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Date: November 27, 1996
Refer to: EM/ER:96-612

ESHID-603491

Mr. Ted Taylor
Los Alamos Area Office
US Department of Energy, MS A316
Los Alamos, NM 87544

SUBJECT: INTERIM ACTION PLAN FOR TA-33, PRS 33-006(a) ACTIVITIES

Dear Ted:

Enclosed for your records please find a copy of the Interim Action Plan for Technical Area 33, Potential Release Site 33-006(a) activities. These activities are planned for completion in Fiscal Year 1997. Informational copies of this plan are being distributed to the regulators.

If you have any questions, please call Roy Michelotti at (505) 665-7444 or Joe Mose at (505) 667-5808. Thank you for your attention to this matter.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

JJ/rfr

Enclosure: (1) Interim Action Plan for TA-33, PRS 33-006(a)

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Interim Action Plan for

TA-33

33-006(a)

Field Unit 3

Environmental Restoration Project

August 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-2798

INTERIM ACTION PLAN FOR SHRAPNEL PICKUP AT PRS 33-006(A)

1.0 RATIONALE AND OBJECTIVE OF INTERIM ACTION

The objective of this interim action (IA) for potential release site (PRS) 33-006(a) at South Site, Technical Area (TA) 33 at Los Alamos National Laboratory (LANL) is twofold:

- Reduce potential exposure to radioactively-contaminated debris from implosion experiments conducted at the PRS 33-006(a) shot pad.
- Prevent off-site movement of debris from LANL property and migration of contaminated debris to the Rio Grande and Cochiti Lake.

Debris will be removed from watercourses within a one-half mile radius around the shot pad and from exposed ridges in Bandelier National Monument adjacent to TA-33 (Fig. 1). Figure 2 shows the area most impacted by the implosion experiments.

2.0 SITE DESCRIPTION AND CHARACTERIZATION DATA

PRS 33-006(a), a shot pad at South Site in TA-33, is discussed in the Resource Recovery and Conservation Act (RCRA) Facility Investigation (RFI) Work Plan for Operable Unit 1122 (LANL 1992, 0784) and in the December 1995 RFI Report for Field Unit 3 (Environmental Restoration Project 1995, 1288).

Implosion tests were conducted at PRS 33-006(a) from 1950 to 1956. The implosion shot pad was situated on top of TA-33-26, a vault which contained electronic equipment. Test devices contained uranium and 275 to 5 000 lb of high explosives (HE). Approximately three experiments used greater than 1 000 lb of HE. The majority of the experiments used smaller amounts. Implosion test devices and neutron detectors were put into large copper shells for electrical shielding. Detonation of these experiments spread debris and shrapnel over a wide area surrounding South Site and across Chaquehui Canyon to Bandelier National Monument (Photographs 1 and 2 in Appendix A).

Recent reconnaissance in Chaquehui Canyon indicates that as much as 50% of the debris scattered from the implosion experiments is radioactively contaminated. Activities range from just above background to 200 000 counts per minute. Uranium is the only long-lived radioactive material used at South Site and is presumed to be the contaminant. Less than 1% of mesa-top debris previously analyzed by x-ray fluorescence spectroscopy contained RCRA-regulated metals, indicating that hazardous metals are not constituents of concern at this PRS.

