



General  
Department of Energy  
Albuquerque Operations Office  
P.O. Box 5400  
Albuquerque, New Mexico 87185-5400

6/12/98

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Dear Community Member:

Enclosed as a final document is The Department of Energy (DOE) Albuquerque Operations Office (AL) "*Accelerating Cleanup: Paths to Closure*" (*AL Paths to Closure*).

The *AL Paths to Closure* incorporates changes which were made in response to comments received on the *February 1998 Draft AL Paths to Closure*. As you will find, mentioned in the *AL Paths to Closure*, we have designed a process which gives Tribal Nations, states, regulators, and other stakeholders an opportunity to continue participating in the development of the Environmental Management (EM) program at Albuquerque. To facilitate this process, we have identified various individuals to serve as points of contacts, whom will assist you in obtaining an understanding of the *AL Paths to Closure*.

The *AL Paths to Closure* provides EM, its stakeholders, regulators, Tribal Nations, and the Congress the management tools needed to understand the schedules of alternative near-term and out-year planning scenarios. Although the *AL Paths to Closure* is not a budget document, it is designed to be an integral part of the annual and multi-year DOE budget development process. The projections prepared for each site are the basis upon which future resource allocation decisions can be made. This document will be updated on an annual basis so that the differences between work planned, annual appropriations, and progress toward end states can be stated.

In conjunction with issuance of the *AL Paths to Closure*, we will also provide you with a copy of the "National Accelerating Cleanup: Paths to Closure Report" (*National Paths to Closure Report*), which presents the overall national perspective of the Department of Energy Environmental Management Program. Distribution of the *National Paths to Closure Report* will commence on June 30.

Once again, thank you for your continued interest and involvement. If you have any questions or in need of additional copies of the *AL Paths to Closure*, please contact Richard Nevarez at (505)845-5804.

Sincerely,

15/

W. John Arthur, III  
Assistant Manager  
Office of Environment/Project Management

P.S. This "Paths to Closure" document can also be located at the following Website address:  
[www.em.doe.gov](http://www.em.doe.gov)



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U.S. Department of Energy

# Accelerating Cleanup: Paths to Closure, Albuquerque Operations Office

June 1998



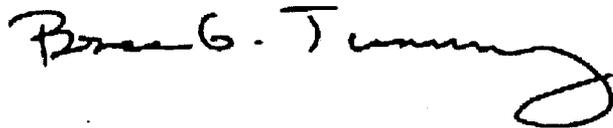
## Foreword

As a matter of National policy, the Clinton Administration and the DOE recognize the Federal Government's obligation to clean up sites across the country that supported our nation's defense mission and to protect human health and the environment now and in the future. The Department of Energy (DOE) Albuquerque Operations Office (AL) "*Accelerating Cleanup: Paths to Closure*" (*AL Paths to Closure*) is designed to give Tribal Nations, states, regulators, and other stakeholders an opportunity to participate in the development of the Environmental Management (EM) program at Albuquerque and help to define innovative approaches to streamline cleanup to save taxpayer dollars.

The *AL Paths to Closure* gives EM, its stakeholders, regulators, Tribal Nations, and the Congress the management tools needed to understand the schedules of alternative near-term and out-year planning scenarios. Although the *AL Paths to Closure* is not a budget document, it is designed to be an integral part of the annual and multi-year DOE budget development process. The projections prepared for each site are the basis upon which future resource allocation decisions can be made.

This plan reflects work scope expected to be achieved for a FY 1999 planned funding target of \$289 million, and a \$290 million funding target from FY 2000 through FY 2008. Since late January 1998, the funding target for FY 1999 has reduced to \$276 million (this figure includes funding associated with "newly generated waste", which is expected transfer to Defense Programs in FY 1999). This change has not been incorporated into the *AL Paths to Closure* since final decisions regarding the FY 1999 and outyear funding allocations are still pending. This document, however, will be updated on an annual basis so that the differences between work planned, annual appropriations, and progress toward end states can be stated.

We have an unprecedented challenge to achieve all of our compliance goals, accelerate cleanup, reduce risks to workers and communities, and effectively address other stakeholder priorities. This effort will only be achieved by strong citizen and regulatory agency participation. We are looking forward to a continuing, collaborative effort with Tribal Nations, states, regulators, and other stakeholders in shaping the future of the EM program.



Bruce G. Twining  
Manager  
Albuquerque Operations Office

## FUTURE STAKEHOLDER PARTICIPATION

Department of Energy Albuquerque Operations Office personnel will continue addressing questions, comments and concerns of various stakeholder, Tribal Nation, or regulator concerns and help them understand information.

Requests for additional copies of the *National Paths to Closure* should be directed to the Center for Environmental Management Information at 1-800-736-3282.

*National Paths to Closure*, *AL Paths to Closure*, and supporting data (project baseline summaries, waste and material disposition maps) are available at EM's website at [www.em.doe.gov](http://www.em.doe.gov).

To enable stakeholders, Tribal Nations, or regulators to pursue site-specific questions, discussions, comments, or informational exchanges, use the site-specific points-of-contact below.

<u>ADDRESS</u>	<u>CONTACT/PHONE</u>	<u>FAX</u>
<b>Albuquerque Operations Office</b> P.O. Box 5400 Albuquerque, NM 87185	Rich Nevarez, 505-845-5804 Tracy Loughhead, 505-845-5977	505-845-6286 505-845-6206
<b>Amarillo Area Office</b> Highway 60 at FM 2373 Amarillo, TX 79177	Tom Walton, 806-477-3120	806-477-6641
<b>Grand Junction Office</b> 2597 B 3/4 Road Grand Junction, CO 81503	Audrey Berry, 970-248-7727	970-248-6023
<b>Kansas City Area Office</b> 2000 East 95th Street Kansas City, MO 64141	David Hampton, 816-997-7005	816-997-5059
<b>Kirtland Area Office</b> P.O. Box 5400 Albuquerque, NM 87185	Al Stotts, 505-845-6094	505-845-6206
<b>Los Alamos Area Office</b> 528 35th Street Los Alamos, NM 87544	Linda Anderman, 505-665-5025	505-665-1718

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# ACCELERATING CLEANUP: PATHS TO CLOSURE, ALBUQUERQUE OPERATIONS OFFICE

## I. EXECUTIVE SUMMARY

### A. INTRODUCTION

The U.S. Department of Energy's (DOE) Albuquerque Operations Office (AL) in conjunction with the Amarillo Area Office (AAO), Kansas City Area Office (KCAO), Kirtland Area Office (KAO), Los Alamos Area Office (LAAO), and Grand Junction Office (GJO) oversee DOE Office of Environmental Management (EM) program work at multiple DOE sites around the country.

The "*Accelerating Cleanup: Paths to Closure, Albuquerque Operations Office*" (*AL Paths to Closure*) is a document that will be used to guide budget formulation. *AL Paths to Closure* should be viewed as a management tool that demonstrates what can be accomplished, assuming constant funding over time. The tool allows the EM program to formulate annual budget strategies and goals in the context of effects on lifecycle cleanup costs and schedules. It is expected that this document will be updated, annually, based upon supporting data submitted by various AL Area Offices and site contractors. As such, the *AL Paths to Closure* represents a snapshot in time; changes will be incorporated as planning assumptions or funding allocations become refined. For instance, in some cases key planning assumptions may have to be updated to reflect new requirements or evolving information. Changes to key planning assumptions could result in new work scope or changes to end-state dates, or the technical approach by which the work scope is to be performed.

*AL Paths to Closure* embodies stakeholder, regulator, and Tribal Nation views and comments received during several stakeholder review periods. *AL Paths to Closure* incorporates responses received from public reviews of *Accelerating Cleanup: Focus on 2006 - Albuquerque Operations Office Summary* (AL Summary), which was AL's site-level Discussion Draft, and the February 1998, *Accelerating Cleanup: Paths to Closure Albuquerque Operations Draft*. Comments and responses are summarized in Attachment 7.

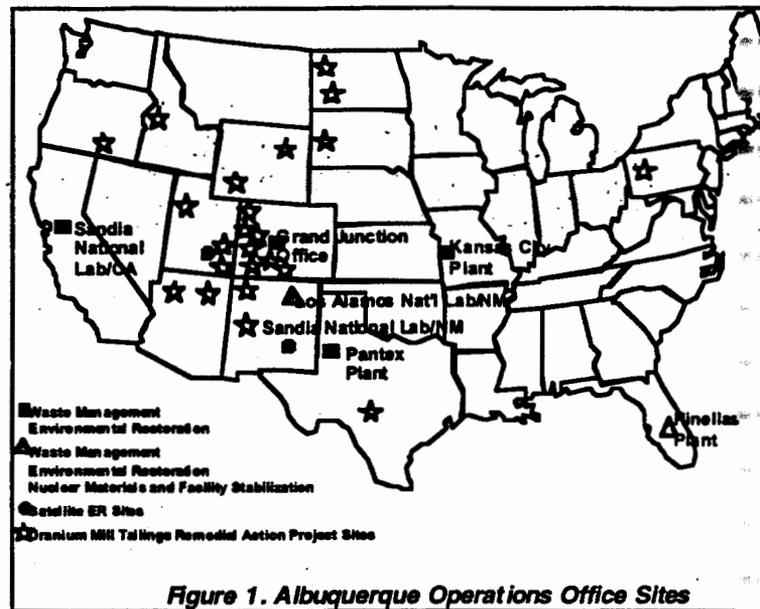
*AL Paths to Closure* is intended to:

- provide an integrated path forward for the management of the EM complex, based on a lifecycle, project-driven foundation;
- provide a basis to evaluate EM's annual budgets in a long-term context;
- respond to Congressional requests for a supportable management strategy on the EM program;
- respond to concerns of stakeholders, regulators, and Tribal Nations; and meet
- meet the reporting requirements under the 1994 National Defense Authorization Act.

## Overview of Albuquerque Operations Office Sites

AL is responsible for EM program activities located at the sites shown in Figure 1.

- Three production plants
  - Active sites: Kansas City Plant (KCP), Missouri; Pantex Plant (PX), Texas
  - Closed site: Pinellas Plant, Florida
- Three national laboratories
  - Sandia National Laboratories, California (SNL/CA)
  - Sandia National Laboratories, New Mexico (SNL/NM)
  - Los Alamos National Laboratory (LANL), New Mexico
- Inhalation Toxicology Laboratory (ITL) (formerly the Inhalation Toxicology Research Institute), New Mexico
- South Valley Superfund (SV) site, New Mexico
- Grand Junction Office (GJO), Colorado
- Monticello Superfund sites, Utah
- Maxey Flats Superfund site, Kentucky
- Uranium Mill Tailings Remedial Action Project, locations across the United States



- Long-Term Surveillance and Maintenance Program, locations across the United States
- Uranium Lease Management Program, locations across the United States.

*AL Paths to Closure* addresses all environmental restoration, waste management and transition/close-out programs at the sites listed above. However, at KCP, operational waste management activities involving newly generated waste were funded by Defense Programs, beginning in FY 1998, and are not addressed here.

Detailed information on EM activities at the various AL sites can be found in the project-specific January 1998 Project Baseline Summaries (PBS). Attachment 1 lists the 20 PBS included in *AL Paths to Closure*. Each PBS contains project-specific narrative descriptions and other information such as annual work scope projections and associated costs.

The PBS data were updated since the issuance of both the National Discussion Draft and the AL Summary in June 1997. The cost and schedule estimates were developed with funding targets which were available in December 1997.

Section II, AL Project Summaries, contains more detail on individual EM projects.

## Ongoing AL Missions

The primary missions of AL are to:

- maintain a safe, reliable nuclear weapons stockpile;
- manage nuclear materials awaiting permanent disposition;
- achieve a restored environment; and
- support missions with a strong science and technology base.

These missions result in the generation of non-hazardous, hazardous, radioactive, and other waste that must be managed in a safe and environmentally sound manner. To

accomplish this, AL sites provide effective management systems for treatment, storage, and disposal of waste generated by mission activities.

Most AL sites have ongoing mission activities funded by programs other than EM, including national weapons programs, nuclear material stewardship, and basic research. These mission activities will continue indefinitely. In contrast, AL is striving to complete most EM-funded mission activities by the end of Fiscal Year (FY) 2006.

AL EM-funded mission activities are primarily in the areas of environmental restoration, waste management, technology development, national transportation management, and nuclear material stabilization. These include cleanup of surface contamination, containment and cleanup of groundwater contamination, decontamination and decommissioning (D&D), final disposition of all wastes currently in storage, and transfer of funding responsibility for routine waste operations to site landlord programs. Other EM activities such as long-term surveillance and maintenance (LTSM), and groundwater monitoring are expected to continue at many AL sites.

### ***Environmental Management Program Policies***

AL's policy is to complete environmental management activities in full compliance with applicable regulations or compliance orders. Site contamination will be cleaned up to meet established criteria. All legacy waste (waste produced by past nuclear weapons production activities) and newly generated waste will be treated, stored, and disposed of in accordance with state and federal regulations. Environmental restoration and waste management activities are evaluated to identify associated environment, safety, and health risks. Where necessary, mitigation measures are taken to reduce risks to workers, the public, and the environment.

One AL operating site has been completely closed. In September 1997, AL completed facility cleanup, deactivation, final shutdown, and transfer of the Pinellas Plant to the Pinellas County Industry Council. This site transfer represents the first closure and resale of a DOE weapons facility to a community for commercial use. DOE is easing worker transition resulting from this facility closure by meeting its employee benefits liabilities. Groundwater cleanup at the Pinellas site is expected to continue through at least FY 2006. As EM activities conclude at other AL sites, worker transition will likely be eased by retraining activities and opportunities to support other ongoing site missions.

### ***Planning Assumptions***

*AL Paths to Closure* is based upon several general assumptions to assure consistency across the DOE Complex and among AL sites. The following assumptions serve as the basis for developing the site-specific PBS, which form the basis of this document.

#### ***DOE Headquarters' Assumptions:***

- The annual EM funding target for AL is based upon a \$289 million allocation in FY 1999 and an annual \$290 million allocation for FY 2000 through FY 2008.
- Funds will be available for LTSM, and final closure activities after project "completion."
- DOE non-EM programs will continue to generate waste from ongoing operations even as the EM waste management mission is completed. Management and financial responsibility for new waste generated (outside the EM program) will be assumed by the site landlords. At AL, this begins in FY 1999.
- No additional facilities from other DOE programs will be included for safe shutdown or remediation in the EM program.
- Funding levels for technology development and deployment will be provided by DOE Headquarters.

- The Waste Isolation Pilot Plant will open in FY 1998 and AL will be able to begin shipping transuranic (TRU) waste for disposal.
- All decisions on EM projects will incorporate appropriate National Environmental Policy Act (NEPA) documentation. AL waste management planning will be consistent with the DOE Final Waste Management Programmatic Environmental Impact Statement preferred alternatives.

### ***AL-Specific Assumptions:***

- Responsibility for funding all surveillance and maintenance costs for completed environmental restoration projects will be transferred to the site landlord after FY 2006, except for sites included in the EM LTSM Program. (Funding data are shown in *AL Paths to Closure* because final agreement on transition of responsibility has not yet been reached.)
- Responsibility to fund Waste Management Operations for SNL, PX and LANL will be transitioned to DOE's Defense Programs in FY 1999. The transition for KCP was completed in FY 1998. LANL legacy waste (TRU and mixed low-level), and responsibility for the ITL will remain with EM.
- Regulatory agencies will have sufficient resources to review regulatory documents so there are no significant delays in scheduled actions.
- All known potential release sites for which AL is responsible have been identified and included in the environmental restoration scope. (This excludes active permitted sites such as firing sites. These sites may not be remediated by EM and may be the responsibility of the landlord.)
- Ongoing characterization of release sites will not reveal remediation issues that result in significant increases in scope. Some scope growth is anticipated in project planning and is assumed to be covered as contingency.
- Methods and processes for reducing waste volume, including waste avoidance, when applicable, are incorporated.
- Costs for waste treatment, storage, and disposal are incorporated into the costs for the remediation and decommissioning activities that generate the wastes.
- Evolving regulatory requirements may increase project scope and cost beyond what is currently envisioned in this document.

Additional assumptions relating to individual projects are identified in the Site Project Summaries (Section II).

A major DOE Headquarters' assumption for this document is that no additional facilities will be accepted into the EM program. This assumption, however, could change pending completion of a DOE Headquarters' review. Since most AL sites have ongoing, non-EM missions, any future facility decommissioning and decommissioning (D&D) or closures will be the responsibility of the site landlord. Additional facilities could not be accepted by AL without impacting lifecycle costs and closure dates for current projects unless such additional facilities were fully funded. The level of impact upon this document cannot be estimated without knowing the scope of the additional work and the level of funding provided by the DOE program currently responsible for these facilities.

### ***Changes from the AL Summary***

A major difference between this document and the AL Summary, is that this document contains an analysis of only one funding case rather than separate "high" and "low" funding cases. Other major changes are the inclusion of waste disposition maps, which illustrate how various waste types will be managed and a critical closure path graph, which illustrate critical sequencing of EM activities leading to completion of EM involvement.

Decreases in overall funding and changes in project-specific assumptions have adversely impacted AL EM program completion schedules at some sites described in the AL Summary. In addition, this document uses a funding target of \$290 million from FY 1999 through FY 2006, which is \$11 million lower than the AL Summary .

Most significantly, the LANL Environmental Restoration Project completion date has slipped three years to 2008 and completion of the LANL workoff of legacy TRU waste has been extended from FY 2005 to FY 2015, with the D&D of TRU facilities to be completed in FY 2017. The TRU waste end date change is driven by a change to a previous planning assumption that existing technology would be used for managing high-wattage, high-gas-generation TRU waste. The AL Summary provided an optimistic assumption that technology breakthroughs would allow simplified management and disposal. Because of the lack of technical progress in this area and reductions in funding for technology development, this assumption was revised in this document and the end-state date extended.

### ***Lifecycle Cost and Budget Process***

In 1995, AL realized that EM work scope would have to be accomplished with fewer dollars and consequently chartered two independent reviews to explore options to maximize the "purchasing power" of AL EM funds. Through these reviews, AL was able to identify several program enhancement opportunities, which are discussed further in Executive Summary, Part D., Scope, Cost, and Schedule. The end result is that AL's enhancement initiatives have become an integral part of its EM planning process and the remaining work scope will be completed for much less cost and in a shorter time frame than originally estimated. Project lifecycle costs and closure dates in *AL Paths to Closure* reflect these enhancements. The total escalated lifecycle cost (assuming a 2.7-percent annual escalation rate) for AL's EM program is estimated to be \$20 billion from FY 1997 through FY 2070. In constant FY 1998 dollars, this would equate to \$8.5 billion. This total contains costs for ongoing waste management and LTSM activities that will be transitioned to site landlord programs. Executive Summary, Part D. and the Site Project Summaries (Section II) contain project-specific cost summaries.

The PBS developed, as part of the *AL Paths to Closure* planning process, are the building blocks for EM's Integrated Planning, Accountability, and Budgeting System. Work scope data collected in the PBS support the budget formulation process. AL submitted a limited PBS data update in August 1997 that identified planned work scope to support the formulation of AL's FY 1999 EM budget. The PBS submitted on January 15, 1998, formed the basis for the *AL Paths to Closure* document.

### **B. END-STATE, FUTURE-USE, AND STEWARDSHIP**

The sitewide, end-state refers to the planned ultimate status of each parcel of land, facility, material, or waste for which the EM program is accountable until EM has completed its responsibilities and either transferred it to another entity (not within EM) or dismantled or disposed of it.

Defining end-states is a key aspect of defining the scope of the cleanup program. Once the end-state of a site is selected, work necessary to achieve that end-state can be divided into steps, and the steps can be organized into an appropriate sequence. Currently, *AL Paths to Closure* is based upon the best available end-state assumptions for each site. However, decisions about end-states and cleanup approaches to achieve those end-states will be made in accordance with the requirements of the National Environmental Policy Act (NEPA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and other applicable statutes and may differ from decisions supported by the assumptions described. It should also be noted that the completion of cleanup activities at many sites, as prescribed by EM, does not

necessarily mean the absence of a DOE presence at the site. Some sites will require continual surveillance and maintenance activities, performed and funded by EM. Some sites will have an ongoing mission, such as nuclear weapons stockpile management and stewardship, unrelated to the EM program.

### ***Relationship between EM End-state and Ongoing Landlord Programs***

Achievement of the EM end-state will have a minimal impact on future land use and stewardship at SNL, LANL, KCP, and PX. These sites have ongoing missions funded by programs other than EM that will continue, indefinitely. Defense Programs is the landlord at these sites. Future land and facility use decisions are primarily made under the purview of Defense Programs and final decisions are pending input from various stakeholders, Tribal Nations, and regulators and, therefore, are not within the scope of *AL Paths to Closure*. For AL, only the facilities managed by GJO have an EM landlord.

For the purposes of this document, AL assumes a site's EM projects are complete when:

- D&D of all facilities currently in the EM program have been completed, excluding any LTSM;
- all release sites have been remediated in accordance with agreed-upon remediation standards;
- groundwater contamination has been contained, or long-term treatment or monitoring is in-place;
- nuclear materials and nuclear fuel have been stabilized or placed into safe, long-term storage;
- legacy waste has been disposed of in an approved manner; and
- funding and management responsibility for newly generated waste has transitioned to the site landlord.

Most of the currently planned EM projects at AL sites will be completed by the end of FY 2006.

### ***Actions Remaining to Achieve EM End-state***

Remaining environmental restoration work consists of completing assessments and necessary remediations of solid waste management units and potential release sites. As part of this process, if final cleanup standards have not been agreed to by regulators, the sites will define methods to achieve the end-state in conjunction with the regulator.

Disposal of legacy waste currently in storage at LANL is the largest waste management task remaining. Responsibility for management of newly generated waste from ongoing operations at SNL, LANL, and PX will be transitioned from EM to DP in FY 1999. The transition includes legacy waste at PX and SNL.

### ***Future-Use Plans and Long-Term Stewardship***

Most AL sites have ongoing non-EM missions that will continue after the EM end-state has been achieved. As a result, future site use is under the control of the landlord program. DOE will maintain stewardship at these sites and overall land use will likely continue unchanged for the foreseeable future. Only two facilities will undergo significant changes in land use: the Pinellas Plant in Florida and the GJO site in Colorado. The Pinellas Plant has already been closed and is no longer an DOE facility. DOE sold the facility to the Pinellas County Industry Council in 1995 and completed transfer of facility control in 1997. Future-use options for the GJO site, including possible transition to private use upon completion of site remediation activities, are being evaluated.

GJO is assumed to have long-term stewardship of many AL and other DOE sites under the LTSM Program. Sites in this program include uranium mill tailings disposal sites with long-

term care licensing requirements and sites with long-term groundwater monitoring requirements such as UMTRA Groundwater Project sites, the Pinellas Plant, the Weldon Spring Site and the Monticello Site.

At non-EM sites, long-term stewardship is the responsibility of the site landlord and, therefore, beyond the scope of *AL Paths to Closure*. However, most AL sites have identified costs for LTSM activities for sites/facilities that will eventually be transitioned to landlord programs.

At LANL, a small fraction (about 4,300 acres) of land may be transferred to Los Alamos County for future economic development. Although much of the land may be released for unrestricted use, some land may only be available under certain restrictions.

### C. STRATEGIES AND PRIORITIZATION

AL is working to complete the following EM activities as part of its overall FY 2006 vision:

- treat and dispose of all legacy low-level (LLW) and mixed low-level (MLLW) wastes;
- transition legacy waste management operations at SNL and PX to site landlords in FY 1999;
- disposal of TRU waste at WIPP,
- transition ongoing waste management operations at SNL, LANL, and PX to site landlords in FY 1999; and
- complete all identified active surface remediation by the end of FY 2006, except at LANL.

Program efficiencies can represent significant savings to DOE and accelerate workoff of legacy waste in storage and the increased number of completed remediations. AL has already incorporated efficiencies into its 2006 planning assumptions based upon initiatives which began in 1995. AL will make every effort to continue identifying and implementing programmatic efficiencies while executing this document. In addition, AL will continue to define strategies to enhance performance and accelerate legacy waste workoff and site remediation.

#### **Prioritization**

With multiple AL sites, each of which has hundreds or thousands of EM-funded activities, a means of prioritizing work has been essential. The general prioritization criteria used by AL are, in order of importance:

1. Ensure all environmental management operations are accomplished in a safe, environmentally sound and compliant manner.
2. Provide support to short-term mortgage reductions which can be completed within 24 months or less, provide a positive return on investment, and are supported by good project management practices.
3. Ensure balanced legacy waste workoff, environmental restoration, technology, national program, and institutional support
4. Other program initiatives.

Projects, or activities within projects, rated low in priority would be elevated to the top of the list if increased health and safety or compliance risks are identified in the course of assessments. The Integrated Priority List in Attachment 2 shows AL's prioritization of individual EM projects/sub-projects for FY 1999.

#### **Critical Closure Path Analysis**

For the *AL Paths to Closure* planning process, AL's EM program is managed as 20 individual environmental restoration and waste management projects, each having its own PBS (see

Attachment 1). Because these projects are not all co-located at one site, their schedules are independent of one another. Because of this independence, the critical path for the entire AL EM program is simply the project with the latest completion date. The project on the critical path for the environmental restoration program is the LANL Environmental Restoration Project, scheduled to end in 2008. The LANL Legacy Waste Management Project, which is scheduled to complete workoff of legacy TRU waste in 2015, and D&D of TRU Facilities (WCRRP and RAMROD) by 2017, is on the critical path for all waste management projects. While Figure 2 shows the estimated completion dates for major AL EM Management activities, it does not depict ongoing activities such as LTSM or groundwater treatment.

Critical closure path analysis does not apply to newly generated waste management activities that will be transitioned to the landlord program due to the fact that these activities are ongoing operations that will continue indefinitely.

Other critical closure path dates for individual projects are contained in Section II., AL Site Project Summaries.

### ***Waste Disposition***

During development of this document, AL sites developed disposition maps for EM waste streams. The detailed results of this effort are depicted in Attachment 3, Waste Disposition Maps. Sites identified major waste streams and estimated volumes for environmental restoration waste, legacy waste, and newly generated waste. Where applicable, planned waste treatment/processing options for each waste stream were also identified. Finally, probable disposal options for the waste streams were determined. Generally, for newly generated and legacy wastes:

- LANL will be the only AL facility disposing of LLW on-site, other sites will use either DOE or commercial off-site disposal facilities;
- all AL MLLW will be disposed off-site at either commercial facilities or other non-AL DOE sites, hazardous waste is also planned to be treated and disposed of by commercial facilities; and
- all AL TRU waste will be disposed of at the Waste Isolation Pilot Plant, although SNL TRU waste may first be shipped to LANL for characterization and processing.

For most AL sites, contaminated media from environmental restoration activities will be dispositioned in a variety of ways, including on-site disposal cells, in situ disposal, and off-site disposal at other DOE sites or commercial facilities.

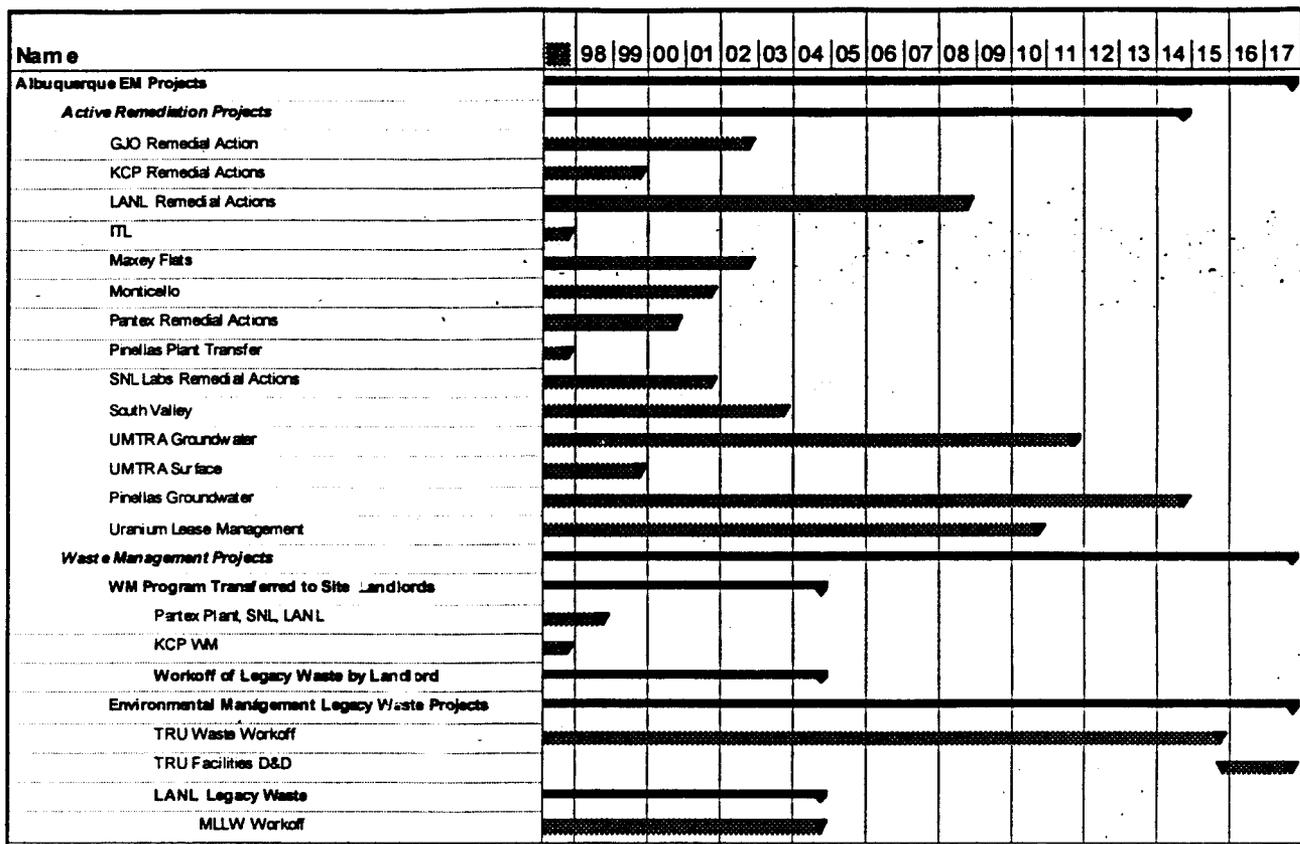


Figure 2. AL Environmental Management Critical Closure Path Analysis

### Mortgage Reduction Opportunities

The objective of mortgage reduction is to identify opportunities to reduce the lifecycle costs of AL's EM program through reductions in fixed costs.

Most mortgage reductions for waste management programs are tied to legacy waste workoff and freeing up of storage facilities. Challenges associated with handling and disposing of high-wattage TRU waste have doubled the lifecycle costs of the LANL legacy TRU waste project.

For environmental restoration activities at non-EM landlord sites, few opportunities exist since mortgage reduction really applies to mission-direct activities whose primary focus is waste treatment, nuclear material stabilization, and D&D.

The DOE privatization program has the highest mortgage reduction potential for major construction projects with large up-front capital costs. Since AL does not have any remaining EM projects that fit this profile, mortgage reduction opportunities stemming from privatization initiatives are not available.

### Environmental Management Contracting Approach

Most AL sites have Defense Programs' landlords and Defense Programs' cost-plus-fee prime contracts. Only the GJO is an EM landlord site. AL's contracting strategy includes

increasing the percentage of competitively let future contracts and using the management commitments at Area Offices and contractor levels as performance-based objectives, which will be part of both federal and contractor evaluations.

AL has vigorously pursued opportunities to change contracting mechanisms for EM projects. In FY 1996, two management and operating contracts were eliminated at AL sites. AL is successfully using task-order contracts and basic ordering agreements to provide the flexibility needed to perform EM work at a competitive price. AL increased competitive procurements to 68-percent of all contracting actions and 63-percent of value of awards in FY 1997.

Specific examples of recent changes to AL's contracting approach include:

- AL replaced the ITL contract with a cooperative agreement and the GJO contract with two smaller, task-order contracts. Both contracting mechanisms provide many of the advantages of fixed-price contracts with strong ties between execution of defined tasks and costs.
- AL has negotiated changes to performance measures within existing SNL, KCP, PX, and LANL contracts to focus on EM program results rather than activities.
- LANL awarded three task ordering agreements for environmental restoration projects in early FY 1998. Under these agreements, tasks will be awarded on a firm, fixed-price basis whenever feasible and appropriate.
- AL technology development program support is now provided through a time-and-materials task order contract allowing support to be tied to specific tasks with discrete budgets.
- The new M&O contract with the University of California for LANL requires make-or-buy analysis of selected waste management and environmental restoration activities to select the most advantageous approach to performing these activities.

### ***Technology Development and Deployment***

As another EM-funded program at AL, the AL Site Technology Coordination Group (STCG) is instrumental in the development and deployment of technologies. STCG initiatives may also benefit other DOE programs. While AL's Science and Technology Program involves a wide range of strategic areas, AL anticipates concentrating on D&D, waste management, pollution prevention technologies, and environmental restoration technologies. In FY 1997, AL identified 34 technology development needs to address environmental restoration and waste management challenges at five AL sites. Additionally, AL technology needs have been matched to various needs across the DOE complex. Cost-savings from potential future deployments at AL sites are estimated to save DOE \$159 million to \$471 million. Table 1 shows the technology needs and potential deployments by AL sites, which were defined by the planning process.

	GJO	KCP	LANL	Pantex	SNL
<b>Technology Needs</b>	3	2	13	8	8
<b>Technology Deployments</b>	4	1	29	5	14

*Table 1. AL Technology Development Needs and Deployments*

Three FY 1998 projects have been selected for deployment:

- decontamination and volume reduction system at LANL;
- permeable, reactive treatment wall for radionuclides and metals at the UMTRA Groundwater Project site in Durango, Colorado; and
- alternative landfill cover system for a Mixed Waste Landfill at SNL/NM.

Future development and deployment of technologies to handle and dispose of high-wattage and high-gas-generating TRU waste could significantly accelerate the schedule and reduce lifecycle costs of the LANL legacy TRU waste project. Near-term deployment of new technologies to manage these wastes has the potential to reduce the lifecycle costs of this project by up to \$300 million.

As part of an overall EM effort and in response to stakeholder comments, it was suggested that the DOE provide a Technology Deployment Management Plan; the outline is included as Attachment 4. The Technology Deployment Management Draft will be completed in June 1998 and issued as a separate document.

#### **D. SCOPE, COST, AND SCHEDULE**

For planning purposes, this document identifies the work scope and annual cost estimates for all current EM waste management activities (including waste management activities which are expected to transfer to landlord programs).

