



**Department of Energy**  
Field Office, Albuquerque  
Los Alamos Area Office  
Los Alamos, New Mexico 87544

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Mr. William K. Honker, Chief  
RCRA Permits Branch  
U. S. Environmental Protection Agency, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Dear Mr. Honker:

The Los Alamos National Laboratory responded to an Environmental Protection Agency (EPA) - issued Notice of Deficiency (NOD) pertaining to the TA-21 Operable Unit RCRA Facility Investigation Work Plan in December 1991. Part of this NOD response was a schedule of deliverables. The schedule stated that the first deliverable was to be a quarterly technical progress report covering October - December 1991. The enclosed contains this information for the TA-21 Operable Unit.

If you have any questions, please call me or have your staff call Steve Slaten of my staff at (505) 665-5050.

Sincerely,

Karl J. Twombly, Chief  
Environment, Safety & Health Branch

LESH:1SS-028

2 Enclosures:  
Quarterly Technical Progress  
Report (2) - plus electronic copy,  
TA-21 Operable Unit  
Certification

cc w/enclosure:  
Kathleen Sisneros, EPA, Santa Fe, NM (2 copies)

NMED *ll*



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CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Document Titles:

Quarterly Technical Progress Report  
TA-21 Operable Unit, RCRA Facility Investigation  
First Quarter FY92, October-December, 1991, ER Program

Name:



Date

3/6/92

Associate Director for Operations  
Los Alamos National Laboratory

Name:



Date

3/22/92

Environment, Safety, and  
Health Branch  
Los Alamos Area Office - DOE

**QUARTERLY TECHNICAL PROGRESS REPORT**

**TA-21 OPERABLE UNIT**

**RCRA FACILITY INVESTIGATION**

**FIRST QUARTER FY92**

**(OCTOBER--DECEMBER, 1991)**

**FEBRUARY 15, 1992**

**ENVIRONMENTAL RESTORATION GROUP**

**LOS ALAMOS NATIONAL LABORATORY**

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## 1. SUMMARY OF ACTIVITIES

This Quarterly Technical Progress Report is the first addressing the Technical Area 21 (TA-21) Operable Unit (OU) RCRA Facility Investigation (RFI) conducted by the Los Alamos National Laboratory (the Laboratory). The TA-21 OU RFI is conducted according to the plans presented in the TA-21 Operable Unit Work Plan for Environmental Restoration (LANL 1991a) as amended by the Addendum to TA-21 Operable Unit RFI Work Plan for Environmental Restoration (LANL 1991b) and approved by the U.S. Environmental Protection Agency (EPA 1992).

Technical activities conducted during the first quarter of Fiscal Year 1992 (FY92), October through December 1991, are reported herein. The major activities were:

- Revision of the TA-21 OU RFI Work Plan (LANL 1991a), in the form of an addendum to the plan (LANL 1991b), in response to EPA's Notice of Deficiency (EPA 1991),
- Planning for mobilization for spring field activities according to the revised schedule presented in the addendum.
- Completion of the biological survey required prior to RFI field work, and
- Completion of the cultural resources survey required prior to RFI field work,

EPA approved the work plan and addendum on 9 January 1992.

## 2. ADMINISTRATIVE AND PLANNING ACTIVITIES

During the first quarter of FY92 (October - December 1991), a response to EPA's notice of deficiency (EPA 1991) for the TA-21 OU RFI Work Plan was prepared. The response (LANL 1991a) was prepared as an addendum to the work plan, and required a rearranging of the schedule for the RFI field work. The schedule changes were coupled with schedule and budget estimates being prepared for the Laboratory's budget request to DOE. Following submission of the addendum, planning and preparations were begun for the initial field work in the spring of 1992. The work plan and addendum were approved by EPA on 9 January 1992.

The initial field work includes geologic mapping, geomorphic, stratigraphic, and fracture and fault studies as described in the TA-21 OU RFI Work Plan at Section 12.3, Geomorphologic Sampling Plan. A geology field team was assembled, and has begun the investigations. Progress during the quarter included photographing the north wall of Los Alamos Canyon at TA-21 to initiate mapping of lithologic zones in the exposed Bandelier Tuff.

