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Summary of

**Environmental Restoration Activities
to Support Land Conveyance and Transfer
at Los Alamos National Laboratory
under Public Law 105-119**



Los Alamos
NATIONAL LABORATORY

LA-UR-99-1018

August 1999



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Produced by the Environmental Restoration Project

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ACRONYMS AND ABBREVIATIONS

D&D	decontamination and decommissioning
DOE	US Department of Energy
ER	environmental restoration
HSWA	Hazardous and Solid Waste Amendments
LAO	Los Alamos Area Office
NFA	no further action
NMED	New Mexico Environment Department
PRS	potential release site
RCRA	Resource Conservation and Recovery Act
TA	technical area

Summary of

**ENVIRONMENTAL RESTORATION ACTIVITIES
TO SUPPORT LAND CONVEYANCE AND TRANSFER
AT LOS ALAMOS NATIONAL LABORATORY
UNDER PUBLIC LAW 105-119**

Public Law 105-119

On November 26, 1997, Congress passed a law that requires the Secretary of Energy to identify parcels of land at or near Los Alamos National Laboratory (LANL) that would be considered for conveyance and transfer to one of two entities: either Los Alamos County or the Secretary of the Interior (held in trust for the San Ildefonso Pueblo). This law is Public Law 105-119, the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act of 1998. The Department of Energy (DOE) tentatively identified 9 (later reconfigured to 10) land parcels for such conveyance and transfer in the "Land Transfer Report to Congress under Public Law 105-119, A Preliminary Identification of Parcels of Land in Los Alamos, New Mexico for Conveyance or Transfer" (April 1998).

Public Law 105-119 also directs the DOE to identify any environmental restoration or remediation that would be necessary within any of these tracts prior to conveyance and transfer. This document provides a summary of the report the Environmental Restoration (ER) Project has prepared to fulfill the Public Law 105-119 requirement (hereinafter referred to as the ER Report). The ER Report is intended to provide Congress with the information it needs to make decisions about environmental restoration that DOE believes is required before DOE can convey or transfer each of the 10 parcels.

Public Law 105-119 states that the conveyed or transferred parcels of land shall be used for historical, cultural, or environmental preservation purposes; economic diversification purposes; or community self-sufficiency. Both Los Alamos County and San Ildefonso Pueblo submitted preliminary statements of interest in some or all of the 10 parcels to DOE in June 1998, and both parties identified preliminary potential land uses for the parcels. In general, both San Ildefonso Pueblo and Los Alamos County identified uses of some of the parcels for commercial and industrial development, residential development, or cultural or environmental preservation. The potential uses by the identified recipients of each parcel are not always the same. Land parcels under consideration for conveyance and transfer are shown in Figure 1.

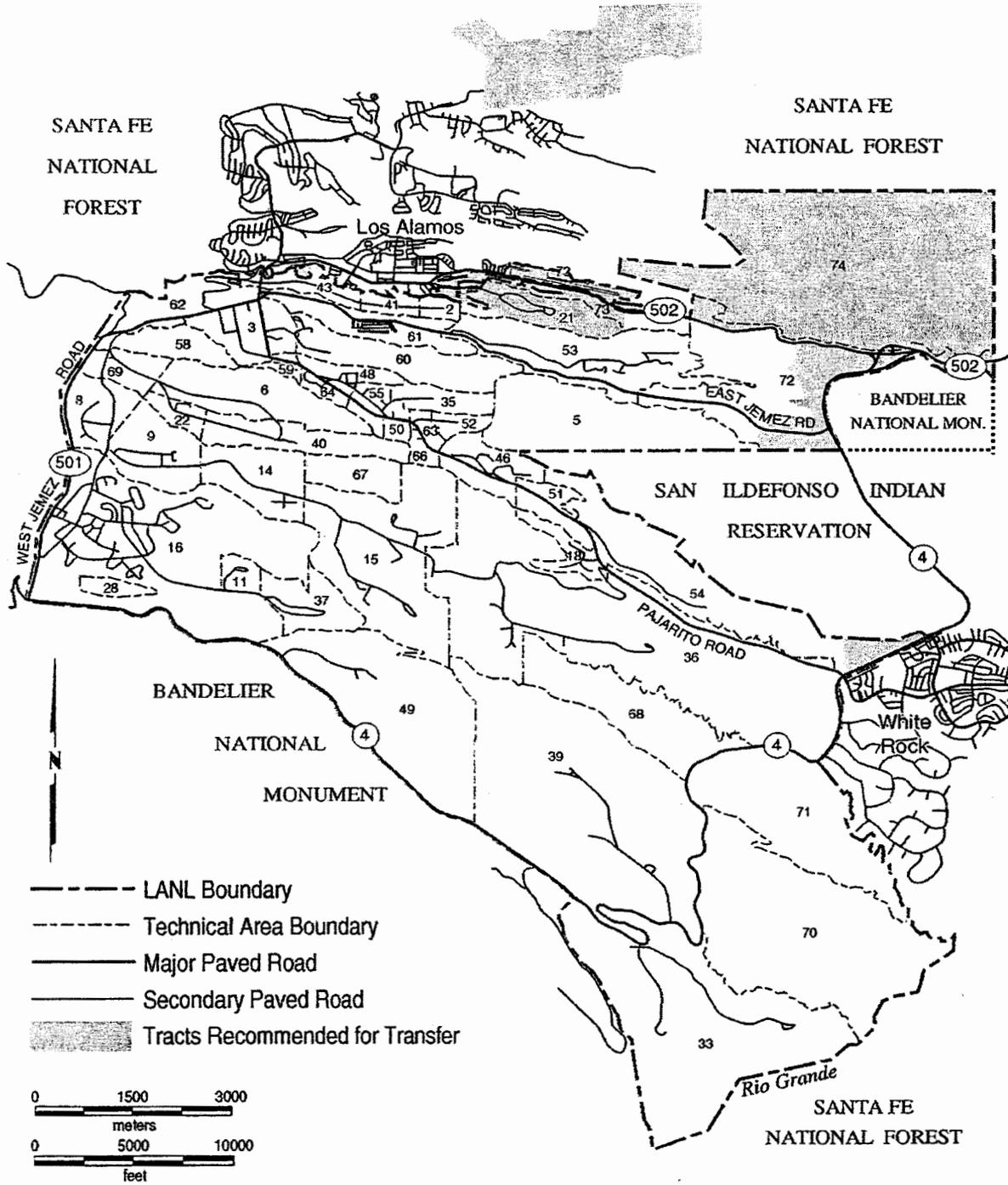


Figure 1. Map of tentatively identified land transfer parcels at Los Alamos National Laboratory

Limitations and Uncertainties in the ER Report

Potential Release Sites and Structures

The ER Project at LANL was established by DOE in 1989 to assess and remediate sites that were known or suspected to be contaminated because of historical operations and that either were or still are under DOE control. By 1992, the ER Project had reviewed existing historical records and interviewed long-time employees, which resulted in the identification of approximately 2120 such sites, called "potential release sites" (PRs). LANL's PRs are diverse and include historically used material disposal areas, canyons, outfalls, drain lines, firing sites, industrial sites, and miscellaneous other sites, such as the locations of historical spills. There are more than 2000 numerically identified structures within the 43-square-mile area of LANL. Most are used for offices, storage, or support functions. They include transportable trailers, guardhouses, passageways, and buildings. There are 200 PRs and 154 LANL-numbered structures located within the 10 parcels tentatively identified by DOE for conveyance and transfer.

The characterization and cleanup of LANL's PRs is an ongoing and often, by nature, an iterative process. The challenge of LANL's ER Project is to balance its use of resources optimally between site characterization and remediation. Characterization projects are planned and conducted with the objective of gathering sufficient information to make decisions about whether cleanup is required and, if it is, what cleanup strategies are likely to be successful. However, as the ER Project learns more about a site through the process of characterization, it often becomes clear that additional information is needed in order to make a well-founded decision about the next step.

The PRs and structures discussed in the ER Report are currently at different stages in the characterization and cleanup process. At some sites, characterization may be only at the early stages (i.e., historical file information has been gathered and, in some cases, limited sampling has been performed). In other cases, site characterization has been thorough and is believed to be complete, and the site may be proposed for cleanup or no further action (NFA). In still other cases, cleanup has been completed, and the site has been proposed (and, in some cases, approved) for NFA. The present level of certainty of DOE's knowledge about each PR varies, therefore, according to what stage has been reached in the overall characterization and cleanup process.

Cleanup Decisions Relate to Land Use

The ER Project makes decisions about whether or not a site requires remediation on the basis of the risk that contamination at the site poses to human health and ecological resources (i.e., plant and animal life). This risk-based decision-making process has been adopted from Environmental Protection Agency methodology and is being refined by the ER Project and the New Mexico Environment Department (NMED). In principle, the decision-making process is based on the premise that the risk posed by contamination at a site will vary depending on how the site is going to be used in the future. Consequently, the level of cleanup required at a site will also vary as a function of future land use. In general, contaminants that are found on land to be used for residential purposes must be cleaned up to lower levels than the same

contaminants on land to be used for commercial or industrial development because the potential for type and duration of human exposure to the contaminants is greater under the residential land use scenario.

The proposed remedies associated with each parcel were developed based on potential land uses stated by the identified recipients. In general, both identified recipients stated they would use some (but not always the same) parcels for commercial and industrial development, residential development, and cultural or environmental preservation. These potential land uses correspond to the ER Project's risk-based land-use scenarios and cleanup levels based on industrial use, residential use, and recreational use, respectively. The rationale for using recreational use cleanup levels for the cultural and environmental preservation land-use scenario is that the potential for exposure to contaminants is similar under both scenarios (e.g., time spent on-site under the recreational and preservation scenarios is intermittent, in contrast to residential use, where time spent on-site is fairly continuous and long term). However, a scenario will be developed to appropriately assess risk associated with traditional and unique Native American uses of parcels designated for cultural preservation; wastes generated as a result of remediation under this scenario are not expected to exceed the high-volume estimates presented in Table 3.

Potential uses of a parcel by the identified recipients sometimes included both commercial development and cultural preservation. The alternative remedies presented in the ER Report would be expected to meet the cleanup goals associated with both uses. If, prior to conveyance and transfer, a recipient notifies DOE of its intent to change a contemplated land use, DOE will determine whether additional cleanup is required for the new contemplated land use, and DOE will conduct the cleanup if appropriate and feasible pursuant to the provisions of Public Law 105-119. In the event the contemplated land use changes after cleanup has been completed to the satisfaction of the NMED, discussions would occur between DOE and the recipient as to what level of additional cleanup is required to meet the new land use based on the agreement signed between the parties to transfer the property. Any contamination caused by the recipient on the property is the responsibility of the recipient, and not DOE.