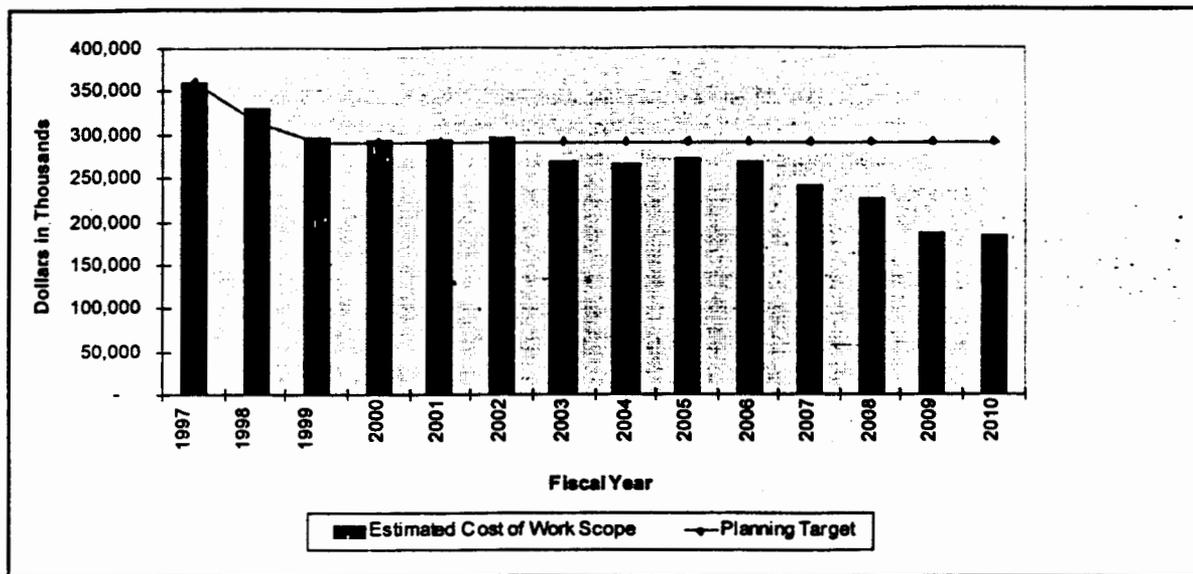
AL has included newly generated waste from ongoing site missions through FY 2070. For FY 1998 through FY 2000, AL sites are estimated to produce 17,568 cubic meters of LLW, 227 cubic meters of MLLW, and 585 cubic meters of TRU waste. At the beginning of FY 1998, the scope of the AL legacy waste workoff program included approximately 8,758 cubic meters of TRU waste, 876 cubic meters of LLW, and 774 cubic meters of MLLW in storage at AL sites awaiting final disposition. The FY 1998 scope of the environmental restoration program includes approximately 830 potential release sites at AL facilities remaining to be completed.

The total escalated lifecycle cost of the AL EM program is estimated to be \$20 billion from FY 1997 through FY 2070. The estimated cost for FY 1997 through FY 2006 is approximately \$2.9 billion. Figure 3 shows the annualized cost schedule profile for this time period. Most of the environmental restoration and legacy waste management work is scheduled to be completed by 2006 with the exception of work at LANL. LANL site remediations will be complete in FY 2008, workoff of legacy transuranic waste at LANL in FY 2015, and the D&D of TRU facilities in FY 2017. This lifecycle cost estimate also includes funding for ongoing waste management operations, LTSM, and groundwater monitoring activities after EM transitions these programs to site generator/landlord programs.

Figure 4 shows the percentage of escalated costs by major programs for FY 1997 through FY 2006. With \$1.5 billion in estimated costs, LANL's three environmental restoration and waste management projects account for approximately 50-percent of AL's EM program costs during this time period. Project-specific annualized cost schedule profiles for this time period are in Site Project Summaries (Section II).

### Baselining Methodology

AL sites estimate technical scope, costs, and schedules to develop baselines for their projects which are reviewed by AL.



	1997	1998	1999	2000	2001	2002	2003
Total Escalated Cost	358,887	330,076	293,967	291,268	291,100	294,541	270,070
Planning Target	360,623	315,146	289,000	290,000	290,000	290,000	290,000
	2004	2005	2006	2007	2008	2009	2010
Total Escalated Cost	265,844	271,261	266,330	242,004	224,409	185,418	184,776
Planning Target	290,000	290,000	290,000	290,000	290,000	290,000	290,000

Figure 3. Total AL EM Escalated Cost Fiscal Year 1997 - 2010

Project lifecycle baselines are developed using traditional project management concepts. A project work breakdown structure is used to develop schedules and estimates based upon the scope of work documented in task scope descriptions. Schedules and estimates are developed at the activity level by project controls personnel working closely with DOE and contractor project managers.

The DOE project and support staff work closely with site contractors to define work to be performed in the site baselines. On an annual basis, DOE reviews and approves the contractors' proposed project baselines. DOE reviews scope, labor, and other direct charges which are presented by the contractor. The DOE review team usually includes contracting officers, contracting officers' representatives, and DOE Headquarters representatives. Cost and schedule data are initially reviewed by Area Office staff and forwarded to AL where a subsequent review takes place. Each Area Office and program has a formal AL-approved procedure in place which documents the baseline change control process.

### Enhanced Performance Initiatives

Enhanced performance targets are goals that have been established in an effort to reduce costs while continuing to protect the safety and health of workers, the public, and the environment. AL is committed to conducting work in a safe and reliable manner without compromising established safety, health, and environmental standards. AL sites have aggressively pursued enhanced performance for their waste management and environmental restoration programs for many years.

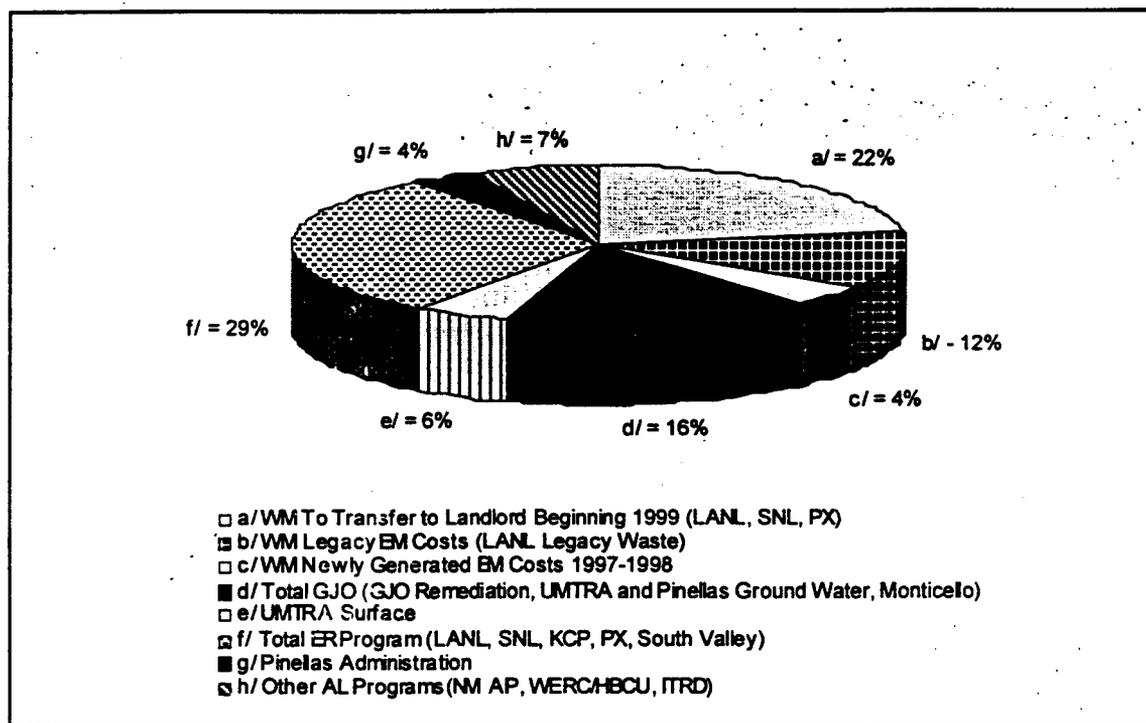


Figure 4. Percentage of Constant FY 1998 Dollars for Fiscal Years 1997 - 2006 by Major AL EM Programs

In 1994, as a result of an EM independent study of environmental restoration activities, AL evaluated its installations and determined that performance at the LANL, SNL, and the PX needed significant improvement. In response, all three sites provided Facility Action Plans to improve their environmental restoration projects. Performance enhancements included increasing the use of commercial industry resources, reducing program management and technical support costs, performing more cost-effective assessment and remediation strategies, utilizing a streamlined approach to the regulatory process, and using documented performance goals as contract requirements. As a result, facility baselines were revised and showed significant improvement in terms of cost and schedule.

AL has reached agreement with DOE Headquarters, regulators, and other stakeholders on several new approaches to allow site remediations to proceed on an accelerated schedule. Over the past four years, environmental restoration schedules have been compressed to result in a nearly \$3 billion savings in lifecycle cost estimates. At the end of FY 1995, AL had identified over 2,500 sites (not including approximately 5,350 UMTRA Project sites) that required assessment and/or remediation. The percentage of site completions achieved increased from 46-percent in 1995 (pending regulatory approval) to 69-percent by the end of FY 1997, even though the total number of sites requiring restoration activities increased by 6-percent.

There has also been a dedicated effort to reduce the schedule and cost for completing waste management legacy missions. AL has redefined its treatment, storage, and disposal strategy for managing waste. Total treatment costs associated with legacy mixed waste currently in storage have been reduced from \$400 million to below \$20 million and the schedule accelerated, significantly. Program management costs were reduced from 53-percent of the total waste management budget in FY 1996 to an average of 32-percent in FY 1997. Other waste management savings were achieved by canceling or reducing the scope of capital construction, approximately \$250 million, and using commercial treatment and disposal facilities where possible. AL is investing these savings into legacy waste treatment, storage, and disposal.

AL enhanced performance initiatives identified EM Program cost savings/avoidances totaling over \$56 million in FY 1997. Examples of specific enhanced performance initiatives that have already been implemented or planned into project baselines include:

- UMTRA Surface Project's award-winning Cost Reduction/Productivity Improvement Program which has been credited with saving over \$75 million in environmental restoration costs through the project's 18-year life, including \$1.44 million in FY 1997;
- Waste management personnel requirements at PX have been reduced by one-third since FY 1995;
- LANL avoided costs of \$2.25 million in FY 1997 by recharacterizing 235 cubic meters of legacy MLLW and disposing of it as LLW;
- SNL/NM reduced waste management program management costs by over \$600,000 between FY 1996 and FY 1997;
- Acceleration of the Pinellas Plant shutdown schedule by three years saved almost \$30 million;
- Contractor personnel at GJO have been reduced by 30-percent since the end of FY 1996, resulting in a cost avoidance of approximately \$18 million in FY 1997;
- Increased efficiencies of \$3.6 million were realized upon transfer of the Pinellas Plant groundwater remediation project to GJO;
- UMTRA Groundwater Project costs were reduced by \$200,000 in FY 1997 due to streamlining the process for completing key decision documents at two sites and expediting site characterization at another site; and
- Use of mobile waste characterization systems at LANL eliminated the need for a \$70 million capital facility.

The January 1998 AL PBS already include previously realized and planned enhanced performance initiatives. AL will continue to identify and implement programmatic efficiencies while executing its EM Programs. AL will also work closely with regulators and other stakeholders to obtain buy-in for the use of innovative solutions to enhance performance of its EM Program.

## **E. REGULATORY COMPLIANCE**

AL places high priority on compliance with environmental laws, regulations, compliance agreements, etc. AL is also committed to ensuring the safety and health of workers and reducing risks to the public and the environment. Implementation of *AL Paths to Closure* will result in full regulatory compliance with all applicable requirements, with a possible exception at the Monticello site, and in reductions in risk.

Funding restrictions in FY 1998 and FY 1999, along with owner/property access issues and application of supplemental standards, place several Monticello project compliance milestones at-risk. However, DOE is attempting to renegotiate these milestones with regulators. (The Monticello Site Summary contains further details on this compliance issue.) Executive Order 12088 requires that AL request enough funding to be in compliance with all applicable laws, statutes, enforceable agreements, and orders. In response to AL's FY

1999 funding allocation and a shortfall in FY 1998 funding, AL has requested additional funds from DOE Headquarters to meet *AL Paths to Closure* objectives, including compliance issues, that may arise from FY 1998 and FY 1999 budget reductions.

Full compliance of the EM Program activities covered by this document with all environment, safety, and health regulations is attainable without enhanced program performance. However, schedules in compliance agreements for completion of some activities may be at risk due to funding cuts. In the event that increased funding is not forthcoming, AL will continue to request from DOE Headquarters sufficient funds to maintain regulatory compliance.

### ***Enhanced Performance Targets***

The enhanced performance targets are goals that have been established through a dialogue between AL and Headquarters in a mutual effort to reduce costs in response to the current federal fiscal climate, while continuing to protect the safety and health of workers, the public, and the environment. It is unacceptable to meet these goals by relaxing regulatory compliance, creating adverse working conditions, or performing work to lower standards. AL is committed to conducting work in a safe and reliable manner, and the Secretary of Energy has made it clear that protection of safety, health and the environment are absolute standards which can not be compromised. The enhanced performance targets are not to be met at the cost of diminished attention to safety, health or environmental quality. Enhanced performance does not mean that sites will be given the latitude to cut corners. To the contrary, current rigorous standards will continue to be applied to sites.

## **F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

To support the Office of Environmental Management's goal to create a national consensus on DOE's EM Program, AL has made considerable effort to involve stakeholders in the planning process and will continue to invite stakeholder involvement.

### ***Initial Ten Year Plan, August 1996***

In 1996, AL and its Area Offices held meetings concerning the EM Ten-Year Plan, the precursor to the National Discussion Draft and the AL Summary, with state regulators, state Agreement-In-Principle personnel, tribal governors, citizens' advisory boards, local congressional offices, and other stakeholders. AL also identified DOE points of contact to resolve issues. AL used the stakeholder feedback on the Ten-Year Plan to develop the AL Summary. Subsequently, AL has taken additional steps to improve stakeholder involvement including: increasing detail; establishing separate meetings with tribal representatives; establishing more communication at the site level; and working more aggressively with regulators to refine key planning assumptions.

### ***Discussion Draft (AL Summary) June 1997***

As part of the Discussion Draft process, AL prepared, *Accelerating Cleanup: Focus on 2006 Discussion Draft, Albuquerque Operations Office (AL Summary)*, which contained more detailed information on EM activities at AL sites and was prepared specifically for AL stakeholders. Both a National Discussion Draft and an AL Summary were issued in June 1997. The documents were distributed to the stakeholder mailing list and placed in public reading rooms. The documents were also made available on DOE's website. A 90-day public interaction period was conducted and ended in September 1997.

During this comment period, AL held public meetings in several communities near Albuquerque to elicit input on both the National Discussion Draft and AL Summary. In August 1997, the DOE Assistant Secretary for Environmental Management along with Operations

Office and Kirtland Area Office and Amarillo Area Office management, met with key stakeholders to discuss issues regarding EM activities proposed in these documents and the FY 1999 budget formulation process. Participants included representatives from the Environmental Protection Agency, New Mexico Environment Department, several pueblo governors and tribal nations, special interest environmental groups, and four citizens' advisory boards.

Comments on the National Discussion Draft and AL Summary were received from a number of state and federal regulatory agencies, tribal governments, environmental groups, citizens' advisory boards, community and local government leaders, private industry, and the general public.

Through September 30, 1997, approximately 86 comments were received on the AL Summary: 58 from the public and community interest groups, 26 from federal and state regulators, and two from tribal governments. Stakeholder comments were primarily concerned with: 1) continued missions and funding levels for ongoing projects and sustained funding necessary to complete the AL Summary; 2) future land uses for remediated or cleaned-up sites; 3) groundwater quality at remediated sites; and 4) continued public involvement in the technical decision-making process.

AL also received 60 comments related to the endorsement of the Radioactive Source Recovery Program. This national program is funded through DOE Headquarters and administered by LANL and was within the scope of the AL Summary.

### ***Accelerating Cleanup: Paths to Closure Draft***

In February 1998, EM as well as AL issued a revision to the June 1997 document at both the National and AL levels. The Draft Paths to Closure documents (AL and National) incorporated responses to stakeholder comments received during the June to September 1997 public review.

Once again, additional information was added to the documents as clarification to stakeholder comments. Information added included disposition maps, critical path closure analysis, and additional cost and strategy information. Both documents were once again issued for an extended public review which began in late-February 1998 and concluded May 1, 1998.

### ***Final AL Paths to Closure Document***

This document, now referred to as *AL Paths to Closure*, includes a comment/response table (Attachment 7), and was once again modified in response to comments received. As mentioned previously, this is not intended to end the dialogue between stakeholders and the EM Program and as such, points-of-contact are identified at the beginning of this document to enable the dialogue to continue.

*AL Paths to Closure* represents a major step forward from the AL Summary issued in June 1997. The AL Summary provided an opportunity for the Tribal Nations, states, regulators, and other concerned stakeholders to participate in the EM program planning process and to help define innovative approaches that can help to streamline cleanup.

In addition to incorporating stakeholder, regulator, and Tribal Nation comments, steps to improve future, annual versions of *AL Paths to Closure* will continue. EM will improve the quality of data in and degree of consistency among site material and waste disposition flow charts.

## II. AL SITE PROJECT SUMMARIES

Although *AL Paths to Closure* is not part of the annual budget development process, the two are related. *AL Paths to Closure* is a useful tool not only for assisting in annual budget formulation but also for making annual adjustments to the execution of the EM program based on budget funding decisions. In evaluating annual budget scenarios, *AL Paths to Closure* provides DOE with the management tools needed to understand impacts to lifecycle costs and closure date schedules.

*AL Paths to Closure* is representative of a snapshot in time, based upon an assumption that funding will be provided as identified.

AL recognizes that there will be differences in future iterations of *AL Paths to Closure* between actual budget requests, appropriations, and the assumed level funding amount due to the dynamic nature of the budget process. AL plans to adopt a future *AL Paths to Closure* update publishing cycle that will adequately reflect decisions regarding final Congressional appropriations (for the current fiscal year) and the President's budget (for the following fiscal year).

### SITE SUMMARIES

Amarillo Area Office/Pantex Plant

Grand Junction Office/All Other Projects

Grand Junction Office/Maxey Flats Site

Grand Junction Office/Monticello Sites

Grand Junction Office/Pinellas Plant

Kansas City Area Office/Kansas City Plant

Kirtland Area Office/Sandia National Laboratories

Los Alamos Area Office/Los Alamos National Laboratory

Uranium Mill Tailings Remedial Action Project

Inhalation Toxicology Laboratory

South Valley Superfund Site

Other AL Projects

## AMARILLO AREA OFFICE/PANTEX PLANT

### A. OVERVIEW

The Pantex Plant (PX) is a DOE Defense Programs nuclear weapons facility located in the Texas Panhandle near Amarillo, Texas. The AL Amarillo Area Office (AAO) oversees operations of PX for DOE. The PX EM Program has two components, the Waste Management (WM) Program and Environmental Restoration (ER) Project.

There are two specific changes between this document and the AL Summary: (1) ongoing mission-related WM and legacy waste activities are now combined under one Project Baseline Summary, and (2) an additional waste stream (non-regulated waste) was included due to a change in the definition of sanitary waste.

Escalated lifecycle costs for the WM Program, which will continue to support PX's ongoing mission after transition to the site landlord, are estimated to be \$651 million for FY 1997 through FY 2070. Escalated lifecycle costs for the ER Project are estimated to be \$93 million for FY 1997 through project completion in FY 2015. The baselines from which these estimates were developed include enhanced performance initiatives planned prior to FY 1997.

#### **1. Waste Management Program**

The PX mission results in the generation of non-hazardous waste, hazardous waste, low-level waste (LLW), mixed low-level waste (MLLW), and State of Texas Class 1 waste that must be managed in a timely and compliant manner. The WM Program provides a safe and compliant management system for all generated waste within available funding and with no loss of production due to waste management concerns. The program encompasses all aspects of waste management, including treatment, storage, and disposal. Included in the WM Program is a pollution prevention program, aimed at eliminating the generation of waste.

PX's WM Program is expected to last beyond the scope of *AL Paths to Closure*, as the plant mission is expected to continue. The program is expected to transition to Defense Programs in FY 1999. All transition activities will be handled in accordance with established DOE transition policies and plans.

#### **2. Environmental Restoration Project**

The ER Project is responsible for remediation activities regarding soil and groundwater contamination resulting from the production and testing of explosives components for nuclear weapons. ER activities are conducted in compliance with a Resource Conservation and Recovery Act (RCRA) permit issued by the Texas Natural Resource Conservation Commission (TNRCC). The objective of the Pantex ER Project is to have all release sites remediated or in remediation by the end of FY 2000.

PX's currently identified 249 release sites within 144 solid waste management units (SWMU) and areas of concern (AOC) are grouped into 15 SWMU/AOC units for investigation and remediation activities. ER Project plans assume that no further action (NFA) designations under the Texas Risk Reduction Standards Guidance are anticipated for the majority of the release sites, and corrective measures will be used to remediate the remaining release sites where treatability studies, interim corrective measures (ICM), and/or accelerated cleanups (AC) are unable to achieve closure. The project also assumes that treatability studies being performed will verify the technologies being tested and offer viable, effective approaches to groundwater remediation.

## **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

As site landlord, DOE Defense Programs has stewardship of all PX facilities and will determine their future-use after EM Program end-states are achieved.

### **1. Waste Management Program**

All legacy waste will be disposed of by the end of FY 2004. WM operations will continue as long as the PX mission continues. The WM Program will continue to handle all newly generated waste at PX as a service to waste generators, indefinitely. Two EM facilities will be transitioned back to the landlord, along with legacy waste activities. In FY 1999, responsibility for all waste operations at PX will transfer to Defense Programs.

### **2. Environmental Restoration Project**

All currently identified release sites will be remediated to achieve closure designation in accordance with the cleanup levels contained in the Texas Risk Reduction Standards Guidance for soils and groundwater. It is anticipated that the groundwater pump and treat operations will continue to FY 2015 to effectively treat the groundwater contamination plume; however, the long-term efficiency and capability of the groundwater extraction and treatment system is uncertain, and additional time could be required to fully achieve groundwater remediation objectives. The assumed date for the project end-state will be evaluated periodically, as additional operational effectiveness information becomes available. The completion date will be adjusted, as required. Further, regulatory requirements for landfill cover maintenance, groundwater monitoring, and treatment operations will be negotiated periodically.

## **C. STRATEGIES AND PRIORITIZATION**

### **1. Waste Management Program**

The WM Program critical path activities (Table PX1) include transition of WM operations to the landlord and workoff of the legacy waste inventory. Current plans are for legacy and newly generated LLW to be disposed of at an off-site DOE facility. All MLLW will be treated, either on-site or off-site, and eventually disposed of off-site at commercial facilities. LLW from ER activities that is handled by the WM Program is expected to be disposed of off-site at commercial facilities or the Nevada Test Site. (See the Pantex WM Baseline Disposition Map in Attachment 3.)

The WM Program is consolidating operations to allow operations to move from older facilities into newer, more efficient facilities and ensure the safe and compliant management of all waste types. Included are the construction of the Hazardous Waste Treatment and Processing Facility and a concrete pad with two hazardous storage buildings. The WM Program began operating the new RCRA Hazardous Waste Staging Facility in FY 1997.

### **2. Environmental Restoration Project**

The overall technical approach for remediating currently identified release sites employs the RCRA approach for site closure. A key element is to closely coordinate all ER activity with regulatory agencies and other stakeholders. Based upon RCRA preliminary assessments, potential release sites were identified for further evaluation. A number of these sites were deferred because they are still active facilities. RCRA Facility Investigations (RFI) were performed to characterize the extent of contamination for each remaining identified potential release site. Additional sites were closed because RFI reports indicated that the level of contamination, if any, was low enough to warrant closure in accordance with state risk reduction guidance. The remaining release sites are being closed using ICMs, such as "hot

spot" soil removal and full corrective measures where ICMs are unable to achieve closure under state risk reduction guidance.

Most of the contaminated media managed by the ER Project will remain on-site: either in an on-site landfill or stabilized in-place. Small amounts (less than 5-percent) will be sent to off-site commercial facilities for final disposition. (See the Pantex ER Baseline Disposition Map.)

To achieve the goals established by the Clean Texas 2000 initiative, all release sites must be either remediated or in long-term remediation with all construction of remediation systems completed by the end of FY 2000. This, in turn, drives the project end-state completion date, which is estimated at approximately 15 years after completion of the groundwater treatment system. As a result, critical path activities (Table PX1) for the Clean Texas 2000 initiative include the site assessments and the corrective measures activities for three sites and groundwater. In addition, LTSM for groundwater is included on the critical path for achieving the project end-state by FY 2015.

Activity	Scheduled Start Date	Scheduled Completion Date
<b>ER Project</b>		
Site assessments	October 1, 1997	September 30, 1999
Corrective measures activities	October 1, 1997	September 30, 2000
Turnover ER Project to landlord		September 30, 2002
Perform groundwater LTSM	October 1, 1999	September 30, 2015
<b>WM Program</b>		
Transition WM Program to landlord		October 1, 1998
Workoff legacy MLLW	October 1, 1997	September 30, 2000
Workoff legacy LLW	October 1, 1997	September 30, 2004

Table PX1. Pantex Plant Critical Path Activities

All PX EM-funded activities associated with the WM Program and ER Project are subcontracted at the first- and second-tier levels under cost-plus-award-fee contracts.

#### D. SCOPE, COST, AND SCHEDULE

##### 1. Waste Management Program

The PX WM Program is expected to last beyond the scope of *AL Paths to Closure*, as the plant mission is expected to continue. All legacy LLW, currently on-site will be treated and disposed of by the end of FY 2004. All legacy MLLW in inventory will be treated and disposed of by the end of FY 2000. PX currently has identified commercial disposal facilities for all MLLW in storage. The WM Program will transfer to Defense Programs in FY 1999.

The PX WM Program has been extremely successful in reducing the amount of waste generated and in recycling generated waste. The WM operating budget has gone from \$13.9 million in FY 1993 to \$10.7 million in FY 1998, a reduction of 23 percent. The program man-power requirements have been reduced by 35 percent from FY 1995 to FY 1998. The program has also absorbed an increased overhead of over \$1.6 million from FY 1997 to FY 1998 with a decrease in funds. In FY 1996, a review of the WM baseline resulted in the identification of \$550,000 of funds that were redirected to fund other EM work scope. A value engineering study was done in the early design stages of the Hazardous Waste Treatment and Processing Facility, resulting in a reduction of the overall cost of the facility

from approximately \$19 million to \$6 million. In FY 1997, an employee suggestion for the reuse of beryllium components resulted in a waste disposal cost avoidance of \$189,000.

## 2. Environmental Restoration Project

RFIs have been completed for all SWMU groupings, and the Draft Final RFI Reports have been submitted to the TNRCC for review and comment. Remediation activities include treatability studies, ICMs, and ACs to reduce contamination of soils and groundwater sufficiently to achieve a NFA designation under the Texas Risk Reduction Standards Guidance. Three release sites will require the full RCRA corrective measures process (corrective measures study, corrective measures implementation program plan, corrective measures design, and corrective measures construction). Where appropriate, long-term surveillance and maintenance will be employed to ensure long-term remediation objectives are achieved. Through FY 1997, 222 of 249 identified release sites have been closed (including those sites administratively closed, based upon their status as active sites, duplications, or RCRA facility assessment recommendations). Those remaining are shown in Table PX2. Additionally, significant progress has been achieved in characterizing groundwater contamination and performing treatability studies. The treatability studies are intended to verify results from selected technologies for groundwater remediation.

The ER Project baseline includes enhanced performance initiatives developed and implemented prior to FY 1997. These include use of new technologies or techniques (dual phased groundwater/vadose zone treatment system installed in FY 1996), streamlined process (risk-based release site closures using ICMs and ACs), and pollution prevention (minimizing remediation waste generation through use of "hot spot" removals, in situ treatment/remediation, risk-based release site closures).

Fiscal Year	Number of Cleanups to be Completed
1998	24
1999	0
2000	3

Table PX2. Remaining Cleanups by Fiscal Year

The net result of the enhanced performance initiatives was accelerating the ER Project by over two years and reducing total project costs by \$67 million over previous baseline estimates.

Costs and schedules for PX WM and ER activities (Table PX3) are based on mature, well-established baselines, which are reviewed annually by AL. Estimated costs for FY 1997 through FY 2006 are shown below.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
WM	13,351	13,515	14,197	13,862	11,412	9,865	9,948	9,347	9,324	7,998
ER	9,924	9,872	12,618	16,311	13,940	2,120	6,183	1,878	1,929	1,980

Table PX3. Pantex Plant EM Escalated Costs for FY 1997 - 2006 (\$000)

### E. REGULATORY COMPLIANCE

The PX mission results in the generation of a variety of waste types that must be managed in a timely and compliant manner. The WM Program provides a safe and compliant management system for all generated waste within available funding. The program includes a strong technical oversight program to ensure compliance with regulations.

The PX ER Project is responsible for cleanup activities involving soil and groundwater contamination resulting from the production and testing of explosives components for nuclear weapons. ER activities are conducted in compliance with a RCRA permit issued by the TNRCC even though PX was placed on the National Priorities List (NPL) in May 1994 by the EPA. The DOE is currently negotiating a tri-party Federal Facility Agreement with the EPA and the TNRCC. The objective of the ER Project is to have all release sites remediated or in remediation by the end of FY 2000 and in compliance with all applicable regulations and agreements.

### F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

A key element in the successful implementation of the WM Program and ER Project is the close coordination of activities with regulatory agencies and other stakeholders. This is accomplished through frequent meetings with the regulatory community and presentations to the public. By soliciting input from stakeholders, EM activities are able to progress effectively with stakeholder support. This approach helps maintain a flexible, working relationship with regulators and other stakeholders.

Throughout the planning process, the DOE has held meetings with the PX Citizens' Advisory Board.

## GRAND JUNCTION OFFICE/ALL OTHER PROJECTS

### A. OVERVIEW

AL's Grand Junction Office (GJO) supports DOE EM Programs, other DOE sites, and federal and state agencies in environmental restoration and waste management activities and is the only field facility in the DOE complex devoted primarily to the management of large, complex environmental restoration projects, nationwide. GJO has a mission to apply its project management, engineering, and scientific capabilities to provide cost-effective, quality, and timely support systems and services for environmental restoration, decontamination and decommissioning, long-term surveillance and maintenance, and geoscience programs.

In addition to activities summarized elsewhere in this document, GJO also has responsibility for planning and performing the following EM projects: GJO Remedial Action Project (GJORAP); GJO Facility Management Project; Long-Term Surveillance and Maintenance (LTSM) Program; Uranium Lease Management (ULM) Program; and GJO Waste Management/Minimization Project.

Escalated lifecycle costs for these EM activities are estimated to be \$4 billion from FY 1997 through FY 2070. There have been significant increases to past cost estimates that are attributable to additional scope in the LTSM Program, escalating LTSM costs for out-years, and additional Facility Management and Waste Management/Minimization activities to support the LTSM Program.

#### **1. Grand Junction Office Remedial Action Project**

The GJO is located on a 62.7 acre site southwest of Grand Junction, Colorado. Site facilities were used to conduct research on milling uranium ore and concentrating uranium. GJO was also responsible for purchasing and testing large quantities of uranium ore and concentrate. Most facility buildings and land have some potential for radiological contamination as a result of these past activities. The purpose of GJORAP is to eliminate the potential hazards of long-term exposure to low-level radioactive contamination associated with past uranium processing activities by decontaminating the GJO site, including soil, groundwater, surface water, and buildings. The primary goal is to release most buildings and lands for unrestricted use. Groundwater monitoring, using passive aquifer flushing techniques, will continue beyond the GJORAP project. This activity will be monitored by the LTSM Program after work on the buildings and land have been completed.

#### **2. Facility Management**

The Facility Management Project provides a safe, secure, and environmentally sound workplace at the GJO. This level-of-effort support ensures the success of the GJO mission.

#### **3. Long-Term Surveillance and Maintenance Program**

The LTSM Program provides custody, surveillance, environmental monitoring, maintenance, site security, annual reporting, and emergency response for Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I and II disposal sites, Nuclear Waste Policy Act Section 151 sites, DOE decontamination and decommissioning sites, Formerly Utilized Sites Remedial Action Program (FUSRAP) disposal sites, and other remote sites. DOE HQ and the Nuclear Regulatory Commission (NRC) are negotiating the transfer of the 151(b) sites to DOE. GJO has custody of the only 151(c) site. DOE HQ originally believed that GJO would have the cleanup and long-term responsibility for FUSRAP sites. However, Congress recently gave responsibility for these sites to the Corps of Engineers (COE). Long-term care is now being

negotiated between DOE and COE. The program will also perform long-term groundwater monitoring at various DOE sites.

The GJO began operating the Cheney Disposal Cell, south of Grand Junction, in FY 1998 as part of the Long-Term Radon Management (LTRM) Project, a subtask of the LTSM Program. Work at Monticello will be completed in FY 2001; the LTSM Program will assume responsibility for the site in FY 2002.

#### **4. Uranium Lease Management Program**

Under the ULM Program, the GJO manages 25,000 acres of land in southwestern Colorado and southeastern Utah that is divided into 43 uranium lease tracts. Active lease tracts may have ongoing mining and exploration operations. Inactive lease tracts are no longer eligible to be mined and may need to be reclaimed before they can be restored to the public domain. DOE is responsible for remediating undesirable conditions located on 17 lease tracts for which no leaseholder is responsible.

Reclamation activities have been completed on five lease tracts in Utah and a "Request to Relinquish Lands" was filed with the Bureau of Land Management (BLM) Utah State office in September 1996 and is currently under review. Eleven lease tracts in Colorado have also been reclaimed and a "Request to Relinquish Lands" submitted to the BLM Colorado State office. Two other lease tracts are being reclaimed by their former leaseholders and are in various stages of the reclamation process.

#### **5. Waste Management/Minimization**

GJO activities such as site decontamination and decommissioning, laboratory analyses, and office operations generated a variety of wastes including hazardous, TSCA, low-level radioactive, RCRA, mixed low-level, TSCA mixed low-level, solid, and nonhazardous. Waste Management/Minimization Project goals are to minimize the volume and toxicity of waste produced at the site and to ensure that wastes are managed in compliance with applicable federal, state, and local laws and regulations. This effort ensures the protection of site employees, the public, and the environment.

### **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

#### **1. Grand Junction Office Remedial Action Project**

All buildings on the site will have been either remediated, demolished, surveyed, and released or approved by DOE for reuse under Supplemental Limits as part of the remediation process under GJORAP. All radiological and hazardous wastes from DOE operations will be removed. Operation of the Sample Plant in Building 7 will continue via Supplemental Limits as part of support to the Building 20 laboratory. Neither the analytical laboratory nor the sample plant will be demolished or relocated, instead both buildings will be approved for use under Supplemental Limits. After all GJO lands and buildings are remediated, most of the remaining land and buildings may be transitioned to private or other use. GJO is currently in the process of evaluating possible end use alternatives for the site.

As formerly approved by DOE, site groundwater monitoring will continue as part of the LTSM Program. Administrative control of the groundwater will remain in-place until contaminants fall below regulated concentrations. Upon concurrence by regulators, groundwater monitoring and institutional controls will be concluded.

## **2. Facility Management**

DOE will implement a future-use plan for the GJO site, which may include remaining at the site but using less of the area and facility. As an option, DOE may decide to turn over landlord responsibility of the entire site to another entity and lease back a fraction of the site. Requirements for this project will end when DOE relinquishes ownership of the GJO site.