A first round of surface soil sampling is scheduled in March 1992 to accomplish the TA-21 OU RFI Work Plan objectives described in Section 12.4, Surface Grid Sampling Plan and Chapter 13, Surface Soil Contamination from Airborne Emissions. Since this will be the first formal RFI-related sampling program to be conducted at the Laboratory, there are numerous institutional issues to be worked out. These include health and safety plan approval within the Laboratory, coordination with the new Sample Coordination Facility for the laboratory analysis services required for the samples to be collected, and finalization and approval of the Laboratory's Environmental Restoration SOPs. Meetings have been scheduled early in the second quarter of FY92 to address these and other issues. Mobilization activities for the surface grid sampling are scheduled to begin in January 1992.

### 3. CULTURAL RESOURCES SURVEY

The TA-21 OU RFI Work Plan (LANL 1991a) at Section 11.2.2, Archaeological, Cultural, and Ecological Evaluations, identifies requirements for surveys which must be completed prior to intrusive RFI field work. This section provides a summary of the cultural resources (archaeological) survey (LANL 1992).

This survey is intended to provide compliance with the following: National Historic Preservation Act of 1966, Executive Order 11593, Archaeological Resources Protection Act of 1979, Indian Religious Freedom Act of 1978, and the Native American Grave Protection and Repatriation Act of 1990.

Approximately 60 percent of the Laboratory's land has been surveyed for prehistoric and historic cultural resources. Close to 1000 sites have been recorded. Over 95 percent of these ruins date from the fourteenth and fifteenth centuries. Most of the sites are found in the pinon-juniper vegetation zone, with 80 percent lying between 5,800 and 7,100 ft in elevation, as does the TA-21 Operable Unit. Almost three-quarters of all ruins are found on mesa tops, as are the developed areas of TA-21. The sites, Laboratory-wide, can be dated to the following time periods.

**Paleo-Indian Period, 10,000 B.C. to 4,000 B.C.** Characterized by small groups of big game hunters who may have followed game herds up and down the Rio Grande, with trips onto the Pajarito Plateau to procure obsidian and other resources. This period is represented on Laboratory land by occasional surface finds of diagnostic projectile points made from both local obsidian and exotic unidentified chert.

**Archaic Period, 4,000 B.C. to A.D. 600.** Characterized by small groups who may have used the Pajarito Plateau for hunting expeditions and for seasonal exploitation of certain wild plants. This period is represented as scatters of lithic tools, chipping debris, and diagnostic projectile points. Little research has been conducted for this period. It is possible that buried habitation sites are also present on Laboratory land.

**Early Developmental Period, A.D. 600 to A.D. 900.** Characterized by settled hunter-gatherers living in semi-subterranean pithouses and making simple pottery. Some possible pithouse locations and associated artifacts have been identified on Laboratory land but the identification is tenuous.

**Late Developmental Period, A.D. 900 to A.D. 1100.** Characterized by small groups of maize horticulturalists still relying to a great extent on gathered wild plants. Sites are typically small adobe, sometimes crude masonry, pueblo structures. Very few sites from this period are located on Laboratory land. Most of those recorded are close to the Rio Grande in the vicinity of Chaquihui Mesa and lower Water Canyon.

**Coalition Period, A.D. 1100 to A.D. 1325.** Characterized by maize horticulturalists. Early sites are adobe and masonry rectangular structures, and later sites are large masonry enclosed plaza roomblocks of over 100 rooms. Most of the ruins recorded at the Laboratory date to this time period (700 have been recorded). Most researchers attribute the increase in site density during this period to migration, but others see the increase in site numbers as a result of local population growth.

**Classic Period, A.D. 1325 to A.D. 1600.** Characterized by intensive maize horticulture. Settlements on the Pajarito Plateau aggregated into three population clusters with outlying 1-2 room fieldhouses. The central site cluster consists of four temporally overlapping sites: Navawi, Otowi, Tsankawi, and Tsirege. Otowi and Tsirege are on Laboratory land. These ruins are ancestral to the Tewa speakers now living at San Ildefonso Pueblo.

**Spanish Colonial and Territorial Periods, A.D. 1600 to A.D. 1900.** Grazing and seasonal utilization of the Pajarito Plateau during this time by Indian and non-Indian groups is highly probable but has not been thoroughly documented.

**Homesteading Period, A.D. 1890 to A.D. 1943.** This was an outgrowth of the earlier undocumented use of the Plateau for cattle grazing, timbering, and farming activities. Hispanic and Anglo homestead sites are characterized by wooden cabin and corral structures, rock or cement cisterns, and a scattering of debris associated with household, farming, and grazing activities.