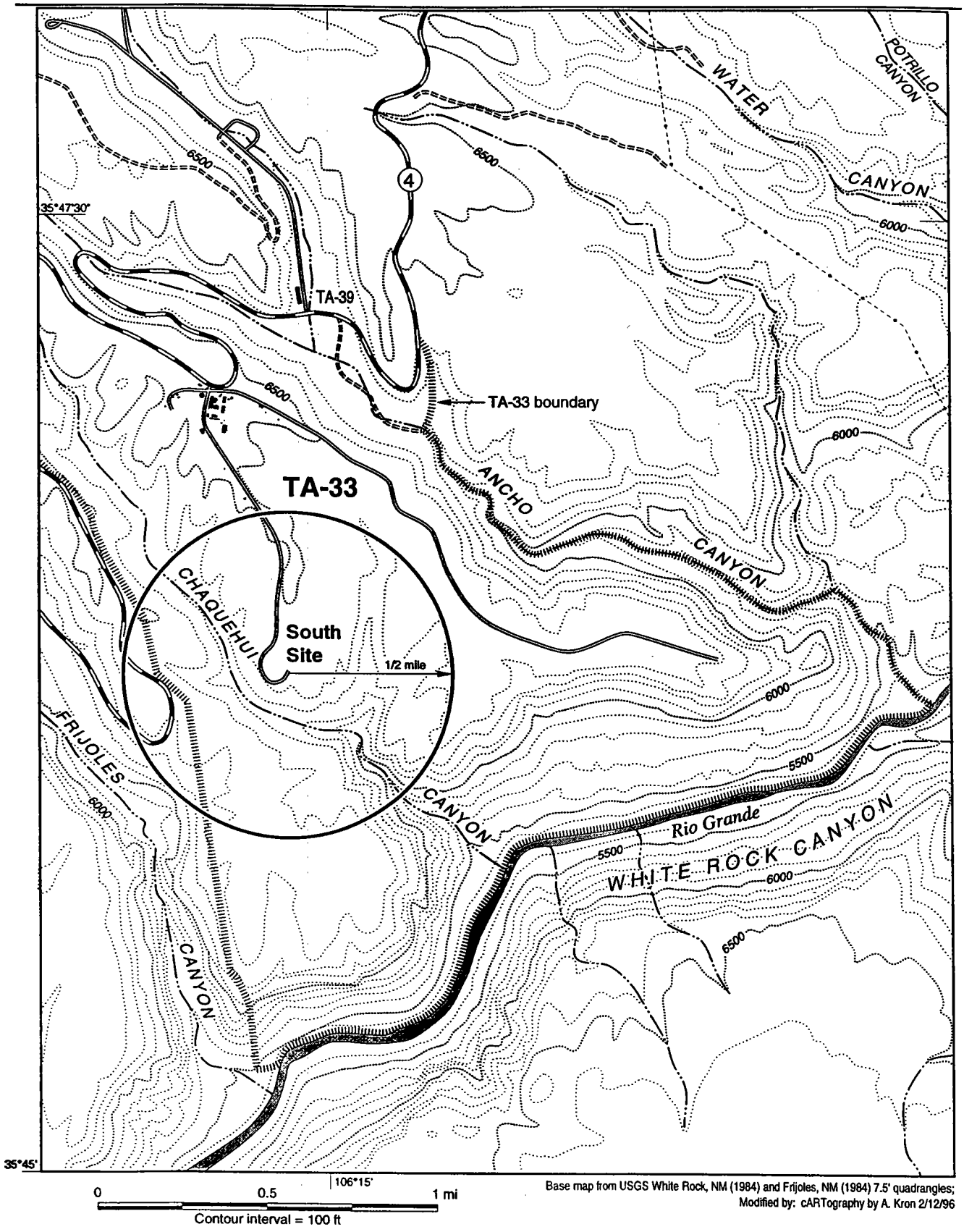


Fig. 1. Location of South Site at TA-33showing the one-half-mile radius around PRS 33-006(a).