## **3. Long-Term Surveillance and Maintenance Program**

LTSM Plans specify end-state conditions for each disposal site in the LTSM Program. Program activities will ensure that these conditions are maintained. Monitoring of natural flushing of groundwater at the GJO site and most UMTRCA Title I processing sites will continue under the LTSM Program. Groundwater monitoring will also continue at some decontamination and decommissioning sites, UMTRCA, Title II sites, and possibly at the Monticello site. When contaminants in groundwater samples fall below regulated concentrations, groundwater monitoring and institutional controls will be concluded. The LTSM Program will also assume custody of the GJO, Monticello, Pinellas, and Weldon Spring sites.

Under the LTRM Project, GJO will manage operations at the Cheney Disposal Cell for approximately 25 years. After operations cease, GJO will close the disposal cell and license it under Nuclear Regulatory Commission (NRC) UMTRCA Title I site regulations.

The duration of surveillance and maintenance activities at sites varies from decades to as many as 1,000 years, depending upon the requirements established for each site.

## **4. Uranium Lease Management Program**

The end-state for this program is the complete reclamation of all lease tracts to meet current guidance requirements and the ultimate restoration of the lease tracts to the public domain under BLM's administrative control. Upon restoration, all future costs associated with these lands will be covered by the BLM; there are no LTSM costs planned for these tracts.

## **5. Waste Management/Minimization**

Requirements for this project will end when GJO is no longer a waste generator and all site-generated wastes have been disposed of in a compliant manner.

# **C. STRATEGIES AND PRIORITIZATION**

## **1. Grand Junction Office Remedial Action Project**

The GJO site is slated to be decontaminated and decommissioned. Buildings will either be decontaminated and made available for other users, demolished, or submitted for use by others under Supplemental Limits. Land will remain vacant for other uses as buildings are removed. Radiological contamination will be removed from the site to acceptable limits. Environmental monitoring, health and safety oversight, and project management will be provided. Verification surveys will be performed and close-out reports written. Natural flushing will be used to cleanse the aquifer. Subsurface and groundwater monitoring will be required for approximately 80 years.

## **2. Facility Management**

Facility management support will continue to provide operations and services in support of the GJO's assigned DOE mission.

### **3. Long-Term Surveillance and Maintenance Program**

Inspections of UMTRCA Title I and II disposal sites and the Monticello repository will be conducted in accordance with LTSM Plans. This program will perform the activities necessary to delete the Monticello millsite from the EPA's National Priorities List. The LTSM Program will also implement the final land-use restrictions that will be specified in the Monticello LTSM Plan.

At sites where groundwater compliance monitoring is performed, GJO will provide evidence to regulators once contaminant concentrations fall below regulatory limits. Groundwater monitoring will cease upon receipt of concurrence from regulators.

### **4. Uranium Lease Management Program**

The ULM Program provides for the administration of 15 active lease tracts, annual inspections of all 43 lease tracts, and the oversight of reclamation activities on 28 inactive lease tracts.

If the 15 active leases are not relinquished by their respective leaseholders before the end of the current 10-year term and if DOE does not extend the leases beyond the current 10-year term, reclamation will be initiated between FY 2006 and FY 2007 and is expected to take two years to complete. At that time, the leases will be eligible for restoration to the public domain under the BLM's administrative control. If DOE extends the current leases, the final end-state will be adjusted to accommodate lease extensions.

Annual environmental and safety inspections of all lease tracts are conducted to identify adverse conditions that need to be addressed and to ensure compliance with DOE orders, Federal and State regulations, and lease stipulations. Project personnel mitigate or arrange for the mitigation of all safety and/or environmental hazards identified during the annual inspections.

Former leaseholders are required to reclaim all undesirable environmental conditions resulting from their operations. DOE is responsible for reclaiming similar conditions that exist on numerous lease tracts for which no leaseholder is liable. At these sites, reclamation efforts involve cleanup in and around the mine sites using conventional equipment. Following cleanup, the mines will be closed, reducing the possibility of unauthorized or accidental entry and injury. DOE coordinates its activities with the BLM and, upon successful completion, submits requests to BLM state offices to relinquish lands associated with the reclaimed lease tracts and restore them to the public domain.

### **5. Waste Management/Minimization**

The objective of this project is to minimize the volume and toxicity of all types of waste and ensure that wastes, unavoidably generated, are managed in compliance with DOE requirements and all applicable federal, state, and local environmental laws and regulations. Wastes that cannot be prevented will be recycled, wherever practical. What remains shall be stored and managed appropriately on-site, treated on-site, if possible, or shipped for off-site treatment or disposal in full compliance with applicable regulations, permits, and agreements. Monitoring will be performed for groundwater, air, and sewage effluent quality; groundwater and air quality will be modeled to assess trends and project future conditions. Environmental and waste samples will be analyzed, as necessary, to ensure compliance with federal regulations.

Table GJO1 shows the schedule for GJORAP critical path activities that must be completed for project closure by FY 2002, and for ULM program completion by FY 2010. A critical closure path does not apply for the Facility Management and Waste Management/Minimization Project because they are level-of-effort projects. The LTSM Program will be required for hundreds of years, until contamination levels decrease to within

acceptable limits; therefore, critical closure path methodology does not apply. Closure of the ULM Program is contingent upon leases ending and not being extended. The current leases will expire in FY 2006 and FY 2007, and the leaseholders will initiate reclamation activities. DOE has the authority to extend the present leases beyond the current 10-year term.

Activity	Scheduled Start Date	Scheduled Completion Date
<b>GJORAP</b>		
Obtain Supplemental Limits on Buildings 7 and 20	October 1999	October 2000
Investigate/remediate buried utilities	October 2001	September 2002
<b>ULM Program</b>		
Leases expire or are extended	September 2005	March 2006
All lease tracts are reclaimed	April 2006	March 2009
All lands restored to public domain	April 2006	September 2010

Table GJO1. Critical Closure Path Activities

Over 90-percent of the waste included in this summary's scope is contaminated groundwater, which will be left in place and remediated through natural flushing. Most of the remaining waste is contaminated soil, rubble/debris, and sludges/residues, which will be disposed of in the Cheney Disposal Cell. (See the Grand Junction ER Baseline Disposition Map in Attachment-3.)

At the end of FY 1996, the GJO transitioned from an Integrated Management and Operating contract to two, small business performance-based support service contracts operating under task orders. Once task orders are approved, the two contractors are responsible for administration of contracts with remedial action subcontractors. DOE, not the contractor, is responsible for outside party contracting, such as contracts with stakeholders, agreements for independent verification, etc. The percentage of GJO's overall EM budget expended on different contract types averages: cost plus award fee (71 percent), fixed firm price (15 percent), and other types of contracts (14 percent).

#### D. SCOPE, COST, AND SCHEDULE

GJO has captured the scope and costs for all the projects in one Project Baseline Summary. After 2014, this PBS includes costs associated with the LTSM Program, and any remaining facility management and waste management/minimization support activities. Approximately 75 percent of the funding used to support the ULM Program's administrative functions will be reimbursed to the federal government through leaseholders' annual royalties. Table GJO2 shows the annual cost breakdown for FY 1997 through FY 2006.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
<b>Cost</b>	12953	14100	11026	11150	16550	20496	17900	19900	22200	21200

Table GJO2. Escalated Cost for GJO All Other Projects for FY 1997 through FY 2006 (\$000)

Annually, the GJO conducts a review of the contractors proposed task plan for the upcoming fiscal year. This DOE review includes a review of scope, labor, and other direct

charges which is presented by the project manager to a DOE team comprised of contracting officers, contracting officers' representatives, and management. During the development of *AL Paths to Closure*, DOE project and support staff work closely with the contractors regarding project direction. The planning document is then reviewed by various members of the DOE staff and forwarded to AL where a subsequent review takes place.

During the FY 1998 task order negotiation process, GJO went through a major restructuring effort to lower the costs of overhead functions. GJO is well-positioned to accelerate projects and reduce overall project lifecycle costs if additional funding becomes available.

### **1. Grand Junction Office Remedial Action Project**

The exterior land areas at the site have been remediated and work is ongoing to decontaminate and conduct release surveys on site buildings. As of January 1998, 16 buildings have been fully decommissioned. This includes eight demolished (1,6,31,34,36,39,44, and 52), one decontaminated (18), one approved for supplemental limits (2), and six surveyed clean (11,19,29,30B,54 and 56). The objective is to release GJO buildings and the site for unrestricted use by FY 2002, except for buildings in which radiological materials will continue to be used or stored. A small quantity of radiological material is used in some survey instruments and laboratories to support environmental restoration programs. The buildings where these materials are stored and used will not be released until all radiological materials are permanently removed, the buildings are surveyed, and any necessary remediation is completed.

The annual cost baseline assumes that the project will be completed prior to the end of FY 2002, except for continued groundwater monitoring which will be funded under the LTSM Program.

### **2. Facility Management**

The GJO will continue to provide level-of-effort facility management services in support of the site mission. Specific operations include maintenance and renovations, excess equipment disposition, hazardous material transportation, building assessments, engineering and planning, base operating services, test pit maintenance, safeguards and security, property management, landlord services for other agencies, and environmental, health, and safety functions.

### **3. Long-Term Surveillance and Maintenance Program**

The LTSM Program is currently the custodian for 19 disposal sites (22 by the end of FY 1998) that require long-term activities to meet DOE, NRC, EPA, or other environmental regulations and could be assigned custody of an additional 30 sites by FY 2006. Current projections indicate that at least 50, and possibly over 100, sites will eventually be transferred to LTSM.

LTSM activities include: (1) inspecting sites annually or more frequently, if required; (2) maintaining security systems and establishing liaisons with local authorities for notification of security breaches; (3) maintaining sites and restoring degraded as-built features as needed; (4) monitoring air, soil, surface water, and groundwater, as necessary; (5) responding to emergencies in the event of a site security breach or natural disaster; (6) providing additional designs and performing construction, as needed, due to site failure or new regulatory requirements; (7) maintaining permanent site record files and providing reports annually within DOE and to outside agencies; and (8) responding to public requests for information.

Under the LTRM Project, the Cheney Disposal Cell will be opened once a year for about four weeks to accept contaminated material associated with uranium processing sites and

associated vicinity properties with permanent placement every three years.

Decontamination of transportation equipment; surveillance, maintenance and security of the facility; and environmental monitoring will continue as part of operations and requirements.

The LTSM cost baseline is based upon two key assumptions: (1) the NRC will license all UMTRCA Title I sites by FY 1999 and (2) other sites will be transferred to GJO in a timely manner so that by FY 2006, approximately 50 sites will have been placed in GJO custody. The LTRM portion of the project cost baseline assumes that: (1) the Cheney Disposal Cell will remain open for four weeks each year until FY 2023, (2) the site will receive an average of 2,000 cubic yards of material each year, and (3) emplacement and compaction of material in the disposal cell will occur every third year.

#### **4. Uranium Lease Management Program**

The ULM Program provides technical and administrative support for 43 lease tracts in Colorado and Utah, and includes: (1) review, evaluation, and approval of leaseholders' environmental plans; (2) evaluation of lease-ore weighing, sampling, and assaying measurements to ensure accurate calculation and timely collection of royalties; (3) monitoring of surface-disturbing lease activities for compliance with applicable environmental requirements; (4) annual inspection of lease tracts; (5) mitigation of potential safety hazards; (6) reclamation of environmental disturbances at sites where the disturbances are not the result of the leaseholders' activities; and (7) ultimate restoration of lease tract lands to the public domain under BLM's administrative control.

Currently, reclamation activities are scheduled for six lease tracts in FY 1998, seven in FY 1999, two in FY 2000, and two in FY 2002. Following reclamation, these lease tracts will be restored to the public domain under BLM's administrative control; this process typically takes one to two years. The ULM Program is expected to end in FY 2010.

ULM Program cost baseline data were developed in February 1995. Subsequent to its development, lease tract reclamation activities have been defined in greater detail and spread over a five-year period (FY 1998 through FY 2002). Consequently, new baseline cost estimates will be developed to accurately portray the current work scope/schedules.

#### **5. Waste Management/Minimization**

Waste management services include routine inspections of waste storage areas, maintaining accurate waste inventories, and submitting reports to regulatory agencies. As needed, wastes are shipped to off-site DOE disposal sites or to appropriately licensed and/or permitted treatment, storage, and disposal facilities. Source reduction and recycling programs emphasize substituting materials to reduce toxicity and recycling wastes whenever practical.

#### **E. Regulatory Compliance**

Compliance is deemed a very high priority at GJO. Funding is managed to remain in full compliance with regulations; non-compliance issues are funded with secondary priority. There is no difference in compliance attainability between the baseline and enhanced baseline.

#### **F. Stakeholder Involvement and Comment Disposition**

Stakeholder participation to-date has included:

- GJO issued the AL Summary and GJO Discussion Draft to key stakeholders in July 1997, notifying stakeholders of a public comment period.

- GJO held a meeting with Grand Junction community ad hoc committee members to discuss the AL Summary and GJO Discussion Draft.
- GJO held public meetings in Grand Junction in July 1997 and in Monticello, Utah, in August to discuss the National Discussion Draft, AL Summary, and GJO Discussion Draft.
- GJO received and responded to public comments related to GJO projects and activities.
- The GJO will continue to involve stakeholders and interested public in the refinement of *AL Paths to Closure* and supporting documentation.

## GRAND JUNCTION OFFICE/MAXEY FLATS SITE

### A. OVERVIEW

AL's Grand Junction Office (GJO) has responsibility overseeing DOE involvement for the Maxey Flats Field Management Project. The purpose of this project is to fulfill DOE's responsibilities as a potentially responsible party for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) remedial action activities at the Maxey Flats Disposal Site in Fleming County, Kentucky.

Maxey Flats is a low-level radioactive waste disposal site that EPA placed on the National Priorities List in 1986. The purpose of the remedial action is to reduce unacceptable risk to human health and the environment as required by a Consent Order and CERCLA Record of Decision. DOE's role in this project is limited to providing the DOE share of project funding and minor oversight responsibility to ensure that the funding is used properly. The Maxey Flats Steering Committee has overall responsibility for project management.

Escalated lifecycle costs for the Maxey Flats Field Management Project are estimated to be almost \$12.8 million. The requested budget will be used to meet DOE's financial obligations under the Consent Order.

### B. END-STATE, FUTURE-USE AND STEWARDSHIP

The end-state for the project is placement of the interim cap and completion of all initial closure construction support activities. At that time, DOE will have fulfilled its responsibilities. DOE does not have an ownership stake in the site and will not have a role in determining its future-use or long-term stewardship.

### C. STRATEGIES AND PRIORITIZATION

The selected remedy in the CERCLA Record of Decision is natural stabilization. The remedy includes: leachate pumping and solidification with on-site disposal of solidified waste; demolition of on-site structures and regrading of the site; placement of an interim cap over approximately 50 acres of the site; improved erosion and runoff controls; allowance for a time period (up to 100 years) for the disposal trenches to subside and stabilize, placement of the final closure cap; and site maintenance and monitoring activities in perpetuity.

DOE's annual obligated payments are the critical closure path activities for this project (Table MF1). These payments are required until EPA notifies DOE work is complete. This will fulfill DOE's requirement as a potentially responsible party and closure will be achieved.

Activity	Scheduled Start Date	Scheduled Completion Date
Make obligated annual payment	September 1998	September 2002
EPA work complete notification		September 2002

*Table MF1. Critical Closure Path Activities for the Maxey Flats Field Management Project*

The GJO/All Other Projects summary discusses GJO's contracting approach.

**D. SCOPE, COST, AND SCHEDULE**

The scope includes all required CERCLA activities through completion of the initial remedial action phase and initial site closure, projected for FY 2002. Remedial design efforts are ongoing for the extraction, solidification, and subsequent reburial of contaminated materials. On-site remedial construction activities are under way on those aspects of the design efforts that have been completed.

The cost baseline for the Maxey Flats Project is based upon the FY 1998 budget formulation process. The estimates are based on the Consent Order defined schedule, scope, and distribution of financial responsibilities. The DOE financial liability is approximately 40-percent of the total liability. The balance of the liability is shared by a combination of Federal and non-Federal potentially responsible parties. The costs for this project, required for DOE to fulfill its responsibilities as a potentially responsible party, are shown in Table MF2. Because of this developed cost baseline, GJO does not conduct the reviews of the contractors' proposed task plan. DOE is only required to make predetermined annual payments.

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002
Cost	28	8000	1200	1200	1200	1200

*Table MF2. Escalated Cost for the Maxey Flats Field Management Project (\$000)*

**E. REGULATORY COMPLIANCE**

Compliance is deemed a very high priority at GJO. Funding is managed to remain in full compliance with regulations; non-compliance issues are funded with secondary priority. DOE is obligated to make annual payments to be in compliance with the Consent Order.

**F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

GJO has developed and implemented a strategy for involving stakeholders in the planning process which is discussed in detail in the GJO/All Other Projects summary. There are no unresolved comments relating to the Maxey Flats Project. Stakeholder involvement and comment disposition for the Maxey Flats project is the responsibility of the Maxey Flats Steering Committee, not DOE, as defined by the Consent Order.

## GRAND JUNCTION OFFICE/MONTICELLO SITES

### A. OVERVIEW

AL's Grand Junction Office (GJO) has responsibility for planning and performing remediation activities for the Monticello environmental restoration project. The Monticello project involves remediation of a former uranium/vanadium ore processing mill, located south of Monticello, Utah; remediation of vicinity and peripheral properties in and near Monticello; and the assessment and remediation of surface water and groundwater contamination beneath and downgradient from the millsite. The EPA placed the millsite and vicinity properties on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) because of significant risk to human health and the environment associated with tailings, tailings-contaminated soils, and surface water and groundwater contaminated by tailings.

A Federal Facility Agreement among DOE, EPA, and the State of Utah establishes DOE as the responsible party for remedial action and EPA as the lead agency with ultimate responsibility and authority. EPA shares its decision-making authority with the State of Utah. The project, whose purpose is to minimize risks to the public and the environment from exposure to the mill tailings and the radon gas they produce, is being performed in accordance with a CERCLA Record of Decision.

The escalated lifecycle cost for the Monticello project is estimated at \$128 million from FY 1997 through project completion in FY 2002. All possible approaches to accelerate tailings removal from the Monticello millsite are being pursued, and GJO is well-positioned to further accelerate the Monticello project if sufficient funding is made available.

### B. END-STATE, FUTURE-USE AND STEWARDSHIP

The end-state for the Monticello millsite, peripheral properties, and vicinity properties is remediation to standards established in the Record of Decision, except for properties where supplemental standards are applied. For potential or approved supplemental standards properties, the risk to human health from the remaining contamination is evaluated and a determination is made for specific land-use scenarios with restrictions on surface use.

With the possible exception of groundwater remediation, all surface remedial activities will be completed and the end-state reached by FY 2001 at which time the site is expected to be available for beneficial public use. GJO may continue groundwater restoration activities past FY 2006 under the EM Long-Term Surveillance and Maintenance (LTSM) Program. The Monticello millsite will not be deleted from the National Priorities List until the surface water and groundwater meet cleanup criteria.

DOE, EPA, and the State of Utah are determining the final land-use restrictions that will be incorporated into the Monticello LTSM Plan. For the millsite and downgradient peripheral properties, groundwater use restrictions will be necessary until water quality reaches acceptable levels.

### C. STRATEGIES AND PRIORITIZATION

The selected remedy is excavation of the tailings and contaminated material and placement in a permanent repository on DOE-owned property 1.5 miles south of the millsite. Excavation will be accomplished using standard construction equipment. An independent verification contractor will certify the removal of contaminants by performing document reviews and field measurements. The tailings are being transported on a dedicated haul road from the millsite to the repository. A cover will be placed over the tailings to control radon emissions, infiltration of precipitation, and erosion.

The remedy for surface and groundwater contamination has not yet been selected. An interim remedial action is being considered for implementation in FY 1998. Final remedial alternatives are being evaluated and will be proposed in FY 1999. Alternatives for restoration of groundwater and surface water quality include pump-and-treat, passive restoration, cutoff trenches, or chemical barriers. Other innovative technologies will be considered during the selection process.

All contaminated media, including any groundwater treatment residues, are planned for on-site disposal in the DOE repository. (See the Monticello ER Baseline Disposition Map in Attachment 3.)

Table MONT1 shows the schedule for critical closure path activities. There are three critical activities leading to the deletion of the millsite from the NPL. The tailings' removal and peripheral property remediation are necessary prior to closure of the repository. Selection of a groundwater restoration remedy and completion of the vicinity properties must be completed prior to their deletion from the NPL.

Activity	Scheduled Start Date	Scheduled Completion Date
Millsite tailings removal	June 1997	November 1999
Repository cover construction	April 2000	October 2000
Peripheral property remediation	May 1993	November 1999
Montezuma Creek remediation	June 1998	November 1998
Select groundwater restoration remedy	August 1997	November 1999
Complete deletion of vicinity properties	March 1997	August 2000
Millsite Restoration	March 2000	July 2001

*Table MONT1. Monticello Project Critical Closure Path Activities*

GJO primarily uses task plans under two performance-based support service contracts as the contracting mechanism to perform Monticello remediation work. The GJO/All Other Projects summary discusses GJO's contracting approach in more detail.

#### **D. SCOPE, COST, AND SCHEDULE**

The Monticello millsite and vicinity properties are divided into operable units. For the millsite sub-project, Operable Unit I consists of the 110-acre millsite, including the tailings impoundment areas and storage areas for tailings removed from the peripheral properties and the vicinity properties; Operable Unit II comprises the private and DOE-owned properties adjacent to the millsite that are contaminated by wind blown or stream-deposited tailings; and Operable Unit III consists of groundwater, surface water, and stream-deposited contaminants in Montezuma Creek Canyon. The operable units in the vicinity properties sub-project were developed to address properties added at different times and properties that have different remediation goals.

Surface remediation involves excavating approximately 1.6 million cubic meters of tailings and contaminated soils and sediments and subsequent placement in a permanent repository. Groundwater restoration will employ pump-and-treat technology to remediate an estimated 370,000 cubic meters of contaminated groundwater.

Monticello costs are based on a lifecycle, in-house baseline. The baseline for Monticello surface and groundwater is based upon the assumptions that remediation of sediments in Upper and Lower Montezuma Creek Canyon and active remediation of groundwater will be required. Monticello costs include contingencies that are defined by out-of-scope work with a likelihood of developing. Those remaining remediations are shown in Table MONT2.

The estimates also include contingencies for "in-scope" work for uncertainties in defined scope. Table MONT3 shows annual costs to complete surface remedial action completion in FY 2001 and additional project closure costs occurring in FY 2002. Costs for groundwater restoration, which will be performed under the LTSM Program, are included in the GJO/All Other Projects summary.

Fiscal Year	Number of Cleanups to be Completed
1998	6
1999	1
2000	5
2001	4

Table MONT2. Remaining Cleanups by Fiscal Year

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002
Cost	26,413	24,291	34,328	22,000	15,000	11,500

Table MONT3. Escalated Cost for the Monticello Project for FY 1997 - 2002 (\$000)

Project lifecycle costs have increased in recent years due to funding constraints extending project completion, thereby increasing program management and support costs. The addition of contingencies for project growth and potential claims with the remediation subcontractor also contributed to this increase.

The GJO/All Other Projects summary discusses GJO's cost and schedule methodology for EM projects in more detail.

## E. REGULATORY COMPLIANCE

Compliance is deemed a very high priority at GJO. Funding is managed to remain in full compliance with regulations; non-compliance issues are funded with secondary priority. However, at the present funding level compliance on the Monticello project is at risk. Because of funding restrictions in FY 1998 and FY 1999, along with owner/property access issues and application of supplemental standards, completion of the Projects has been delayed a year. This delay has resulted in missing one stipulated penalty milestone and putting three others at risk of being missed. In addition, there may be delays in implementing an Interim Remedial Action for restoration of surface and groundwater quality in FY 1998. Negotiations are currently underway to attempt to renegotiate the missed and at-risk milestones so stipulated penalties will not be assessed.

## F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

GJO has developed and implemented a stakeholder strategy which includes review and discussion with the Monticello, Utah, Site-Specific Advisory Board. To foster stakeholder involvement in the planning process, GJO issued the AL Summary and GJO Discussion Draft to key stakeholders in July 1997 and held a meeting with community ad hoc committee members and public meetings in Grand Junction and Monticello to discuss the National

**Discussion Draft, AL Summary, and GJO Discussion Draft. GJO prepared formal responses to all stakeholder comments received during the comment period.**

**Bi-monthly Monticello Site-Specific Advisory Board meetings will be held throughout FY 1998 to discuss the status and schedule of the planning effort. Also, the Utah Department of Environmental Quality and the Environmental Protection Agency (EPA) will be regularly updated on project status and schedule.**

## GRAND JUNCTION OFFICE/PINELLAS PLANT

### A. OVERVIEW

The Pinellas Plant is a former Defense Programs weapons production facility located near St. Petersburg, Florida. In 1997, the DOE achieved safe transition of the facility from defense production to a community resource for economic development. The remaining Pinellas Plant EM mission is two-fold: completion of final contract close-out/transition activities and remediation of contaminated groundwater at the site. AL has responsibility for managing administrative close-out activities resulting from DOE's shutdown of the Pinellas Plant. AL's Grand Junction Office (GJO) has responsibility for conducting the remaining environmental restoration activities at the site, primarily groundwater remediation. This project also includes Pinellas Plant liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) for off-site waste disposal at a non-DOE National Priorities List site.

The escalated lifecycle cost associated with facility close-out, primarily employee benefit obligations, is estimated to be \$400 million from FY 1997 through FY 2070. Planned lifecycle cost for groundwater remediation has been recently reduced to \$41 million, which resulted from increased efficiencies. This project is well-positioned to achieve further enhancements, if additional funding becomes available.

### B. END-STATE, FUTURE-USE AND STEWARDSHIP

The DOE completed transfer of facility control to the Pinellas County Industrial Council for commercial/community use in 1997. Since this activity is complete and the facility is no longer under DOE control, future-use maps were not prepared.

All contract close-out activities associated with the transition, other than annual employee benefit liability, will be complete in FY 1998. Ongoing liability for annual employee benefit payments will continue indefinitely, unless a lump-sum buy out occurs.

When site groundwater can meet the State of Florida's "industrial with unrestricted access" land-use classification, DOE's environmental restoration responsibilities will be completed. No long-term stewardship is anticipated. Cleanup levels for this classification are drinking water maximum concentration levels established by the Clean Water Act and those of the State of Florida. It is estimated that final activity will be completed in FY 2014.

### C. STRATEGIES AND PRIORITIZATION

Groundwater cleanup of volatile organic compounds will involve conventional pump-and-treat technology, dual-phase vapor/water extraction, in-situ air sparging, and possibly bioremediation. If the designated groundwater cleanup levels cannot be met, it may be possible to apply for alternative cleanup levels because of "technical impracticality", but this will have to be demonstrated.

The arsenic-contaminated soil found at one site may require conventional excavation and removal. Alternate remedial options are presently being evaluated. The DOE is currently negotiating a consent agreement for the cleanup of the 4.5 acre site, which is regulated by the State of Florida Department of Environmental Protection. The remaining sites are regulated as solid waste management units under the Resource Conservation and Recovery Act (RCRA).

Most of the groundwater treated by active remediation methods will eventually be disposed of via clean discharge through publicly owned treatment works. The remainder, about 6000 cubic meters (less than one percent), will go to an off-site commercial disposal facility. (See the Pinellas ER Baseline Disposition Map in Attachment 3.)

Cleanup of the contaminated groundwater at the Pinellas Plant is on the critical closure path for this project. This activity started in October 1991. Groundwater cleanup for all areas except the Northeast site and Building 100 and Drum Storage area will be complete by FY 2006. Work at the remaining sites is scheduled to continued through FY 2014.

Mortgage reduction opportunities exist in the groundwater remediation project, if additional funds are made available. Increased up-front funding for this project would decrease the amount of overall project support and overhead costs that would be incurred.

The GJO/All Other Projects summary discusses GJO's overall contracting approach.

#### D. SCOPE, COST, AND SCHEDULE

Contract close-out activities include: 1) necessary staff required to complete final close-out; 2) closure of all outside service contracts, financial system, and completion of all other final transition work; 3) possible continued liaison support for economic development and environmental remediation activities; 4) final disposition of remaining records; 5) administrative close-out of a RCRA-permitted waste management facility; and 6) administration of DOE liabilities associated with employee benefit obligations.

GJO will perform active remediation of over 3 million cubic meters of contaminated groundwater at five site areas. Another 0.5 million cubic meters will be remediated in situ. In addition, the arsenic-contaminated soil will be excavated and removed from one site. The project also includes Pinellas Plant liability under CERCLA for off-site waste disposal at a non-DOE National Priorities List site. Remaining remediation will be completed as shown in Table PP1.

Fiscal Year	Number of Cleanups to be Completed
2000	1
2001	1
2002	1

Table PP1. Remaining Cleanups by Fiscal Year

Based upon the recent transfer of the environmental restoration project to GJO, future adjustments will likely be made to the established baseline. GJO's cost-baseline review methodology is described in the GJO/All Other Projects summary.

Table PP2 shows the annualized cost schedule for transition close-out and groundwater remediation from FY 1997 through FY 2006.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
Close-out	62,445	5,509	514	3,816	4,400	9,064	3,461	3,250	3,446	3,539
Groundwater	383	2,900	3,334	2,800	2,600	2,000	2,000	2,000	2,100	2,100

Table PP2. Pinellas Plant EM Escalated Cost for FY 1997 - 2006 (\$000)

**E. REGULATORY COMPLIANCE**

Compliance is deemed a very high priority. Funding is managed to remain in full compliance with regulations. Non-compliance issues are funded with secondary priority.

**F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

GJO has developed and implemented a strategy for involving stakeholders in the *AL Paths to Closure* planning process which is discussed in detail in the GJO/All Other Projects summary. There are no unresolved comments relating to the Pinellas Plant project.

## **KANSAS CITY AREA OFFICE/KANSAS CITY PLANT**

### **A. OVERVIEW**

AL's Kansas City Area Office oversees operations at the DOE's Kansas City Plant (KCP), located 12 miles south of downtown Kansas City, Missouri. KCP is a Defense Programs landlord site and its primary mission is manufacturing non-nuclear components for nuclear weapons. The site's EM mission focuses on cleaning up soil and groundwater contamination resulting from various spills and leaks from production activities.

The purpose of the KCP environmental restoration project is to evaluate potentially contaminated areas and clean up areas found to be a threat to human health and the environment. All soil contamination is beneath the surface. Primary soil and groundwater contaminants are organic compounds. There is no radiological contamination. The project is driven by an Administrative Order on Consent agreement between the Environmental Protection Agency (EPA) and the DOE.

Compliance for the KCP environmental restoration project includes meeting the Resource Conservation and Recovery Act (RCRA) Corrective Action requirements of the consent order described above and other applicable environment, safety, and health laws and regulations. The project uses a risk-based approach to minimize risks to workers, the public, and the environment.

The current schedules reflect an effort to complete all active remediations by September 1999 leaving only groundwater treatment and monitoring for FY 2000 and beyond. The workforce has been absorbed by other KCP programs or reduced as the environmental restoration workload has declined.

KCP initiated only two changes between the Discussion Draft and the Paths to Closure Draft: \$4 million was removed from the project due to a reduction in scope, and labor and material burden rates were increased from FY 1999 on. The escalated lifecycle cost for this project is estimated to be \$236 million from FY 1997 to 2070, which assumes groundwater treatment and monitoring throughout the period.

### **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

The end-state for the KCP environmental restoration project is completion of the RCRA Corrective Action Program for all sites. Soil contamination will be contained or removed, and cleanup levels determined for each project based upon the nature of the contaminant and proximity of the contamination to receptors. All releases to the environment will be cleaned up in accordance with agreed-upon cleanup standards, groundwater contamination will be contained, and long-term treatment or monitoring will be in-place.

Soil remediation is scheduled to be completed by October 1998. Groundwater treatment and monitoring will continue until three consecutive years of not exceeding maximum contamination levels can be demonstrated or an alternative can be agreed upon by regulators. DOE and EPA have not yet agreed upon groundwater cleanup levels.

The future-use of the KCP is not expected to change significantly. While DOE is planning to return some real estate to the General Services Administration in the next few years, the use of the property is not expected to change. A future-use meeting was held in 1995, in which the attendees agreed the site should continue to be used for office space, warehousing, and light manufacturing regardless of ownership or occupancy.

Defense Programs is expected to provide the long-term stewardship role at KCP. However, Headquarters' policy has not been established for LTSM. Included in this role are operation and maintenance of the groundwater treatment and monitoring systems.

### C. STRATEGIES AND PRIORITIZATION

The KCP cleanup approach has been to excavate high concentrations of contamination above the water table, pump-and-treat groundwater to provide containment, and review/demonstrate new technologies in an effort to find a technology that will cost-effectively remediate the site. Contaminants are believed to be in dense non-aqueous phase liquid form, making cleanup extremely difficult, time-consuming, and expensive for the site's clayey-silt soils.

KCP expects to complete all planned remediations by September 1999 and begin "steady state" in FY 2000. "Steady state" includes containing groundwater contamination on the Federal Complex, monitoring, and maintaining treatment and monitoring equipment. This status is expected to remain well beyond 2006.

Excavated soils and groundwater treatment residues contaminated with hazardous materials will be disposed of at off-site commercial facilities. (See Kansas City ER Baseline Disposition Map in Attachment 3.)

Critical closure path activities (see Table KCP1) include construction and evaluation of an iron treatment wall, completion of the facility investigation and corrective measures study at the final site, remediation of the last two planned sites, and completion of optimization studies to determine where to place new treatment wells, if needed.

Activity	Scheduled Start Date	Scheduled Completion Date
Iron treatment wall study	October 1, 1997	October 7, 1999
95th Terrace corrective measures	October 1, 1997	June 4, 1999
Tanks remediation	November 10, 1997	June 10, 1999
TCE still remediation	December 2, 1997	May 27, 1998
Treatment well optimization studies	January 1, 1998	September 29, 1999

Table KCP1. KCP Critical Closure Path Activities

Most KCP environmental restoration contracts are firm, fixed-price contracts. One contract is time-and-materials, which is roughly 20% of the total environmental restoration contract dollars. The KCP adheres to the federal procurement laws which mandate solicitation and competitive bidding of potential suppliers for services of \$2,500 or more.

### D. SCOPE, COST, AND SCHEDULE

The consent agreement covers 42 sites of which 38 have either been cleaned up or proposed for closure under institutional controls. Remaining scope includes five remediations in FY 1998, completion of one assessment in FY 1998, and continued groundwater treatment and monitoring. Completing KCP cleanup activities will involve: a) treating approximately 14 million gallons of contaminated groundwater, annually, b) removing and landfilling approximately 980 cubic meters of RCRA-regulated soil and debris, and c) installing an iron trench system to passively treat groundwater with iron filings.

The current schedules reflect an effort to complete all remediations by September 1999, leaving only groundwater treatment and monitoring. Final cleanup will not occur for some time, if at all, due to the absence of technology to remediate groundwater. KCP plans to transition groundwater treatment and monitoring activities and costs back to Defense Programs.