The Role of Regulatory Agencies

An Administrative Authority must approve the proposed remedy at each PRS and must approve all requests for NFA at a given PRS. For all PRSs listed in the Hazardous and Solid Waste Amendments (HSWA) Module of LANL's Hazardous Waste Facility Permit, the Administrative Authority is the NMED. For all other PRSs, the Administrative Authority is the DOE.

DOE's proposed remedies and estimates of projected waste volumes, cleanup costs, and cleanup durations presented in the ER Report are based on site characterization data as they exist today. These projections are also based on the DOE's understanding of the types of cleanup strategies and the cleanup levels that are generally acceptable under the Resource Conservation and Recovery Act's (RCRA's) corrective action regulations. The DOE believes that the remedies proposed for each parcel are appropriate based on the specific land-use assumptions for that parcel. If, prior to transfer or conveyance, a contemplated use for a parcel is identified that is different from those stated in June 1998 by Los Alamos County and San Ildefonso Pueblo, then

the proposed remedies and their associated costs could change. It should be emphasized that characterization and, if necessary, remediation of all PRSs is mandated under HSWA, and must be completed on a schedule determined by the AA, notwithstanding the requirements of Public Law 105-119.

It should also be emphasized that several of the environmental restoration projects for some parcels might be difficult and costly to conduct, for both characterization and for actual remediation. Such work, much of it without precedent, might be difficult to complete successfully at any cost. For example, characterization of the canyons systems for six of the parcels, especially for those whose slopes are greater than about 20 degrees, will take up to 3 years to complete at a cost of several millions of dollars. The material disposal areas also will be technically challenging both to characterize and remediate, if necessary, due in part to lack of historical records for some of these release sites and to their highly heterogeneous nature. Future regulatory discussions could alter current estimates of the scope and costs required to complete remediation of a given parcel. If current budget levels remain stable, it would be difficult to complete restoration at all parcels by 2007, even assuming that the regulatory authorities do not require significantly more characterization and remediation than assumed herein.

Environmental Restoration Activities for the Parcels Proposed for Transfer

There are 200 PRSs and 152 LANL-numbered structures located within the 10 parcels tentatively identified by DOE for conveyance and transfer as summarized in Table 1. Two of the parcels – Site 22 and the Manhattan Monument – have neither PRSs nor structures associated with them, and consequently, the environmental restoration issues associated with them are minimal. At the other end of the spectrum, the Technical Area (TA)-21 parcel contains 154 of the 200 PRSs and 125 of the 152 structures. The environmental restoration issues associated with this parcel are the most complex and will be the most costly of all of the tentatively proposed land transfer parcels.

TABLE 1

**Summary of Environmental Restoration Sites
Located on the Tentatively Identified Land Transfer Parcels**

Parcel	Number of PRSs	Number of Structures
TA-21	154	125
DP Road	10	10
DOE LAAO	3	3
Airport	25	4
White Rock	0	1
Rendija	4	0
White Rock Y	0	6
Manhattan Monument	0	0
TA-74	4	3
Site 22	0	0
Total	200	152

Parts or all of certain other parcels, including the Airport, White Rock Y, White Rock, TA-21, DP Road, and TA-74 parcels are situated within one or more canyon drainage systems and could, potentially, be the recipients of contaminant migration from mesa-top or up-canyon locations. The canyon bottoms will have to be characterized and, if necessary, remediated prior to conveyance and transfer.

Proposed Cleanup Activities

DOE's proposed remedies and estimates of projected waste volumes, cleanup costs, and cleanup durations are based on site characterization data as they exist today. These projections are also based on the DOE's understanding of the types of cleanup strategies and the cleanup levels that are generally acceptable under the RCRA corrective action regulations. Remediation activities could include the following: removal, treatment in place, or contamination containment. No further action might be an acceptable alternative if a PRS does not pose an unacceptable risk to human health or ecological resources.

Waste Volume Estimates

The information presented in Tables 2 and 3 presents an estimate of the range of waste volumes by parcel for the entire land transfer project. These estimates are based on the contemplated land uses by San Ildefonso Pueblo and Los Alamos County. These tables present

DOE's estimates of the lowest- and highest-estimated waste volumes that could be generated to prepare each parcel for transfer.

TABLE 2
Projected Waste Volumes by Parcel
Low-Volume Estimates

Parcel	Projected Waste Volumes (cubic yards)							
	Solid	Hazardous	Low-Level	Mixed	PCB	PCB Mixed	TRU	Asbestos
TA-21	47,038	387	15,091	1,108	196	40	54	1,929
DP Road	1,893	744	0	0	0	0	0	330
DOE LAAO	350	0	0	0	0	0	0	46
Airport	24,056	0	400	0	0	0	0	0
White Rock	0	0	0	0	0	0	0	0
Rendija Canyon	0	7,500	0	0	0	0	0	0
White Rock Y	0	0	0	0	0	0	0	0
Site 22	10	0	0	0	0	0	0	0
Manhattan Monument	0	0	0	0	0	0	0	0
TA-74	2	2	1	2	0	0	0	0
Total	73,349	8,633	15,492	1,110	196	40	54	2,305

TABLE 3

**Projected Waste Volumes by Parcel
High-Volume Estimates**

Parcel	Projected Waste Volumes (cubic yards)							
	Solid	Hazardous	Low-Level	Mixed	PCB	PCB Mixed	TRU	Asbestos
TA-21	47,038	387	15,091	1,108	196	40	54	1,929
DP Road	1,893	754	0	0	0	0	0	380
DOE LAAO	2,931	0	0	0	0	0	0	486
Airport	24,056	0	400	0	0	0	0	0
White Rock	0	0	942	0	0	0	0	0
Rendija Canyon	1	7,500	0	0	0	0	0	0
White Rock Y	0	0	3,767	0	0	0	0	0
Site 22	10	0	0	0	0	0	0	0
Manhattan Monument	0	0	0	0	0	0	0	0
TA-74	2	2	98,882	2	0	0	0	0
Total	75,931	8,643	119,082	1,110	196	40	54	2,795

Cleanup Duration and Cost

The estimated costs and durations of environmental restoration vary considerably among the 10 parcels, depending on the types and complexity of the PRSs and structures present on-site and on the contemplated future land use of each parcel. The DOE has estimated a range of waste volume estimates, cleanup costs, and cleanup durations for each parcel, based on land-use scenarios that represent the potential uses to which each parcel might be put. Summaries of the costs are presented in Tables 4 and 5.

TABLE 4

**Summary of Proposed Remedies, and Remedial Action and D&D Durations and Costs
Low-Cost Estimates**

Parcel	Number of PRSs by Proposed Remedy				Total Estimated Costs for Completion (\$K)	Range in Estimated Durations for Individual PRSs and Structures (Months)
	Removal	In Situ Treatment	In Situ Containment	No Action		
TA-21						
PRSs	75	2	27	50	\$400,184 ¹	1-84
Structures	125	-	-	-		
Canyon Systems	-	-	-	2		
DP Road						
PRSs	4	-	2	4	\$26,986	2-70
Structures	10	-	-	-		
Canyon Systems	-	-	-	2		
DOE LAAO						
PRSs	3	-	-	-	\$4,253	11-18
Structures	1	-	-	2		
Airport						
PRSs	9	-	10	6	\$28,217	1-75
Structures	-	-	-	4		
Canyon Systems	-	-	-	2		
White Rock						
PRSs	-	-	-	-	\$954	16
Structures	-	-	-	1		
Canyon Systems	-	-	-	1		
Rendija Canyon						
PRSs	1	-	-	3	\$19,053	14-30
Structures	-	-	-	-		
Canyon Systems	-	-	-	1		
White Rock Y						
PRSs	-	-	-	-	\$1,880	16
Structures	-	-	-	6		
Canyon Systems	-	-	-	2		
Site 22						
Non-LANL Debris	1	-	-	-	\$91	9
Manhattan Monument	-	-	-	-	\$0	0
TA-74						
PRSs	-	-	-	4	\$3,683	11-18
Structures	-	-	-	3		
Canyon Systems	-	-	-	2		

¹ The costs presented in this table differ from those presented for "Case 2", the current baseline case, in the TA-21 Project Plan (February 1999 report to Congress) because the costs of D&D at DP East and canyons systems costs are included in the ER report but not in the TA-21 Project Plan.

TABLE 5

**Summary of Proposed Remedies, and Remedial Action and D&D Durations and Costs
High-Cost Estimates**

Parcel	Number of PRSs by Proposed Remedy				Total Estimated Costs for Completion (\$K)	Range in Estimated Durations for Individual PRSs and Structures (Months)
	Removal	In Situ Treatment	In Situ Containment	No Action		
TA-21 PRSs Structures Canyon Systems	75 125 -	2 - -	27 - -	50 - 2	\$400,184	1-84
DP Road PRSs Structures Canyon Systems	4 10 -	- - -	2 - -	4 - 2	\$29,070	2-84
DOE LAAO PRSs Structures	3 2	- -	- -	- 1	\$9,680	9-18
Airport PRSs Structures Canyon Systems	9 - -	- - -	10 - -	6 4 2	\$28,217	1-75
White Rock PRSs Structures Canyon Systems	- - 1	- - -	- - -	- 1 -	\$3,374	16
Rendija Canyon PRSs Structures Canyon Systems	4 - -	- - -	- - -	- - 1	\$20,462	14-30
White Rock Y PRSs Structures Canyon Systems	- - 2	- - -	- - -	- 6 -	\$10,424	24
Site 22 Non-LANL Debris	1	-	-	-	\$91	9
Manhattan Monument	-	-	-	-	\$0	0
TA-74 PRSs Structures Canyon Systems	- - 2	- - -	- - -	4 3 -	\$215,666	11-22

Parcel-by-Parcel Description

The remainder of this document presents a parcel-by-parcel overview of each tract proposed for transfer. Each overview includes a description of the parcel location and its historical use; description of PRSs and structures in the parcel; a brief discussion of the extent of contamination; and the regulatory status of PRSs located within the parcel.



TA-21 PARCEL

Background

TA-21 is among the oldest technical areas at LANL. Operations commenced in 1945 with the transfer of plutonium purification activities from the original Manhattan Engineering District facilities to TA-21. The plutonium processing and purification activities were moved from TA-21 in the late 1970s. Past operations at TA-21 resulted in environmental contamination of the site.

The TA-21 parcel is approximately a 260 acre site, located at the eastern end of the same mesa on which the central business district of the Los Alamos townsite is located. Of the parcel's 260 acres, 105 acres are located on the mesa top and are topographically suitable for development. Los Alamos Canyon and DP Canyon are to the south and north, respectively. Access is by way of DP Road. The Los Alamos Airport is located immediately to the north of the parcel, separated from it by a smaller, secondary canyon (DP Canyon). Some of the buildings within the western portion of the parcel, known as DP West, are currently being used as office space by various LANL groups.

Some of the buildings within the eastern portion of the tract (DP East) have historically been used and are currently being used to house LANL's Tritium Systems Test Assembly and Tritium Salt Fabrication Facility. These tritium research activities are critical to the national security and research mission of LANL.