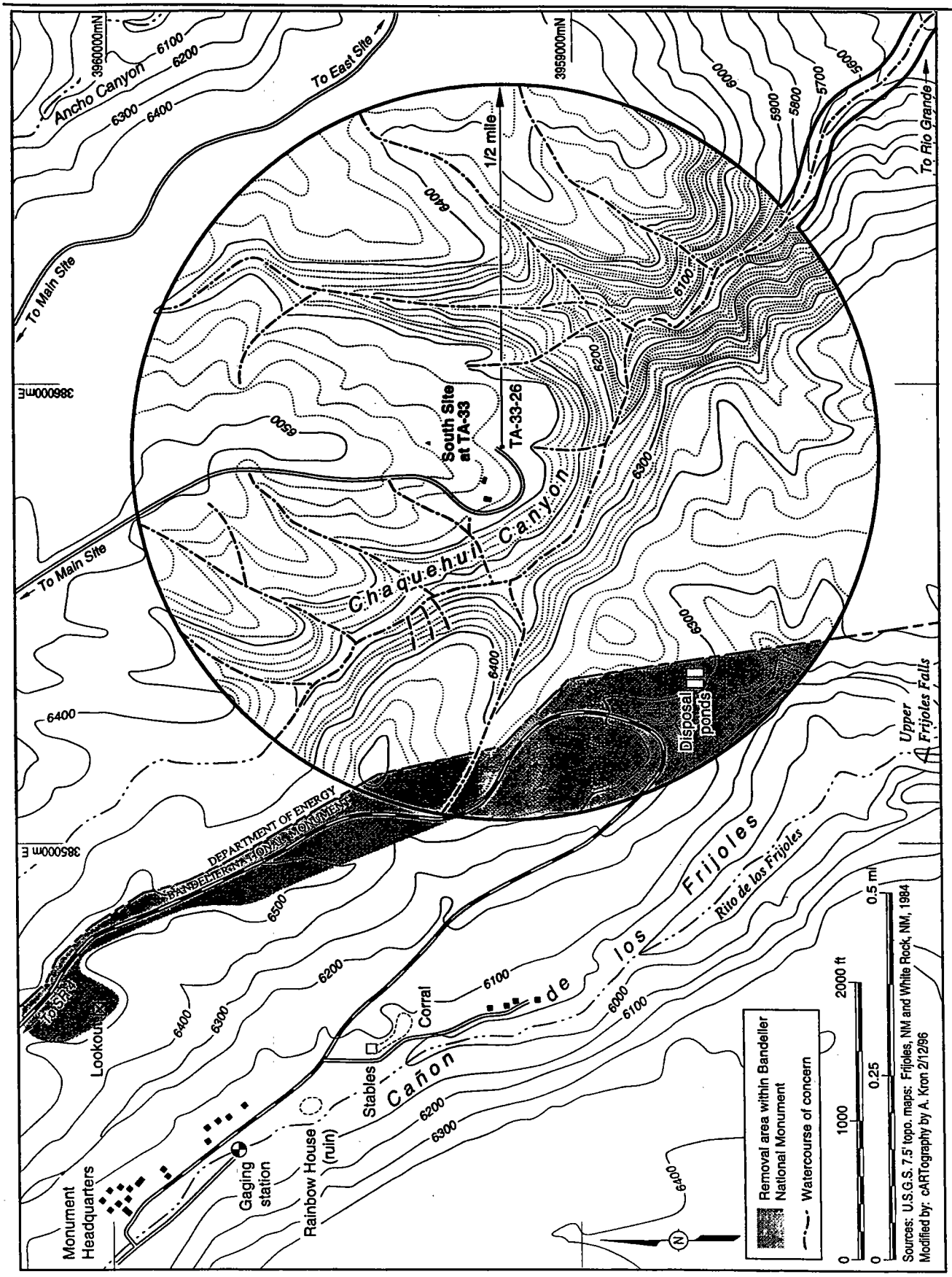


Fig. 2. PRS 33-006(a) removal areas at TA-33 and Bandelier National Monument.

2.1 Chaquehui Canyon

Debris has been scattered and washed along watercourses and channels leading to Chaquehui Canyon. The watercourse directly draining the shot pad and PRS 33-010(c), a pile of scraped debris from shot experiments, has received large accumulations of material. Debris has been found in channels as far as one-half mile from the shot pad. The removal area within a one-half mile radius of the shot pad will include watercourses that could transport debris. The removal area also includes slopes directly from the shot pad, and area from which debris could easily be washed into Chaquehui Canyon. Although portions of the canyon are inaccessible, the canyon will be searched as far as possible toward the Rio Grande. (Fig. 2).

2.2 Bandelier National Monument

Historical records indicate that shrapnel from implosion experiments was found at the fire lookout tower and the horse stables in Bandelier National Monument (Fig. 2). Reconnaissance visits confirm that debris was found in Bandelier in the vicinity of the disposal ponds. The areas within the one-half mile radius where debris is most likely to be found include the east-facing slopes and mesa tops across from the PRS 33-006(a) shot pad (Fig. 2). It is unlikely that debris is located on the cliffs of Frijoles Canyon below the disposal ponds.

3.0 INTERIM ACTION

Removal actions include picking up debris in watercourses and in Bandelier National Monument within a one-half mile radius around the shot pad and along two extensions off the radius. If Bandelier National Monument personnel find debris outside this area, the debris will be removed by the field team.

Interim action activities will be stopped if the time needed to complete the work exceeds by twofold the removal time estimated in Section 6 or if the volume of waste exceeds by twofold the volume of waste estimated in Section 5.

3.1 Removal Techniques

Field personnel will walk and search the areas of concern for debris. Removal areas will be searched according to LANL archaeological survey techniques (LANL 1994, 02-116). Field personnel will walk along a transect at moderate speeds to find all debris present. The ground will be searched from left to right and field personnel will not lose sight of each other or stray off transect. The potential debris areas at Chaquehui Canyon and Bandelier National Monument differ and will be discussed further in Sections 3.1.1 and 3.1.2, respectively.

Debris will be screened in place for radioactivity using direct-reading instruments ESP-1/HP 260™ or E-600™ with beta/gamma probe or comparable instruments. Field personnel will have LANL Radiological Worker II and dosimetry training. All personnel will operate the radiological instruments and will be trained radiation-screening personnel. A metal detector will be used to find metal debris in stream channel sediments in Chaquehui Canyon.