Table KCP2 shows estimated annual costs from FY 1997 through FY 2006.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
Cost	2,738	4,922	1,996	1,087	1,116	1,146	1,177	1,209	1,241	1,275

Table KCP2. KCP EM Escalated Cost for FY 1997 - 2006 (\$000)

#### **E. REGULATORY COMPLIANCE**

Compliance with the RCRA Consent Order and other applicable requirements is expected. There are no unrealistic schedules to meet or impossible tasks to accomplish. Enhanced performance (or lack thereof) will not affect compliance.

#### **F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

KCP stakeholders received the February and June versions of the Discussion Draft. The Missouri Department of Natural Resources had several comments on the February version. Topics addressed included scheduled transfer of regulatory authority, clarification regarding cleanup levels, evaluation of treatment technologies, the DOE/Missouri Agreement-in-Principle, and transitioning responsibility for treatment, monitoring and reporting. DOE agreed with the comments and explained that Defense Programs would receive responsibility upon project transition.

## KIRTLAND AREA OFFICE/SANDIA NATIONAL LABORATORIES

### A. OVERVIEW

The AL Kirtland Area Office oversees the Sandia National Laboratories (SNL) for DOE. SNL sites, which are located in New Mexico, California, Nevada (Tonopah Test Range), and Hawaii (Kauai Test Facility), are Defense Programs landlord facilities. The SNL EM program is managed as two separate projects: the Environmental Restoration (ER) Project and the Waste Management (WM) Project.

Since SNL has an ongoing non-EM mission, WM operations are expected to continue indefinitely. The lifecycle cost for the WM Project is \$1.35 billion for FY 1997 through FY 2070. The ER Project lifecycle cost is estimated to be \$103 million for FY 1997 through FY 2031. All potential enhancements have been accounted for in baseline cost estimates, which enable legacy waste workoff to be completed as scheduled. Final disposition of a few mixed low-level waste (MLLW) treatability groups, for which no clear treatment and disposal pathways currently exist, is being determined.

Should resources be reduced, some work schedules will be extended, increasing the total project cost due to escalation and extended maintenance of the project's support and management infrastructure.

#### 1. Environmental Restoration Project

The mission of the SNL ER Project is to complete all necessary corrective actions (assessment and remediation) at potential release sites in the most expeditious and cost-effective manner, while minimizing worker, public health and environmental risks, satisfying public concern, and complying with all applicable federal, state, and local laws. All of the designated solid waste management units and additional areas-of-concern will be remediated or placed under management controls adequate to ensure agreement from federal and state regulatory authorities that, based on risk to humans and the environment, no further action is warranted.

#### 2. Waste Management Program

The mission of the SNL WM Project is to encourage waste minimization and manage the treatment, storage, and disposal of hazardous waste, low-level waste (LLW), MLLW, and transuranic (TRU) waste generated by mission-related activities in ways that comply with federal and state laws and regulations and that reduce risks to the public, workers, and the environment. Three primary WM services are: (1) management of laboratory waste produced by ongoing, mission-related activities; (2) work-off of legacy waste, and (3) site-specific information services for DOE.

To achieve the goal of disposing of all legacy waste, SNL WM is assuming management and disposition responsibilities for stored TRU waste will be transferred to LANL and treatment and disposal options will be identified to allow the disposition of all legacy waste and cost-effective disposition of newly generated waste within permit and regulatory time limits.

### B. END-STATE, FUTURE-USE AND STEWARDSHIP

SNL assumes its non-EM mission will continue relatively unchanged for the foreseeable future. Future land uses for SNL New Mexico, which is located on Kirtland Air Force Base in Albuquerque, have been agreed to by US Air Force, DOE, the New Mexico Environment Department (NMED), the Forest Service, and interested stakeholders, including Citizens' Advisory Board members and other interested citizens. Cleanup levels will be approved by

the NMED. The cleanup levels could be more conservative than those calculated using the designated future land use in risk-based cleanup level calculations.

### **1. Environmental Restoration Project**

There is currently no plan to release SNL property after remediation activities end in FY 2001. Instead, sites that are remediated will become available for future mission needs or ongoing operations.

Future land use designations are used to calculate risk-based remediation criteria. The NMED must approve all cleanup levels and they may be different than those calculated using the designated land use. The land use agreements include provisions for future changes. If a less restrictive use is proposed, it will be adopted only after reassessment of risk to human health and the environment. Additional risk reduction measures may be imposed if deemed appropriate for the new use.

Three SNL ER sites, currently planned to be closed in-place, will have long-term surveillance and maintenance measures including vadose-zone and groundwater monitoring, and cap maintenance. These measures are planned to span 30 years after corrective action completion, out to 2031. These sites are the Chemical Waste Landfill, the Mixed Waste Landfill, and the Corrective Action Management Unit (CAMU).

### **2. Waste Management Program**

SNL anticipates transfer of WM responsibilities from EM to Defense Programs in FY 1999.

Post FY 2006 scope, to be assumed by Defense Programs, will encompass the activities necessary to safely and compliantly manage waste generated by ongoing mission-related laboratory activities. These activities include permitting, facilities and operations management, generator interface, program management, and the timely treatment, storage, and disposal of newly generated waste. The planned WM end-state will leave SNL in a position to be in compliance for all waste types. However, if SNL is not able to use DOE resources such as the WERF to treat waste, SNL will not be able to reach the WM Project end-state by 2006.

## **C. STRATEGIES AND PRIORITIZATION**

### **1. Environmental Restoration Project**

The SNL ER Project, in cooperation with the regulatory authority and the public, has adopted an accelerated remedial action approach that, for most sites, combines assessment and remediation functions and results in a "one-pass" closure activity. A working group consisting of members of the public, the citizens' advisory board, regulators, DOE, and SNL developed a site priority ranking list. This list was used to distribute funding for remediation in conjunction with the Hazardous and Solid Waste Amendments (HSWA) prioritization. Those remaining remediations will be completed as shown in Table SNL1.

There are several sites that are still in active use and are presently exempt from full remedial action (until they become inactive). These sites have been investigated for uncontrolled off-site releases, but they will probably not be closed before the ER Project is concluded. Current plans are to turn closure responsibility over to the operating organizations and have them listed, separately, in the HSWA module of the SNL Resource Conservation and Recovery Act (RCRA) operating

Fiscal Year	Number of Cleanups to be Completed
1998	16
1999	26
2000	4
2001	2

*Table SNL1. Remaining Cleanups by Fiscal Year*

permit.

The high-level critical path to project closure depends upon two primary expectations: 1) receiving funding at the requested level for each year, and 2) reasonable, risk-based decisions by the regulatory authority. If funding is reduced or the regulatory authority is highly conservative, that is, requiring significant additional work, with regard to granting No Further Action approvals, SNL ER Project baseline estimates will be revised. Table SNL2 shows the major milestones and activities on the SNL ER high-level critical path.

Activity	Scheduled Start Date	Scheduled Completion Date
<b>ER Project</b>		
Remedial action phase work	October 1, 1997	March 23, 2001
Project close-out activities	March 26, 2001	August 31, 2001
HSWA permit modification approval		October 3, 2001
Long-Term Surveillance & Maintenance	October 1, 2001	September 30, 2031
<b>WM Program</b>		
Transition WM operations to landlord		October 1, 1998
Complete MLLW waste treatment	October 1, 1997	May 2002
Workoff legacy LLW & MLLW waste	October 1, 1997	September 30, 2004

Table SNL2. SNL Critical Closure Path Activities

Those wastes that are handled by WM will be sent off-site for treatment and disposal. Hazardous waste going to the Corrective Action Management Unit (CAMU) will be treated and contained on-site. Residual contamination in the Chemical Waste and Mixed Waste Landfills and waste placed in the CAMU containment cell will be capped and managed in-place with long-term monitoring. Approximately 80 percent of ER contaminated media, mostly soils contaminated with hazardous materials, will remain on-site. (See SNL ER Baseline Disposition Map in Attachment 3.)

The SNL ER Project uses fixed-price, task-order, and cost-plus contracting for various services/projects, and time-and-material contracting for staff support. SNL ER is presently developing a staff transition plan that will be used to guide the transition process and minimize employee and contractor impacts as the project reaches completion.

In 1994, with the adoption of fast-track field approaches and other programmatic efficiency measures, it was concluded that there were very few critical technology needs required to achieve successful ER Project closure. Consequently, the ER Project has relied almost entirely on proven and accepted methods and existing technologies. Exceptions have occurred, such as a recently developed arid region landfill cap design which is being planned for deployment at the Chemical and Mixed Waste Landfills and on the CAMU disposal cell. The cap design must still be approved by the regulatory authority prior to use. The ER Project has and continues to review its technology needs and to stay current with new developments. However, given the remaining scope of work and time to completion, it is unlikely that the SNL ER will be a significant customer for deployment of new technologies still under development.

## 2. Waste Management Program

Achieving the AL Paths to Closure WM goal of disposing of all legacy waste by the end of FY 2006 involves characterizing and disposing of currently inventoried LLW; treating and

disposing of MLLW covered by the Compliance Order issued by the State of New Mexico; shipping TRU waste to LANL; and characterizing, treating as necessary, and dispositioning materials in inventory. The SNL WM Project is incorporating the DOE Waste Management Programmatic Environmental Impact Statement alternatives into its baseline and outyear strategic planning. SNL currently plans to have almost all newly generated and legacy LLW disposed of at an off-site DOE facility. Almost 90 percent of MLLW will be disposed of at commercial facilities. (See SNL LLW, MLLW, and TRU Baseline Disposition Map in Attachment 3.)

All SNL WM activities are scheduled to be transitioned to the site landlord in FY 1999. Additional high-level critical closure path activities for the WM Project are listed in Table SNL1.

SNL WM relies on SNL Procurement to provide guidance in determining the most effective contracting strategy for each procurement. The WM Project is conducted as a subset of the SNL cost-plus-fee operating and maintenance contract. SNL WM has three basic contract types: cost-plus-award-fee, cost-plus-fixed-fee, and time-and-materials. SNL will be using the Defense Reutilization Marketing Office to manage wastes at the Kauai Test Facility.

Due to the classified nature and radioactive concentrations of some MLLW, SNL/NM will be required to perform macroencapsulation, on-site. Currently, there are no DOE sites or commercial sites that can dispose of this waste, which is less than 150 cubic meters, therefore this treated waste will be stored on-site pending availability of disposal.

## **D. SCOPE, COST, AND SCHEDULE**

### **1. Environmental Restoration Project**

Of the original 228 potential release sites in the SNL ER Project, only a few dozen are pending proposal for No Further Action (NFA) to the NMED. Over the past year, a few additional sites have been identified, some sites were segregated from the original 228, so the total site number being discussed with regulators is 250. Many of the remaining SNL ER sites are associated with explosives test areas, dump and debris sites, and septic systems. While several of these sites are large, most are not technically difficult to remediate. The Classified Waste Landfill, Chemical Waste Landfill, and Mixed Waste Landfill are three of the most complex sites remaining to be completed. All sites are scheduled to be completed by the end of FY 2001. After that time, only regulatory close-out and long-term surveillance and maintenance activities will remain and have been identified as part of the site work scope.

Through the implementation of numerous process efficiencies, such as the "one-pass" approach, and the acceptance of increased programmatic risk (i.e., more optimistic scope assumptions), the SNL ER baseline cost and schedule estimates have been reduced significantly since 1994. The total estimated cost was reduced by almost half, and the schedule shortened by 13 years. Costs are developed using a bottom-up estimating process for each individual task. Where applicable, standard construction pricing was used for baseline development.

### **2. Waste Management Program**

Key WM work scope activities, in order of priority, include: (1) treatment, storage, and disposal of regulated, non-radioactive waste; (2) compliance with the site treatment plan for MLLW; (3) collection, treatment, and storage of ongoing MLLW; (4) collection and storage of LLW; (5) disposal of newly generated LLW from large volume generators; (6) MLLW disposal; (7) disposal of newly generated LLW from low volume generators; (8) management of TRU waste; (9) non-routine activities; (10) DOE-directed activities not tied to site mission; (11) disposal of legacy LLW; and (12) new facility planning.

SNL is working with other DOE sites to develop solutions for complex WM problems. SNL WM has worked with DOE's Rocky Flats site to assess the need to develop thermal desorption technology to treat problem mixed wastes. SNL WM is using the DOE Waste Experimental Reduction Facility (WERF) incinerator at Idaho and considering other DOE incinerators to treat waste rather than using commercial facilities. SNL is aggressively pursuing waste minimization and pollution prevention. In FY 1997 SNL California exceeded the 50 percent pollution prevention reduction goal set by DOE. SNL also received a national pollution prevention award for a tritium research laboratory conversion to a chemical and radiation detection laboratory, saving over \$100 million.

The SNL WM Project has made improvements that have greatly enhanced the planning, management, and operations aspects of the project. As a result of these improvements, WM management costs have been reduced by 27 percent since FY 1996.

The baselines for the SNL ER and WM Projects are developed using traditional scheduling and estimating methods. Table SNL3 shows the cost schedule for the SNL EM program for FY 1997 through FY 2006.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
<b>WM</b>	15,981	18,570	18,977	20,428	21,289	21,940	19,000	19,000	19,000	19,000
<b>ER</b>	19,619	29,432	27,683	19,773	3,251	67	60	62	108	110

Table SNL3. SNL EM Cost Schedule for FY 1997 - 2006 (\$000)

### E. REGULATORY COMPLIANCE

The SNL ER Project is regulated under a HSWA module of the SNL RCRA permit that identifies regulated waste sites and provides both criteria and guidance for their assessment and remediation. In addition, the HSWA module provides a schedule for when the various activities must be completed. The SNL ER Project is in full compliance with the provisions of the HSWA module and ahead of schedule for many milestones.

The SNL WM Project places a high priority on compliance with environmental laws, regulations, agreements, standards, nuclear safety rules, and other applicable requirements. SNL WM will comply with the site treatment plan for MLLW.

### F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

SNL and the Kirtland Area Office have involved the public, other local stakeholders, and the New Mexico Oversight Bureau and Environment Department in important ER and WM Projects decisions.

There has been considerable positive involvement with the local stakeholders through quarterly meetings and through the Sandia citizens' advisory board over the past several years. All stakeholders, including the Tribal Nations, are encouraged to participate in reviews and important decision-making processes associated with the SNL ER and WM Projects. The citizens' advisory board has been very involved at monthly meetings and on subcommittees formed to study and advise on special topics such as land use, CAMU, site prioritizations, and *AL Paths to Closure*. Tribal Nations are sent mailings of meeting notices, newsletters, and associated information.

The stakeholder comments on the AL Summary that related to the SNL ER Project primarily addressed the need for DOE to maintain adequate resources to meet the FY 2001 completion date. The main comment on WM project was to ensure funding to support the EM to DP transition. There were also a few comments regarding the need to define an alternative to WIPP. DOE and SNL are working closely with stakeholders to disposition their comments satisfactorily.

**LOS ALAMOS AREA OFFICE/LOS ALAMOS NATIONAL LABORATORY****A. OVERVIEW**

The Los Alamos National Laboratory (LANL), located in Los Alamos County in north-central New Mexico, is a DOE Defense Programs landlord facility. *AL Paths to Closure* assumes that Defense Programs will remain as landlord and be responsible for all associated landlord costs. AL's Los Alamos Area Office manages operations at LANL and has responsibility for overseeing the three elements of LANL's EM Program: Environmental Restoration (ER) Project, Waste Management (WM) Program, and Nuclear Materials and Facility Stabilization (NMFS) Program.

In addition to DOE Headquarters and AL planning assumptions, there are several key LANL-specific assumptions. These assumptions are based upon the latest technical information available and long-term strategic projections of reasonable outcomes of additional information and regulatory approaches and decisions. For all assumptions, the current information and evidence may have led to wrong inferences. As new information is collected and analyzed, and further interactions with the regulator occur, these assumptions will be revisited and revised. If assumptions change significantly, LANL will revise the scope of the ER Project and will adjust future budget requests, as appropriate. Current assumptions are:

- the ER Project will incorporate regulator-approved risk-based decision making to determine the need for corrective action;
- the DOE Integrated Environmental Restoration and Natural Resources Damage Assessment process will be acceptable to the regulator and stakeholders and natural resource injury and cumulative impacts can be evaluated and mitigated within the scope of this plan;
- the strategy to optimize characterization and remediation of the canyons and other areas used for traditional and cultural purposes will be acceptable to stakeholders, the regulators, and the Pueblos;
- ongoing groundwater assessment and characterization activities will indicate that significant or unacceptable levels of contamination are not present in the regional aquifer and groundwater remediation will not be necessary;
- streamlined and expedited regulatory process will be used whenever possible;
- the large material disposal areas and other canyons will require implementing the full corrective measures process, and approximately 10 percent may require excavation, treatment and disposal of contaminated materials;
- new waste generation will increase as DOE assigns LANL new defense mission activities under the Stockpile Stewardship and Management Program, and
- existing technologies will be used to handle and ship high-wattage, high-gas-generating transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP).

There are several significant differences between this document and the AL Summary: 1) the original three Project Baseline Summaries that comprised the LANL ER Project have been combined into one PBS, 2) LANL ER Project completion has been extended to 2008 beyond the goal of 2006 due to funding constraints, and increased scope, and 3) LANL legacy TRU waste workoff has been extended to 2015 (with D&D of TRU facilities being completed in 2017) because of funding constraints and changes in underlying assumptions related to unavailable treatment technologies.

The total escalated lifecycle costs for LANL's EM Program are currently planned to be:

- \$132 million for the NMFS Program from FY 1997 through FY 2006,
- \$1.07 billion for the ER Project from FY 1997 through FY 2070, including LTSM, and

- \$11.31 billion for the WM Program from FY 1997 through FY 2070 (\$738 million for the legacy waste workoff and \$10.58 billion for management of newly generated waste).

Verifiable enhancements have already been built into project baselines. As additional enhancement opportunities are identified and the potential cost-savings verified, they will be incorporated into the projects baselines. LANL will continue to seek out and implement more efficient ways of conducting its EM Program and achieving the goals of successful project completion, getting to an end-state earlier rather than later, meeting the requirements of the regulators, and maintaining a healthful and safe environment for workers and the public.

### **1. Environmental Restoration Project**

The purpose of LANL's ER Project is to protect human health and the environment from hazards posed by inactive and surplus DOE facilities and contaminated lands by remediating sites and facilities in the most cost-efficient and responsible manner possible in order to provide for future beneficial use. The sites being addressed by the ER Project generally pose low risks of adverse impact to the public, workers, or the environment. The primary drivers for completion of the ER Project are LANL Resource Conservation and Recovery Act (RCRA) permit for corrective action and concerns that some stakeholders have about the potential for residual contamination in the environment to have adverse effects in the future.

### **2. Waste Management Program**

The LANL WM Program is divided into two major projects: newly generated waste management and legacy waste management. The newly generated waste project provides waste management services to support the LANL mission. Waste is treated, stored, and disposed by the WM Program. Waste types generated at LANL that are managed by the WM Program include TRU waste, mixed TRU waste, low-level radioactive waste (LLW, both solid and liquid), mixed low-level waste (MLLW), hazardous/chemical waste, biological waste, and medical waste. The LANL legacy waste project treats, stores, and disposes of all legacy TRU waste (including mixed TRU) and legacy MLLW. LANL waste will be managed in compliance with all applicable federal and state requirements.

### **3. Nuclear Materials and Facility Stabilization Program**

The LANL Nuclear Materials and Facility Stabilization (NMFS) Program provides Complex-wide support to DOE for nuclear materials stabilization. LANL is providing the stabilization programs at other sites with the technical basis for risk-based prioritization, stabilization standards, stabilization processes, packaging for storage pending disposition, and surveillance during the storage period. LANL is also performing a core technology program to improve understanding of underlying material interactions and assuring that technical capabilities are available in the future to deal with unforeseen problems with nuclear materials in storage.

## **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

### **1. Environmental Restoration Project**

The LANL ER Project will have a need for continued operation beyond FY 2006. Work remaining will include the remediation of four to six material disposal areas, decommissioning efforts at several facilities, and completion of canyon assessment and remediation.

Work is currently planned to be completed in FY 2008. Surveillance and maintenance of sites with remaining contamination will be in accordance with plans approved by the administrative authority. Surveillance and maintenance for hazardous waste sites may

extend for only 30 years, but would extend indefinitely for most radiologically contaminated sites.

The majority of lands and facilities addressed under the ER project will continue to be used for the future LANL mission. Therefore, the primary end-point for ER activities is to achieve levels of remediation that allow industrial type activities to continue in a safe manner. Where lands have already been released or are scheduled to be released, the primary end-point will be to achieve levels that allow unrestricted use of the property. For those lands impractical to remediate for unrestricted use, they could be available for restricted uses after remediation and implementation of LTSM in accordance with regulatory approval.

## **2. Waste Management Program**

The management of newly generated waste in support of ongoing LANL mission requirements will be transferred to Defense Programs in FY 1999; newly generated TRU waste will be certified and shipped to WIPP as it is generated, starting in FY 2002; non-defense TRU waste will be stored and disposed after DOE develops a capability for non-defense TRU waste disposal; disposal of solid LLW and treatment of liquid LLW will continue; MLLW will be shipped for treatment and disposal within one year of generation after FY 1999; management of hazardous waste will continue; and upstream treatment and waste minimization practices to reduce and stabilize hazardous wastes will be continually incorporated as part of waste management practices.

For the LANL legacy waste project all legacy TRU waste, including remote-handled TRU waste, will be retrieved, characterized, treated, certified, placed in TRUPACTs and shipped to WIPP by the end of FY 2015; all legacy MLLW will be appropriately disposed by the end of FY 2004; and TRU facility decontamination and decommissioning and will be completed by the end of FY 2017.

## **3. Nuclear Materials and Facility Stabilization Program**

Stabilization technology development, technology transfer, and implementation support activities begin to ramp down in FY 2002, provided that sites successfully meet Defense Nuclear Facilities Safety Board 94-1 milestones. The end-state is reached when EM nuclear materials have been stabilized and converted into a form that meets disposal or long-term storage criteria and inventories have been shipped to a disposal site or fissile materials disposition facility. Ongoing efforts will include shelf-life studies, surveillance, core technology, and EM Nuclear Materials Stewardship activities. The program will end when EM no longer has custody of nuclear materials.

# **C. STRATEGIES AND PRIORITIZATION**

## **1. Environmental Restoration Project**

The LANL ER Project's approach to implementing the corrective action process uses a modified version of the DOE's streamlined approach. This approach incorporates elements of data quality objectives, risk assessment, and EPA's Superfund Accelerated Cleanup Model to facilitate the rapid cleanup of potential release sites. Both the technical approach and decision logic are tied to the NMED's regulations and guidance. For any given site, the ultimate objective of the approach is to reach a point at which no further action is necessary, other than the appropriate LTSM. Site-specific land use assumptions and exposure scenarios are considered in establishing preliminary remediation goals and media cleanup standards, as well as in risk assessments, to estimate the reduction of risk that could be realized by a potential corrective action. Target risk and dose levels are set following NMED and DOE guidance.

As a planning assumption, the ER Project expects to either have no action on or will cap in place about 85 % of the approximately 300,000 cubic meters of contaminated media currently estimated to be in place at LANL. The majority of this waste is located in a number of Material Disposal Areas (MDAs) located throughout the site. The corrective action approach uses an engineered barrier with vadose zone monitoring. This approach appears to be the most feasible, protective, and cost-effective remediation alternative for the majority of these MDAs. Certain large, complex MDAs, which are located near population centers or near canyon rims, will be fully evaluated for remediation alternatives. The 300,000 cubic meters is mostly LLW (200,000 cubic meters) with about 4,400 cubic meters being TRU (located at TA-21 and TA-49). The remaining waste will be transferred to the WM Program for final disposition with the majority of it likely to be disposed of on-site as LLW. (See the LANL ER Baseline Disposition Map in Attachment 3.)

## **2. Waste Management Program**

LANL will manage newly generated waste as follows:

- LANL is the first DOE site certified to ship TRU waste to WIPP. Characterization, certification, and shipment of defense TRU waste to WIPP will continue in support of ongoing LANL mission requirements. Non-defense TRU waste will be stored and disposed after DOE develops a capability for non-defense TRU waste disposal.
- Disposal of solid LLW and treatment of liquid LLW will continue in support of ongoing mission requirements.
- Management of hazardous waste will continue in support of ongoing LANL mission requirements.
- Upstream treatment and waste minimization practices to reduce and stabilize wastes will be continually incorporated as part of waste management practices.

Legacy and newly generated TRU waste will be shipped to WIPP for disposal. MLLW will be shipped to off-site treatment and disposal facilities that are permitted to receive mixed waste. These may be either commercial facilities that have both a RCRA permit and radioactive materials license, or RCRA-permitted DOE treatment and disposal facilities. After treatment, about two-thirds of the waste will be disposed of at an off-site DOE facility; the remainder will likely go to commercial disposal facilities. (See the LANL LLW, MLLW, and TRU Baseline Disposition Maps in Attachment 3.)

## **3. Nuclear Materials and Facility Stabilization Program**

LANL will develop plutonium stabilization technology and provide technical support to other sites with EM nuclear materials through the use of the LANL TA-55 plutonium facility and staff, along with technical resources from throughout the DOE Complex.

LANL is a Defense Programs landlord site with most site operations performed under cost-plus-award-fee prime contracts. However, AL has vigorously pursued opportunities to change contracting mechanisms for LANL EM projects. Recent changes to AL's contracting approach at LANL include negotiating changes to performance measures within existing LANL contracts to focus on EM Program results rather than activities. In addition, LANL awarded three task ordering agreements for ER projects in early FY 1998. Under these agreements, LANL will award tasks on a firm-fixed-price basis whenever feasible and appropriate.

Table LANL1 shows major activities on the critical path for closure of the LANL EM Program.

## D. SCOPE, COST, AND SCHEDULE

### 1. Environmental Restoration Project

The scope of the LANL ER Project encompasses RCRA corrective actions, corrective actions under DOE Orders, decommissioning, RCRA closures, and associated project wide technical support, program and information management. LANL has identified 2,120 potential release sites. These sites are on private property, county property, Forest Service land, and National Park Service land, as well as DOE property. As of September 30, 1997, 1,370 sites have been proposed for no further action (NFA), 190 have been recommended to NMED, and NMED has issued a Notice of Determination for 110 of the sites. Three sites have been approved by NMED through a permit modification. Those requiring remediation will be completed as shown in Table LANL1. These sites will be reviewed in the future for ecological water quality and air quality impacts, which are expected to be minimal. Although this document contains resources for ongoing surveillance and maintenance beyond 2008, it is anticipated that responsibility for these activities will be turned over to the site landlord at that time.

The ER Project's lifecycle cost estimate in the original 1994 baseline exceeded \$3 billion. Through implementation of efficiency enhancements and refined cost estimating based upon increased knowledge, the project brought this lifecycle estimate down to just over \$1 billion in the current baseline.

Fiscal Year	Number of Cleanups Completed
1998	24
1999	20
2000	94
2001	93
2002	101
2003	76
2004	79
2005	57
2006	86
2007	76
2008	18

Table LANL1 . Remaining Cleanups by Fiscal Year

Activity	Scheduled Start Date	Scheduled Completion Date
<b>ER Project</b>		
Complete corrective measures	October 1, 1997	September 30, 2008
Complete canyons	October 1, 1997	September 30, 2008
Complete decommissioning	October 1, 1997	October 11, 2007
Complete material disposal areas	October 1, 1997	December 5, 2007
<b>WM Program</b>		
Transition WM operations to landlord	October 1, 1997	October 1, 1998
Ship new TRU waste to WIPP	October 1, 1998	ongoing
Dispose legacy MLLW off-site	October 1, 1997	September 30, 2004
Ship legacy TRU waste to WIPP	October 1, 2002	September 30, 2015
D&D of TRU facilities	September 30, 2015	September 30, 2017
<b>NMFS Program</b>		
Continuation of research and development until stabilization implementation completed	October 1, 1997	September 30, 2006
Continuation of core technology support during storage period	October 1, 1997	September 30, 2006

Table LANL2. LANL Critical Closure Path Activities

## 2. Waste Management Program

New and ongoing LANL Programs and projects generate waste at 33 technical areas, and this waste is treated, stored, and disposed by the WM Program. The newly generated waste project will:

- Characterize 1756 cubic meters of TRU waste to meet requirements for certification and shipment to the WIPP through FY 2006.
- Receive and dispose of 4,000 - 7,000 cubic meters of solid LLW annually.
- Collect and treat 20,000 cubic meters of liquid LLW annually.
- Manage 900 metric tons annually through FY 1999, 1,100 metric tons annually from FY 2000 to FY 2003, and 1,200 metric tons annually after FY 2004 of hazardous, chemical, PCB and some administratively-controlled wastes.
- Manage approximately 293 cubic meters of MLLW through FY 2006.
- Implement upstream treatment projects to reduce generation TRU waste, MLLW, LLW, and hazardous/chemical waste.

The legacy waste project will:

- Retrieve 4,640 cubic meters of TRU waste from earth-covered storage.
- Treat legacy TRU waste, including size reduction and repackaging, to reduce the total volume by as much as 2,000 cubic meters
- Certify 8,572 cubic meters of TRU waste and ship it to WIPP by the end of FY 2015.
- Store, characterize, treat and dispose of an estimated 637 cubic meters of MLLW by the end of FY 2004.

Projections of new waste volumes that will be managed are approximate and greatly depend upon which programs are assigned to LANL as well as actions taken to minimize the waste.

### 3. Nuclear Materials and Facility Stabilization Program

A research committee was chartered to: 1) assess the program outlined in the implementation plan, 2) formulate a research and development plan to address the technological and core program needs, and 3) prepare task statements defining the research and development work required to accomplish program objectives. LANL research and development activities are structured to implement the research and development plan. The plan is updated annually.

The reduction in the baseline costs after FY 2002 reflects the assumption that sites will have met their Defense Nuclear Facilities Safety Board 94-1 milestones and that efforts will focus on the ongoing aspects of the program.

The estimated escalated cost for FY 1997 through FY 2006 for all LANL EM projects is shown below:

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
<b>WM new</b>	2633 1	2668 3	4565 7	5425 5	6419 3	5616 0	5200 1	5323 2	5608 1	5728 2
<b>WM legacy</b>	2424 7	2812 7	1712 6	2383 9	2797 7	4293 7	4540 0	4995 5	5007 1	4808 5
<b>ER</b>	5015 4	5797 2	4892 4	6813 4	7413 4	7813 2	7697 8	7000 0	7000 0	7000 0
<b>NMFS</b>	0	1440 0	1301 0	1301 0	1451 0	1701 0	1501 0	1501 0	1501 0	1501 0

Table LANL3. LANL EM Projects Escalated Cost for FY 1997 - 2006 (\$000)

### E. REGULATORY COMPLIANCE

The WM Program manages all wastes in compliance with applicable regulatory requirements, including state and federal regulations under the RCRA and other legislation, permits, compliance agreements and orders, the National Environmental Policy Act, and DOE nuclear safety requirements. A Site-Wide Environmental Impact Statement is being prepared for LANL; waste management projects will be addressed by this document.

The primary drivers for completion of the ER Project are; LANL's permit for corrective action under the Hazardous and Solid Waste Amendments to the RCRA, RCRA Closure and UST, DOE Orders relating to radiation protection and health and safety, among others, and concerns that some stakeholders have about the potential for residual contamination of the environment having adverse effects in the future.

Since the New Mexico Environment Department has become the administrative authority over the project, they have questioned many of the assumptions that have gone into our baselines. They have raised uncertainties about assumptions with using caps as presumptive remedies for large disposal areas, risk-based decision making, site screening processes, methodologies for determining extent of contamination, and the use of industrial/institutional control exposure scenarios.

**F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

A key element in the successful implementation of LANL EM projects is close coordination of all activity with regulatory agencies, local and tribal governments, the public, and other stakeholders. This is accomplished through frequent meetings with the regulatory community and presentations to the public. By soliciting input from stakeholders, LANL EM projects are able to progress effectively with stakeholder support.

Throughout the planning process, the DOE has made this information available to the LANL Citizens' Advisory Board.

## URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

### A. OVERVIEW

The Uranium Mill Tailings Radiation Control Act (UMTRCA) directs DOE to perform remedial action to stabilize and control uranium mill tailings from inactive processing sites and associated vicinity properties where tailings were used in the foundations of inhabited or commercial buildings, as fill under paved streets, around utilities, or where tailings blew into open land surrounding mill sites. The UMTRCA designated 24 inactive mill sites, located in 10 states and on four Native American tribal lands, for remediation. The State of North Dakota has asked that its two sites be dropped from the program and DOE is in the process of delisting them. To fulfill its responsibilities under the UMTRCA, DOE has instituted the Uranium Mill Tailings Remedial Action (UMTRA) Surface and Groundwater Projects to ensure protection of human health and the environment from uranium mill tailings and related contamination at the designated sites.

Lifecycle costs for the UMTRA Groundwater Project are estimated at \$189 million from FY 1997 through FY 2011.

#### 1. UMTRA Surface Project

The purpose of the UMTRA Surface Project is to clean up contamination of soils and buildings at these properties and dispose of residual radioactive materials in accordance with Environmental Protection Agency (EPA) cleanup and disposal standards. The AL Environmental Restoration Division is responsible for the UMTRA Surface Project.

Total costs for the remainder of the UMTRA Surface Project, which ends in FY 1999, are \$149 million. Long-term care costs for disposal sites licensed under this project will be incurred by the Long-Term Surveillance and Maintenance Program (LTSM) and are included in the GJO/All Other Projects summary.

#### 2. UMTRA Groundwater Project

The purpose of the UMTRA Groundwater Project is to conduct compliance activities at the 22 former processing sites to bring groundwater contaminant levels into compliance with EPA groundwater standards. AL's Grand Junction Office (GJO) is responsible for the UMTRA Groundwater Project.

### B. END-STATE, FUTURE-USE AND STEWARDSHIP

Descriptions of end-states, future-use, and stewardship of processing sites, disposal sites, and vicinity properties are contained within site completion reports, LTSM plans, and other project documents.

#### 1. UMTRA Surface Project

The UMTRA Surface Project is forecast to be complete in 1999 and is planned to complete all remedial action construction in 1998 except for the Grand Junction disposal cell, Cheney. The scope for continued operation of the Cheney disposal cell and final closure and licensing will be transferred to GJO under the LTSM Program in April 1998. There will be 18 disposal cells, not including Cheney, licensed by the Nuclear Regulatory Commission (NRC) transferred to the GJO under the LTSM Program. The final site is forecast to be licensed and transferred in FY 1999.

The UMTRA Surface Project end-state will consist of 22 processing sites and over 5,000 vicinity properties certified "clean" by the NRC. The other 2 processing sites will be deemed

"No Action Sites" and will be removed from the UMTRCA site list. There will be 18 disposal cells licensed by the NRC transferred to the GJO under the LTSM Program. DOE will retain ownership of the disposal sites. Final disposition of other properties is determined on a site-specific basis.

