

Additional Information

Additional information on the Laboratory's technical approach to prioritization may be obtained from

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