There is currently no plan to relocate the tritium-related work conducted at DP East area to another location at LANL.

The land use contemplated by both identified land recipients is commercial and industrial development for the purpose of economic diversification.

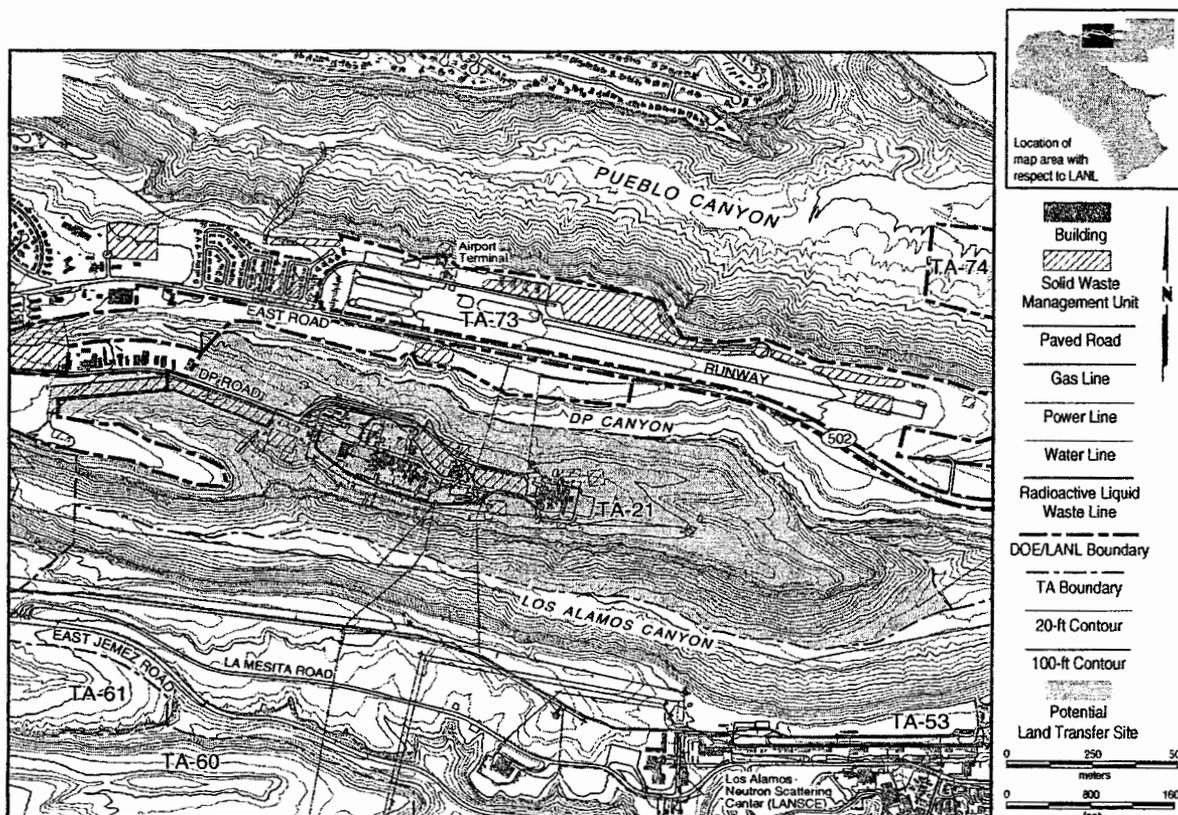


Aerial view of the TA-21 parcel

Description of PRSs and Structures within the TA-21 Parcel

There are a total of 154 potential release sites (PRSs) within the TA-21 parcel and a 50-foot buffer area surrounding the parcel. These PRSs require investigation and, potentially, remediation by the LANL ER Project. The PRSs fall within five general categories: two PRSs are classified as incinerators; 88 are surface units; 21 are outfalls; 5 are material disposal areas (and by virtue of their proximity, another 4 are grouped with material disposal areas for purposes of characterization and remediation); and 34 are subsurface units.

There are 125 LANL-numbered structures within TA-21 that would require decontamination and decommissioning prior to transferring the parcel. These structures range from electrical substation sheds to wastewater systems to research and process facilities.



Map of TA-21 Site

Extent of Contamination

This parcel has been extensively investigated since 1992, for both surface and subsurface contamination. Because of its historical uses, this parcel is the most contaminated of the candidate parcels for land transfer. The specific types and levels of contamination present at each PRS and structure vary. In general, hazardous chemical and radioactive contamination is prevalent. Polychlorinated biphenyls contaminate some locations. Of the 154 PRSs at TA-21, 95 have been sampled to begin to characterize the nature and extent of contamination that has resulted from historical activities.

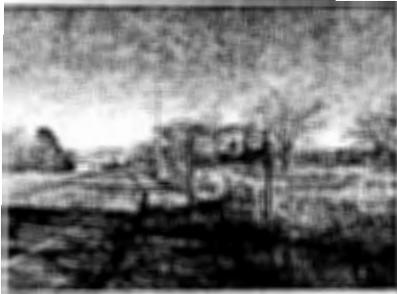
Regulatory Status

Of the 154 PRSs contained in this parcel, 82 are listed in the HSWA Module of LANL’s Hazardous and Solid Waste Permit. The NMED is the Administrative Authority for this permit and must concur that no further action (NFA) is required at a PRS before the PRS can be removed from the permit. The remaining 72 PRSs are not listed on the permit and DOE is the Administrative Authority that must concur on NFA recommendations for ER action for these sites to be considered complete. Of the 154 PRSs contained in this parcel, 82 PRSs are under investigation; 24 PRSs are recommended for human health NFA; 41 PRSs have NFA concurrence by DOE; 3 PRSs have NFA concurrence by the NMED; and 4 PRSs are under reconsideration.

DP ROAD PARCEL

Background

The DP Road parcel is located between the western boundary of TA-21 and the major commercial districts of the Los Alamos townsite. It is located primarily in TA-73, although it also includes the westernmost portion of TA-21. The site is bisected by DP Road, and commercial/light industrial areas are located along the north side of DP Road adjacent to the parcel. This development and the road delineate the north and south sections of the site. The western section is a small, generally rectangular site adjacent to the townsite's commercial district. The major portion of LANL's archives is housed in two large structures in the western section.



Part of the DP Road parcel viewed from DP Road

The contemplated uses of the parcel by the identified recipients include commercial development and residential development.

Description of PRSs and Structures within the DP Road Parcel

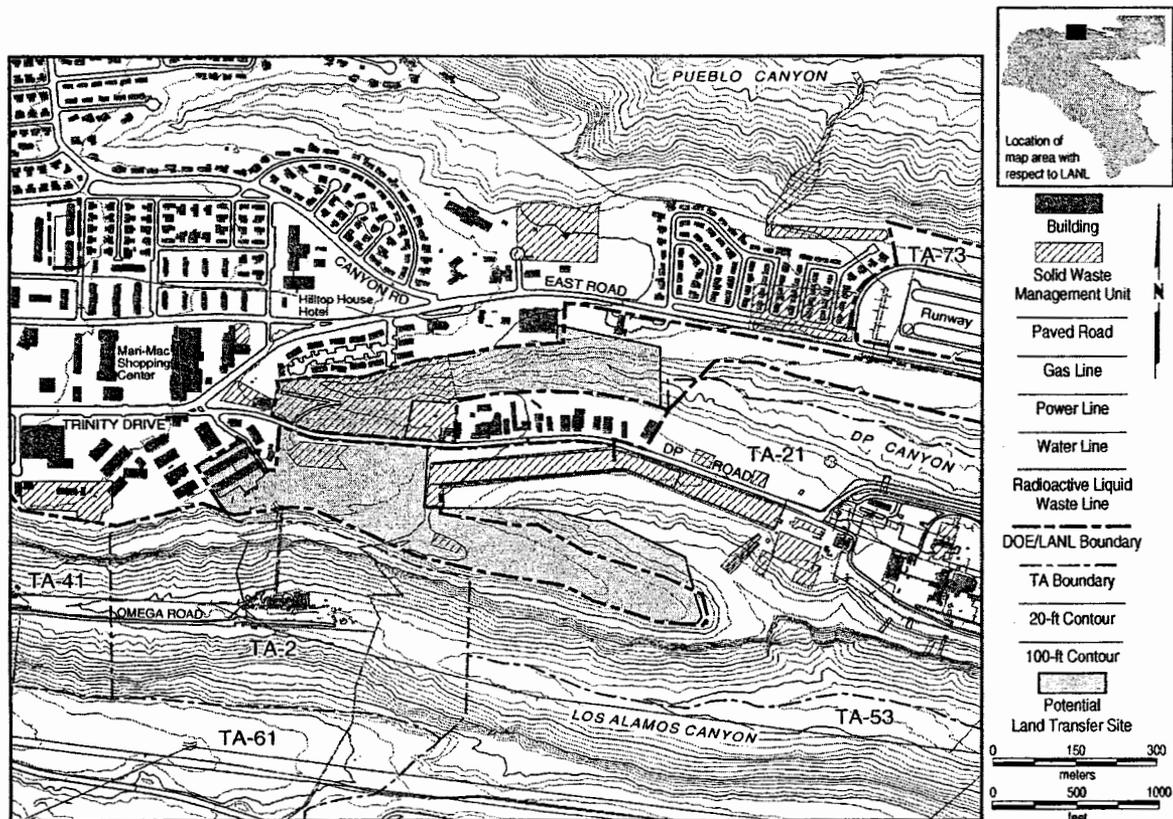
There are 10 potential release sites (PRSs) and 10 LANL-numbered structures within the parcel and a 50-foot buffer surrounding it. The PRSs are all associated with LANL operations that began in the late 1940s, which included warehousing, utility shop operations, and a materials-testing laboratory.



Aerial photo showing the DP Road parcel and surrounding area

Of the 10 PRSs within the parcel, 2 were tentatively identified as subsurface units on the basis of historical photographs that showed open, but empty, trenches. It has now been demonstrated by the LANL ER Project that no disposal occurred in these trenches. The remaining eight PRSs are categorized as surface units and include a container storage area, potential soil contamination areas (some from sanitary septic systems), the former DP Road storage area, and the former DP Tank Farm.

There are 10 LANL-numbered structures situated on the DP Road parcel. Six of these structures are storage sheds, and one is a transportainer. Two other structures are currently being used by LANL as records storage facilities. Another structure is a backflow preventer, which is part of the county water supply system.



Map of DP Road Parcel

Extent of Contamination

Sampling has been conducted at all 10 of the PRSs located in this parcel. Under the residential future use scenario, 5 nonradioactive metals, 14 organic compounds, plutonium-239, and uranium-234 exceeded cleanup goals in one or more samples. Under the industrial scenario, the analytes exceeding cleanup goals in one or more samples is limited to arsenic, lead, eight organic compounds, and uranium-234.