Data on debris type, radioactivity, and depth (for subsurface debris) will be documented and locations will be noted on a map.

All material, including large debris as shown in Photographs 1 and 2, will be removed and transported to holding areas. At the end of each day, the debris will be transported from the holding areas to centralized collection areas at TA-33. At the collection areas, debris will be segregated into radioactive or nonradioactive waste. A radiation control technician will take smears of the radioactive waste to determine if contamination is removable. Waste will be stored at collection areas in heavy industrial grade bags until it is transported to the appropriate disposal facility.

No hazardous waste is anticipated. However, if the field team finds hazardous debris, the material will be stored separately until screened using x-ray fluorescence or laser-induced breakdown spectroscopy analyses. Lead is the most probable RCRA metal of concern and is easily identified in the field. If debris is identified that cannot be accessed, removed, or moved safely without special safety aids, work will stop and the situation discussed with regulatory authorities. This interim action plan may be modified.

3.1.1 Chaquehui Canyon

Two field personnel will walk along the watercourses in a systematic manner to cover the areas of concern presented in Fig. 2. The two field members will walk down the center of the channel and on either end of the channel cuts in zig-zag transects. The personnel will be spaced between 16 to 33 feet (5 to 10 meters) apart. The smaller intervals will be used in dense vegetation and in channels with small or no bank cuts. The larger intervals will be used in open channel cuts. The team will walk down one channel and up the adjacent channel. When the debris load reaches the team's carrying capacity, the team will bring the debris to holding areas as discussed above.

For the purposes of this IA, a watercourse includes any river, creek, arroyo, canyon, draw, or wash, or any other channel having definite banks and beds which have the capacity to transport debris. Experienced field personnel will determine the extent of the bank cuts by noting high-water flow lines or other evidence of occasional flow.

Obvious and visible debris outside a watercourse will be removed. However, the team will not employ archeological search techniques to locate such debris.

3.1.2 Bandelier National Monument

In Bandelier National Monument, approximately four field personnel will walk in a systematic manner to cover the entire survey area. Equidistant blocks of land will be surveyed in linear transects with personnel spaced from 16 to 33 ft apart. The smaller intervals will be used in dense vegetation, and the larger intervals will be used in open areas. When the debris load reaches the team's carrying capacity, the team will bring the debris to holding areas as discussed above. Work will be conducted by Laboratory-trained personnel as described in Section 3.1.

Field personnel will collaborate with Bandelier personnel to determine whether west-facing slopes within the one-half mile radius will be scanned for debris. The ridge facing South Site along the main entrance road northwest from the one-half mile radius will also be scanned (Fig. 2). The survey area will be from the TA-33 fence to the ridge line, extending to the fire tower. If debris is found along this ridge, it will be picked up and the IA will stop until a new plan is developed to encompass the extended area

Field personnel will wear steel-toed boots and gloves. No other personal protective equipment will be required unless materials are discovered that exceed routine handling procedures specified in the TA-33 site-specific health and safety plan.

Protocols for working at Bandelier National Monument include the following.

- Vehicles will remain on roads at all times.
- Access agreements will be secured from Bandelier personnel. A key will be supplied by Bandelier staff for the entry gate to the disposal ponds. The work team may park a van inside the gate at a point selected by Bandelier staff.
- Collected materials may be stored in the van. Material that meets US Department of Transportation (DOT) standards for transportation on public roads may be transported on the Bandelier entrance road for removal to TA-33.
- LANL does not expect to find any material exceeding routine handling or DOT transport thresholds. If such materials are located, the area will be cordoned with caution tape. Field personnel will use appropriate personal protective equipment to remove the material to adjacent TA-33 property pending arrangements for proper shipment and disposal. Bandelier liaison Brian Jacobs (672-3861, extension 545) will be informed of all procedures.
- Survey personnel will wear orange safety vests.
- Caution tape will be placed at appropriate locations only if hazardous material is located.
- Bandelier personnel will be contacted in advance of any significant changes in scope of work and as soon as practical if hazardous or radioactive materials are located.

- Park protection will be contacted (672-3861, extension 531) for any problems requiring law enforcement assistance.
- Park personnel will be invited to daily tailgate meetings to advise the field team of park restrictions and practices.
- Monument liaison will be given the opportunity to inspect work prior to completion.
- On completion of the pickup, Bandelier superintendent will write LANL a memo verifying that the work was completed in accordance with this interim action plan.

4.0 MONITORING AND CONFIRMATORY ACTIVITIES

No confirmatory sampling will be performed following removal of debris.