**Post-1943 Period.** The Los Alamos Ranch School, a school for boys founded by Ashley Pond, was located at the site of the present-day town of Los Alamos. In the 1940's, during the early stages of the Manhattan Project, many of the Ranch School buildings were appropriated for use by the U.S. Government. The central portion of the Pajarito Plateau is now owned by either the Department of Energy, Los Alamos County, San Ildefonso Pueblo, or by private citizens.

### 3.2. CULTURAL RESOURCES LOCATED WITHIN THE TA-21 OPERABLE UNIT

A cultural resource survey was conducted in the undeveloped areas of the TA-21 Operable Unit. Two archaeological sites were identified in this area:

LA (Laboratory of Anthropology) 86544 is a low rock wall located on a shelf 10 meters from the cliff edge on the south side of the eastern toe of DP Mesa. The wall consists of three segments of unshaped tuff rocks piled among naturally occurring boulders. The wall segments are on the approximate west, south and east sides of the enclosure. On the northeast corner the tuff rocks have been shaped to fit around the trunk of a juniper tree. The enclosure measures 4.3 meters north-south by 10.5 meters east-west. It may have served as an animal pen, based on its similarity to others documented to the Spanish Colonial to Homesteading Periods.

LA 86545 is a cavate located on the north wall above a narrow bench in Los Alamos Canyon, west of the main portion of TA-21. The cavate consists of one room approximately 2 meters deep. Some interior surfaces are blackened. Based on the presence of several smeared indented potsherds and Pedernal chert flakes, the site was occupied during the Coalition Period.

### 3.3. CONSTRAINTS ON RFI FIELD WORK

During field activities both of the identified sites will be avoided. No vehicular traffic, physical disturbance, or sampling activities will be conducted in the area of either site.

#### 4. BIOLOGICAL SURVEY

The TA-21 OU RFI Work Plan (LANL 1991a) at Section 11.2.2, Archaeological, Cultural, and Ecological Evaluations, identifies requirements for surveys which must be completed prior to intrusive RFI field work. This section provides a summary of the biological (ecological) survey.

Field surveys were conducted during 1991 by the Biological Resource Evaluations Team of the Environmental Protection Group (EM-8) for the TA-21 Operable Unit RFI site characterization field work. The RFI field work requires surface and subsurface soil sampling within TA-21, Los Alamos Canyon, and DP Canyon. The field surveys were conducted for compliance with the Federal Endangered Species Act of 1973; New Mexico Wildlife Conservation Act; New Mexico Endangered Species Act; Executive Order 11990, "Protection of Wetlands;" Executive Order 11988, "Floodplain Management;" 10 CFR 1022; and DOE Order 5400.1.

The TA-21 Operable Unit survey has three aspects:

- To determine the presence or lack of critical habitat for any State or Federal sensitive, threatened, or endangered plant or animal species,
- To identify the presence or lack of sensitive areas such as floodplains and wetlands, and
- To provide additional plant and wildlife habitat data.

##### 4.1. SENSITIVE PLANT AND ANIMAL SPECIES

The EM-8 database containing habitat requirements for all State and Federally listed threatened or endangered plant and animal species known to occur in the vicinity of the Laboratory was searched. This search indicated that the species of concern for this Operable Unit were:

- peregrine falcon (*Falco peregrinus* - Federally Endangered),
- bald eagle (*Haliaeetus leuccephalus* - Federally Endangered),
- common black hawk (*Buteogallus anthracinus* - State Endangered),
- Mississippi kite (*Ictinia mississippiensis* - State Endangered),
- broad-billed hummingbird (*Cyananthus latirostris* - State Endangered),

- willow flycatcher (*Empidonax traillii* - State Endangered and Federal Candidate),
- spotted bat (*Euderma maculatum* - State Endangered),
- meadow jumping mouse (*Zapus hudsonius* - State Endangered and Federal Candidate),
- Say's pond snail (*Lymnaea captera* - State Endangered),
- Wright's fishhook cactus (*Mammillaria wrightii* - State Endangered),
- Santa Fe cholla (*Opuntia viridiflora* - State Endangered), and
- grama grass cactus (*Pediocactus papyracanthus* - State Endangered and Federal Candidate),

Based on these identified species, a habitat evaluation survey (Level 2) was conducted. The Level 2 survey is performed for areas that are not highly disturbed and which could potentially support threatened or endangered species. The techniques used in a Level 2 survey are designed to gather data on the percent cover, density, and frequency of both the understory and overstory components of the plant community.