Regulatory Status

Four of the ten PRSs contained in the DP Road parcel are listed in the HSWA Module of LANL's Hazardous Waste Facility Permit. One of these PRSs is currently under investigation, and three have been recommended for no further action (NFA) because they do not pose an unacceptable risk to human health. The NMED is the Administrative Authority for this permit and must concur that NFA is required at a PRS before it can be removed from the permit. The NMED has not yet concurred with the LANL ER Project's NFA recommendations for these three PRSs.

The remaining six PRSs are not listed on the permit. One of these PRSs is currently under investigation. The remaining five PRSs have been proposed for NFA and DOE, which is the Administrative Authority that must concur on an NFA recommendation for these PRSs, has done so for two. No additional ER action at these two PRSs is necessary.

DOE LAAO PARCEL

Background

The DOE Los Alamos Area Office (LAAO) parcel is located in the Los Alamos townsite between Los Alamos Canyon and Trinity Drive.



Portion of the DOE LAAO parcel as seen from Trinity Drive

The parcel is approximately 15 acres and is accessed from Trinity Drive. The site is separated from Trinity Drive by privately owned land that fronts onto Trinity Drive. The site is just east of the Los Alamos Medical Center.

The land uses contemplated by the identified recipients of this parcel are commercial development and residential development.

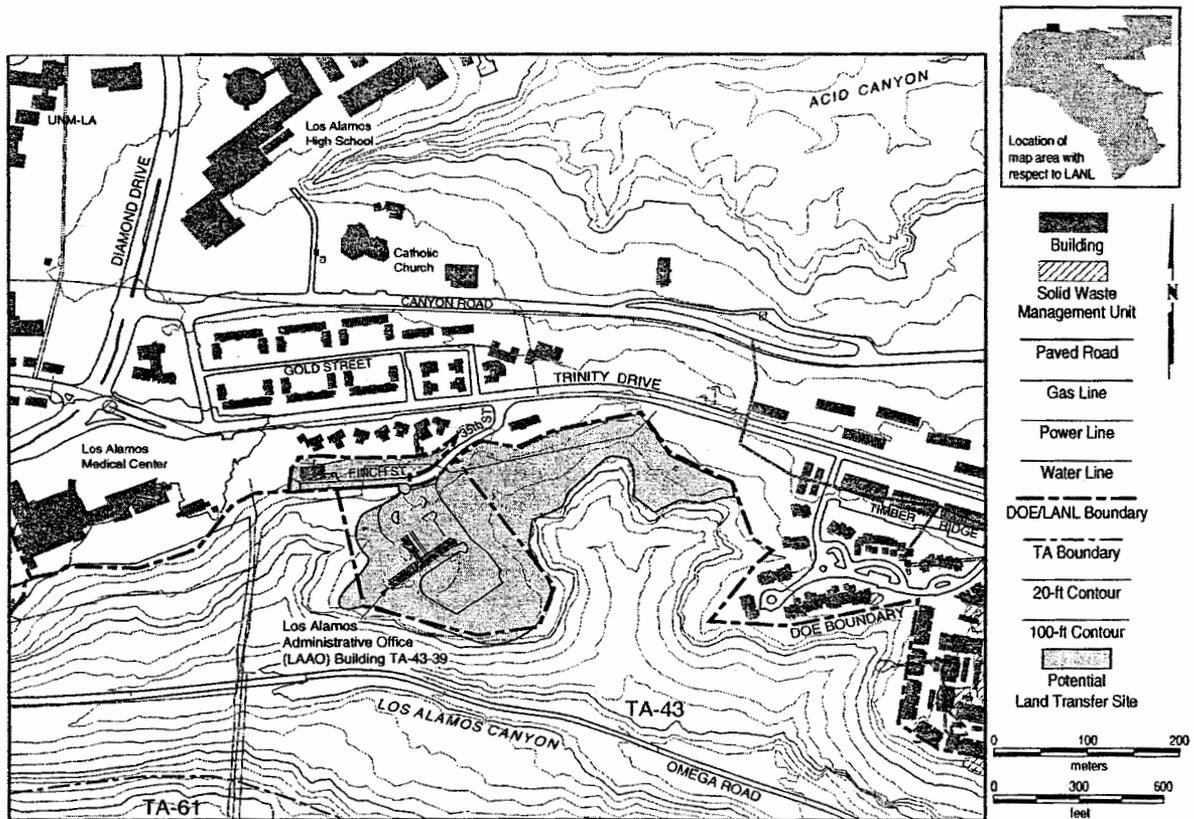
Description of PRSs and Structures within the DOE LAAO Parcel

This parcel contains three potential release sites (PRSs) and three LANL-numbered structures. There are no additional PRSs in proximity (i.e., within 50 feet) to the parcel. Two of the three PRSs are associated with operations of LANL's steam plant; one was a product storage area and the other was an underground storage tank that received steam and condensed water from the steam plant's boilers. These PRSs are categorized as a surface unit and a subsurface unit, respectively. The third PRS is a sanitary septic system that is believed to have served a mess hall, dormitories, barracks, a military post office, and the Sundt apartments along Finch Street. It is classified as an outfall.



Largest structure on the DOE LAAO parcel, DOE's Los Alamos Area Office

There are three LANL-numbered structures situated on the DOE LAAO parcel. The largest structure currently serves as DOE's Los Alamos Area Office. A second structure is a Los Alamos County pump station, and the third structure is a nonoperational steam plant. It is assumed that the steam plant will be demolished under both land-use scenarios. The pump station is an essential part of the utility infrastructure, and the assumption is that it will be retained under both land-use scenarios. It is assumed that the DOE office building will be demolished under the residential land use scenario, and retained under the commercial land use scenario.



Map of DOE LAAO Parcel

Extent of Contamination

The three PRSs in this parcel have been sampled. The results indicated that in 1 percent to 30 percent of the 27 samples collected in this parcel, 8 organic compounds exceeded residential cleanup goals, and 7 organic compounds exceeded industrial cleanup goals.

Regulatory Status

Two of the PRSs contained in the DOE LAAO parcel are listed in the HSWA Module of LANL's Hazardous Waste Facility Permit. The NMED is the Administrative Authority for this permit, and must concur that no further action (NFA) is required at a PRS before the PRS can be removed from the permit. These two PRSs have been recommended for NFA because it is believed they do not pose an unacceptable risk to human health. The NMED has not yet concurred with the LANL ER Project's NFA recommendations for these two PRSs. The remaining PRS is not listed on the permit. It has also been recommended for NFA on the basis of human health risk. The DOE, which is the Administrative Authority that must concur on an NFA recommendation for this site, has not concurred.

AIRPORT PARCEL

Background



Historical photo of the Airport parcel

The Airport parcel is approximately a 205-acre site, located east of the Los Alamos townsite on the northeastern edge of the mesa above Pueblo Canyon. A single-family residential development borders the western boundary, and East Gate Park and East Gate Business Park are located east of the site. To the north is Pueblo Canyon, and to the south is the Main Hill Road (NM Highway 502) leading into the townsite, and DP Canyon, a small secondary canyon, is just south of the road. NM Highway 502 is the main entrance to the community of Los Alamos, and the airport is one of the first developments one passes upon entering the townsite.

The land uses contemplated by the identified land recipients include commercial and industrial development and, possibly, retention of the airport.

Description of PRSs and Structures within the Airport Parcel

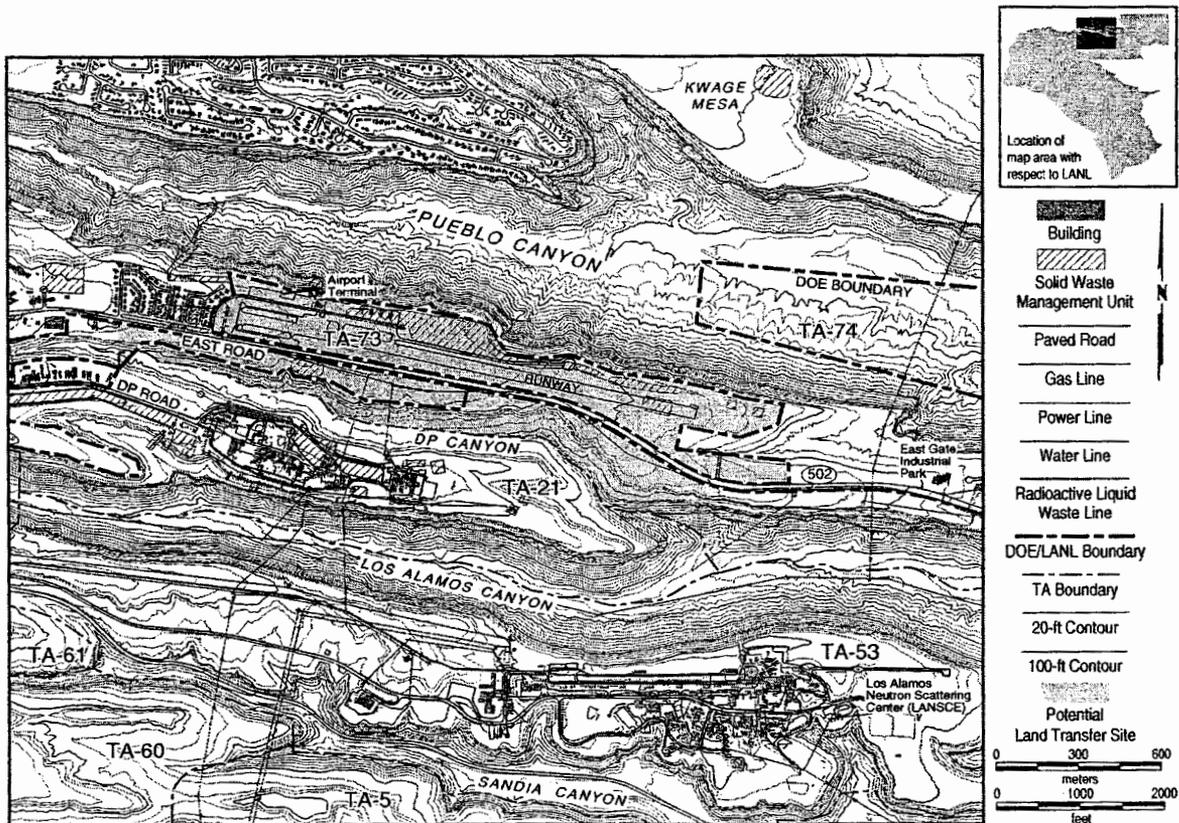
This parcel contains 24 potential release sites (PRSs), and there is 1 additional PRS located in proximity (i.e., within a 50-foot buffer) of the parcel. The parcel also contains four LANL-numbered structures. The 25 PRSs include 6 material disposal areas, 8 subsurface units, 5 surface units, and 6 outfalls.



Aerial photo showing a portion of the Airport parcel that includes the airport runway

The four LANL-numbered structures include the airport terminal building; a storage building and a storage shed, which are both associated with airport operations; and a gas meter station. It is assumed that all four structures would be retained under the proposed land-use scenario.