## **2. UMTRA Groundwater Project**

Sites determined to require no groundwater remediation will be removed from the UMTRA Groundwater Project. These are sites where groundwater contamination does not exceed maximum concentration limits or background and sites where supplemental standards or alternate concentration limits have been applied. Sites utilizing passive groundwater remediation will be transferred to the LTSM Program for long-term monitoring after verification monitoring confirms concentrations are being reduced. Sites requiring active groundwater remediation will be retained in the UMTRA Groundwater Project until FY 2011, at which time they will be transferred to the LTSM Program. Presently, three sites are proposed for active remediation; nine are proposed for passive remediation, and the remaining ten are proposed for no action. Interim actions consisting of alternate water supplies have been initiated for some residences near the Riverton, Wyoming, millsite; near the former millsite at Monument Valley, Arizona; and the millsite west of Rifle, Colorado.

Upon completion of active remediation and compliance monitoring, groundwater will meet EPA standards. Several natural flushing sites will have institutional controls and periodic compliance monitoring under the LTSM program until contaminants are below EPA standards. The costs associated with long-term surveillance and maintenance are included in the LTSM Program which has been approved by DOE.

## **C. STRATEGIES AND PRIORITIZATION**

### **1. UMTRA Surface Project**

Tailings' remediation at each UMTRA site includes a remedial action plan approved by the NRC with the participation of the affected state and Tribal Nations, an environmental assessment or environmental impact statement, design/engineering, construction, preclosing custodial care, and licensing by the NRC. DOE plans to revoke the designation of the Belfield and Bowman, North Dakota, processing sites in 1998. No remedial action will be performed at these sites. Site completion reports and LTSM plans are submitted to the NRC for concurrence and licensing. After the disposal sites are licensed, they are transferred to the GJO LTSM Program, which will carry out the long-term care requirements of the sites' LTSM plans.

The scope for final closure and licensing of the Cheney disposal cell will be transferred to the GJO's LTSM Program.

### **2. UMTRA Groundwater Project**

The selected remedies for each site have not yet been determined. However, for cost-estimating and budget formulation, site-specific strategies have been assumed using present knowledge of the sites. The compliance strategy approaches are:

- **No Groundwater Remediation:** This alternative could be used at sites where groundwater contamination does not exceed maximum concentration limits or background levels or where supplemental standards can be applied.
- **Natural Flushing (passive groundwater remediation):** This alternative, which uses natural groundwater movement and geochemical processes to decrease contaminant concentrations, could be used at sites where compliance with EPA groundwater standards could be achieved within 100 years and institutional controls could be

implemented and maintained throughout the flushing period to ensure protectec human health and the environment. Criteria for use of natural flushing require that the contaminated groundwater is not a current or potential drinking water source.

- **Active Groundwater Remediation:** This alternative, which uses remediation methods such as gradient manipulation to redirect groundwater flow, groundwater extraction and subsequent treatment, and in situ treatment methods, could be used at sites where such methods are necessary to meet groundwater standards.

Table UMTRA1 shows critical path activities for both UMTRA projects.

Activity	Scheduled Start Date	Scheduled Completion Date
<b>Surface Project</b>		
Complete Naturita site remediation	ongoing	May 1998
Complete Maybell site remediation	ongoing	September 1998
Complete licensing of disposal sites	ongoing	September 1999
<b>Groundwater Project</b>		
Durango remedial action compliance strategy implementation.	November 2004	May 2007
Gunnison remedial action compliance strategy implementation.	August 2003	February 2007
Slick Rock remedial action compliance strategy implementation.	July 2004	July 2007
Naturita remedial action compliance strategy implementation.	November 2003	May 2007
Implementation of Tuba City and Monument Valley remedial actions	March 1999	January 2011

Table UMTRA1. UMTRA Projects Critical Closure Path Activities

Each of the sites listed, requiring compliance strategy implementations, are critical path for the UMTRA Groundwater Project. However, none of the sites are reliant on completion of any of the other sites.

The GJO/All Other Project Summary discusses GJO's overall contracting approach.

#### D. SCOPE, COST, AND SCHEDULE

##### 1. UMTRA Surface Project

Tailings' remediation has been completed at 20 of the 22 designated processing sites. In addition, 99 percent of vicinity properties within the communities or surrounding the processing sites with associated contamination have be remediated. The remaining two processing sites (Naturita and Maybell, both in Colorado) will be completed in 1998. At completion of the UMTRA Surface Project, a total of approximately 33 million cubic meters of contaminated material will have been placed into disposal cells. Prelicensing custodial care activities will be conducted at six sites awaiting licensing by the NRC. Completion of disposal site licensing and project close-out activities will be accomplished in FY 1999.

UMTRA Surface Project's award-winning Cost Reduction/Productivity Improvement Program has been credited with saving over \$75 million in environmental restoration costs through the project's 18-year life, including \$1.44 million in FY 1997.

## 2. UMTRA Groundwater Project

Each UMTRA Groundwater Project site is being characterized to determine which alternative(s) to use to eliminate or reduce health and environmental risks. The project baseline assumes proposed strategies contained in the Site Observational Work Plans will be implemented. Remaining remediations are listed in Table UMTRA2. The Tuba City, Monument Valley, and Shiprock sites are proposed for active remediation. The Rifle (two sites), Grand Junction, Riverton, Naturita, Slick Rock (two sites), Durango, and Gunnison sites are proposed for passive remediation. No further action is anticipated at the remaining 10 sites: Ambrosia Lake, Spook, Lowman, Lakeview, Mexican Hat, Canonsburg, Falls City, Green River, Salt Lake City, and Maybell. Interim actions consisting of alternate water supplies have been initiated for some residences near the Riverton, Wyoming, millsite and the millsite west of Rifle, Colorado.

Based on current scope, schedule, and budget targets, costs for FY 1997 through FY 2006 are estimated at \$127 million (Table UMTRA3). During the FY 1998 task order negotiation process, GJO went through a major restructuring effort to lower the costs of overhead functions. GJO is well-positioned to accelerate projects and reduce overall project lifecycle costs, if additional funding becomes available.

An example of specific enhanced performance initiatives that has already been implemented or planned for current project baselines is the \$200,000 reduction in UMTRA Groundwater Project costs in FY 1997 due to streamlining the process for completing Site Observational Work Plans and Environmental Assessments at two sites and expediting site characterization.

GJO anticipates additional UMTRA Groundwater Project lifecycle cost avoidances associated with scaling back active remedial action strategies to take advantage of (1) phasing the strategies, (2) simplifying operations to avoid long-term operational costs, (3) sharing costs with other stakeholders at one site, and (4) optimizing operations to reuse nitrates in the groundwater for fertilizer. GJO will continue to pursue enhanced performance opportunities. The GJO/All Other Projects Summary discusses GJO's cost baseline review methodology.

Fiscal Year	Number of Cleanups to be Completed
1999	1
2000	2
2001	0
2002	0
2003	2
2004	3
2005	1
2006	1
2007	5
2008	5
2009	1
2011-2015	3

Table UMTRA2. Remaining Cleanups by Fiscal Year

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Surface Project	72204	49160	27923	0	0
Groundwater Project	6132	5400	9582	13975	14608
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Groundwater Project	16000	16000	16000	16000	13945

Table UMTRA3. UMTRA Projects Escalated Cost for FY 1997 - 2006 (\$000)

## E. REGULATORY COMPLIANCE

DOE has prepared an Environmental Assessment with a Finding of No Significant Impact, in accordance with the National Environmental Policy Act for the proposed delisting of the Belfield and Bowman, North Dakota, processing sites from the UMTRCA.

UMTRA Surface and Groundwater Projects funding is managed to remain in full compliance with regulations, non-compliance issues are funded with secondary priority. There is no difference in compliance attainability presently between the baseline and enhanced baseline.

## F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

The UMTRA Surface and Groundwater Projects have a long history of actively seeking out stakeholder input. Affected states and tribal nations are active partners with DOE in project decisions. DOE also involves the public by making key decision documents available in public reading rooms and holding open meetings in communities near UMTRA sites.

GJO activities to-date to specifically involve stakeholders in the *AL Paths to Closure* planning process include: 1) issued the AL Summary and GJO Discussion Drafts to key stakeholders in July 1997 notifying stakeholders of public comment period, 2) held meeting with community ad hoc committee members, 3) held public meetings in Grand Junction, Colorado, in July 1997 and in Monticello, Utah, in August 1997 and 4) responded to public comments related to GJO projects and activities. The GJO will continue to involve stakeholders and interested parties in the refinement and implementation of *AL Paths to Closure*.

## **INHALATION TOXICOLOGY LABORATORY**

### **A. OVERVIEW**

The Inhalation Toxicology Laboratory (ITL), previously referenced as the Lovelace Respiratory Research Institute (LRRRI), is a private medical research institute in Albuquerque, New Mexico, that performs work for DOE under a cooperative agreement. The AL Office of Environment/Project Management has responsibility for overseeing EM activities at ITL. This project covers the ITL waste management program, which manages a variety of wastes generated from ongoing DOE research activities. The ITL environmental restoration program was developed to remediate nine sites which had contamination from past operations in support of DOE research on toxic inhalants. Although all the sites have been cleaned up, monitoring and surveillance of the sites are necessary to support closure and monitor the reduction of nitrates in groundwater via natural attenuation.

The current DOE/ITL Cooperative Agreement is for the period FY 1997 through FY 2002 with an option to renew. Assuming the cooperative agreement continues to be renewed, indefinitely, the escalated lifecycle cost for the ITL Project from FY 1997 through 2070 is estimated to be \$34 million. AL does not anticipate that the ITL Project will realize any future enhancements.

### **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

ITL will continue to manage hazardous, low-level radioactive, mixed, transuranic, and non-hazardous biomedical wastes generated from ongoing DOE research activities under the DOE/ITL Cooperative Agreement for the period of FY 1997 through FY 2002. If the renewal option is exercised, the waste management program will continue.

The ITL environmental restoration end-state is a completely cleaned site with no surveillance and monitoring activities required.

### **C. STRATEGIES AND PRIORITIZATION**

The objective of the ITL waste management program is to manage waste from DOE-funded activities in an efficient and environmentally sound manner. On-site waste treatment will include compaction, solidification, and simple neutralization. Wastes will be transferred to off-site DOE and commercial facilities for final disposition; no waste will be disposed on-site. (See LRRRI WM Baseline Disposition Map in Attachment 3.)

Monitoring and surveillance of the nine remediated sites are required under current closure plans and will include monitoring of groundwater, soil, and air. Monitoring of groundwater will be in accordance with a state-approved discharge plan and monitoring requirements. Nitrate contamination in groundwater at the ITL site is slightly above the cleanup level set by the State of New Mexico. Natural attenuation of the nitrates is expected to reduce levels below the cleanup standard.

The waste management program is primarily a level-of-effort support activity and critical closure path analysis cannot be readily applied to it; groundwater monitoring is the critical environmental restoration activity. Funding for this project is provided through a cooperative agreement rather than a standard contracting vehicle.

**D. SCOPE, COST, AND SCHEDULE**

The ITL waste management program manages relatively small quantities of hazardous, low-level radioactive, mixed, transuranic, and non-hazardous biomedical wastes generated from ongoing DOE research activities in an efficient and environmentally sound manner. ITL will continue to manage waste from DOE research as long as a DOE mission continues to exist under the cooperative agreement.

By the end of FY 1997, all surface contamination cleanup levels have been achieved and all contaminated soil shipped off-site. Environmental restoration is completed with the exception of long-term surveillance and maintenance. Monitoring will last until cleanup levels have been achieved for a minimum of eight consecutive quarters.

Estimated cost for the ITL Project for FY 1997 through FY 2006 is \$5.8 million (Table ITL1).

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
<b>Cost</b>	1,670	748	556	510	510	510	510	510	510	510

Table ITL1. ITL Project Escalated Cost for FY 1997 - 2006 (\$000)

**E. REGULATORY COMPLIANCE**

ITL waste will be managed in compliance with all applicable federal and state regulations. All release site closures at the ITL are pending regulatory approval. The New Mexico Environment Department is the primary regulator for groundwater monitoring activities.

**F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION**

*AL Paths to Closure* describes AL's stakeholder involvement and comment disposition process.

## **SOUTH VALLEY SUPERFUND SITE**

### **A. OVERVIEW**

The South Valley Superfund Site is located in the south valley of Albuquerque, New Mexico. The AL Environmental Restoration Division has DOE responsibility for this remediation project. Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the DOE was identified as a potentially responsible party for soil and groundwater contamination at this privately owned site. DOE, along with the U.S. Air Force and General Electric (GE), entered into a settlement agreement to reimburse GE for environmental restoration services performed at the site in accordance with the CERCLA Record of Decision. Under the settlement agreement, DOE's liability is 43 percent of the cost for remediation.

GE is responsible for project management, planning, and execution with approval by EPA, EPA Region VI with input from the New Mexico Environment Department and the City of Albuquerque, is the prime regulator. DOE has maintained active participation with GE in cleanup activities.

The DOE, in conjunction with the Air Force and the Department of Justice, are currently pursuing an administrative buy out from the settlement agreement. Negotiations to date have determined that the best course of action is to seek a short term buy out until 2003 (same time as an EPA 5-year review) with stipulations that negotiations will resume at that time to seek a permanent, long-term buy out. If negotiations fail, DOE will be responsible for all unpaid past costs as well as future costs.

In a separate action, the DOE, Air Force, and GE are working with the EPA to determine a reasonable amount for past EPA response costs. The current bill given to the three potentially responsible parties is \$7.8 million. DOE involvement is expected to end in FY 2010 with total escalated lifecycle costs for FY 1997 through FY 2010 estimated to be \$8.5 million.

Compared with the AL Summary, there are no significant differences in this document with the exception of FY 1998 budget reductions, which will not impact the current mission. The project will not realize any enhancements at this point-in-time.

### **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

Groundwater will be cleaned up to the most stringent drinking water standards from either the EPA or the New Mexico Environment Department. Soil has already been cleaned up to EPA risk-based levels.

DOE does not have future-use decisions at this site and does not own any land or facilities. Future-use decisions and stewardship are the responsibility of GE and other land owners in the area.

### **C. STRATEGIES AND PRIORITIZATION**

The current strategy is to continue to operate groundwater remediation systems and monitor groundwater quality. Eventually, the shallow groundwater treatment system will dewater the shallow aquifer and the residual soils in the zone will be sampled. This sampling is expected to confirm the 1993 decision for No Further Action for soil-vapor extraction on solvent-contaminated soils.

Discussions between affected parties will continue to reach the administrative buy out, which is expected in FY 1998. Key cost estimates and other provisions have already been agreed upon, but some smaller issues remain unresolved. Negotiations with the EPA over past response costs will continue, including a proposed audit of EPA's accounting system for the South Valley site.

#### D. SCOPE, COST, AND SCHEDULE

The remaining scope is operation and maintenance of installed groundwater remediation systems and monitoring and surveillance of system performance as well as site-wide groundwater quality.

The DOE does not maintain a baseline for this project. The DOE, however, has extensively participated in GE's development of a baseline and approves GE's cost estimates on a yearly basis according to the Settlement Agreement. In 1991, the DOE mandated that GE develop a baseline (which it had not until that point) or it would not approve the cost estimates. Since that time, GE has maintained a baseline. DOE's portion of the cost for this project for FY 1997 through 2006 is expected to be \$2.5 million (Table SV1).

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
Cost	379	1405	483	496	500	523	537	551	566	581

Table SV1. South Valley Project Escalated Cost for FY 1997 - 2006 (\$000)

At this time, no enhanced performance (through technology application) is required, but options may be looked at in the future if current remediation systems do not achieve cleanup goals.

#### E. REGULATORY COMPLIANCE

Compliance is required with CERCLA and state regulations. All requirements of the two Records of Decision have been achieved as well as all applicable state regulations.

#### F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

The South Valley project has followed the CERCLA process regarding the involvement of state regulators, the public, and other stakeholders. All stakeholder activities for this project are the responsibility of GE.

The *AL Paths to Closure* Executive Summary describes AL's stakeholder involvement and comment disposition process. Two comments were received on the AL Summary that related to the South Valley Project. Both comments dealt with the groundwater remediation effort which is GE's responsibility.

## OTHER AL PROJECTS

### A. OVERVIEW

The AL Office of Environment/Project Management has responsibility for several EM projects not covered in other summaries. These projects are covered by two Project Baseline Summaries: the New Mexico Agreement-in-Principle (NM AIP) and AL Miscellaneous Projects.

The escalated lifecycle cost for AL Miscellaneous Projects from FY 1997 through FY 2006, is estimated at \$45 million. AL does not anticipate these projects will realize any future enhancements.

#### 1. *New Mexico Agreement-in-Principle*

The NM AIP provides funding through a DOE grant for the support of the New Mexico Environment Department's (NMED) oversight and monitoring of environmental management activities at DOE facilities in New Mexico. The primary objectives of the AIP are: (1) to assess the DOE's compliance with existing laws including regulations, rules, and standards; (2) to participate in prioritization of cleanup and compliance activities at DOE facilities; (3) to develop and implement a vigorous program of independent monitoring and oversight; and (4) to communicate with the public for the purpose of increasing public knowledge of environmental matters concerning facilities to include coordination with Tribal Nations.

Assuming the AIP remains in place, indefinitely, the escalated lifecycle cost for the NM AIP Project from FY 1997 through FY 2070 is estimated at \$100 million.

#### 2. *Miscellaneous Projects*

Within the AL EM program, there are various programs which are covered under a single Project Baseline Summary. These programs include:

- a. The Norfolk State University Center for Materials Research (NSU), the Waste Management Education and Research Consortium (WERC), and the Historically Black Colleges (HBCU) and Universities/Minority Institutions Environmental Technology Consortium (ETC) are national programs established to develop and conduct programs in education and technology development and applications to solve human resource needs and technology issues related to the management of nuclear, hazardous, mixed and solid wastes faced by government and industry.
- b. The Innovative Treatment Remediation Demonstration (ITRD) Program is a national program to help accelerate the adoption and implementation of new and innovative remediation technologies. This program attempts to reduce many of the classic barriers to the use of new technologies by involving government, industry, and regulatory agencies in the assessment, implementation, and validation of innovative technologies. In this program, DOE facilities work cooperatively with EPA, industry, national laboratories, and state and federal regulatory agencies to establish remediation demonstrations using applicable innovative technologies at their sites. Selected innovative technologies are used to remediate small sites to generate the full-scale and real-world treatment performance and cost data needed to validate these technologies and gain acceptance by industry and regulatory agencies.
- c. The Nuclear Criticality Predictability Program (NCPP) has identified analytical methods, including modeling codes and processed nuclear data, as key elements. Criticality safety practices requires that transport computer codes, coupled with qualified nuclear data, be utilized to calculate system multiplication factors, establish margins of subcriticality, calculate subcritical measurements, and determine radiation fields

for criticality alarms. The objectives of this project include: (1) maintenance of production analytical capability; (2) training and assistance in the use of the LARAMIE system; (3) code and data remediations to reduce analytical uncertainties; (4) validation of new methods and data; and (5) technical support to DOE in the planning and conduct of its NCPP.

## **B. END-STATE, FUTURE-USE AND STEWARDSHIP**

### **1. New Mexico Agreement-in-Principle**

NMED oversight activities will continue for the duration of DOE environmental management activities at DOE facilities in New Mexico to assure continuing public confidence in the DOE's efforts to protect public health and the environment and ensure worker safety.

### **2. Miscellaneous Projects**

The NSU, WERC, and ETC projects will be completed by the end of FY 2001. The ITRD program will end when all sites have been remediated or when there is no longer a need for innovative remediation technology. The NCPP program will continue as long as there is a research and development need.

## **C. STRATEGIES AND PRIORITIZATION**

### **1. New Mexico Agreement-in-Principle**

The NMED will continue activities under the AIP to assure the citizens of the State of New Mexico that public health, safety, and the environment are being protected through existing programs, DOE's compliance with applicable laws, including rules, regulations, and standards; substantial new commitments by DOE; prioritization of cleanup and compliance activities; and a program of independent monitoring and oversight by the State.

### **2. Miscellaneous Projects**

These projects help ensure that the DOE's EM Program needs for trained personnel and innovative technologies are met. Support from these projects will continue as long as there is a need.

The projects covered in this summary are primarily support activities and critical closure path analysis cannot be readily applied to them. Funding from these projects is provided through grants and the AIP rather than standard contracting vehicles.

## **D. SCOPE, COST, AND SCHEDULE**

### **1. New Mexico Agreement-in-Principle**

NMED employees supporting AIP activities are located on-site at DOE facilities in Los Alamos and Albuquerque and at the NMED in Santa Fe. NMED will continue oversight activities under the AIP to assure the citizens of New Mexico that public health, safety, and the environment are being protected and informed in accordance with the objectives of the AIP. FY 1997 was the seventh year that the State of New Mexico has provided oversight activities at DOE facilities. Estimated cost for the NM AIP Project for FY 1997 through FY 2006 is \$13.5 million (Table ALO1).

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
Cost	2141	1969	1969	1579	1500	1425	1425	1425	1425	1425

Table ALO1. NM AIP Project Escalated Cost for FY 1997 - 2006 (\$000)

## 2. Miscellaneous Projects

The NSU, WERC, and ETC programs include 27 educational institutions across the United States that collaborate with two national laboratories and more than 45 industrial partners. The scope of activities involves education, research and technology transfer, and partnering. The NSU current cooperative agreement is scheduled for completion at the end of FY 1999; the WERC cooperative agreement in February 2001; and the ETC cooperative agreement at the end of FY 2001.

The ITRD program interfaces with the DOE, EPA, industry, and the states to generally establish technical advisory and performance evaluation groups for each remediation demonstration, recommend personnel for these groups, coordinate assessment of suggested innovative technologies, coordinate and manage performance and cost evaluations, and disseminate treatment technology assessment data after review and release by DOE. ITRD activities will include the initiation of two innovative remediation projects during the target year, and the completion of two projects from the prior fiscal year through FY 2006. Current planning assumes this program will end in FY 2006.

EM commitments are to support the acquisition of nuclear data and the maintenance of analytical methods. Three laboratories contribute to the NCPP: Los Alamos National Laboratory, Oak Ridge National Laboratory, and Argonne National Laboratory. Each provides unique and complimentary capabilities and expertise in support of NCPP objectives. This project, in close coordination with the other major program elements, strives to ensure continuation of DOE excellence in nuclear criticality safety. Current planning assumes this program will end in FY 2006.

Estimated annual costs for the AL Miscellaneous Projects for FY 1997 through FY 2006 are shown in Table ALO2.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
Cost	11794	13101	2864	3041	2410	2445	2480	2515	2250	2290

Table ALO2. AL Miscellaneous Projects Escalated Cost for FY 1997 - 2006 (\$000)

## E. REGULATORY COMPLIANCE

The NMED will continue compliance oversight activities for EM activities at DOE New Mexico facilities as needed and as funding of the AIP is provided.

## F. STAKEHOLDER INVOLVEMENT AND COMMENT DISPOSITION

The *AL Paths to Closure* Executive Summary describes AL's stakeholder involvement and comment disposition process

### III. SUMMARY OF ISSUES

#### GENERAL

- The New Mexico Environment Department (NMED) and DOE have not yet reached agreement on final approval criteria and review timeframes to finalize closure of various cleanup actions at SNL and LANL. NMED is also in the process of developing fee regulations. These fee regulations are intended to allow NMED to acquire the resources necessary for timely review of deliverables and permit actions. As drafted, the fee regulations will have a budget impact on AL's New Mexico sites. However, the resources will assist NMED in meeting the newly developed environmental stewardship vision. The vision has been agreed to by DOE, LANL, SNL, EPA, and NMED. It reads as follows: "We will complete all environmental restoration and stabilization efforts and ensure long-term maintenance and monitoring programs are in place at all New Mexico DOE facilities by 2006, SNL by 2001, and LANL by 2006. Legacy waste, identified for removal, is shipped for permanent disposal. Effective waste minimization/pollution prevention programs are in place. These completions are cost-effective, approved, and comply with applicable regulations, ensure acceptable risk, and are implemented in a trust and partnership manner with the regulatory agencies and with public participation for the communities of New Mexico."

#### LOS ALAMOS NATIONAL LABORATORY

- A strategy to optimize characterization was finalized in April 1997 and is under review by a regulator. Lessons-learned during canyon characterization will be applied to future canyon work in order to maximize potential streamlining. A focused assessment of the canyons, with optimal use of existing data and implementation of EPA's data quality objectives process, will facilitate timely and cost-effective decisions. LANL is currently working with the pueblos and regulators to ensure that this approach achieves the goals of the corrective action process.
- DOE and NMED have not reached agreement on either the requirements to be included in an NFA proposal or a standard plan. Therefore, only 14 percent of the sites that DOE states are complete have been formally recognized by NMED.
- NMED has not agreed to a specific time period for review of regulator documents. *AL Paths to Closure* assumes a nine-month regulatory review/approval process as a key planning assumption.

#### SANDIA NATIONAL LABORATORIES

- There is a backlog of regulatory documents awaiting review at NMED. SNL has provided a priority list of these documents to NMED along with a schedule of need. A response from NMED is pending.

#### SANDIA NATIONAL LABORATORIES AND LOS ALAMOS NATIONAL LABORATORY

- The ecorisk requirements have not yet been established by NMED, therefore NFA proposals will continue to have uncertainty in their acceptability.

#### GRAND JUNCTION OFFICE

- The planned completion date for the UMTRA Groundwater Program at the Shiprock, NM, site of 2012 is incorrect. The date should be changed in the PBS to 2011.

- The planned assessment date of October 1997 is incorrect for the Spook, WY, UMTRA Groundwater Program site and should be changed to May 1997 in the next update.

## **IV. ATTACHMENTS**

- Attachment 1. AL Project Baseline Summaries Reference Sheet**
- Attachment 2. AL FY 1999 Integrated Priority List**
- Attachment 3. AL Waste Disposition Maps**
- Attachment 4. AL Technology Deployment Management Plan Outline**
- Attachment 5. Glossary of Terms**
- Attachment 6. List of Acronyms**
- Attachment 7. February 1998 Draft AL Paths to Closure Comments/Responses**

**ATTACHMENT 1. AL PROJECT BASELINE SUMMARIES REFERENCE SHEET**

<b>PBS ID</b>	<b>Project</b>
AL0529	Albuquerque Operations Office – Miscellaneous Programs
AL0123	South Valley Superfund Site
AL0465	New Mexico Agreement-in-Principle
AL0125	Inhalation Toxicology Laboratory
AL0466	Kansas City Plant Environmental Restoration
AL0467	Nuclear Materials & Facility Stabilization Program
AL0562	LANL Environmental Restoration
*AL0471	LANL Newly Generated Waste Management
AL0472	LANL Legacy Waste Management
AL0473	Pantex Plant Environmental Restoration
*AL0593	Pantex Plant Waste Management
*AL0134	SNL Waste Management
AL0135	SNL Environmental Restoration
AL0136	Pinellas Plant Close-out & Administrative Activities
AL0475	UMTRA Surface Project
AL0138	Maxey Flats Field Management
AL0476	Monticello Superfund Sites
AL0477	UMTRA Groundwater Project
AL0478	Grand Junction Office – All Other Projects
AL0479	Pinellas Plant Groundwater Restoration

\*Projects will be transferred to Defense Programs beginning in FY 1999.

## ATTACHMENT 2. AL FY 1999 INTEGRATED PRIORITY LIST

Priority Ranking	PBS ID	Project	Sub-project
1	AL0125	Inhalation Toxicology Laboratory	Newly generated waste management
2	AL0136	Pinellas Plant Close-out & Administrative Activities	Project close-out activities, post-employment benefits and pension
3	AL0475	UMTRA - Surface Project	UMTRA Surface site closures, site licensing, project close-out activities
4	AL0125	Inhalation Toxicology Laboratory	Groundwater monitoring
5	AL0478	GJO/All Other Projects	RUST contract close-out
6	AL0476	Monticello Projects	Millsite remediation, repository construction, and restoration
7	AL0476	Monticello Projects	Complete remedial action reports, groundwater restoration
8	AL0476	Monticello Projects	State grant, independent verification, air monitoring and environmental reporting
9	AL0123	South Valley Superfund Site	Payments to General Electric
10	AL0138	Maxey Flats Field Management	Payments to the Maxey Flats Steering Committee
11	AL0479	Pinellas Plant Groundwater Restoration	Operation & maintenance of groundwater restoration systems
12	AL0466	KCP Environmental Restoration	Environmental restoration activities
13	AL0478	GJO/All Other Projects	Long-Term Surveillance and Maintenance Program
14	AL0473	Pantex Plant Site Remediation	Environmental restoration base program
15	AL0473	Pantex Plant Site Remediation	Multiple site activities
16	AL0135	SNL Environmental Restoration	Corrective Action Management Unit, Chemical Waste Landfill, project management & technical support
17	AL0562	LANL Environmental Restoration	Environmental Restoration base program, decommissioning, closures, technical support & management
18	AL0562	LANL Environmental Restoration	Field Units 2, 3, & 5: field management, canyons assessment
19	AL0478	GJO/All Other Projects	GJO facility management, uranium

Priority Ranking	PBS ID	Project	Sub-project
			leasing base program, waste operations, waste minimization
20	AL0477	UMTRA Groundwater Project	UMTRA Groundwater base program
21	AL0478	GJO/All Other Projects	GJO Remedial Action Project base program
22	AL0472	LANL Legacy Waste Management	Recover TRU & place into inspectable storage, store, characterize & dispose of MLLW
23	AL0467	Nuclear Materials & Facility Stabilization Program	Ongoing plutonium stabilization research & development
24	AL0135	SNL Environmental Restoration	Corrective action Foothills, Tijeras Arroyo, Central Coyote, TA-35
25	AL0562	LANL Environmental Restoration	Field Units 1 & 4: continue remedial actions at TA-21
26	AL0562	LANL Environmental Restoration	Field Units 1 & 4: continue remedial actions and assessments at TA-21
27	AL0562	LANL Environmental Restoration	Field Units 2, 3 & 5: TA-15, TA-16, TA-36, TA-39, TA-46, TA-49, TA-50, TA-54, Area F, and townsites
28	AL0135	SNL Environmental Restoration	Remediation of SNL California fuel oil spill
29	AL0562	LANL Environmental Restoration	Field Units 2,3 & 5: townsite investigation, well installation, TA-3 remedial actions, decommissioning of TA-21, material disposition
30	AL0472	LANL Legacy Waste Management	Characterization of recovered TRU waste to meet state regulations
31	AL0562	LANL Environmental Restoration	Field Units 1 & 4: decommissioning at TA-21 & TA-33
32	AL0562	LANL Environmental Restoration	Field Units 1 & 4: decommissioning at TA-33
33	AL0135	SNL Environmental Restoration	SNL/NM TA-2, canyons
34	AL0562	LANL Environmental Restoration	Field Units 1 & 4: decommissioning at TA-33
35	AL0529	AL Miscellaneous Programs	Innovative Technologies Remediation Demonstration
36	AL0465	New Mexico Agreement-in-Principle	Funding to State of New Mexico for regulatory support
37	AL0529	AL Miscellaneous Programs	Innovative Technologies Remediation Demonstration
38	AL0472	LANL Legacy Waste Management	Prepare and ship additional legacy

Priority Ranking	PBS ID	Project	Sub-project
			TRU to WIPP
39	AL0562	LANL Environmental Restoration	Field Units 2,3 & 5: close-out and decommissioning activities
40	AL0529	AL Miscellaneous Programs	Grants to universities for environmental programs

LLW, low-level waste; MLLW, mixed low-level waste; TRU, transuranic waste

Waste Management Activities for LANL, SNL, and Pantex, expected to transfer to Defense Programs in FY 1999, have been removed.

**ATTACHMENT 3. AL WASTE DISPOSITION MAPS**

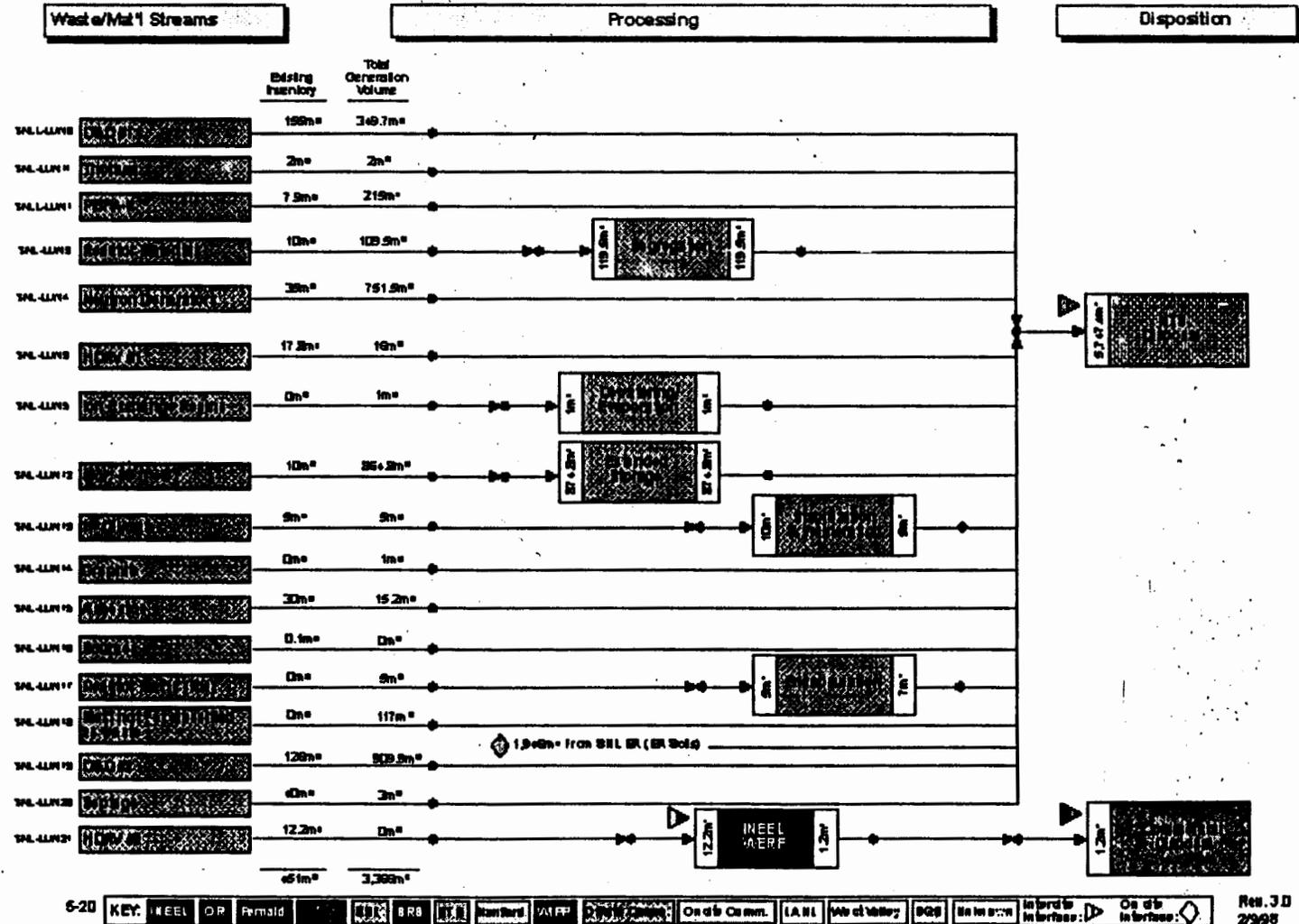
AL sites have prepared preliminary baseline disposition maps for most of their waste management and environmental restoration waste streams. The waste disposal paths identified in these disposition maps are for planning purposes only, pending disposition decisions.