5.0 MAINTENANCE AND INSPECTION

If any new growth is noted during site monitoring, it will be surveyed for beta/gamma radiation. If radioactive contamination is detected, then the new growth will be removed using the same methods described above.

6.0 WASTE MANAGEMENT

The estimated volumes and types of waste for the PRS 33-006(a) IA are as follows:

- one cubic yard of radioactive waste, and
- one cubic yard of nonradioactive waste.

Hazardous and mixed wastes are not anticipated. Nonradioactive waste will be recycled.

7.0 SCHEDULE AND COST

Because the removal area is located in a zone which is restricted between March 1 through August 1, removal work will be conducted after August 1, 1996. Estimated schedule and costs are presented below.

TYPE ACTION	TASK	TIME	SCHEDULE	COST
Chaquehui	Field removal work	96 man hours	8/5/96 - 8/12/96	$7 200.00
Canyon	Report writing	16 man hours	9/30/96	$1 200.00
Pickup	Waste management	9 man hours	9/30/96	$675.00
Bandelier National	Field removal work	48 man hours	8/13/96 - 9/14/96	$3 600.00
Monument	Report writing	8 man hours	9/30/96	$600.00
Pickup	Waste management	6 man hours	9/30/96	$450.00
Waste Disposal	Radioactive waste disposal fees	N/A [a]	9/96	$300.00

[a] N/A = Not applicable

8.0 REFERENCES

Environmental Restoration Project, December 1995 "RFI Report for Potential Release Sites 33-004(b), 33-004(c), 33-004(j), 33-004(m), 33-006(a), 33-006(b), 33-007(a), 33-007(b), 33-010(a), 33-010(b), 33-010(c), 33-010(d), 33-010(g), 33-010(h), 33-011(b), 33-011(c), 33-014, Field Unit 3, Los Alamos National Laboratory Report LA-UR-95-4439, Los Alamos, New Mexico. **(Environmental Restoration Project 1995, 1288)**

LANL (Los Alamos National Laboratory), May 1992. RFI Work Plan for Operable Unit 1122, LA-UR-92-925. Los Alamos National Laboratory, Los Alamos, New Mexico. **(LANL 1992, 0784)**

LANL, (Los Alamos National Laboratory) January 6, 1994. Cultural Resources Management Team Survey Procedure Draft. ESH-20, Los Alamos, New Mexico. **(LANL 1994, 02-116)**

APPENDIX A

Photographs 1 and 2

Debris in Chaquehui Canyon



Photo. 1. Neutron detector from PRS 33-006(a) implosion experiment found in Chaquehui Canyon.

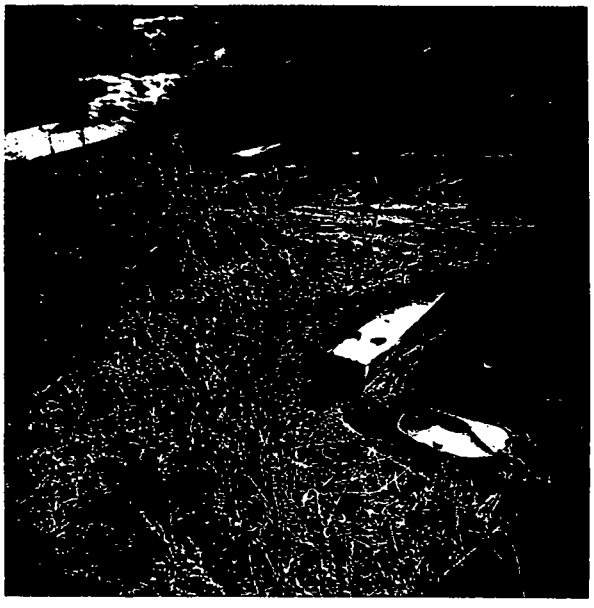


Photo. 2. Neutron detector and flange from PRS 33-006(a) implosion experiment found within the bank cut of Chaquehui Canyon.

DRAFT

Attachment 2

INTERIM ACTION PLAN APPROVAL/DISAPPROVAL FORM

PRS(s) 33-006(a)

The undersigned have reviewed the Interim Action Plan and believe that an Interim Action is appropriate.

FPL _____ Date 7/11/96

FPC _____ Date 07/11/96

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I, Theodore J. Taylor, DOE-LAAO, **APPROVE** _____, **DISAPPROVE** _____ the accompanying Interim Action Plan for PRS(s) _____, TA-____.

The following reasons reflect the decision for disapproval:

_____

_____

_____

_____

_____

_____

_____

Signed:_____ Date:_____