Of the 25 PRSs within or in proximity to this parcel, characterization sampling has been performed at 19 of them. Remediation activities have been conducted at two PRSs, and these PRSs, as well as an additional five, have been proposed for no further action (NFA) because they pose no unacceptable risk to human health. The remaining 18 PRSs are under investigation.



Map of Airport Parcel

Extent of Contamination

Some of the PRSs in this parcel have been sampled and, in particular, a substantial amount of sampling has been performed at the airport landfill. Preliminary results indicate that arsenic, lead, iron, and five organic compounds exceeded industrial cleanup goals in one or more samples.

Regulatory Status

Eleven of the twenty-five PRSs contained in or in proximity to the airport parcel are listed in the HSWA Module of LANL’s Hazardous Waste Facility Permit. Seven of the eleven PRSs listed on the permit are currently under investigation. The NMED is the Administrative Authority for this permit and must concur that no further action is required at a PRS before the PRS can be removed from the permit. The NMED has not concurred with the LANL ER Project’s NFA recommendations for the remaining four PRSs listed on the permit. Fourteen PRSs are not listed on the permit. The LANL ER Project has made NFA recommendations on five of these PRSs, and DOE, which is the Administrative Authority that must concur on an NFA recommendation, has concurred on all five of them. No additional ER action at these five PRSs is necessary. The remaining nine PRSs not listed on the permit are currently under investigation.

WHITE ROCK PARCEL

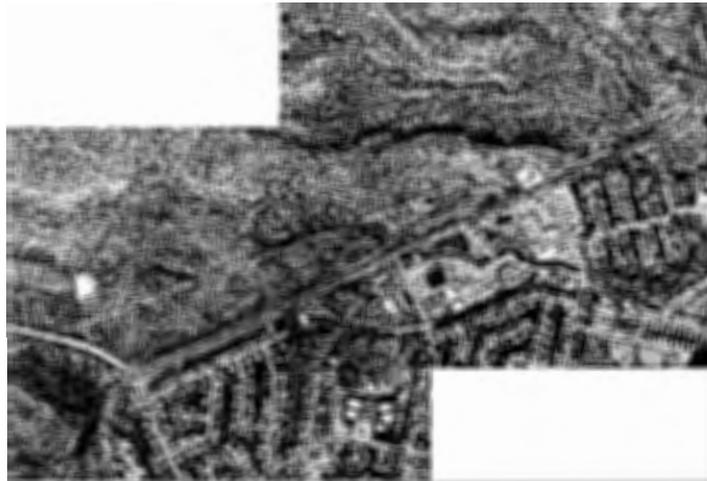
Background

The White Rock parcel is located north and west of the White Rock residential and commercial areas and is adjacent to NM Highway 4; it lies within the lower reaches of Cañada del Buey. The site consists of approximately 100 acres and is undeveloped except for utility lines and a water pump station.



White Rock parcel; view facing east from Highway 4

The land uses contemplated by the identified recipients include residential development, and a combination of cultural preservation and commercial development.



Aerial view of White Rock parcel

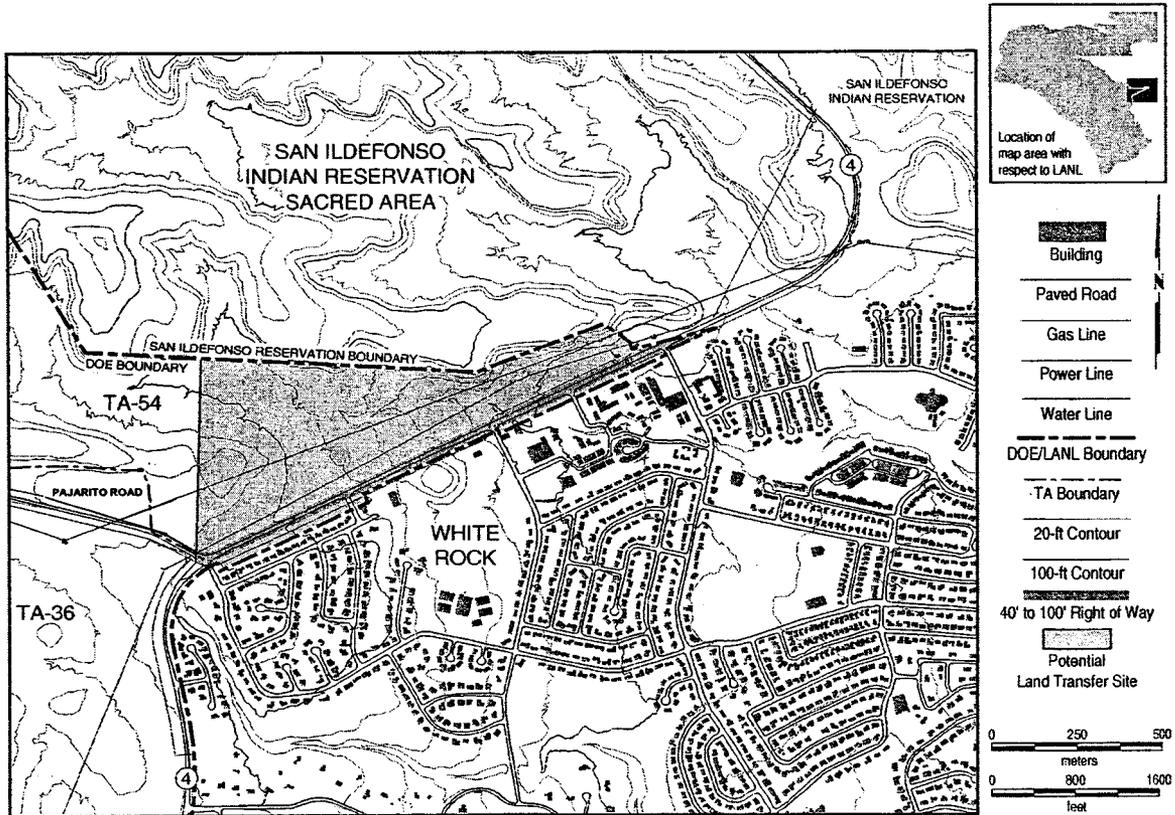
Description of PRSs and Structures within the White Rock Parcel

There are no potential release sites (PRSs) located within or in proximity to (i.e., within 50 feet of the boundary) the White Rock parcel. Only one LANL-numbered structure is located within the parcel: a pump station that is part of the water supply system that DOE leased to Los Alamos County in 1998 on a long-term basis. The ER Project assumes that this structure will remain intact and in beneficial use after the transfer of this parcel.

Extent of Contamination

To date, the LANL ER Project has not sampled within this parcel or upstream in Cañada del Buey.

Although there are no PRSs within this parcel, environmental contamination could be a concern near the portion of the parcel that lies within the stream channel and flood plain of Cañada del Buey. LANL's Environmental Surveillance Program has conducted only limited sampling in Cañada del Buey. These samples have detected uranium and plutonium in sediments and, in 1997, showed a possible detection of strontium-90 in the shallow groundwater upstream of the parcel.



Map of White Rock Parcel

Although additional sampling is warranted to more fully characterize the nature and extent of contamination in the stream channel of Cañada del Buey, the limited sampling conducted to date indicates that the existing levels of contamination are well below levels that would elicit health concerns. The levels of contaminants that exist today are expected only to decrease over time even though there are still active LANL operations upstream of the parcel. This is because such operations are now subject to existing state and federal environmental regulations, which require the rigorous management of materials and wastes and limit the levels of contaminants that can be released either from discharge points or from stormwater runoff. Moreover, existing contamination in sediments will be dispersed over time by stream flow. It is not known whether the existing contamination of sediments and spring waters may limit their use as sources for cultural [medicinal and artistic] uses and ceremonial use, even with contamination levels orders of magnitude below those eliciting health concerns.

Regulatory Status

Although there are no PRSs within the White Rock parcel, the NMED, which is the Administrative Authority for LANL’s canyon systems, must concur that no further action is required within such a canyon system before ER activity can be considered complete.

RENDIJA CANYON PARCEL

Background

The Rendija Canyon parcel consists of approximately 910 acres and is located north of and below Los Alamos townsite's Barranca Mesa residential subdivision. An unpaved road extending from Barranca Road to the east divides the site. This site is undeveloped except for a shooting range that serves the local community; the shooting range is located on land that is currently under lease from the DOE to the Los Alamos Sportsman's Club.

The potential land uses contemplated by the identified recipients of the parcel are cultural and environmental preservation, and residential development.



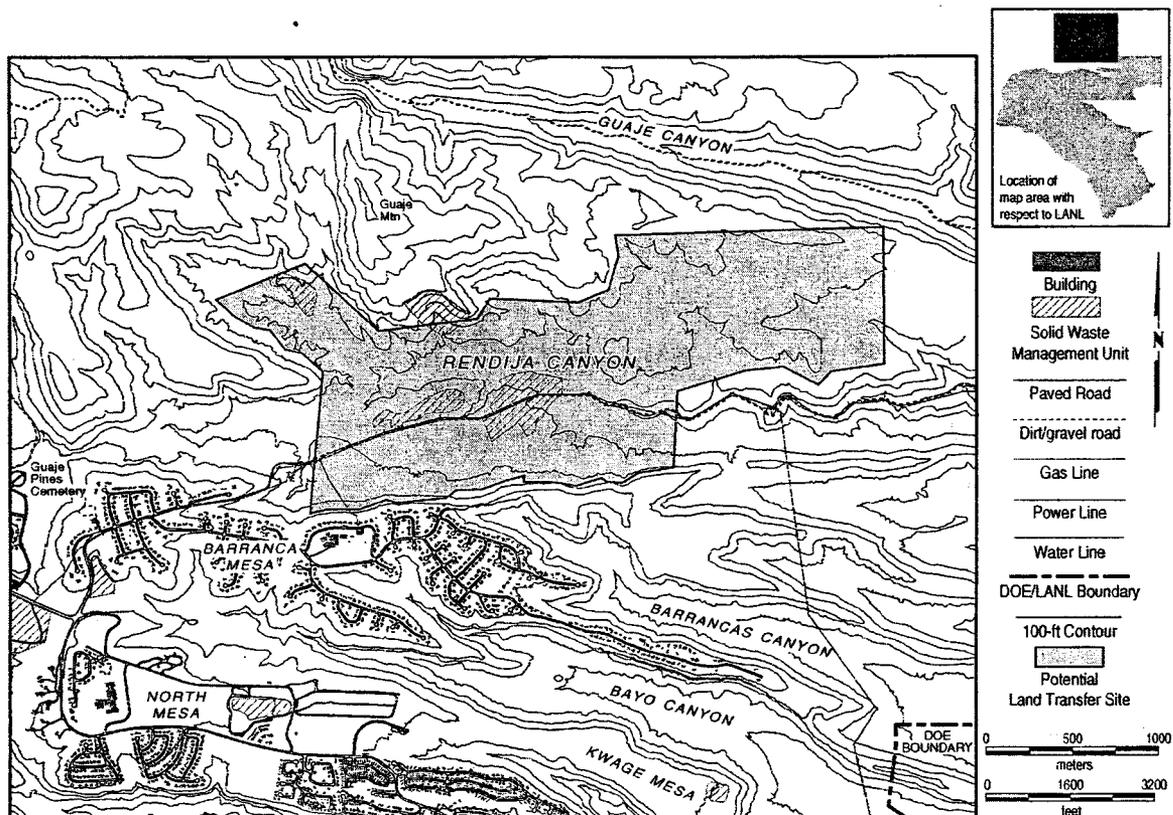
Portion of the Rendija Canyon parcel

Description of PRSs and Structures within the Rendija Canyon Parcel

This parcel contains four potential release sites (PRSs) and no LANL-numbered structures. There are no additional PRSs or structures within a 50-foot buffer surrounding the parcel. The four PRSs are all historical-use mortar impact areas that were used by the army between 1944 and 1948. All four PRSs are categorized as surface units. The LANL ER Project has conducted sampling for characterization purposes at all four PRSs.