Baseline disposition maps are included for the following wastes:

1. SNL low-level waste
2. SNL mixed low-level waste
3. SNL transuranic waste
4. SNL environmental restoration waste
5. LANL low-level waste
6. LANL mixed low-level waste
7. LANL transuranic waste
8. LANL environmental restoration waste
9. ITL (previously referenced as LRRI) low-level waste, mixed low-level waste, and transuranic waste
10. KCP environmental restoration waste
11. Pinellas Plant environmental restoration waste
12. Pantex Plant low-level and mixed low-level waste
13. Pantex Plant environmental restoration waste
14. GJO environmental restoration waste
15. Monticello environmental restoration waste
16. UMTRA groundwater environmental restoration waste

### SNL LLW Baseline Disposition Map

PREDECISIONAL DRAFT

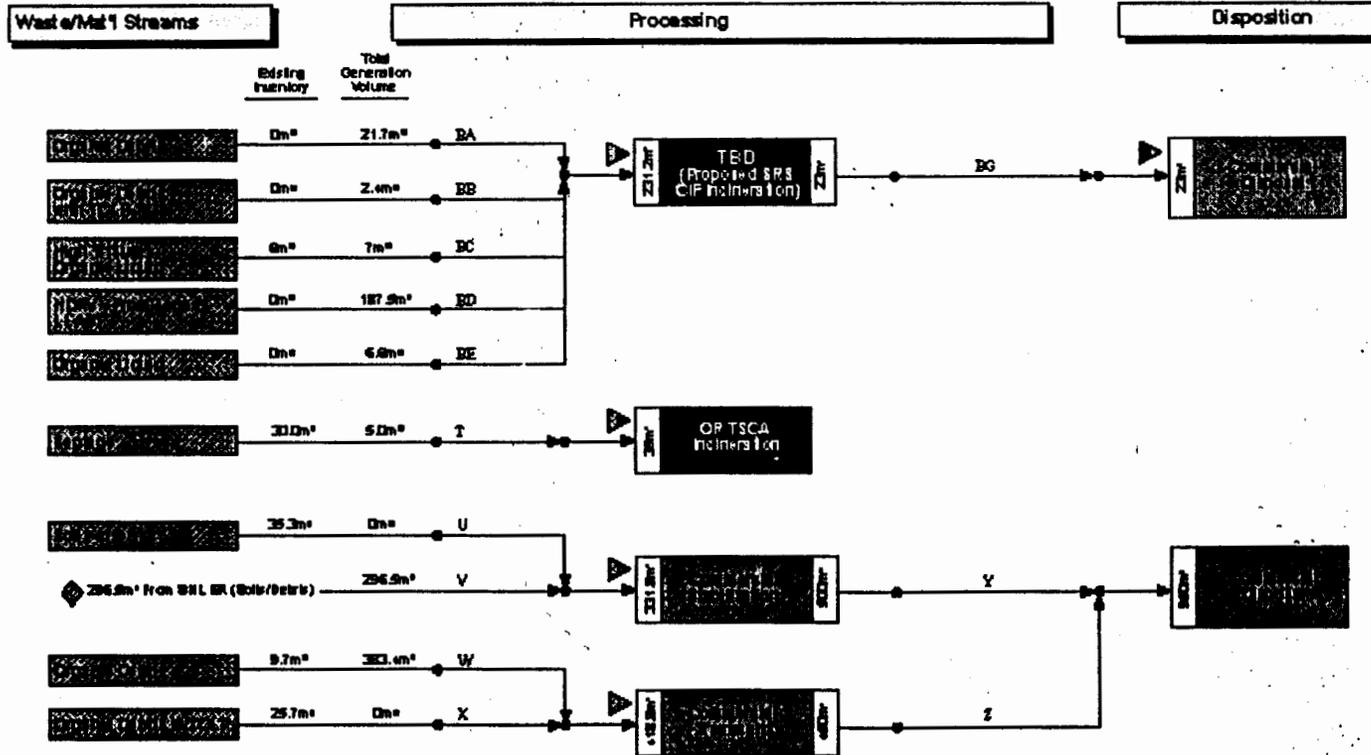


This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/published/maps.html>)



SNL MLLW Baseline Disposition Map (Page 2 of 2)

PREDECISIONAL DRAFT



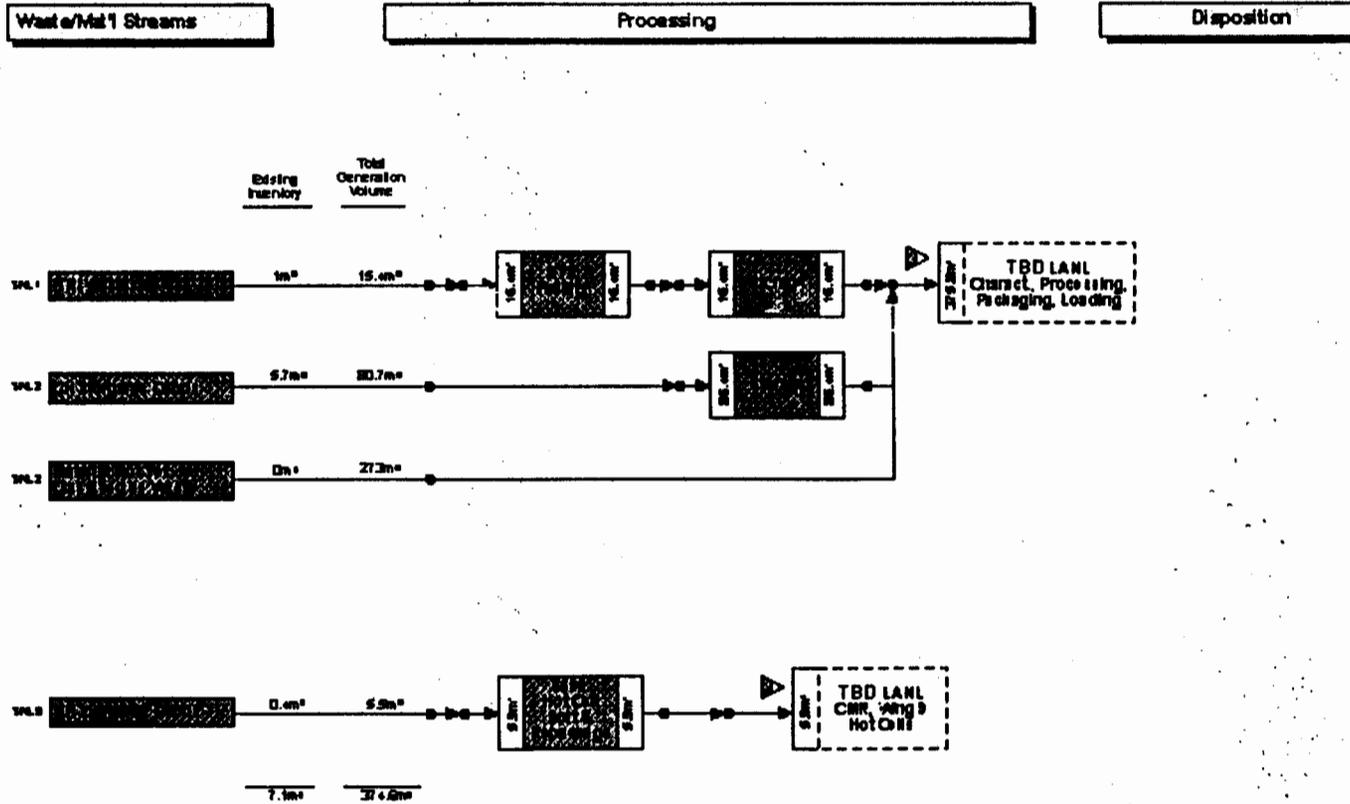
3-212 KEY: REEL OR Permit SRB SRS SRS/MSR WIPP On-Off Comm. LA RI Wycl Valley SRS Un known Inerts Interface On-Off Interface Res. 3.0 1/27/98

Letters in blue are link identifiers

This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/publishedmaps.html>)

### SNL TRU Baseline Disposition Map

PREDECISIONAL DRAFT

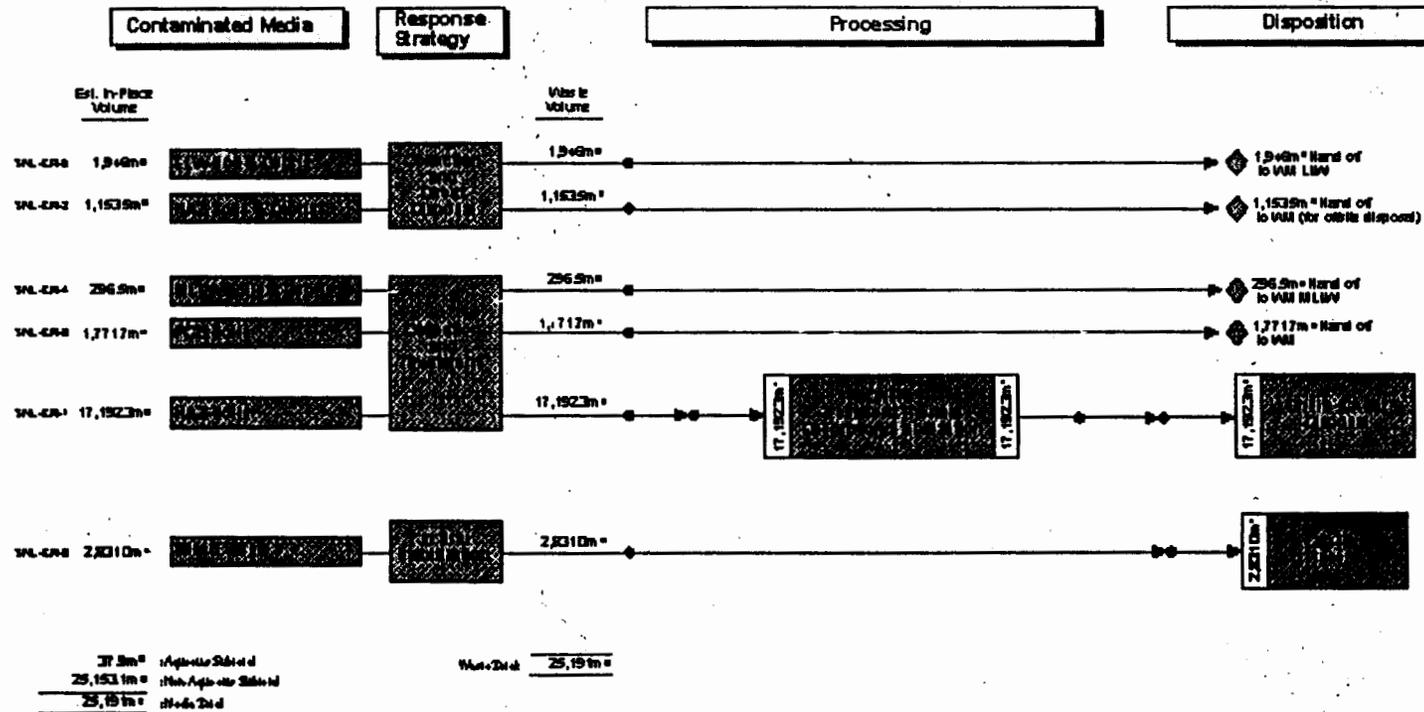


1-15 KEY: NEEL OR Fermid BPE [Icons] On to Comm. LANL W of Valley SGE [Icons] In [Icon] In [Icon] On to In [Icon] Rev. 3.0 12.0297

This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/published/maps.html>)

### SNL ER Baseline Disposition Map

PREDECISIONAL DRAFT



**Notes:**

<b>LLS:</b>	Seal = 1,128.0m³	<b>MLL:</b>	Seal = 32.0m³	<b>HSL:</b>	Seal = 939.2m³	<b>HSL (CMU):</b>	Seal = 11,192.3m³	<b>HSL (CMU):</b>	Seal = 3,113.7m³
Liquid = 0.0m³									
Substr = 43.9m³	Substr = 230.0m³								
Seal/Substr = 1.0m³									
Soil/Substr/PED = 0.0m³									
Sledge (Sept. Aggr) = 11.2m³									
<b>TOT AL: 1,946.0m³</b>	<b>TOT AL: 256.5m³</b>	<b>TOT AL: 1,153.5m³</b>	<b>TOT AL: 1,771.7m³</b>	<b>TOT AL: 17,192.3m³</b>	<b>TOT AL: 2,821.0m³</b>	<b>TOT AL: 17,192.3m³</b>	<b>TOT AL: 17,192.3m³</b>	<b>TOT AL: 1,771.7m³</b>	<b>TOT AL: 2,821.0m³</b>

\*Under RCRA, waste that is not managed in accordance with RCRA is not considered "generated". However, waste that is not managed in accordance with RCRA is not considered "generated".

1-28

KEY: INTEL OR Remediation BRB [Icons] On d to Comm. LABEL Work Order PDS [Icons] On 45 Interface

Rev. 3.0  
1/21/96

This map is conceptual and in many cases does not represent cleanup or transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/published/maps.html>)

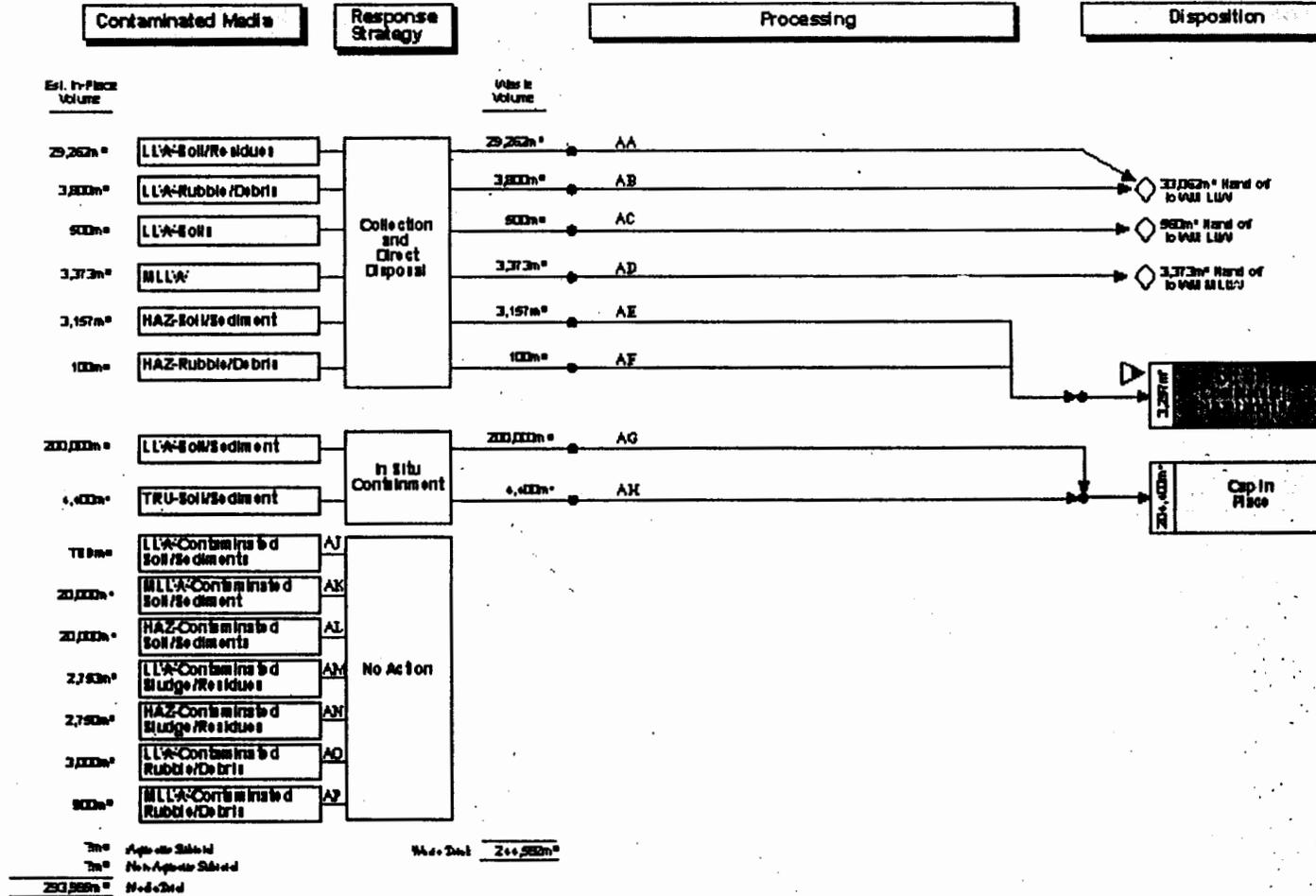






# LANL ER Baseline Disposition Map

PREDECISIONAL DRAFT



1-13 KEY: INEEL OR Fermat [Icons] On the Comm. LANL West Valley [Icons] On the Interface: [Icons]

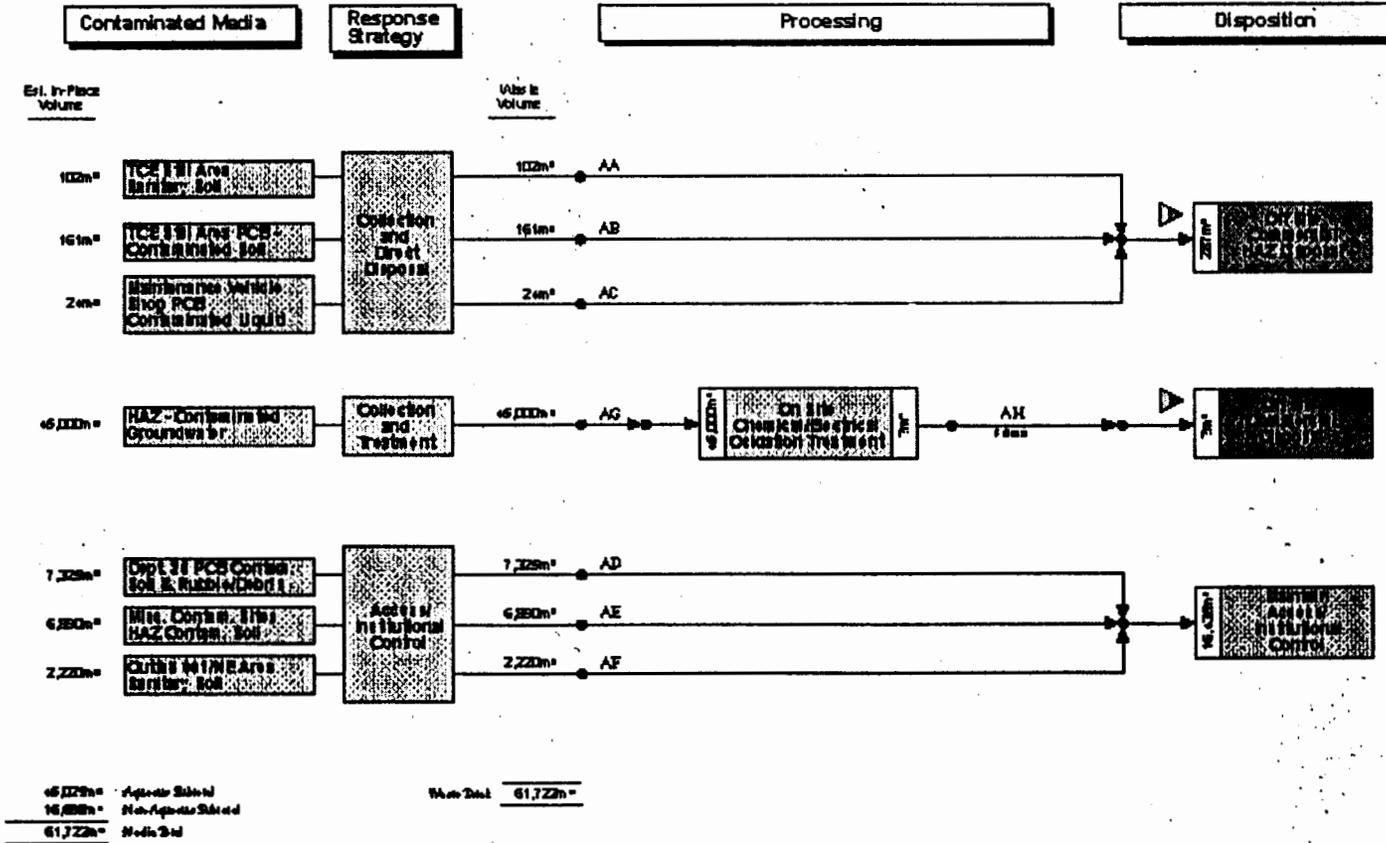
Rev. 3.0 2/98

This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.ineel.gov/publishedmaps.html>)



### Kansas City ER Baseline Disposition Map

PREDECISIONAL DRAFT



7-12 KEY: [Icons for EEL, OP, Female, etc.] [Icons for various media types] [Icons for processing and disposition stages] Rev. 3.0 12/16/97

Letters in blue are link identifiers

This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/publishedmaps.html>)

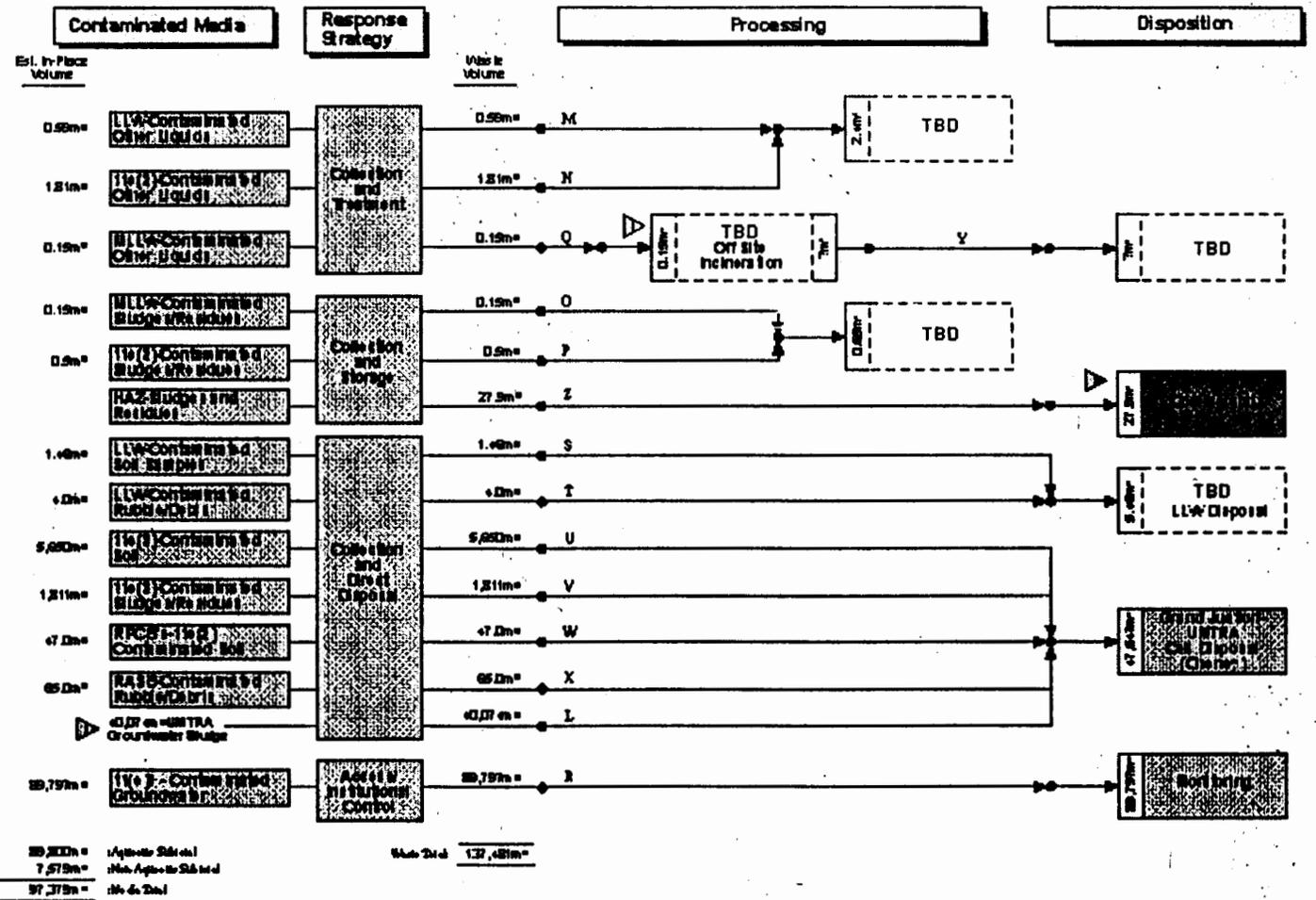






### Grand Junction ER Baseline Disposition Map

PREDECISIONAL DRAFT



T-9 KEY: INEL OP Fermat [Icons] On-site Comm. LANL West Valley EQS Minimax Inland Interface OI 88 In Interface  
 Res. 3 D 2/998  
 Letters in blue are link identifiers

This map is conceptual and in many cases does not represent cleanup of transfer decisions; this map does not preclude the ongoing regulatory and stakeholder decision-making processes. All Baseline Disposition Maps have been changed to add this caveat and are currently on the EMI Home Page (<http://infoshare.inel.gov/published/vmaps.html>)





**ATTACHMENT 4. AL TECHNOLOGY DEPLOYMENT MANAGEMENT PLAN OUTLINE****FOREWORD**

- 1.0 Objective and Scope
  - 1.1 Overview (Technology Deployment at AL, Site Technology Coordination Group, Area Office, Plants, and Laboratories)
  - 1.2 Objective (identify and assess opportunities and issues related to deployment of technologies that meet the objectives of *AL Paths to Closure* and the AL Strategic Plan)
  - 1.3 Scope of Technology Deployment (National and AL Office of Science & Technology Environmental Restoration, Waste Management, and Science Programs)
- 2.0 Potential Opportunities for Deployment of New Technologies
  - 2.1 Identification and Schedule of Key Technology Deployments
  - 2.2 Summary of *AL Paths to Closure* Tables O.9.1 and O.9.3
  - 2.3 Office of Science & Technology Linkage Tables
- 3.0 Management Strategy
  - 3.1 Management Actions (technology needs-matching, Site Technology Coordination Group support)
  - 3.2 Roles and Responsibilities (customer involvement)
- 4.0 Site Approach to Enhancement of Technology Development
  - 4.1 Technology Development, Environmental Restoration, Waste Management Coordination of Resources
  - 4.2 Technology Development, Environmental Restoration, Waste Management Technology Assessment and Selection
  - 4.3 Multi-Agency Information/Opportunities
  - 4.4 Cost-Savings Methodology
- 5.0 Barrier Reduction
  - 5.1 Institutional
  - 5.2 Financial
  - 5.3 Performance Data
  - 5.4 Regulatory
- 6.0 Key Information Requirements
  - 6.1 Technology Maturity
  - 6.2 Efficacy
  - 6.3 Cost
  - 6.4 Applicability

**ATTACHMENT 5. GLOSSARY OF TERMS**

**Advisory committee.** Any committee, board, commission, council, conference, panel, task force, or other similar group, or any subcommittee or other subgroup thereof, established by statute; or established or utilized by the President or any agency official for the purpose of obtaining advice or recommendations on issues or policies that are within the scope of his/her responsibilities.

**Agreement-in-principle.** An agreement between the Department of Energy and a state that describes commitments by the Department to fund certain activities, generally environmental oversight, monitoring, site access, and emergency response initiatives performed by the state at a facility.

**Alpha particle.** A positively charged particle emitted during decay of certain radioactive elements. Alpha particles are the least penetrating of the three common forms of ionizing radiation (alpha, beta, gamma). They can be stopped by a sheet of paper or the skin but are harmful if inhaled or ingested. An alpha particle is indistinguishable from a helium nucleus and consists of two protons and two electrons.

**Aquifer.** A geologic formation or structure capable of yielding water in usable quantities.

**Assessment.** A determination of a project's condition made by reviewing cost, schedule, technical issues, and performance against objectives, regulatory requirements, and baseline project plans.

**Atomic Energy Commission (AEC).** Entity created by Congress in 1946 as the civilian agency responsible for producing nuclear weapons; it also researched and regulated atomic energy. In 1975, its weapons production and research activities were given to the Energy Research and Development Administration, while its regulatory responsibilities were handed over to the newly formed Nuclear Regulatory Commission. The Energy Research and Development Administration became the Department of Energy in 1977.

**Baseline.** A quantitative expression of planned costs, schedules, and technical requirements for a defined project. Baselines should include criteria to serve as a standard for measuring the status of resources and the progress of a project.

**Burial grounds.** An area for near-surface disposal in soil or shallow rock used for low-level radioactive, chemical, hazardous, or other waste, and obsolete or contaminated equipment.

**Characterization.** The collection and analysis of information needed to define the hazardous material in an area or storage tank, such as planning, sample collection, laboratory analysis, collection of field data, statistical analyses, and reporting.

**Closure reports.** Documentation in support of the plan prepared to guide the deactivation, stabilization, and surveillance of a waste management unit or facility under RCRA.

**Compliance agreement.** A legally binding agreement between regulators and regulated entities that sets standards and schedules to meet the requirements of environmental statutes. Also called a consent order, Federal facility agreement, and Federal facility compliance agreement.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).** A Federal law enacted in 1980 that governs the cleanup of hazardous, toxic, and radioactive substances. The act and its amendments created a trust fund, commonly known as Superfund, to finance the investigation and cleanup of abandoned and uncontrolled hazardous waste sites. Under this act, the Department conducts remedial investigations and feasibility studies to determine the sources and extent of contamination and ultimately the cleanup alternatives.

**Consent Order.** See compliance agreement.

**Contamination.** The presence of unwanted hazardous or radioactive matter at levels that present potential safety and health risks to the public, site workers, or facility occupants; or render some portion of the environment unsuitable for use.

**Cooperative Agreement.** An assistance agreement whereby a Federal agency (e.g., the Department of Energy) transfers money, property, services, or anything of value to a state for the accomplishment of CERCLA-authorized activities or tasks.

**Decommissioning.** Activity that takes place after deactivation and includes surveillance and maintenance, decontamination, and/or dismantlement. These actions are taken to retire a facility from service while protecting workers, the public, and the environment.

**Decontamination.** The removal or reduction of radioactive or hazardous contamination from facilities, equipment, or soil by washing, heating, chemical or electromechanical action, mechanical cleaning, or other techniques to achieve a stated objective or end condition.

**Defense Nuclear Facilities Safety Board (DNFSB).** A group of five experts and staff, reporting directly to Congress, which is responsible for safety oversight of the Department's nuclear operations. Non-nuclear safety is self-regulated by the Department, but adheres to Occupational Safety and Health Administration requirements, per the Secretary's decree.

**Department of Energy.** The cabinet-level U.S. Government agency responsible for providing the technical information and scientific and educational foundation for the technology, policy, and institutional leadership necessary to achieve efficiency in energy use, diversity in energy sources, a more productive and competitive economy, improved environmental quality, and a secure national defense.

**Disposal.** Emplacement of waste in a manner that ensures isolation from the biosphere for the foreseeable future, signifies no intent to retrieve it, and requires deliberate action to assess it.

**Enforceable milestones.** The important or critical events that occur in the project cycle to achieve objectives stipulated in an enforceable agreement.

**Environmental Management (EM) program.** An office within the Department of Energy that was created in 1989 to oversee the Department's waste management and environmental cleanup efforts. Originally called the Office of Environmental Restoration and Waste Management, it was renamed in 1993.

**Environmental Protection Agency (EPA).** A Federal agency responsible for enforcing environmental laws, including the Resource Conservation and Recovery Act; the Comprehensive Environmental Response, Compensation and Liability Act; and the Toxic Substances Control Act. It was established in 1970.

**Environmental Restoration (ER).** A wide range of activities pertaining to cleanup such as stabilizing contaminated soil, pumping and testing groundwater; decommissioning process buildings, nuclear reactors, chemical separations plants, and many other facilities; and exhuming sludge and buried drums of waste.

**Feasibility study.** A study undertaken to develop and evaluate different options for cleaning up contamination. Feasibility studies usually are associated with remedial actions. See also CERCLA.

**Federal Facility Compliance Act (FFA).** The Federal act that requires the Department of Energy to develop and submit to states or the Environmental Protection Agency plans for developing mixed-waste treatment capacity and technologies.

**Fiscal year (FY).** The 12-month period extending from October 1 to September 30 that the Federal Government uses to plan its spending.

**Hazardous waste.** Waste that is regulated under RCRA Subtitle C. A solid waste or combination of solid wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in serious, irreversible, or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

**High-level waste.** The highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste and any derivative solid waste, that contains a combination of transuranic waste and fission products in concentrations requiring permanent isolation.

**Landlord activities.** Activities that involve the physical operation and maintenance of Department of Energy installations. Specific tasks vary but generally include providing utilities, maintenance, and general infrastructure for the entire installation.

**Legacy waste.** Any waste within a complex that was generated by past weapons production or research activities and is in storage awaiting treatment or disposal.

**Low-level waste.** Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel, or by-product material.

**Management and operating contractors (M&O).** One of three categories of general contractors who oversee and perform large-scale work activities for the Department of Energy. Management and operating contractors focus on operating and maintaining Department facilities, as well as managing the efforts of subcontractors.

**Mixed waste.** Waste that contains both radioactive and hazardous chemical components.

**National Environmental Policy Act (NEPA).** A Federal law, enacted in 1970, that requires the Federal Government to consider the environmental impacts of, and alternatives to, major proposed actions in its decision-making processes. The act is the basic national charter for the protection of the environment. It requires the preparation of an Environmental Impact Statement for every major Federal action that may significantly affect the quality of the human or natural environment.

**National Priorities List.** The Environmental Protection Agency's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under CERCLA (Superfund). The list is based primarily on the score a site receives from the Agency's Hazard Ranking System. The Agency is required to update the list at least once a year.

**No further action (NFA).** A determination made, based upon technical evidence, that remedial action is not warranted at a given site.

**No migration variance petition.** A process used to exempt a hazardous waste from land disposal prohibitions. The petition must show that there will be no movement of hazardous contaminants from a disposal unit during the time that the waste remains hazardous.

**Notice of noncompliance.** Notification by the EPA to a facility owner or operator that the owner/operator has failed to adhere to an agreement or a permit.

**Nuclear material and facility stabilization.** An EM subprogram that manages the transfer of responsibilities and facilities formerly belonging to the nuclear weapons program.

**Nuclear Regulatory Commission (NRC).** The Federal agency responsible for regulating the safety of commercial nuclear operations, including nuclear power plants and other commercial and medical uses of nuclear materials. See Atomic Energy Commission.

**Operable unit.** Term for a number of separate activities undertaken as part of a Superfund site cleanup. It may address geographical portions of a site, specific site problems, or initial phases of an action. In addition, it may consist of any set of actions performed over time or any concurrent actions that are performed in different parts of a site.