As a result of the habitat evaluation and a review of previous data for the Operable Unit, only one of the above-listed species appears to have the potential for occurrence in the area, the spotted bat.

#### 4.1.1. Spotted Bat

The spotted bat is found in pinon-juniper, ponderosa, mixed conifer and riparian habitats. The two critical requirements for the spotted bat are a source of water and roost sites (caves in cliffs or rock crevices). In Los Alamos Canyon appropriate roost sites were plentiful, however water appears to be somewhat limited. In April of 1991, a portion of the cliff face of Los Alamos Canyon was searched for any physical evidence of usage by bats. No evidence was found. The floor of Los Alamos Canyon was explored to identify any suitable water sources. Suitable water is defined as small ponds or pools of slow moving water. A few marginal watering areas were found. Mist netting for bats in Los Alamos Canyon was scheduled, but because of heavy rains during the summer of 1991, netting was not done.

Mist netting has been done at the Laboratory's TA-16 and in the Bandelier National Monument adjacent to the Laboratory on the south. These surveying efforts have not

yielded any spotted bats. An intensive bat survey at LANL is scheduled for the summer of 1992 and will include portions of Los Alamos Canyon.

Due to the nature and extent of the proposed RFI field work for the TA-21 Operable Unit, no adverse impact will occur to the spotted bat (if present) as long as:

- Small caves and rock crevices are not disturbed, and
- Water sources within the canyon are not altered.

With those two conditions, the RFI characterization of the TA-21 Operable Unit should have no impact on sensitive species.

## **4.2 WETLANDS AND FLOODPLAINS**

Throughout the TA-21 Operable Unit, the presence of wetlands and floodplains was evaluated using National Wetland Inventory Maps and field checks. Characteristics of wetlands, floodplains, and riparian areas are noted using criteria outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands.

### **4.2.1. Wetlands**

There are some potential wetland areas located within the Operable Unit. The extent of the potential areas is indicated in Figure 4-1. Monitoring and actual delineation of wetland areas of concern will be required prior to sampling in the canyon bottoms. Sampling in canyon bottoms may have to be modified to avoid impact to a wetland. This will be addressed on an investigation by investigation basis. For the surface soil sampling planned in March, no modifications are needed.

### **4.2.2. Floodplains**

Potential floodplains are found within the canyon systems. Although present, these floodplains will not be adversely impacted by the proposed RFI field work and no mitigation measures are necessary.