Large quantities of ordnance and fragments of explosives were removed from two of the four PRSs during site investigations in 1993. No fragments were found in the third PRS. The fourth PRS is the Los Alamos Sportsman's Club, which is still in active use.

Because DOE maintains no LANL-numbered structures within the Rendija Canyon parcel no decontamination and decommissioning activity is required to prepare this parcel for conveyance and transfer.



Map of Rendija Canyon Parcel

Extent of Contamination

Three of the four PRSs in the parcel have been sampled for environmental contamination, and the results show that no contamination exists above cleanup levels appropriate for either preservation or residential development. At this time, there are no known human health-based or ecologically based risks associated with environmental contamination in the Rendija Canyon parcel.

Regulatory Status

Three of the PRSs contained in this parcel are listed in the HSWA Module of LANL’s Hazardous Waste Facility Permit. The NMED is the Administrative Authority for this permit and must concur that no further action (NFA) is required at a PRS before the PRS can be removed from the permit. The NMED has not concurred with the LANL ER Project’s NFA recommendations for these three PRSs. The remaining PRS is not listed on the permit, and DOE, which is the Administrative Authority that must concur on an NFA recommendation for this site, has concurred. However, because concurrence was based on the assumption that this property would remain under the institutional control of LANL, the DOE assumes, for the purpose of the ER Report, that additional action might be necessary at the PRS to prepare the parcel for transfer.

WHITE ROCK Y PARCEL

Background

The White Rock Y parcel is an area with a complex shape. It incorporates the alignments and intersections of State Route 502, State Route 4, and the easternmost part of East Jemez Road. It is traversed by Los Alamos and Sandia Canyons, which may contain residual contamination from historical LANL operations located upstream from this parcel. The parcel is approximately 540 acres and includes the state-owned, grade-separated intersection and surrounding land known as the White Rock Y. This site is largely undeveloped except for the major transportation routes connecting Los Alamos with northern New Mexico.

The land uses contemplated by the identified recipients of this parcel include cultural or environmental preservation. In addition, transportation corridors and utilities are proposed to be maintained, but this is an incidental use that will not affect the primary use of cultural and environmental preservation.



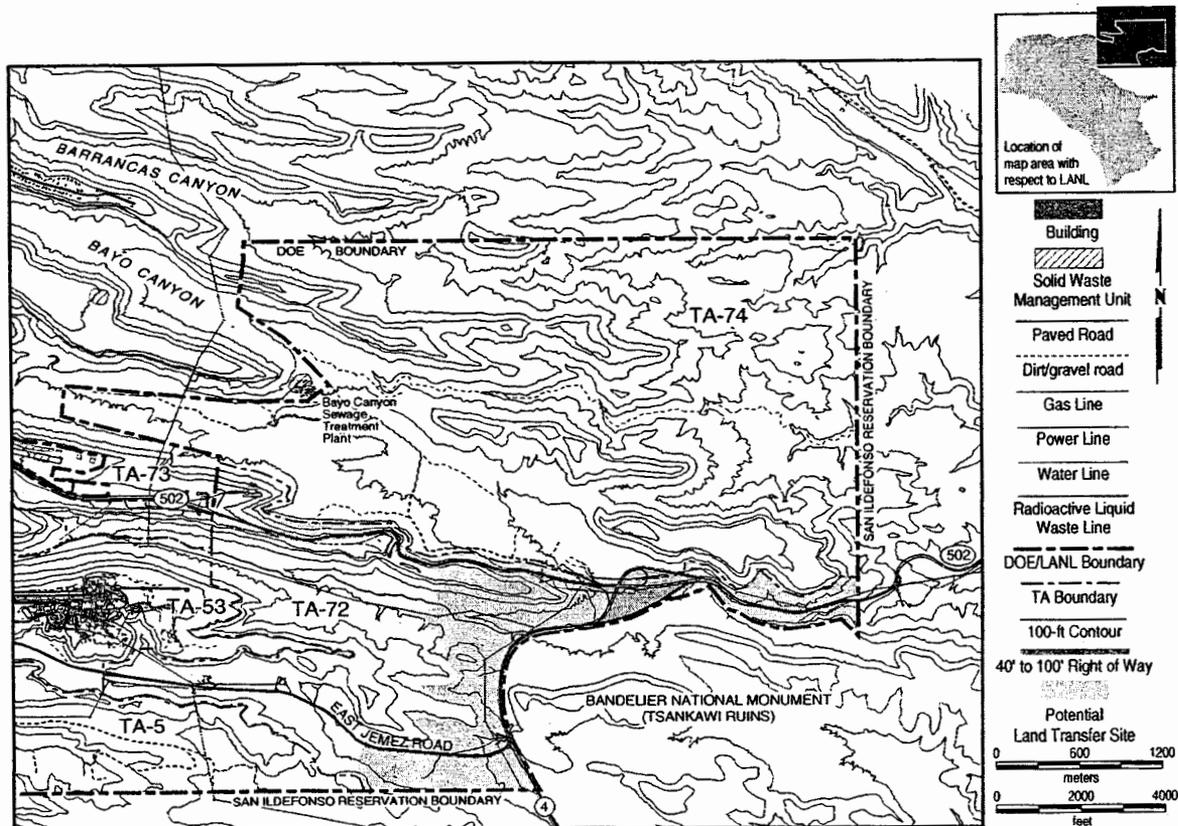
View of the area in which White Rock Y parcel is located

Description of PRSs and Structures within the White Rock Y Parcel

The White Rock Y parcel contains no potential release sites (PRSs) within its boundaries, nor are there any within 50 feet of the perimeter of the parcel. The parcel contains six LANL-numbered structures, which are all part of the water supply system that DOE leased to Los Alamos County on a long-term basis. The structures include a water tank, a booster station, a water well, a chlorinator station, a sand trap, and a fluorine station. None of these structures is currently scheduled for decontamination and decommissioning.

Extent of Contamination

Although there are no PRSs within this parcel, environmental contamination is known to be present within the portions of the parcel that lie within the Los Alamos and Sandia Canyon bottoms. This contamination is most likely associated with PRSs in the upper portions of these watersheds. The LANL ER Project is investigating all canyon systems for the presence of contamination, and in 1997, sediments were sampled in the portion of Los Alamos Canyon within the White Rock Y parcel. Several radionuclides were detected above levels associated with fallout from world-wide nuclear tests. These included americium-241, cesium-137, plutonium-238, plutonium-239, and strontium-90. None of these radionuclides was detected above cleanup levels for a preservation land-use scenario. Two additional radionuclides, thorium-230 and thorium-232, were detected at concentrations exceeding cleanup levels for this land-use scenario;



Map of the White Rock Y Parcel

however, the background concentrations of these two radionuclides in the Los Alamos area frequently exceed calculated cleanup levels. The distribution of these radionuclides is thought to be limited to the sediment deposits within either existing or historical (since 1940) stream channels in the canyons. Above-background levels of tritium and uranium have been detected in samples from perched groundwater zones located in Los Alamos Canyon upstream from the White Rock Y parcel. The limited sampling conducted to date indicates that existing contamination at the White Rock Y is at levels below those causing human health concerns, and they are expected to decrease further with time. It is not known whether this contamination could limit the use of shallow groundwater or sediment for cultural (medicinal and artistic) or ceremonial purposes, even at levels below human health concerns.

Regulatory Status

Although there are no PRSs within the White Rock Y parcel, the NMED, the Administrative Authority for LANL's canyon systems, must concur that no further action is required within such a canyon system before ER activity can be considered complete. Investigations are ongoing; no recommendations for no further action or cleanup have yet been submitted to the NMED.

SITE 22 PARCEL

Background

Site 22 is a small land parcel (less than half an acre) located at the edge of the townsite mesa, south of Trinity Drive and above Los Alamos Canyon. Site 22 abuts privately owned property that is currently developed as a commercial storage business located behind a McDonald's restaurant. This parcel currently has no public access and there is no development on Site 22.

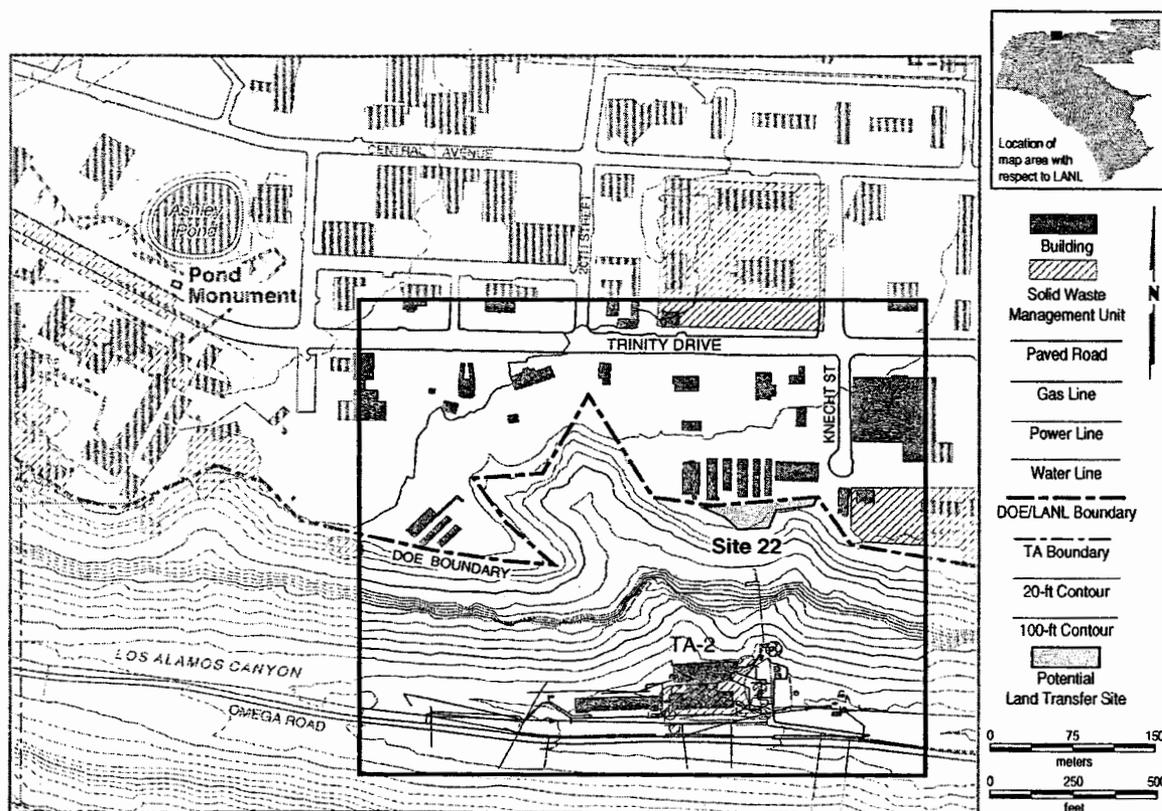
The land use contemplated by one identified recipient is commercial development. The other identified recipient has not explicitly identified a contemplated land use for the parcel.