**Organic.** Chemical compounds that contain carbon and hydrogen; chemicals associated with living entities.

**Plume.** A three-dimensional area, usually in air or groundwater, containing measurable concentrations of a compound or element that has migrated from its source point.

**Plutonium.** A man-made fissile element. Pure plutonium is silvery metal heavier than lead. The plutonium-239 isotope is the variant preferred for manufacturing nuclear weapons, although any plutonium can be used. Plutonium-239 has a half-life of 24,000 years.

**Polychlorinated biphenyls.** More commonly known as PCBs. A family of colorless, odorless compounds used in industrial applications throughout the nuclear weapons complex. Polychlorinated biphenyls are found in many gaskets and large electrical transformers and capacitors in gaseous diffusion plants. They have proven to be toxic to both humans and laboratory animals. Polychlorinated biphenyls are noted for their flame retardance and thermal stability.

**Privatization.** A contracting approach wherein contractors shoulder the risks and rewards associated with providing goods and services. Instead of using government-provided facilities and services, contractors use their own facilities and equipment to accomplish work.

**Public participation.** The process by which the views and concerns of the public are identified and incorporated into the DOE's decisionmaking. Public participation includes identifying public concerns and issues; providing information and opportunities for the public to assist the Department in identifying environmental management-related issues and problems, and in formulating and evaluating decision alternatives; listening to the public; incorporating public concerns and input into decisionmaking; and providing feedback on how decisions do or do not reflect input received.

**Pump-and-treat system.** A system that extracts groundwater and removes contaminating substances before returning the water (e.g., recharge in injection wells) or disposing of it elsewhere.

**Radioactive waste.** Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and is of negligible economic value considering recovery costs.

**Radioactivity.** The spontaneous emission of radiation from the nucleus of an atom. Radionuclides lose particles and energy through this process.

**Radionuclide.** A radioactive species of an atom. Tritium, strontium-90, and uranium-235 are radionuclides.

**Radon.** A chemical element, atomic number 86, that is a radioactive gas produced by the decay of one of the daughters of radium.

**Release site.** A location at which a hazardous, radioactive, or mixed waste release has occurred or is suspected to have taken place. Release sites usually are associated with areas where hazardous, radioactive, mixed waste, or waste-contaminated substances have been used, treated, stored, migrated, and/or dispositioned.

**Rem.** Roentgen equivalent man. Unit used in radiation protection to measure the amount of damage to human tissue from a dose of ionizing radiation.

**Remedial action.** Steps taken to clean up inactive sites and facilities that were contaminated by past activities.

**Remedial investigation.** The process of gathering data necessary to determine the nature and extent of contamination at a CERCLA site, establishing criteria for cleaning up the site, identifying preliminary alternatives for remedial action, and supporting the technical and cost analyses of the alternatives. The remedial investigation usually is done together with the feasibility study.

**Remediation.** The process of cleaning up a site where a hazardous substance has been released.

**Resource Conservation and Recovery Act (RCRA).** A Federal law enacted in 1976 to address the treatment, storage, and disposal of hazardous waste.

**Risk.** Probability of an event multiplied by the quantitative consequences.

**Risk assessment.** Qualitative and quantitative evaluation designed to define the hazards posed to human health and/or the environment by the presence or potential presence of and exposure to specific contaminants. Risk assessment is performed in conjunction with remedial investigations at CERCLA sites.

**Safety Analysis Report.** A report that assesses safety conditions at a nuclear facility to ensure that the facility can be constructed, operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws and regulations.

**Site-Specific Advisory Board.** A committee tasked with providing advice on the Environmental Management program's environmental restoration, waste management, and technology development activities. The board also provides input and recommendations on Environmental Management strategic decisions that affect future-use, risk management, economic development, and budget prioritization activities.

**Site Treatment Plan.** The Department of Energy's strategy, required by the Federal Facility Compliance Act, for treating mixed waste at each of its sites, nationwide.

**Stakeholder.** Anyone interested in or affected by DOE activities. Stakeholders have varying levels of involvement in the Environmental Management program and varying levels of expertise.

**Superfund.** A term commonly used to refer to the Comprehensive Environmental Response, Compensation and Liability Act.

**Surplus facility.** A facility or site (including installed equipment) that has no identified programmatic use; it may or may not be radioactively contaminated to levels that require controlled access.

**Surveillance and maintenance.** Activities to monitor a facility or area through regular inspections and data gathering to ensure that safety and stability are maintained; to identify changes that need to be made; and to maintain operability of structures, systems, and components required to preserve safety.

**Tailings.** Solid wastes produced from primary processing of ores.

**Toxic Substances Control Act.** This act was enacted in 1976 to protect human health and the environment from unreasonable risk caused by exposure to or the manufacture, distribution, use, or disposal of substances containing toxic chemicals. For example, under this act, any hazardous waste containing more than 50 parts per million of polychlorinated biphenyls is subject to regulation.

**Transuranic waste (TRU).** Waste that is contaminated with alpha-emitting transuranium radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay. Most transuranic waste was created in the nuclear weapons production process. The category transuranic waste does not specify source or form. It contains hazardous constituents regulated under RCRA Subtitle C.

**Treatment.** Any method, technique, or process designed to change the physical or chemical character of waste to render it less hazardous; make it safer to transport, store, or dispose of; or reduce its volume.

**Tri-Party Agreement.** A compliance agreement signed by three parties: DOE, the Environmental Protection Agency, and state. See also compliance agreement.

**Uranium.** The basic material for nuclear technology. Uranium is a slightly radioactive, naturally occurring heavy metal that is more dense than lead. It is a heavy, silvery-white metallic element with an atomic number of 92. Uranium is 40 times more common than silver.

**Uranium Mill Tailings Radiation Control Act.** This act, passed in 1978, directed the DOE to stabilize and control uranium mill tailings from inactive sites in a safe and environmentally sound manner to minimize radiation health hazards to the public. The act authorized the Department to undertake remedial actions at 24 designated inactive uranium processing sites and at approximately 5,000 vicinity properties. The Uranium Mill Tailings Remedial Project was created to handle the cleanup.

**Uranium Mill Tailings Remedial Action Project (UMTRA).** The world's largest materials management project ever undertaken to reduce or eliminate risk to the general public from exposure to potentially hazardous and radioactive materials. This project details the responsibility for encapsulating and isolating almost one-fourth of all the uranium mill tailings generated across the entire United States (more than 44 million cubic yards).

**Uranium mill tailings.** The sand-like materials left over from the separation of uranium from its ore. More than 99 percent of the ore becomes tailings.

**Uranium milling.** The process of separating uranium from mined ore.

**Vadose zone.** The unsaturated soil zone. An area above the water table where soil pores are not fully saturated, although some water may be present. It is located vertically between the land surface and the surface of the saturated zone (i.e., the water table).

**Vanadium.** A metallic transition element that is soluble in strong acids and bases, melts at 1,900°C and boils at around 3,000°C, and commonly is used as a catalyst.

**Variance.** Government permission for a delay or exception in the application of a given law, ordinance, or regulation.

**Vicinity properties.** Real property in the vicinity of a radioactive materials processing site that have become radioactively contaminated as a result of site activities.

**Volume reduction.** Various methods of waste treatment, such as evaporation for liquids or compaction for solids, aimed at reducing the volume of waste.

**Voluntary corrective measures.** Remedial actions at a site that are completed outside of a RCRA- or CERCLA-mandated action but may be subject to third-party oversight.

**Waste.** Material that has no identifiable future-use for which suitable disposal must be found.

**Waste management.** Activities that include treating, storing, and disposing of a variety of materials, including high-level radioactive, transuranic, low-level radioactive, low-level mixed, hazardous chemical, and sanitary waste.

**Waste minimization.** An action that economically avoids or decreases the generation of waste by reducing its source, decreasing the toxicity of hazardous waste, improving energy usage, or instituting recycling. In addition, minimization efforts must reduce present and future threats to human health, safety, and the environment.

**Waste stream.** Waste (liquid, solid, or gas) leaving a facility or operation.

**ATTACHMENT 6. LIST OF ACRONYMS**

AAO	Amarillo Area Office
AC	Accelerated Cleanups
AL	Albuquerque Operations Office
AOC	Areas of concern
BLM	Bureau of Land Management
CAB	Citizens Advisory Board
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
D&D	Decontamination and Decommissioning
DOE	Department of Energy
DP	Defense Programs
EM	Environmental Management
EPA	Environmental Protection Agency
ER	Environmental Restoration
FY	Fiscal Year
GJO	Grand Junction Office
GJORAP	Grand Junction Office Remedial Action Project
GW	Groundwater
HSWA	Hazardous and Solid Waste Amendments
ICM	Interim Corrective Measures
ITL	Inhalation Toxicology Laboratory
ITRD	Innovative Treatment Remediation Demonstration
ITRI	Inhalation Toxicology Research Institute
KAO	Kirtland Area Office
KCP	Kansas City Plant
LANL	Los Alamos National Laboratory
LLW	Low-Level Waste
ITL	Inhalation Toxicology Laboratory
LTRM	Long-Term Radon Management
LTSM	Long-Term Surveillance and Maintenance
MF	Maxey Flats
MLLW	Mixed Low-Level Waste
NFA	No Further Action
NM AIP	New Mexico Agreement-in-Principle

NMFS	Nuclear Materials Facility Stabilization
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
PBS	Project Baseline Summary
PX	Pantex Plant
RAMROD	Radioactive Materials Research, Operation, and Demonstration Facility
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigations
RSRP	Radioactive Source Recovery Program
SNL	Sandia National Laboratories
SWMU	Solid Waste Management Units
TNRCC	Texas Natural Resource Conservation Commission
TRU	Transuranic Waste
TRUPACT	Transuranic Waste Package Transporter
ULM	Uranium Lease Management Program
UMTRA	Uranium Mill Tailings Remedial Action
UST	Underground Storage Tank
UMTRCA	Uranium Mill Tailings Radiation Control Act
WCRRP	Waste Characterization, Reduction, Repackaging Facility
WERF	Waste Experimental Reduction Facility
WM	Waste Management

**ATTACHMENT 7**  
**FEBRUARY 1998 DRAFT AL PATHS TO CLOSURE COMMENTS/RESPONSES**

#	Comment	Response
1.	<p>I am responding to the copy of the subject report sent to Joseph Holonich of the U.S. Nuclear Regulatory Commission, Uranium Recovery Branch. We have only a couple of minor comments:</p> <p><b>Page 57, Section A (Overview) -</b> The description of vicinity properties (VPs) is too narrow. VP sites include not only those types described, but also encompass areas where tailings were used as fill, such as under paved streets and railroad lines, and buried with utility lines. (<i>Charlotte Abrams for J. Holonich - NRC Uranium Recovery Branch</i>).</p>	<p>Agree. Text was revised accordingly.</p>
2.	<p><b>Page 59, Table UMTRA1 -</b> Adjust the scheduled milestones for licensing of the Naturita and Maybell sites to January 1999 and April 1999, respectively. By letter of March 11, 1998 (G. Rael, DOE, to J. Holonich, NRC), the DOE, Albuquerque Operations Office informed the NRC that the construction completion report for the Naturita site would not be submitted to NRC until September 1998 and licensing should be completed by January 1999. The construction completion report for the Maybell site is scheduled for January 1999 and licensing of that site now scheduled for April 1999. (<i>Charlotte Abrams for J. Holonich - NRC Uranium Recovery Branch</i>).</p>	<p>No change to Table UMTRA 1. Your understanding of the end dates are correct. The guidance issued to prepare this plan, however, is to use information from the Project Baseline Summary, dated January 1998. It is necessary to use this information in order to issue this document. The dates show in the table were correct in that time frame, and as you pointed out, have evolved since then.</p>
3.	<p>Some minor editorial comments: <b>Executive Summary -</b> For the stakeholder, the various initialisms/acronyms should be defined when mentioned the first time (e.g., KCP in parentheses after Kansas City Plant, LANL after Los Alamos National Laboratory). (<i>Charlotte Abrams for J. Holonich - NRC Uranium Recovery Branch</i>).</p>	<p>Stakeholders are invited to reference the list of acronyms and the glossary of terms. These attachments were specifically designed to assist our stakeholders with the interpretation of acronyms and key terms.</p>
4.	<p><b>Page 13, Figure 4 -</b> Due to the reduction of the pie chart's explanation, it is difficult to distinguish the different categories in the chart. (<i>Charlotte Abrams for J. Holonich - NRC Uranium Recovery Branch</i>).</p>	<p>Text was revised to provide clarification.</p>
5.	<p><b>AL Specific Assumptions, Page 4</b></p> <p>A. What is the basis for the assumption that "Regulatory agencies will</p>	<p>In general, it is necessary to identify key planning assumptions within the project. This enables us to define the cost associated with the work scope and define a schedule by which we hope to complete the work scope. These planning assumptions were included in the AL Paths to</p>

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	<p>have sufficient resources to act in a timely manner so that there will not be significant adverse impacts on scheduled actions"? It is unrealistic to assume that regulatory agencies, specifically the New Mexico Environment Department, will have the resources to take timely action on all DOE/NM submittals. Also, how does DOE define "timely manner"? The previous "2006 Plan" assumed a 3 month review process, which was unrealistic. (David Neleigh, EPA Region 6).</p> <p>B. The assumption that "Ongoing characterization of release sites will not reveal remediation issues that will result in significant increase in scope" may be invalid. What about sites that have yet to be characterized? (David Neleigh, EPA Region 6).</p>	<p>Closure so that a dialogue and understanding of those key planning assumptions could be initiated. The planning assumptions as well as work scope, cost estimates, and schedule, will be updated or revised as new information becomes available, and pending decisions are made. Additional specifics are provided below to further address the comment:</p> <p>A. <i>AL Paths to Closure</i> has been revised to be more specific on the referred-to assumption. The Sandia Environmental Restoration (ER) project was revised to use review times of nine months in FY 1999 and six months in FY 2000. Los Alamos National Laboratory was revised to assume a four-month review time. These review times appear reasonable, based upon current review times and the anticipation of implementation of this fee regulation.</p> <p>B. Both SNL and LANL use cost contingencies to minimize the impact of potential scope increases. If significant changes to the planning assumptions occur, then the cost, schedule, and scope contained in the project baselines would be modified to reflect the change, and additional budget pursued through the appropriate processes.</p>
6.	<p><b>Waste Disposition, Page 8 (also, Attachment 3).</b> What about on-site treatment of wastes prior to off-site disposal? Attachment 3 (which is very difficult to read) shows that incineration may take place prior to disposal. Will this incineration be done on-site, or will it be completed at a commercial facility? It is EPA's understanding that incineration was not permitted within Bernalillo County. (David Neleigh, EPA Region 6).</p>	<p>We will attempt to provide clearer copies within the document. No change to the data in the disposition maps was made. As new information evolves, the maps will be updated. All planned incineration is for off-site at either commercial or DOE facilities. No incineration is planned at any current DOE-AL sites.</p> <p>It is recognized that the LLW Disposition Map for SNL is in error regarding SNL-LLW13 and should have read "Stabilization &amp; Oxidation". This will be corrected in the next version of the Disposition Maps, which will be available to you on the internet site concurrent with the first update of the document.</p>
7.	<p>The 2008 date that LANL has targeted for completion of the environmental restoration (ER) program is achievable. However, LANL</p>	<p>No change to <i>AL Paths to Closure</i>. Comment acknowledged. LANL and DOE/AL have established separate technical and peer review</p>

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	needs to ensure that they perform quality investigations and submit quality reports and workplans. Past performances in the ER program have generally not met those standards. <i>(David Neleigh, EPA Region 6).</i>	processes, which will be utilized to ensure that all documents submitted for regulatory action are of sufficient quality. LANL will also follow guidance recently issued by NMED on document format and content, and will continue to interact with NMED on a monthly basis to ensure that the administrative authority receives adequate information for decision-making.
8.	Page 50; Overview (from the Albuquerque Summary) - DOE states that "groundwater remediation will not be necessary at LANL." EPA disagrees with this assumption, as many sites are inadequately characterized so that the need for groundwater remediation cannot be determined at this time. This issue is of particular importance in the LANL canyons, which drain runoff from the contaminated mesa sites. LANL has not adequately characterized contamination in the shallow groundwater and surface waters of the canyons, as NMED has only recently approved the Canyons Core Workplan. <i>(David Neleigh, EPA Region 6).</i>	Text revised. The LANL assumptions in <i>AL Paths to Closure</i> were modified, and text was added to provide clarification regarding the various assumptions shown. LANL will continue characterization, and determine whether groundwater remediation is required, or if other actions, including groundwater monitoring, are appropriate. Should data indicate that groundwater remediation is necessary, the assumption will be revised, along with the project scope and cost
9.	EPA also disagrees with DOE's statement that "major sites such as the southern most canyons and many smaller material disposal areas will not require implementing the full corrective measures process." Although DOE has recommended No Further Action (NFA) for the solid waste management units (SWMUs) and potential release sites (PRSS) contained in the material disposal areas(MDAs), EPA has recommended further site characterization at the MDAs, and NMED has yet to approve NFA for any of these sites. <i>(David Neleigh, EPA Region 6).</i>	All canyons and material disposal areas (MDA) will be characterized. Generally, for the southern-most canyons, any required remediation will most likely be conducted under the voluntary corrective measures (VCM) format. For the smaller MDAs, it is planned for required remediation to be conducted under an expedited process, for example, a contingent removal action. LANL intends to engage NMED in exploring the potential for establishing high performing teams similar to those employed in CERCLA cleanups, which will lead to timely and cost-effective remediation without the use of the full CMS/CMI process.
10.	Lastly, EPA requests that DOE clarify the statement that "natural resource injury and cumulative impacts can be evaluated and mitigated within the scope of this plan." <i>(David Neleigh, EPA Region 6).</i>	DOE has developed an integrated Environmental Restoration and Natural Resource Damage Assessment process, under which risks to human health and the environment are considered, simultaneously. It is generally assumed that this process, which is included in the scope of the ER project, will satisfactorily address all natural resource injuries and cumulative impacts.

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#	Comment	Response
11.	<p>Page 52; Last paragraph (from the Albuquerque Summary) - The LANL document <i>Risk-Based Corrective Action Process</i> (LA-UR-96-2811) has not been approved by the Administrative Authority. EPA has repeatedly commented that the use of the Multiple-Chemical Evaluation (MCE) and the misapplication of Preliminary Remediation Goals (PRGs) does not follow EPA guidance. EPA believes that the misapplication of the MCE and PRGs to Phase I investigation results often eliminates contaminants of concern from further investigation before the extent of contamination has been delineated. (David Neleigh, EPA Region 6).</p>	<p>The Assumption in the <i>AL Paths to Closure</i> Document will indicate that the DOE will use a regulator-approved risk-based corrective action process. DOE acknowledges that the Administrative Authority has not approved the "Risk Based Approach to the Corrective Action Process" document. However, we are working with NMED to incorporate the technical points of the document into the 1998 update of LANL's installation Work Plan along with the recently presented process guidance from the NMED. We are currently no longer using MCEs in the screening process. We have worked with NMED to develop an acceptable screening approach, documented in NMED's position paper on Human Health Screening.</p>
12.	<p>Page 53; 2nd paragraph (from the Albuquerque Summary) - The document states that "The ER Project expects to either have no action or will cap in place about 85 percent of the approximately 300,000 cubic meters of contaminated media currently estimated to be in place at LANL". EPA believes that the 85 % number quoted for no action/capping is too optimistic. (David Neleigh, EPA Region 6).</p>	<p>Text was revised to provide clarification.</p>
13.	<p>Page 54; ER Project (from the Albuquerque Summary) - LANL states that 1370 out of 2120 SWMUs have been identified as requiring no further action; however, none of the NFA proposals have been approved by NMED. LANL has performed corrective action for nearly nine years and has yet to receive a no further action decision on any site. Verbiage should denote that NFA recommendations have been made by DOE for these sites, but have not been approved by the Administrative Authority. (David Neleigh, EPA Region 6).</p>	<p>Agree. <i>AL Paths to Closure</i> will be revised to reflect the following: A statement will be made that of the 1,370 sites proposed for no further action (NFA), 190 have been recommended to NMED, and NMED has issued a Notice of Determination for 110 of the sites. Three sites have been approved by NMED through a permit modification.</p>
14.	<p>Page 54, 2nd paragraph; ER Project (from the Albuquerque Summary) - Please explain the efficiency enhancements at LANL which will reduce the costs of the ER program from 3 billion to 1 billion dollars. (David Neleigh, EPA Region 6).</p>	<p>No change to the text in <i>AL Paths to Closure</i>. The following is clarification. In the early stages of the LANL ER project, a parametric approach was used to estimate the costs for conducting assessments and remediations. Generally, a "worst case" scenario was employed. As assessment results were obtained from implementation of Work Plans approved by EPA, it became apparent that the parametric estimates overstated the extent of required assessment and remediation. Detailed cost-estimates have been made, which have</p>

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		resulted in the reduction of the estimate of total project cost. Adoption of innovative technologies and process improvements have also resulted in cost reductions, particularly in the area of waste minimization. In addition, streamlined regulatory approaches will be used with the regulators' concurrence whenever possible to reduce costs as compared to the formal RCRA corrective action process.
15.	<b>Page 54; Table LANL 1</b> (from the Albuquerque Summary) - In this table LANL has a column titled "Number of Cleanups Completed" per fiscal year. What is LANL's definition of cleanup? <i>(David Neleigh, EPA Region 6)</i> .	Comment clarification. In the LANL1 table, the numbers represent the potential release sites for which No Further Action (NFA) recommendations will be made to the regulator by the end of the fiscal year.
16.	<b>End-State, Future-Use and Stewardship, Page 45</b> - The document states that future-uses have been agreed to by the Air Force, DOE, the Forest Service, and interested stakeholders. What groups are included as "interested stakeholders"? It is EPA's understanding that the NMED has not yet approved these future-uses. The document should therefore state that regulatory concurrence on these future-uses, as they relate to cleanup levels, has not been received. <i>(David Neleigh, EPA Region 6)</i> .	NMED is typically included in the definition of stakeholder, as they too have an interest.  DOE proposes land uses and exposure scenarios to NMED. NMED, as the Administrative Authority, approves exposure scenarios to be used in calculating residual risk provided in the risk assessment.
17.	<b>Section B. 1, ER Project, Page 45</b> - The document states that "Future land use designations are used to establish acceptable, risk-based remediation criteria." Again, these land use designations have not been agreed to by NMED. <i>(David Neleigh, EPA Region 6)</i> .	See response to previous comment, number 16.
18.	<b>Section D, Scope, Cost, and Schedule. 1. ER Project, Page 48</b> - The document states that "Of the original 228 potential release sites, only a few dozen remain to be closed." How does DOE define when a project is closed? It may be accurate to state that "...all but a few dozen remain to be proposed for No Further Action". But clearly, EPA and NMED have not granted closure (approved NFA requests) for 200 sites. <i>(David Neleigh, EPA Region 6)</i> .	Clarification is provided. For the Project Baseline Summary (PBS), DOE has defined "closed" as being submitted to the regulator for approval.
19.	The assumption listed on page 3 that WIPP will open in FY98 for shipments may not be valid. Both the RCRA application and Compliance Certification Application state that all TRU wastes are mixed with hazardous components. Before shipments may begin the DOE must	Please refer to general statement made as response to comment number 5.

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	obtain a State RCRA Part B permit as well as Federal approval of the Compliance Certification Application. If DOE fails to secure both regulatory actions in FY98, will the "Accelerating Cleanup: Paths to Closure" program be affected? Further, has the Carlsbad Area Office (CAO) reviewed and concurred on this document? <i>(David Neleigh, EPA Region 6).</i>	
20.	There is confusion between statements on page 5 and page 50. Page 5 states that the assumption of technology breakthroughs is insupportable. Page 50 still lists existing technologies as the means to handle and ship high wattage and high gas generating TRU wastes to WIPP. This assumption appears to be in conflict with the waste characterization program under review at this time. AL should confer with CAO to be certain that this assumption is valid. <i>(David Neleigh, EPA Region 6).</i>	Agree that the wording is very confusing. In the executive summary, we state that technological breakthroughs are not expected, and the current plan for disposing of TRU waste no longer counts on those breakthroughs to complete the work. This agrees with the statement in the LANL Summary that "existing technologies will be used to handle and ship high-wattage, high-gas-generating TRU waste to WIPP". Current technology can handle the problem, it just takes longer, and will be more expensive than the effort required if technology breakthroughs could be achieved. This is also consistent with the characterization program underway at CAO. Because we need to define cost and schedule, we have assumed that no technology exists at this point and time, this however, does not preclude our respective programs to work a parallel path to identify and deploy a technology which can help to resolve this issue, and thus save cost.
21.	<i>(Comment sent to H. Daneman and forwarded to DOE).</i> I am also upset with the inclusion of the statement you have made reference to. I feel that this should be addressed at the public meetings that will be starting by the CAB members. <i>(Manny Trujillo - LANL CAB).</i>	Refer to response provided to comment number 26.
22.	I read with interest yesterday's article in the Los Alamos Monitor concerning the DOE's intention to cap certain contaminated sites rather than excavate and clean up. You are quoted as saying, "We have to ensure that for thousands of years, that's an acceptable way to confine the contaminants". I realize the DOE has a difficult and expensive problem to deal with, but the concept of capping worries me. This is a design that will outlive the United States Government and its records. This plan, and the contamination it deals with, will one day be almost as old as the pyramids. I worry that the contamination will outlive the plan itself. How	LANL will investigate all potential release sites (PRS), and will propose alternative remedies to the New Mexico Environment Department (NMED). Cost-effectiveness, the long-term effectiveness of the remedy, and the incremental reduction of risk are all factors to be considered. NMED, following public involvement, including public hearings, will select the remedy to be used. In some instances, engineered barriers (i.e., "caps") may be selected. For all remedies, LANL must be able to demonstrate that the site will not pose an unacceptable risk to humans or the environment. Such demonstration could include long-term:

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	do we ensure that our descendants will know of this plan and the contamination? How do we ensure they will not build on a contaminated site, or pump from a polluted aquifer? Wouldn't it be better to just get rid of the problem once and for all? <i>(Michael Cannon - Los Alamos Stakeholder).</i>	monitoring, Institutional controls or could include removal, treatment, and disposal of the waste. Only after NMED is satisfied that a site does not pose an unacceptable risk will the site be removed from the LANL permit.
23.	By the way, I am a new member to the Los Alamos/DOE Citizen's Advisory Board. I hope to push the CAB to address the funding issue. Please note that some people, including the Albuquerque Journal, think that money is being wasted, and should not be increased until there are some successful remediations. I will also move the Sierra Club to push our congressional delegation to increase funds. <i>(Michael Cannon - Los Alamos Stakeholder).</i>	Your comment is noted. The intent of this document is to provide a mechanism by which DOE communicates to its stakeholders the work scope which is intended to be completed an annual basis, given a particular funding scenario. It is hoped that this will enable our stakeholders to identify progress as work scope is being completed.
24.	In reviewing subject draft I notice the following paragraph on page 56: "Throughout the planning process, the DOE has held routine meetings with the LANL Citizens Advisory Board." As almost everyone connected with the DOE in the Los Alamos and Albuquerque offices knows, the CAB for the DOE/LANL was disrupted by Tom Todd in 1997. The meeting of September 1997 was canceled by the order of Liz Montoya of the DOE Headquarters at the last moment. There have been no meetings since then until our first meeting on March 21, 1998. There have definitely been NO meetings with this CAB on the subject of Accelerated Cleanup, let alone "routine" meetings. This matter is a sore point with me. Prior to the suspension of our CAB meetings, we did receive documents on the Accelerated Cleanup program. There was a teleconference with Al Alm and a meeting with him in Albuquerque. It was at these meetings that comments on the Accelerated Program (Ten Year Plan) were solicited. Only at the very last minute did I hear from the SNL CAB that these meetings were to occur and managed to attend. There was no notice from our "staff" or the DFO. I was the ONLY attendee from the CAB for the DOE/LANL because of this late notification. An acceleration of the cleanup program at LANL was important to our CAB before we became aware of the Ten Year Plan, Plan 2006 or the Accelerated Program. We had already recommended to the DOE/LAAO that we allocate more of the cleanup budget to physical cleanup work and less than the	Refer to response provided to comment number 26.

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	<p>approximately 90% being allocated to paperwork. (The Inspector General verified this ratio in his report IG0410). We had become anxious that the cleanup be accelerated, but not as a result of any routine meetings with the DOE on the planning process. The fact is that, (apparently by accident), our CAB was left out of the planning process. I would like to know how the inaccurate paragraph quoted above became part of this draft and suggest that the final document delete this paragraph and, instead, quote our recommendation and indicate it preceded the planning process. I confirmed my remarks made at the teleconference in writing to Al Alm and you may refer to these if you think they are appropriate but, they were classified as personal comments because there had been no "routine" meetings with the CAB as a whole. <i>(Hank Daneman- LANL CAB)</i>.</p>	
25.	<p>I have asked you how the erroneous note about our CAB's participation got into the draft. You have not answered that question. If you don't know the answer, who might be able to tell me? Also - I am wondering if the rest of the draft is also inaccurate in large part and, if so, when we can expect to receive a corrected draft. <i>(Hank Daneman- LANL CAB)</i>.</p>	<p>Refer to response provided to comment number 26.</p>
26.	<p>I have, twice, pointed out that the report you submitted has false information about the CAB for DOE/LANL. Your draft states that you have been in continuous contact with our CAB regarding the accelerated cleanup. The truth is that our CAB was not active during the period you refer to as a result of Tom Todd's request that we be terminated. My question is how does such false information as you have published get into the draft report and how credible is the rest of your report? You have not yet chosen to answer these questions. Why is that? Is someone at headquarters ashamed to admit that one of the worst DOE facilities for cleanup cannot tolerate the CAB reporting the truth about incompetency and wastefulness of our DOE and LANL officials in managing their cleanup assignment?</p> <p>I suggest that your draft report be changed to refer to the Inspector General's report #0410 calling attention to the fact that 90% of funds spent on cleanup at LANL over the past 5 years (over \$0.5B) have been</p>	<p>"Hank, I've reviewed your recently transmitted concerns on the DOE-Albuquerque Accelerating Cleanup: Paths to Closure, February 1998 strategy. I can assure you, your comments were recorded. At the conclusion of the comment period, on May 1, 1998, all comments received will be reviewed, and the document will be changed accordingly. This process was established so that all comments could be reviewed entirely, and adequately.</p> <p>The intent of our Paths to Closure document was to continue to receive input on our planning and implementation associated with our clean-up, waste management and other environmental management programs at our Albuquerque sites including Los Alamos National Laboratory. I realize you have expressed multiple issues regarding the Citizens Advisory Board and interface with DOE. In particular, you are concerned that DOE has not provided the CAB documents nor</p>

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	<p>spent on high priced personnel doing paperwork instead of actually removing hazardous material. One of the recommendations the DOE found unacceptable was the CAB's request that more of the budget allocated for cleanup be spent on cleanup and less on exorbitant salaries of paper pushers. No pun intended but, this is a prime case where you should really call a spade a spade. The disruption of our Citizens Advisory Board is now the subject of a lawsuit and in this part of New Mexico, it is not considered a trivial matter to be brushed under the rug. For the last time, who is responsible for publishing the fabrication you released in subject draft report and what are you doing to release a correction? <i>(Hank Daneman- LANL CAB)</i>.</p>	<p>provided adequate opportunity for comments on this document. I can personally attest that for approximately 2 years, we have worked to receive board and other public input to assist in planning our environmental cleanup program at Los Alamos. Similarly, at Sandia National Laboratory and at Amarillo (our Pantex plant) ,we have received board recommendations on future land uses, alternate disposal approaches, prioritizing our programs and other critical areas, and we have made changes in our programs as a result of this. Similar to comments you have previously provided on groundwater monitoring and contamination, requirements for improving cost efficiencies and other concerns, this is an opportunity for stakeholders to review, understand, and communicate concerns regarding the strategies, priorities, and approaches presented to complete the environmental projects.</p> <p>In the last message, from Rich Nevarez, to you; Rich asked if you had any other comments pertaining to the scope of work, prioritization, etc. I too will ask you to look at the document in that context, as the document presents some real key assumptions which are critical to ensuring successful completion of the projects identified.</p> <p>The clean-up budget at Los Alamos is currently 50% what it was in the 1993/1994 timeframe. The DOE and Los Alamos National Laboratory are jointly moving the program into the critical areas of Material Disposal Areas, the canyons cleanup program, and trying to improve our approach at characterizing and modeling groundwater. I hope we can reach a good acceptable solution on how to work these clean-ups before the funding is gone.</p> <p>I will be attending the Citizen's Advisory Board meeting in Santa Fe next week , and will be glad to discuss this further". <i>(John Arthur)</i></p>

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27.	I feel accelerating cleanup is necessary. I support the following risk-based cleanup - why clean if it isn't hazardous? Clean to appropriate land use: Don't clean up and move contents of MDAs unless you must. Do ecological assessment on a broad scale encompassing a whole habitat. Don't clean to background - clean to risk level for a user. ( <i>Dorothy Hoerd - Los Alamos Stakeholder</i> ).	Agree, no change will be incorporated into <i>AL Paths to Closure</i> .
28.	All information needs to be updated relating to project schedule, scope and cost. This information has tremendously changed on UMTRA groundwater project activities. Additionally, the groundwater UMTRA project activities are behind schedule due to inadequate project funding. The information can be obtained from Mr. Donald Metzler, Technical/Project Manager, DOE Grand Junction Office. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> ).	Agree. Funding levels, along with activities and completion dates, have changed significantly for UMTRA Groundwater with the FY 2000 Budget Formulation. DOE-HQ direction for finalizing <i>AL Paths to Closure</i> strategy is to assume January 98 numbers and not update them to the FY 2000 Budget Formulation numbers. Documentation on UMTRA Groundwater will be significantly changed when the new numbers can be addressed.
29.	The compliance strategies are identified; however, the specific remediation technologies are not yet identified. This should be a priority by DOE to find cost-effective remediation technologies, thus, detail strategies should be developed on how the remediation technologies are to be identified in conformity with the compliance strategies. Based on these strategies, the information on funding and time lines will be parallel with the strategic planning. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> ).	The following is a clarification to the comment but will not be incorporated into <i>AL Paths to Closure</i> : Remediation technologies are being evaluated for the Tuba City and Monument Valley sites. Field investigations at the Shiprock site are scheduled to begin July 1998. The alternatives' evaluation for the Tuba City site has been reviewed by the Navajo and Hopi stakeholders and a pilot test of the preferred treatment alternative is scheduled to begin July 1998. A pilot study of one alternative at the Monument Valley site is also expected to begin this summer.
30.	The stakeholders should be involved with all activities of the budget process including decision making of all remediation activities. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> ).	The following is a clarification to the comment but will not be incorporated into <i>AL Paths to Closure</i> : DOE continues to involve stakeholders in all aspects of the project through teleconferences, site meetings and public meetings, document review and comment, and general correspondence. In particular, stakeholders were involved in the ITRD process to investigate innovative remediation technologies at the Tuba City site.
31.	On page 57 of the Overview, DOE has estimated about \$189 million for the UMTRA Groundwater Projects for fiscal year 1997 through 2011. A	The following is a clarification to the comment but will not be incorporated into <i>AL Paths to Closure</i> : The budget estimate of \$189