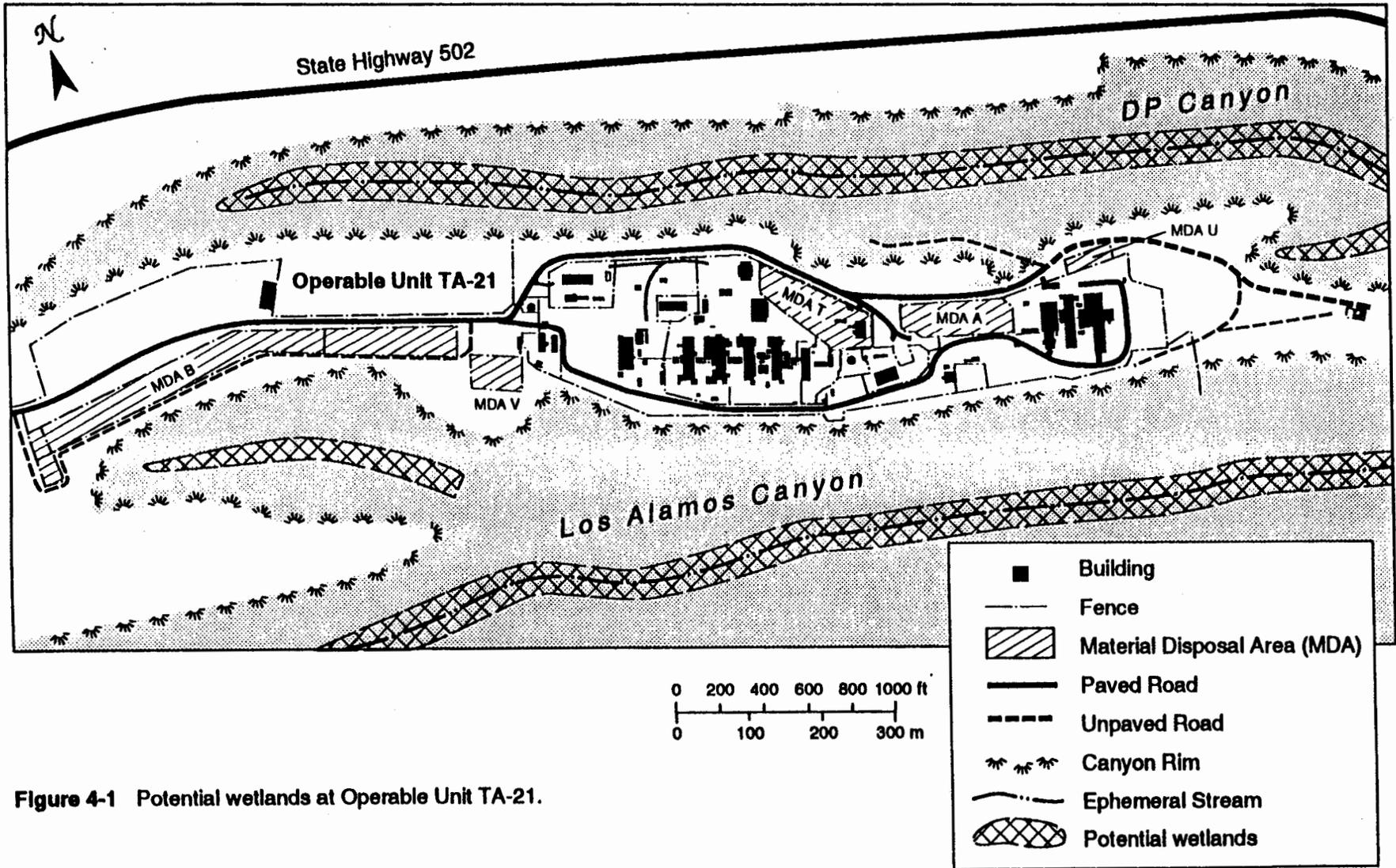


Figure 4-1 Potential wetlands at Operable Unit TA-21.

#### **4.3. CONSTRAINTS ON RFI FIELD WORK**

To protect the habitat of the spotted bat (which may not be present in the area), the RFI field work should not be allowed to disturb small caves and rock crevices which may be used as roosting sites. The water sources in Los Alamos Canyon, which could be used as watering areas, also should not be disturbed.

Impacts to non-sensitive plant species should be avoided when possible. Off-road driving is especially harmful to plants and soil crust. Vehicular travel should be restricted to existing roads whenever possible. If off-road travel is required, EM-8 should be contacted to monitor the activity. Revegetation may be required at some sites. A list of native plants suitable for revegetation is available from EM-8.

## 5. REFERENCES CITED

- LANL 1991a TA-21 Operable Unit RFI Work Plan for Environmental Restoration, LAUR-91-962, Los Alamos National Laboratory, Los Alamos NM 87545. May 1991.
- LANL 1991b Addendum to TA-21 Operable Unit RFI Work Plan for Environmental Restoration, Los Alamos National Laboratory, Los Alamos NM 87545. December 1991.
- LANL 1992 McGehee, E.D., K.L. Manz, A.N. Parish, M.D. Hannaford, M.A. Schillaci, "Environmental Restoration Program, Operable Unit (OU) 1106, Cultural Resources Survey Report", Survey No. 501, Environmental Protection Group EM-8, Los Alamos National Laboratory, Los Alamos National Laboratory 87545. January 15, 1992.
- EPA 1991 Letter from William K. Honker, Chief, RCRA Permits Branch, Region VI, U.S. Environmental Protection Agency, Dallas TX to Mr. Jerry Bellows, Area Manager, Los Alamos Area Office, U.S. Department of Energy, Los Alamos NM. October 30, 1991.
- EPA 1992 Letter from Allyn M. Davis, Director, Hazardous Waste Management Division, Region VI, U.S. Environmental Protection Agency, Dallas TX to Mr. Jerry Bellows, Area Manager, Los Alamos Area Office, U.S. Department of Energy, Los Alamos NM. January 9, 1992.