Site 22 parcel located south of Trinity Drive and above Los Alamos Canyon

Description of PRSs and Structures within the Site 22 Parcel

The Site 22 parcel contains no potential release sites (PRSs) within its boundaries, and there are no PRSs in proximity (i.e., within 50 feet) to the parcel. However, some non-LANL construction debris was recently discovered on-site, which will have to be addressed prior to transfer of the parcel. There are no LANL-numbered structures located on the Site 22 parcel and, consequently, there are no decontamination and decommissioning costs associated with the transfer of this parcel.



Map of Site 22 Parcel

Extent of Contamination

Some construction debris was recently found on the surface of this parcel. It is neither known nor suspected to have been generated as a result of historical or current LANL operations. Because the debris is of recent origin and is not known or suspected to be associated with LANL operations, it is not within the scope of LANL ER Project to address it. Nonetheless, DOE may want to characterize and dispose of the debris prior to transfer of the parcel. No sampling has yet been conducted to determine whether the debris is simply a solid waste or whether it contains asbestos or other regulated materials.

Regulatory Status

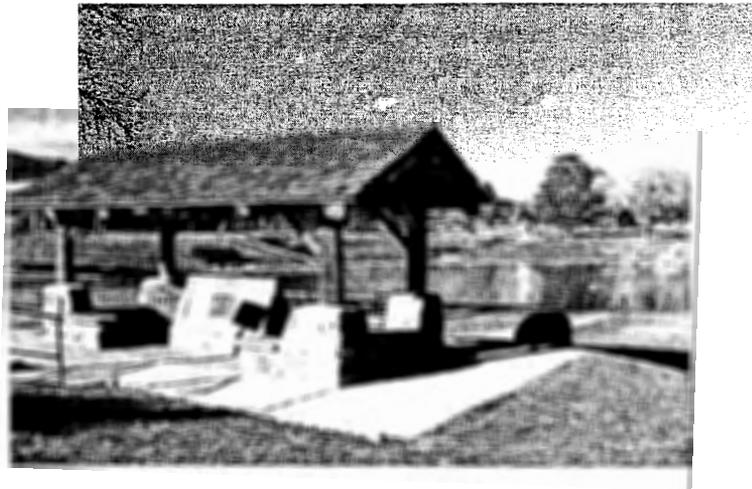
There are no regulatory issues currently known to be associated with this parcel with respect to environmental restoration or decontamination and decommissioning activities.

MANHATTAN MONUMENT PARCEL

Background

The Manhattan Monument parcel is a small townsite parcel (less than half an acre) located within Los Alamos County land and adjacent to Ashley Pond where most of the LANL's first work was conducted. This site consists of a plaque covered by a small pavilion.

The land use contemplated by the identified recipients is historic preservation.

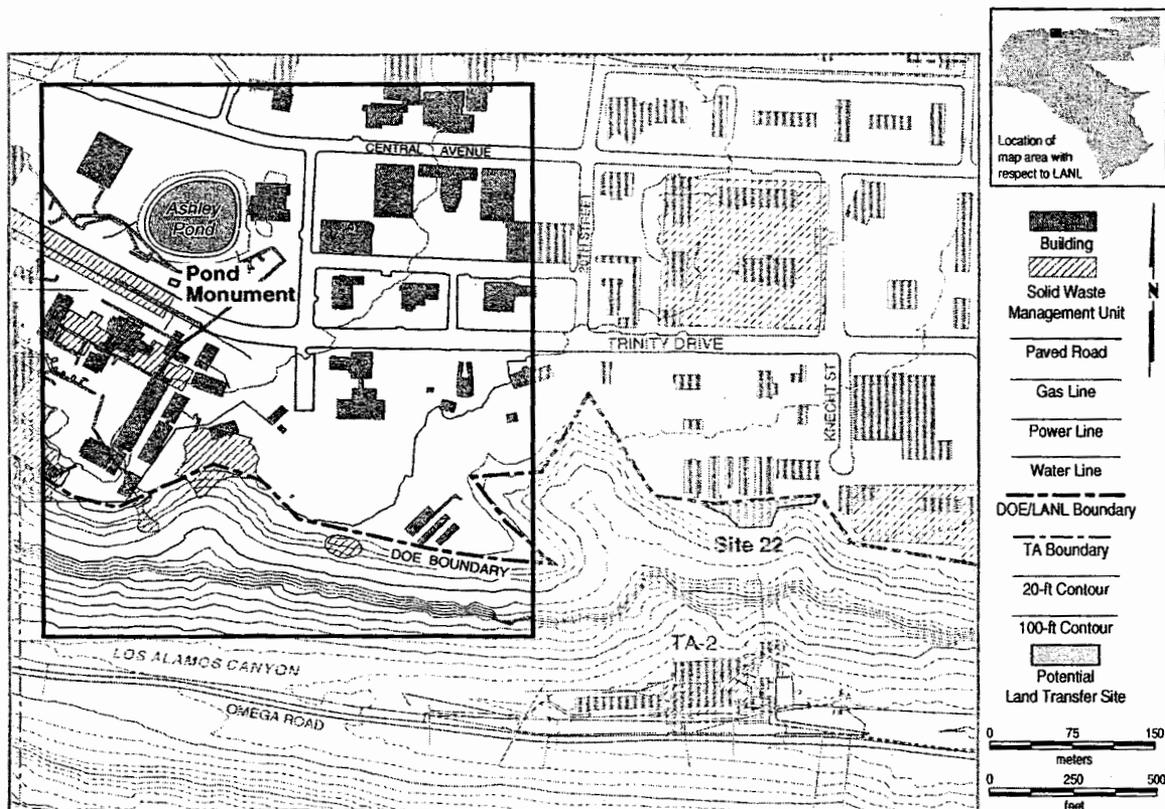


Manhattan Monument parcel

Description of PRSs and Structures within the Manhattan Monument Parcel

The Manhattan Monument parcel contains no potential release sites (PRSs) within its boundaries. Evaluating PRSs within a buffer area was not considered to be appropriate for this parcel, inasmuch as its use will be limited primarily by its size rather than by the impacts of surrounding PRSs on the subject parcel. Moreover, the "buffer area" surrounding the Manhattan Monument is already under the administrative control of Los Alamos County, and is being used by the public for recreational and transportation purposes.

The only structure situated on the parcel is the monument itself. It is not currently scheduled for decontamination and decommissioning, and the LANL ER Project assumes that it will remain intact and in beneficial use after the transfer of this parcel. Consequently, decontamination and decommissioning costs were not estimated for the monument.



Map of Manhattan Monument Parcel

Extent of Contamination

It is not specifically known whether or not there is any contamination in the subsurface soils of the parcel itself. However, even if these soils are contaminated, there is no potential for harm to human health under the proposed land-use scenario of historic preservation because there is no realistic mechanism by which exposure to contaminants could occur.

Regulatory Status

There are no regulatory issues associated with this parcel with respect to environmental restoration or decontamination and decommissioning activities.

TA-74 PARCEL

Background

TA-74 comprises approximately 2,715 acres. It is located north-northeast of the Los Alamos townsite. The parcel spans portions of Bayo and Pueblo Canyons. A small portion of the parcel (less than 20 acres) is situated on a mesa top and is adjacent to a business park on Los Alamos County land. Land north of the parcel is administered by the United States Forest Service, and to the east are lands held by the Department of the Interior in trust for the San Ildefonso Pueblo. The western and southern boundaries of TA-74 are determined by the limits of the Los Alamos townsite and the Airport parcel to the west, and the White Rock Y parcel to the south. The TA-74 parcel was restored to the public domain by Presidential Proclamation 3539 on May 27, 1963.

The land use contemplated by the identified recipients of the parcel is cultural and environmental preservation. In addition, existing utility infrastructure (primarily power lines and pipelines) is proposed to be maintained, but this is an incidental use that will not affect the primary proposed land use.