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	detail budget estimate should be provided for each project. In addition, this amount is misleading because DOE has not selected the groundwater remediation technologies for UMTRA projects. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> )	million is based upon implementing the targeted strategy at each site, assuming conventional remediation technology at three sites targeted for active remediation: Tuba City, Monument Valley, and Shiprock. Without this assumption, a long-term plan and cost estimate could not be developed.
32.	On page 60, it states that "the Tuba City, Monument Valley and Shiprock sites are proposed for active remediation," but on page 59, the Table of UMTRA1 does not show as active remediation of the Shiprock UMTRA site. The Table should be modified to include the Shiprock UMTRA site. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> )	The following is a clarification to the comment but will not be incorporated into <i>AL Paths to Closure</i> : The Table does not mention Shiprock as an active site because it is not on a critical path.
33.	On page 60 of Section 2, it mentions that an alternate water supply is being planned for the Riverton, Wyoming UMTRA site, however, it does not mention the Monument Valley water system project. This information should be included. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> )	Agree. Text was modified to include the alternate water supply at Monument Valley. Interim actions consisting of alternate water supplies have been initiated for some residences near the Riverton, Wyoming, millsite; <i>near the former millsite at Monument Valley, Arizona</i> ; and the millsite west of Rifle, Colorado.
34.	On page 60 of Section 2. it states that the Mexican Hat UMTRA will require "no further action." This is a strong statement by DOE. The Navajo Nation will agree with this statement until the Navajo Nation approves the Site Observational Work Plan (SOWP) and compliance documents. To date, DOE has not developed these documents. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> )	The following is a clarification to the comment but will not be incorporated: The Site Observational Work Plan is being revised to reflect discussions with the Navajo Nation. The targeted compliance strategy is no further action and DOE believes the Work Plan will adequately defend this strategy.
35.	On page 60 of the Table UMTRA2, it provides general information on how many groundwater projects will be addressed each year, but it does not show which projects and how to address the groundwater contaminant problems of each site. We suggest that DOE provide detail information on this table. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> )	The following is a clarification to the comment but will not be incorporated: The detail requested is included in the Management Action Process document (April 1996) previously provided to the Navajo Nation.
36.	On page 61 of Section F on Stakeholders involvement, it states that "DOE involves the public by making key decision documents available." The public was actively involved during the surface remediation activities; however, this is not considerably important for the groundwater projects. The only time the public was involved was when the PEIS document was developed. Public involvement more often is essential to	The following is a clarification to the comment but will not be incorporated: The Navajo UMTRA Office and Navajo contractors are extensively involved in the UMTRA Groundwater Project through meetings, teleconferences, review and comment on key documents, and general correspondence. Public meetings are held prior to initiating major field investigations and when key documents are being

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	promote our remediation efforts. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> ).	finalized. Further, DOE has sought to involve local support during the field investigations to the extent possible. As the project moves into remediation, public awareness and public involvement will increase through news releases, holding chapter house meetings, subcontract awards, and other methods.
37.	The Navajo UMTRA Program requests adequate FY 1999 budget appropriation for the Navajo UMTRA Groundwater Project. Receiving information from the Department of Energy in regards to the UMTRA groundwater planning and project scheduling reveals that most field activities for remedial action plans are slowly progressing. These protracting activities are influenced by inadequate funding for the Navajo UMTRA Groundwater Project. Last year, DOE only received about \$5.3 million for the Groundwater Program. This type of funding will not expedite our planned activities. Adequate funding will assure timely completion of groundwater remediation. Your consideration to this request will be appreciated. ( <i>Madeline Roanhorse, Director Navajo AML/UMTRA Dept.</i> ).	The following is a clarification to the comment but will not be incorporated: GJO agrees that UMTRA Groundwater activities are not receiving sufficient funding to execute remedial actions as quickly as is possible. Funding to do this was included in the original baseline, but due to higher-priority requirements at the compliance-driven Monticello projects, UMTRA GW has received less of GJO's target than is required for rapid completion of clean-up. Additional funding for FY 1999 does not look favorable however, an over-target funding request for UMTRA Groundwater projects for FY 2000 funding has been forwarded to and on to DOE-HQ for review. If approved, UMTRA Groundwater will have sufficient funding in FY 2000 to expedite planned activities and complete projects as quickly as is physically possible.
38.	What LLW class (A,B,C) and in what quantities of each would be generated in continuing Pantex operations? ( <i>Alfredo Reza - Pantex Stakeholder</i> ).	Per 10 Code of Federal Regulations 61.55 definitions, Pantex's current missions generate 174.76 cubic meters per year of Class A, no Class B, and 3.72 cubic meters per year of Class C waste.
39.	(A): How will you work off waste from components if there is no funding for it? ( <i>Frank White - Pantex Stakeholder</i> ).	(A) Waste generated from sanitization of a component - to remove its classified nature and the remainder of the sanitized component, if declared to be waste will be managed as newly generated waste no differently than newly generated waste from any other process. Risk-based prioritization and availability of funding will determine how quickly that waste is characterized, treated (if necessary), and disposed.
40.	(B): What are the prospects for removal from CERCLA National Priorities List? ( <i>Frank White - Pantex Stakeholder</i> ).	(B) Removal from the NPL (delisting) prior to the final completion of cleanup has been allowed in private sector sites for some time. It does not apply to federal facilities. It is generally allowed where compliance with RCRA will eventually satisfy the requirements of CERCLA. In other words, delisting does not relieve a responsible party from cleanup responsibilities. It removes redundancy in regulatory

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		<p>monitoring, reflecting EPA's determination that RCRA activities will result in satisfactory cleanup. EPA recently amended its regulations to allow this process to apply to federal facilities. As of yet, no federal facility has been delisted using this process. Discussions with EPA Region VI have indicated that Pantex may be an appropriate site for delisting due to ongoing RCRA activities monitored by the Texas Natural Resource Conservation Commission. Pantex/DOE is pursuing this possibility, but the outcome is not certain.</p>
41.	<p>Dear Secretary Peña: The health, safety and environmental impact of the Pantex facility is of utmost importance to the people of the Texas Panhandle as represented by the Pantex Plant Citizens' Advisory Board. Therefore, the Pantex Plant Citizens Advisory Board makes the following recommendations:</p> <p>Because of the Department of Energy lacks the authority to license sites for the disposal of low-level radioactive wastes, and because allowing DOE contractors to dispose of such wastes in unlicensed facilities would compound the problems the nation faces as a result of decades of self regulation, and because such disposal runs counter to DOE initiatives for external regulation of DOE facilities, we recommend that the Department of Energy not send waste from its sites to unlicensed facilities.</p> <p>The State of Texas should be commended for its opposition to disposal of DOE low-level radioactive and low-level mixed wastes in unlicensed facilities, and encouraged to continue such opposition.</p> <p>We make this recommendation as a consensus decision of the board, and if necessary, we welcome the opportunity to meet with you or your representative to discuss this subject in detail. (<i>Pantex CAB</i>).</p>	<p>Legal challenges to DOE's process for selecting disposal sites for Low-Level and Mixed Low-Level Wastes are currently being heard in the courts. DOE's current plans for disposing of these waste streams uses only q1 licensed facilities (see the disposition maps that are part of the ACPC document). Decisions made by the courts may affect how DOE selects disposal facilities in the future. Since this is a subject before the courts, we cannot make commitments one way or another until a judgment is reached. We are sensitive to the concerns of the Pantex Citizen's advisory board, and will work with all of our stakeholders to address disposal concerns if our current plans change based on court rulings.</p>
42.	<p>Dear Secretary Peña: The Pantex Citizens Advisory Board has the following recommendation regarding the Environmental Management</p>	<p>The proposed budget for the ER program at Pantex reflects the severe fiscal limitations that the Environmental Management (EM) Program is</p>

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	<p>Budget:</p> <p>That the target level to be maintained for the 1999 budget. Reductions in the 1999 budget will cause reductions in programs designed to restore the perched aquifer and delay restoration of an important landfill. It will jeopardize the Pantex Plant's ability to meet Clean Texas 2000 goals.</p> <p>The proposed decrease of more than \$1 million is a substantial one for a relatively small program such as that at the Pantex Plant. Because Environmental Restoration is near completion at many sites at Pantex, it is critical that funding for years prior to 2003 be maintained. Funds for Environmental Management should be used for substantive activities, with all extraneous expenses, such as travel funds, kept to a minimum. We make this recommendation as a consensus decision of the board, and appreciate this opportunity to be part of the Environmental Management budgetary process. (<i>Pantex CAB</i>).</p>	<p>facing across the DOE complex. There is a potential for the proposed funding in FY 1999 to cause delays in the Pantex ER program work, in particular, meeting all of the aspects to the "Clean Texas 2000" goals. By the end of the year 2000, the Pantex ER program will be considered to be in long-term environmental remediation, i.e., with all pump-and-treat processes operating, and required landlord environmental monitoring activities in progress. The Albuquerque Operations Office is firmly committed to this effort and, to the extent possible, will work to maintain funding at a sufficiently high level to expeditiously complete ER work at Pantex.</p>
43.	<p>On behalf of the 350 members of the Pajarito Group of the Sierra Club (Los Alamos County) I would like to comment on the Department of Energy's Accelerated Cleanup February 1998 draft document as it pertains to Los Alamos National Laboratory (LANL). We appreciate the opportunity to do so. The Sierra Club values the health and integrity of ecosystems, habitats, and biological populations. Furthermore, we are very concerned about the protection of natural resources, especially groundwater systems and aquifers. These values are the foundation for the following comments and suggestions:</p> <p>1. The document does not clearly include provisions for protection of ecosystems, habitats, and biological populations from threats of contamination or cleanup actions. It also assumes that measures to prevent ecological and natural resource damage are understood and can be budgeted for, but information on what ecological and natural resource</p>	<p>The DOE recognizes the need to protect natural ecosystems and their components as well as protect human health and welfare. The DOE is working with NMED to develop an approach to ecological risk assessment that conforms with recent EPA and NMED guidance. As data are gathered for each site or group of sites, the approach will be used to make inferences about whether conditions threaten ecological resources on a case-by-case basis. Further action will be determined on the basis of criteria approved by NMED as detailed data and analyses develop. In addition DOE is working with natural resource trustees to ensure that actions taken are consistent with their requirements. These analyses include balancing the effects of leaving contamination in-place and the effects of contaminant removal on the ecosystems.</p>

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	<p>requirements apply and will be met by DOE have not been released.</p> <p>The Sierra Club requests that the requirements for protecting ecosystems, habitats, biological populations, and other natural resources from contamination and from impacts during cleanup be clarified and that DOE's plans for meeting these requirements be made available to the public and fully costed in the document. All federal and state laws, as well as DOE and LANL policies, regarding protection of the environment and species and stewardship of natural resources should be followed rigorously during cleanup. <i>(Michael Smith, Chairman, Sierra Club)</i>.</p>	
44.	<p>2. The regulatory authority, in this case the New Mexico Environmental Department (NMED), makes the final determination as to the adequacy of the cleanup. NMED apparently disagrees with several key assumptions regarding capping waste sites and groundwater cleanup (p. 56). Thus, the assumptions appear to understate the level of effort that will be needed to do an adequate cleanup job at LANL and the Environmental Restoration (ER) and Waste Management (WM) programs appear to be underfunded. The Sierra Club requests that a funding profile be developed from assumptions that NMED agrees with. An update is needed as to how DOE will reach the 2008 cleanup target under real funding allocations that are already reduced below the levels in the document. <i>(Michael Smith, Chairman, Sierra Club)</i>.</p>	<p>The DOE recognizes the authority of NMED to determine the adequacy of proposed corrective actions at sites under their regulatory mandate. However, the DOE must define long-term strategic options based upon the likely future outcomes of the corrective actions. These are based upon past experience in environmental surveillance and environmental restoration at LANL and other sites. For all assumptions, the current underlying evidence may have led to wrong inferences. As new facts and evidence are collected and analyzed, these assumptions need to be revisited and adjusted, if necessary. If assumptions change significantly, DOE will adjust its technical scope and near-term budget requests of Congress to reflect either greater or lesser needs than originally thought. DOE will request funds to support decisions and actions that are acceptable to NMED and its stakeholders.</p>
45.	<p>3. The assumption that no groundwater remediation will be required (p. 50) does not agree with DOE's current plan to spend \$50 million on groundwater test wells to determine the extent of subsurface contamination. Furthermore, this assumption does not agree with recent data which clearly shows that surface contaminants are reaching the aquifers. Thus, the assumption that no cleanup of groundwater is premature if DOE does not know how far the contamination has spread. The Sierra Club requests that DOE acknowledge the "no groundwater remediation" assumption is not supported by the current understanding (or</p>	<p>Text revised. See response to comment number 5.</p>

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	lack of understanding) of groundwater contamination at LANL and an alternate funding scenario be set forth that includes groundwater remediation. <i>(Michael Smith, Chairman, Sierra Club).</i>	
46.	4. The assumption that 85% of legacy waste sites can be left in a place is not yet supported by information showing such plans are adequately protective. In addition DOE and the NMED have not agreed upon "land use" cleanup levels. The assumption that cleanup levels will allow for widespread capping of wastes is premature and probably understates the level of effort that will be needed. The Sierra Club requests that DOE acknowledge the "85% capping or no action" assumption is not supported by the current understanding (or lack of understanding) of the potential for contamination movement from waste sites at LANL and an alternate scenario that includes more thorough remediation be set forth. Also requested is clarification on what cleanup scenarios have been agreed to between DOE and NMED. <i>(Michael Smith, Chairman, Sierra Club).</i>	The DOE believes, based upon preliminary data that 85 percent of the potentially contaminated sites can be left in-place while maintaining adequate protection of human and ecosystem health. On a case by case basis this assumption will be tested. If further action is required, as approved by NMED, appropriate budget requests will be forwarded to Congress. See also response to Comment 12.
47.	5. The document assumes that the "strategy to optimize characterization and remediation of the canyons" will be acceptable to neighboring Pueblos (p.50). This implies no special cleanup efforts are planned for other Pueblo and LANL lands that are used for traditional purposes by Pueblos (hunting, plant gathering and use, use of soils, etc.). The Sierra Club takes an interest in all the lands and points out that the assumption that the Pueblos are the primary stakeholders understates the scope of cleanup at LANL. <i>(Michael Smith, Chairman, Sierra Club).</i>	We have been working with neighboring Pueblos to ensure that our approach to corrective action is compatible with their authority for stewardship of Pueblo lands and cultural uses of their and neighboring communities adjacent lands. As with all assumptions, as their validity is demonstrated or refuted, scope and funding changes will be made through the appropriate technical, regulatory, and budgetary processes. See also response to Comment 5.
48.	6. The document assumes that new waste generation at LANL will increase (p. 50). Yet DOE and LANL officials have stated that waste generation is decreasing and will continue to decrease (LANL Environmental Sustainability Conference, Santa Fe, Fall 1997). The Sierra Club requests that DOE clarify its prediction for waste streams at LANL. Waste stream reduction efforts made at LANL operations should be clarified and opportunities for additional reductions identified to the public. <i>(Michael Smith, Chairman, Sierra Club).</i>	The decrease in waste generation reported in the LANL Environmental Sustainability Conference, Santa Fe, Fall 1997 only addressed the waste from current LANL work. LANL's Pollution Prevention coordinators have done a good job of reducing the amount of waste coming from current lab activities over the past five years. The LANL Summary section of the document indicates that waste volumes will increase in the future because of new work that is being assigned to LANL. Efforts to reduce the amount of waste each lab activity produces will continue. Unfortunately, becoming more efficient won't prevent the total volume of waste from increasing as the lab is assigned

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		<p>new work activities. A DOE goal is to reduce the amount of waste produced from "routine activities" (these are activities that continue at the same level of effort from year to year). The commitment was for a 50% reduction in the waste from routine activities from 1993 to 1999. AL sites are on-track to achieve this goal. The addition of new, or "non-routine" activities may increase the total volume of waste generated, annually, by LANL and other AL facilities.</p>
49.	<p>7. The Accelerated Cleanup Program is scheduled to end in 2008. However, the document does not have a contingency plan in case this schedule is not met. The Sierra Club requests that the DOE develop a funded contingency plan to meet cleanup and remediation needs at LANL after 2008. In conclusion, I stress that protection of the unique and valuable ecosystems, canyons, biological populations and groundwater systems should be the paramount concern of remediation efforts at LANL and the final plan of Accelerating Cleanup: Paths to Closure should adequately reflect these concerns. Sufficient funds should be made available to ensure the plans success, and a contingency plan that covers additional efforts well into the next century should be developed. I look forward to your response to our concerns and the final draft. <i>(Michael Smith, Chairman, Sierra Club).</i></p>	<p>As the project progresses more information is gathered that allows both strategic long-term replanning and shorter-term planning. As changing information requires, changes in scope, schedule, and budget are made. Through the existing budgetary process, funds are requested each year to support scope planned in the near future. These scope changes are made in response to new technical data, NMED requirements and acceptance of technical analyses, and stakeholder input.</p>
50.	<p>We are members of the Citizens' Advisory Board (CAB) for Sandia National Laboratories (SNL)/Department of Energy (DOE). However, we submit this letter on our own personal behalves. We anticipate that the CAB will approve this letter according to its regular procedures. This approval, however, would come after May 1, 1998 so we submit our comments on the Paths to Closure plan at this time for your consideration. We anticipate that the CAB will send you an identical or similar letter within three weeks</p> <p>The CAB members have read and reviewed the document titled "Paths to Closure" and its accompanying Albuquerque Site version. Generally, we believe that the document is a significant improvement upon earlier "versions" of the same document (Five-Year Plan, BEMR, Focus on 2006).</p>	<p>Thank you for taking time to review the document. We agree that this version is a considerable improvement over earlier versions.</p> <p>Please see responses to comment number 12.</p>

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	<p>The CAB members agree with the DOE's intention to achieve compliance with all regulatory requirements. We also find great value in the Albuquerque Operations Office version of the document.</p> <p>The CAB is pleased that the Paths to Closure draft responded to several of our comments in the earlier version of this draft, the Focus on 2006 Plan. However, some of our comments were addressed only partially to the CAB's satisfaction. The comments we are offering below may be re-visiting some of CAB's earlier comments.</p> <p>Why will 85% of LANL Waste Not Be Treated?</p> <p>At all of the Albuquerque sites, most waste is going to be disposed of off-site except at LANL, where either no action, or a cap will be placed over "85% of the approximately 300,000 cubic meters of contaminated media currently estimated to be in place at LANL" If Albuquerque's emphasis is to treat and dispose off-site, then why is LANL's emphasis so different? Is this decision grounded in environmental benefits? <i>(Five SNL CAB Members)</i>.</p>	
51.	<p>Include Costs of Long-Term Surveillance and Maintenance. Also, the Albuquerque Operations Office Summary states that Long-Term Surveillance and Maintenance (LTSM) will continue beyond FY 2006 and that current projections indicate at least 50 sites will eventually be transferred to LTSM. How much will this cost? Will DOE have the money for this given that EM probably won't even exist? Why isn't this budget element fully included in the Paths to Closure plan? Please include this. <i>(Five SNL CAB Members)</i>.</p>	<p>Costs associated with LTSM have been included in the Sandia baseline/PBS. It is estimated that the LTSM Program discussed in the comment, for FY 1998 through FY 2070, will cost approximately \$3.23 billion using standard Paths to Closure escalation rates, or \$1.07 billion in constant FY 1998 dollars. These costs are contained in the GJO/All Other Projects Project Baseline Summary, which is discussed in further detail in the Albuquerque Operations Office Draft, Pages 24 through 30.</p>
52.	<p>What Waste Streams at SNL have "No existing or available treatment technologies"?</p>	<p>Treatment technologies for all MLLW streams at SNL do exist at this time. However, due to the classified nature and/or radioactive concentrations of some MLLW requiring macroencapsulation, this treatment will have to be performed on-site as opposed to being sent to</p>

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	<p>We understand from an almost illegible chart provided by the Albuquerque Operations Office and from conversations with DOE staff that this remaining waste is contained in about 150 fifty-five gallon drums. Are there any other waste streams for which there are no existing or available treatment technologies? Where did this waste come from? Exactly what kind of waste is it? Where is it presently laying or stored? What are the alternatives for disposing of this waste? How much will each alternative cost? <i>(Five SNL CAB Members).</i></p>	<p>a commercial facility. At this time, there is no identified disposal pathway for this waste. Current estimates of quantities of this type of waste are much less than 150m3.</p>
53.	<p><b>Technology Development</b></p> <p>The CAB endorses the technology development and deployment program described in this report (Page 10, Table 1) and the cost savings that may be realized. Researchers and engineers should be given incentives for rapid development of needed new technologies, if these developments would result in greater cost savings, or more effective environmental restoration or waste management.</p> <p>Please separate and clarify technology development for ER cleanup at SNL and other sites under the Albuquerque Operations Office, and technology development as ongoing mission of any DOE complex sites. What developing technologies are urgently needed and which will be used in the future? <i>(Five SNL CAB Members).</i></p>	<p>For the Sandia ER project the only current technology being developed that may be used is the arid cap design for landfills.</p> <p>Sandia, as a national laboratory, is developing technologies that will be used by many other DOE sites across the country but not specifically at Sandia.</p> <p>A complete listing of AL's technology needs for FY96, FY97 and FY98 (deployments are matched to the FY97 technology needs) may be accessed through the ALSTCG homepage at <a href="http://www.doeal.gov/stcgweb/alstcg.htm">http://www.doeal.gov/stcgweb/alstcg.htm</a>. Deployment numbers cited in Table 1 of <i>AL Paths to Closure</i> reflect potential deployments as well as commitments to deploy technologies. Actual deployments are dependent upon adequate funding from DOE/HQ EM-30, EM-40, EM-50 and EM-60.</p> <p>The AL/STCG consists of DOE and contractor members representing AL sites and EM-30, EM-40 and EM-50 programs. A complete account of the AL/STCG accomplishments can be viewed at our web site referred to above.</p> <p>For a more complete description of technology development as an ongoing mission at DOE Operations Offices and technologies which are currently available and under development refer to the appropriate</p>

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		links under "Other Sites of Interest" (EM-50, Office of Science and Technology; Focus Areas and Crosscutting Programs) at <a href="http://www.doeal.gov/stcgweb/otherweb.htm">http://www.doeal.gov/stcgweb/otherweb.htm</a> .
54.	<p><b>Budget Does Not Include All Costs</b></p> <p>Additional uncalculated management costs at the SNL site will most likely mean additional monies will be needed in both the 1999 and 2000 budget. Two of these costs derive from undecided issues with NMED regulators: 1) NMED wants to charge fees to review a backlog of regulatory documents. This proposal and their flat fee proposal rate will be presented in July to the New Mexico Environmental Improvement Board for regulatory creation; 2) Since NMED has not established the eco-risk requirements, field-testing might have to be completed next summer. Some NFA's might not meet the final criteria, adding to costs. A third cost arises from having to wait on site cleanup for a new technology to go through the process for regulatory approval. Please refine and clarify this area for future budgets and updates to Paths to Closure documents. (<i>Five SNL CAB Members</i>).</p>	<p>The costs associated with potential new fee regulations being proposed by the State of New Mexico Environment Department have not been included. These costs are not known until the new regulations are approved. As noted in the comment, these regulations should be determined in July. DOE commits to including the costs for these fees in future version of the document after the fees are approved. Currently, these costs should be considered addressed by the contingency costs in the Sandia baseline/PBS.</p> <p>The costs of meeting the eco-risk requirements are accounted for in the contingency costs in the Sandia ER baseline/PBS. Any costs not accounted for will be in subsequent issues of <i>AL Paths to Closure</i> documents.</p> <p>For the Sandia ER project, costs for implementation of the technology being used at the Mixed Waste Landfill are included in the baseline/PBS of <i>AL Paths to Closure</i> Document. If any additional technologies are needed that are not known now they will be included in future updates to the document.</p>
55.	<p><b>General Comments on Accelerating Cleanup: Paths to Closure:</b></p> <p>The New Mexico Environment Department (NMED) thinks that this document is an improvement over last year's document. The US Department of Energy (DOE) has obviously considered the comments received regarding last year's document and has made constructive changes in format and in content. DOE's consideration of comments received has made this year's document more realistic, and thus more valuable, for both DOE and the other stakeholders in the DOE cleanup</p>	<p>Agree. In response to a comment received from the ninety day public review of the "Accelerating Cleanup: Focus on 2006, Albuquerque Operations Office Summary," June 11, 1997 (the AL Summary), additional detail was added and the document reformatted.</p>

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	process. NMED is in agreement with the concept of the document as a strategic planning document, and the recognition that there will be differences between the level funding amounts assumed in <i>Paths to Closure</i> and in actual budget requests and allocations. (Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).	
56.	<b><u>General Comments on Accelerating Cleanup: Paths to Closure:</u></b> NMED recommends that future annual revisions maintain this format for ease of comparison. We also recommend that DOE point out and explain changes in the document each year.	Agree. Current discussions within the Department of Energy is to provide an annual status to this document.
57.	<b><u>General Comments on Accelerating Cleanup: Paths to Closure:</u></b> NMED has had the opportunity to read the comments submitted by the US Environmental Protection Agency, Region 6. NMED agrees with and supports these comments. (Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).	Comments received from the US Environmental protection Agency, Region 6, are also included within this table, along with respective responses. As discussed in the document, it is anticipated that further dialogues with NMED, EPA-Region 6, stakeholders, and Tribal Nations will be necessary to achieve the defined end state dates, especially as new information develops, or funding changes to the profiles occurs. A list of contacts has been identified within the document, so that this dialogue can continue.
58.	<b><u>General Comments on Accelerating Cleanup: Paths to Closure:</u></b> AL Paths to Closure describes itself a as strategic planning document that will be used to guide budget formulation. Since the release of the document in February, projected funding allocations for fiscal year 1999 have been significantly decreased. Because of this, schedules described in the document may not be met. (Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).	Comment acknowledged. As you identified in your comments, the document is based on receipt of funding as shown in the Executive Summary. This is one of the key planning assumptions which supports the document. It is intended that the schedules as identified in this document will be updated as new information evolves.
59.	<b><u>General Comments on Accelerating Cleanup: Paths to Closure:</u></b> Although it is necessary to make assumptions in a planning document such as this, some of the assumptions bear little resemblance to current realities or probable future conditions, and should be reevaluated. (Ed Kelley, Ph.D., Director Water and Waste Management Division, State of	It is intended that the schedules as identified in this document will be updated as new information evolves.

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	<i>New Mexico Environmental Department).</i>	
60.	<p><b>Attachment 3. AL Waste Disposition Maps</b></p> <p>Maps in this attachment of our copies were not legible, and for this reason were not reviewed by the NMED. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>Agree. Efforts are being taken to improve the printing quality of the disposition maps.</p>
61.	<p><b>Assumptions</b></p> <p>Both Los Alamos National Laboratory (LANL) and Sandia National Laboratories (SNL) assume that all known potential release sites have been identified and included in the environmental restoration scope of work. NMED believes that additional sites and areas of concern have and will continue to be identified and added to the HSWA (Hazardous and Solid Waste Amendment) modules of the RCRA permits for both facilities. This has happened in the past and will continue to happen beyond FY98. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>Agree, however, as stated in the Executive summary, " the AL Paths to Closure represents a snapshot in time, and changes will be incorporated as planning assumptions or funding allocations become refined."</p>
62.	<p><b>Assumptions</b></p> <p>Both LANL and SNL are apparently using completion (approval) dates as the date of document submittal to the Administrative Authority (AA), for Corrective Action sites. The dates of completion (approval) for Corrective Action sites has a regulatory approval date based on the effective date of modification to the HSWA module of the permit that approves a No Further Action Petition on a site specific basis. A majority of sites submitted for No Further Action by both facilities have not been approved by the AA. Those sites not approved require at least one of the following: additional work, investigation, and/or remediation before this action can be approved. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>Refer to the responses provided to comments number 13 and 18.</p>
63.	<p><b>Assumptions</b></p> <p>Both LANL and SNL assume that a future industrial or recreational, land</p>	<p>Refer to response provided to comment number 16.</p>

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	<p>use is sufficient for all sites. NMED has determined that consideration of residential land use is necessary for some sites at both facilities. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	
64.	<p><b>Headquarters assumptions:</b></p> <p>The annual EM funding target for AL is based upon a \$289 million allocation in FY 1999 and an annual \$290 million allocation for FY 2000 through FY 2006."</p> <p>Funding at the \$289 - \$290 million level (the basis for the plan) is insufficient to complete AL Environmental Management activities by 2006. Since the release of this year's document, projected funding allocations have been reduced to \$202 million. Despite the fact that \$75 million of the reduction is due to a transfer to Defense Programs for waste operations, progress to date suggests that it is highly improbable that DOE will be able to meet the projected schedules. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>Comment acknowledged. As you identified in your comments, the document is based on receipt of funding as shown in the Executive Summary. This is one of the key planning assumptions which supports the document. It is intended that the schedules as identified in this document will be updated as new information evolves.</p>
65.	<p><b>Headquarters assumptions:</b></p> <p>"No additional facilities from other DOE programs will be included to safe shutdown or remediation the EM program."</p> <p>Additional facilities will become the responsibility of EM once ongoing Decontamination and Demolition operations are complete, and it is highly likely that additional remediation will be necessary at these sites. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>One of the assumptions as identified within this document, is that the landlord will have responsibility for Decontamination and Decommissioning of those facilities. For most of DOE-AL sites, the landlord is not the Environmental Management Programs. This may include the remediation activities for those facilities as well. There is however a decision pending, within the Department of Energy Headquarters. If it is decided to expand the scope of the current EM program mission, then the cost and schedules associated with this particular workscope will be included within this document.</p>
66.	<p><b>AL specific assumptions:</b></p> <p>"Regulatory agencies will have sufficient resources to act in a timely</p>	<p>Please refer to statement made as response to number 5(a).</p>

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	<p>manner so that there will not be significant adverse impacts on scheduled actions."</p> <p>There is currently a backlog of documents awaiting regulatory decisions, and the resources of regulatory agencies have not increased significantly. Also, agencies are in the process of developing regulatory guidance, which further strains limited resources available for EM document review.</p> <p>The lack of AA resources is adversely impacted by the continual change in baseline that redirects funding from one project to another. Administrative Authority staff often finds that documents it is or has reviewed are no longer considered for current funding making AA staff meaningless in relationship to the overall 2006 work plan. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	
67.	<p><b><u>AL specific assumptions:</u></b></p> <p>"Ongoing characterization of release sites will not reveal remediation issues that will result in significant increase in scope."</p> <p>There are numerous examples of characterization activities which have resulted in increase in project scope. Some examples at LANL are (1) the finding of mercury in storm water below Hillside 138 at TA-1, (2) the finding of volatile organics in ground water below septic tanks at TA-18, (3) the discovery of PCBs in sludges at surface impoundments at TA-53, and the finding of unexpected radioactive contamination at the incinerator ash pile at TA-73. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	Please refer to statement made as response to 5(b).
68.	<p><b><u>AL specific assumptions:</u></b></p> <p>"Additional regulatory requirements will not increase project scope."</p>	Please refer to general statement made as response to comment number 5.

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	<p>Additional regulatory requirements are currently increasing project scope. In particular, additional requirements are being made to control contaminant transport and protect watercourses, to protect ground water, and to evaluate ecological risk. Also, current trials of NRC/Agreement State programs regulating DOE sites signal the transition to outside regulation of radioactive wastes. Cleanups of sites which are contaminated with radioactive constituents may therefore require additional approvals. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	
69.	<p><b><u>AL EM End State Assumptions:</u></b></p> <p>All release sites have been remediated in accordance with agreed-upon remediation standards, and groundwater contamination has been contained, or long-term treatment or monitoring is in place</p> <p>Long-term monitoring of groundwater will incur additional costs. The document does not indicate whether funds have been allocated to cover these costs. Also, it may not be possible to remediate all sites, and long-term monitoring of other media (other than groundwater) and contaminant transport pathways may be necessary. In addition, although long-term monitoring of human-health effects is not usually considered to be within the scope of EM, long-term monitoring of ecological effects may be. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>Costs associated with long term monitoring, and treatment have been assumed and included within this document. However, as you have stated, the assumptions may be somewhat optimistic, and thus could result in the identification of additional workscope and cost. It is anticipated that this key planning assumption will be revisited as information or new requirements regarding groundwater evolve.</p>
70.	<p><b><u>LANL Assumptions:</u></b></p> <p>"Groundwater remediation will not be necessary at LANL."</p> <p>Groundwater remediation may be necessary at some sites where the intermediate aquifers have already been found to be contaminated. It has become increasingly clear that these aquifers are leaking and</p>	<p>See response to comment number 8.</p>

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	<p>contributing contamination to the regional aquifer. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	
71.	<p><b><u>LANL Assumptions:</u></b></p> <p>The strategy to optimize characterization and remediation of the canyons will be acceptable to stakeholders, particularly the regulators and the neighboring pueblos</p> <p>What is the strategy, and why is it expected to be acceptable to stakeholders? <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>No change to the text in the AL Paths to Closure. The following is clarification. The strategy for characterization of the canyons is outlined in the Canyons Core document, which was approved by the administrative authority in March 1998, and work plans for Pueblo/Los Alamos canyons and Mortandad Canyon. These documents lay out the approach to defining nature and extent and fate and transport of any contamination that might be in the canyons as well as the approach to defining risks posed by this contamination. This approach has been shared with stakeholders, particularly neighboring pueblos.</p>
72.	<p><b><u>LANL Assumptions:</u></b></p> <p>"The large material disposal areas and other canyons will require implementing the full corrective measures process, and approximately 10 percent may require excavation, treatment and disposal of contaminated materials"</p> <p>Using a figure of 10% for MDAs requiring excavation, treatment and disposal does not seem conservative. <i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i></p>	<p>No change to the text in the AL Paths to Closure. The following is provided for clarification: All canyons and material disposal areas will be characterized. A streamlined regulatory approach, with regulatory concurrence, will be used wherever possible. The full corrective measures process will be used for the remainder. It is recognized that the remedy must be approved by the regulator in all cases. If more than 10% require excavation, treatment and disposal of contaminated material, the assumption and the project baseline will be revised accordingly.</p>
73.	<p><b><u>Enhanced Performance Initiatives:</u></b></p> <p>Without further elaboration, some of the planned schedule accelerations and claimed cost savings strain credibility. For example, under Enhanced Performance Initiatives, the statement is made: A total treatment costs for legacy mixed waste currently in storage have been reduced from \$400 million to below \$20 million while the schedule for treating and disposing of these wastes has been accelerated significantly.</p>	<p>The majority of savings as identified are attributed to efforts taken by DOE-AL back in 1993 - 1997 in eliminating the need to pursue capital line item construction projects and other facility upgrades at Los Alamos National Laboratory. Initial planning in 1993, indicated that several line item construction projects, as well as several mobile treatment units would be required to treat mixed low level waste. These line item facilities and facility upgrades included the Hazardous Waste Treatment Facility, the Mixed Low Level Waste Storage Facility,</p>

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	<i>(Ed Kelley, Ph.D., Director Water and Waste Management Division, State of New Mexico Environmental Department).</i>	remodeling the controlled air incinerator, and providing for several mobile treatment units. The figures shown, reflect the total cost of the projects which were canceled.