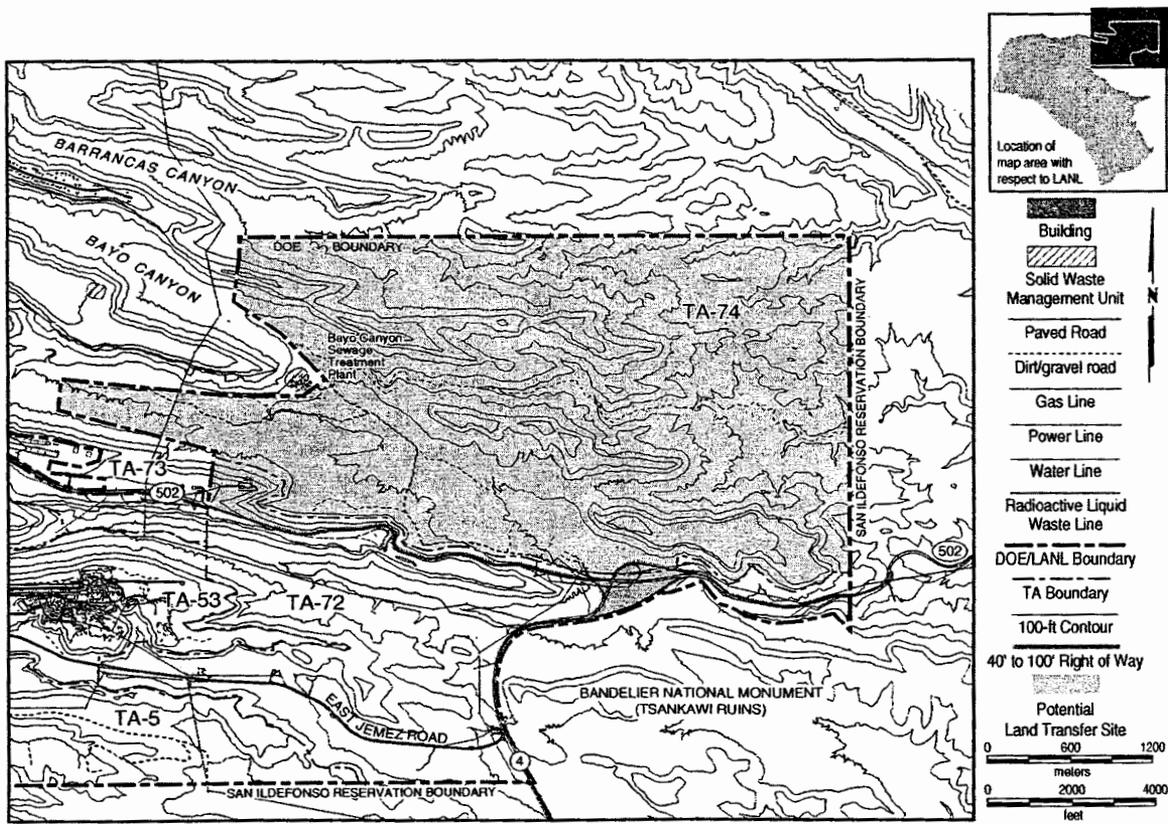


Portion of TA-74 parcel, looking southeast from Barranca Mesa

Description of PRSs and Structures within the TA-74 Parcel

The TA-74 parcel contains four potential release sites (PRSs) and three LANL-numbered structures. Three of the PRSs are located on a mesa point situated at the southwestern corner of the parcel, and the fourth, a former surface disposal area for demolition debris, is situated on the canyon wall below this mesa. Two of the three mesa-top PRSs are categorized as subsurface units. The third mesa-top PRS and the canyonside PRS are categorized as surface units. All four PRSs were the result of historical LANL operations at TA-19. TA-19 is no longer an active technical area at LANL.

The TA-74 parcel also contains three LANL-numbered structures. These include a water tower, water storage tank, and a water well, which are all part of the water supply system that DOE leased to Los Alamos County on a long-term basis in 1998. None of these structures is currently scheduled for decontamination and decommissioning.



Map of Technical Area 74 Parcel

Extent of Contamination

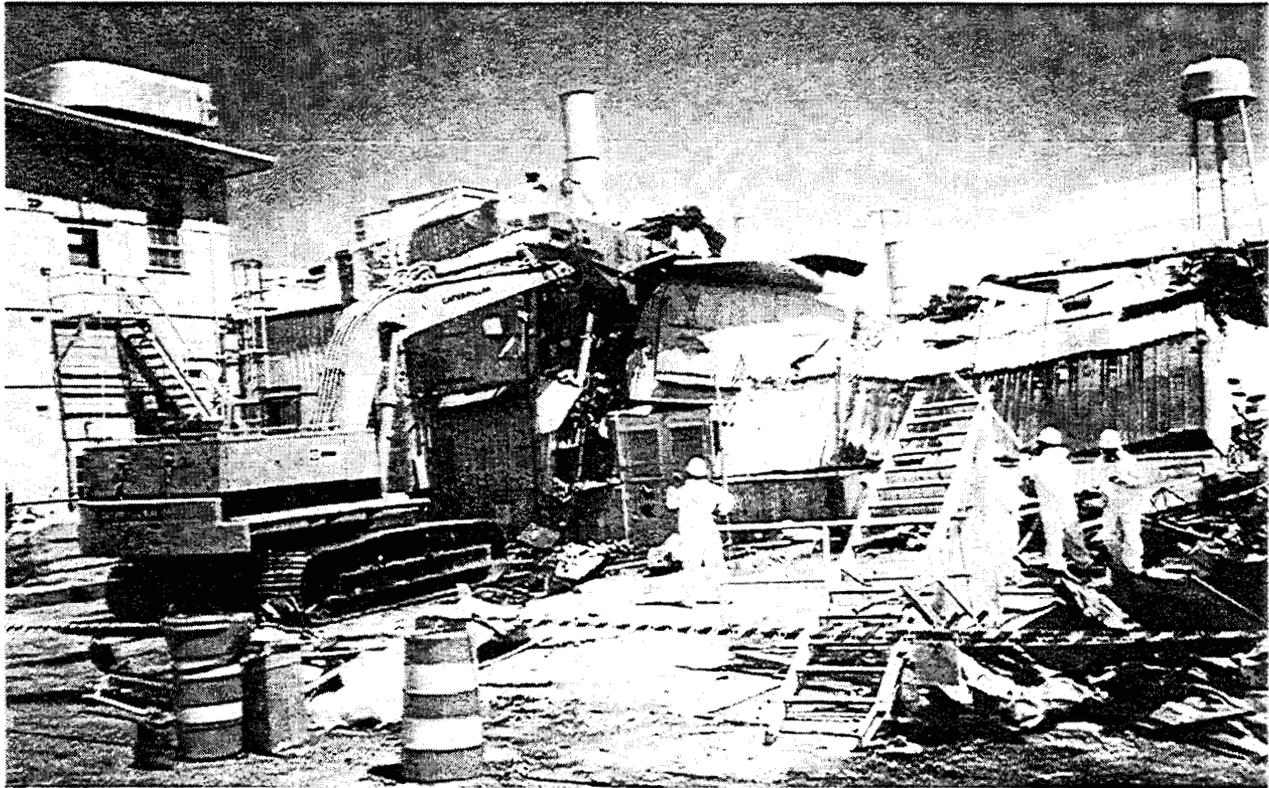
The four PRSs located in TA-74 have been sampled. All sampling was conducted in surface soils found at the vicinity of the four PRSs. The results show that only arsenic and five organic compounds were detected at concentrations exceeding cleanup goals. Naturally occurring background concentrations of arsenic in the Los Alamos area are frequently found to be above calculated cleanup goals, however. Radionuclides, including tritium; plutonium -238, -239, and -240; and americium -241, have been detected in sediments in existing or historical stream channels in concentrations above levels associated with fallout from world-wide nuclear tests.

Regulatory Status

Three of the PRSs contained in this parcel are listed in the HSWA Module of LANL’s Hazardous and Solid Waste Permit, and one is not. All four units have been recommended for no further action because they do not present an unacceptable risk to human health. However, the NMED has directed that additional sampling be conducted by LANL to more fully define the extent of surface contamination, and to ascertain whether or not subsurface contamination exists at levels above cleanup goals. Therefore, additional actions will be undertaken by the ER Project prior to transfer.

For more detailed information, see the Environmental Restoration Report to Support Land Conveyance and Transfer under Public Law 105-119 (August 1999), which is available at public libraries in Santa Fe, Española, and Los Alamos, and public reading rooms in Albuquerque and Los Alamos.

Examples of characterization, cleanup, and decontamination and decommissioning activities at LANL



Decontamination and decommissioning activities at TA-21 parcel

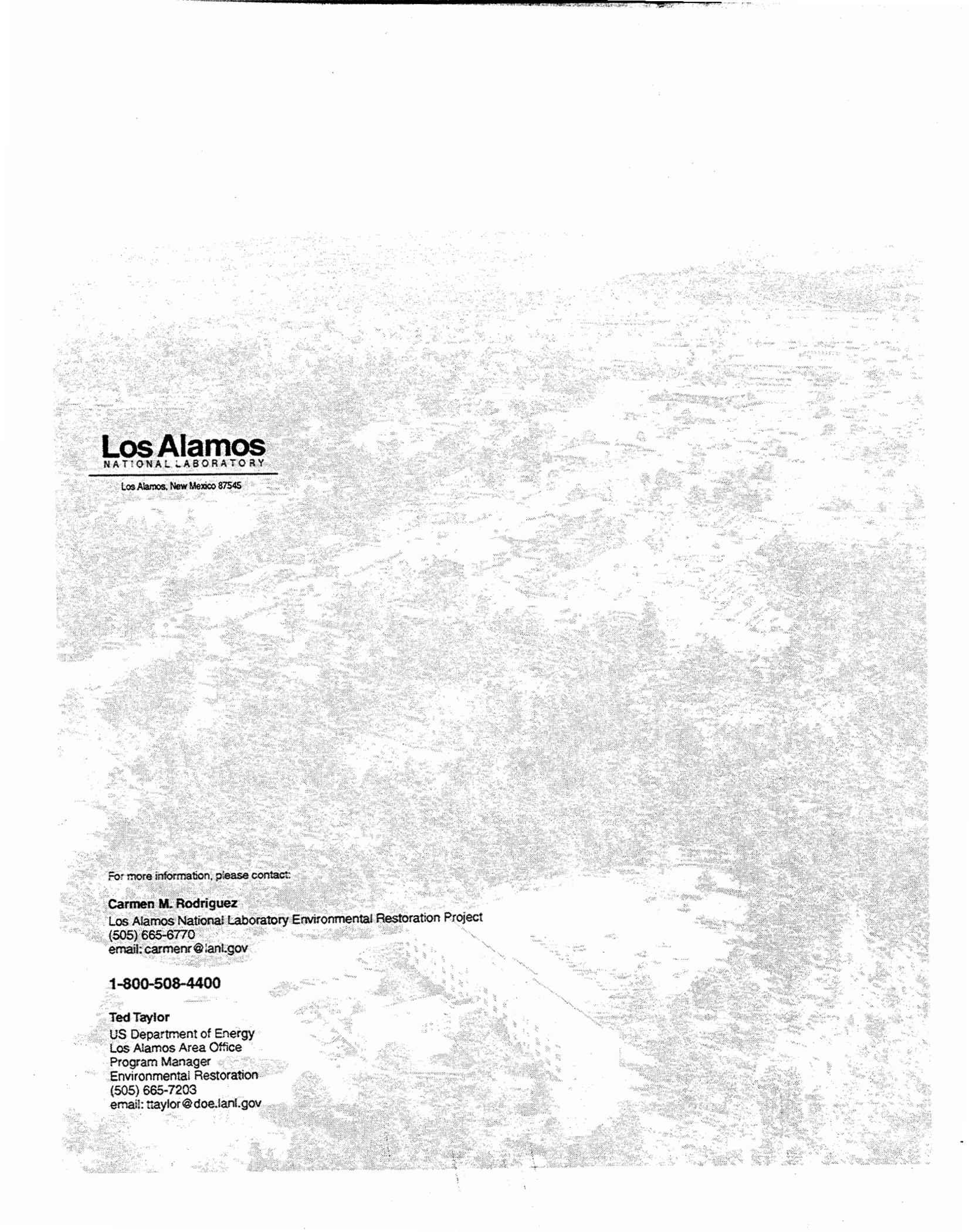


Sampling activities on canyon slope of surface disposal at Airport parcel



Environmental cleanup activities at DP Road parcel

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