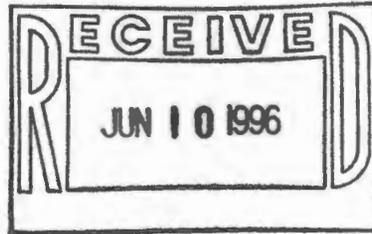




**University of California**  
 Environmental Restoration Project, MS M992  
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**U. S. Department of Energy**  
 Los Alamos Area Office, MS A316  
 Environmental Restoration Program  
 Los Alamos, New Mexico 87544  
 505-665-7203/FAX 505-665-4504



Date: June 4, 1996  
 Refer to: EM/ER:96-325

Mr. Benito Garcia  
 NMED - HRMB  
 P.O. Box 26110  
 Santa Fe, NM 87502

**SUBJECT: INTERIM ACTION REPORT FOR ACTIVITIES AT TECHNICAL AREA (TA) 33, POTENTIAL RELEASE SITE (PRS) 33-007(b)**

Dear Mr. Garcia:

Enclosed please find a copy of the Interim Action Report for cleanup activities in TA-33, PRS 33-007(b) completed in Fiscal Year 1996. The Department of Energy has reviewed and approved this report. The approval form has been signed and is included in the enclosed report.

If you have any questions, please call Roy Michelotti at (505) 665-7444 or Joe Mose at (505) 667-5808.

Sincerely,

*Jorg Jansen*  
 for Jorg Jansen, Program Manager  
 LANL/ER Project

Sincerely,

*Theodore J. Taylor*  
 Theodore J. Taylor, Program Manager  
 DOE/LAO

JJ/TT/el

- Enclosures: (1) Interim Action Report for TA-33, PRS 33-007(b)  
 (2) DOE Approval Form



Cy (w/ encs.):

D. Griswold, AL- ERD, MS A906  
J. Harry, EM/ER, MS M992  
B. Hoditschek, NMED-HRMB  
R. Kern, NMED-HRMB  
R. Michelotti, CST-18, MS E525  
J. Mose, LAAO, MS A316  
N. Naraine, DOE-HQ, EM-453  
D. Neleigh, EPA, R.6, 6PD-N (2 copies)  
M. Shaner, CIO, MS A117 (5 copies)  
T. Taylor, LAAO, MS A316  
N. Weber, NMED-AIP, MS J993  
J. White, ESH-19, MS K490  
S. Yanicak, NMED-AIP, MS J993  
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D. Bradbury, EM/ER, MS M992  
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G. Rael, AL-ERD, MS A906  
W. Spurgeon, DOE-HQ, EM-453  
J. Vozella, LAAO, MS A316  
EM/ER File, MS M992

# Interim Action Report for Potential Release Site

33-007(b)

Field Unit 3

Environmental  
Restoration  
Project

May 1996

A Department of Energy  
Environmental Cleanup Program

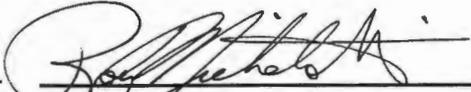


**Los Alamos**  
NATIONAL LABORATORY

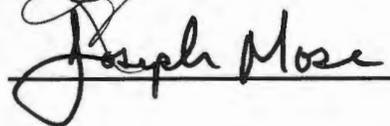
INTERIM ACTION REPORT  
APPROVAL/DISAPPROVAL FORM

PRS 33-007(b)

The undersigned have reviewed the Interim Action Report and believe that the intent and goals of the Interim Action Plan have been met.

FPL 

Date 5/31/96

FPC 

Date 06/03/96

.....

I, Theodore J. Taylor, DOE-LAAO, **APPROVE** the accompanying Interim Action Report for PRS 33-007(b), TA-33.

I, Theodore J. Taylor, DOE-LAAO, **DO NOT APPROVE** the accompanying Interim Action Report for PRS 33-007(b) TA-33.

The following reasons reflect the decision for disapproval:

\_\_\_\_\_

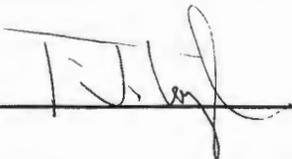
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\_\_\_\_\_

Signed: 

Date: 5/3/96

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## **1.0 OBJECTIVE**

Solid waste management unit (SWMU) 33-007(b) consists of two gun-firing areas at South Site in Technical Area (TA) 33. Interim action was required to stabilize the soil and prevent further migration of contaminants, primarily uranium, at berm TA-33-63 and the drainage area located east of shot pad TA-33-36. This action was conducted at the request of the New Mexico Environment Department and the Department of Energy Los Alamos Area Office (see Attachment 1). The associated fact sheet can be found in Attachment 2.

## **2.0 SITE TYPE AND DESCRIPTION**

SWMU 33-007(b) is discussed in the Resource Conservation and Recovery Act (RCRA) Facility Investigation Work Plan for Operable Unit (OU) 1122, Subsections 3.4.2.5, 4.4.3.1, and 4.4.6 (LANL 1992, 0784). SWMU 33-007(b) consists of two gun-firing areas at South Site (Fig. 1). One area lies 600 ft north of shot pad TA-33-26. This firing area consisted of the 6-ft square concrete pad of gun mount TA-33-85; a 125-ft-diameter half-circle berm, TA-33-43; and an area west of the berm used to test a free-recoil weapon. This site was excavated into bedrock tuff during construction, leaving a 10-ft vertical embankment at its north perimeter. The other gun-firing area of SWMU 33-007(b) is located west of TA-33-26 and included a gun building (TA-33-25) and a barricade (TA-33-63).

Berm TA-33-43 was built in August 1950 and shot pad TA-33-85 was completed in June 1952. Shots fired here contained uranium, beryllium, some titanium, and tritium, all encased in a thin steel shell. Penetrator tests were performed with a free-recoil weapon firing projectiles into the cliff (Ahlquist 1983, 02-006). Guns located in TA-33-25 fired projectiles into berm TA-33-63. These projectiles contained uranium, beryllium, and tungsten. It is not known what percentage of projectiles were recovered.

The firing area is inactive. A Los Alamos National Laboratory (LANL) atmospheric physics group presently maintains an antenna, TA-33-203, erected in 1987 for atmospheric physics measurements in a level area 450-ft north of TA-33-26. Trailers TA-33-201 and TA-33-202 are associated with the antenna.

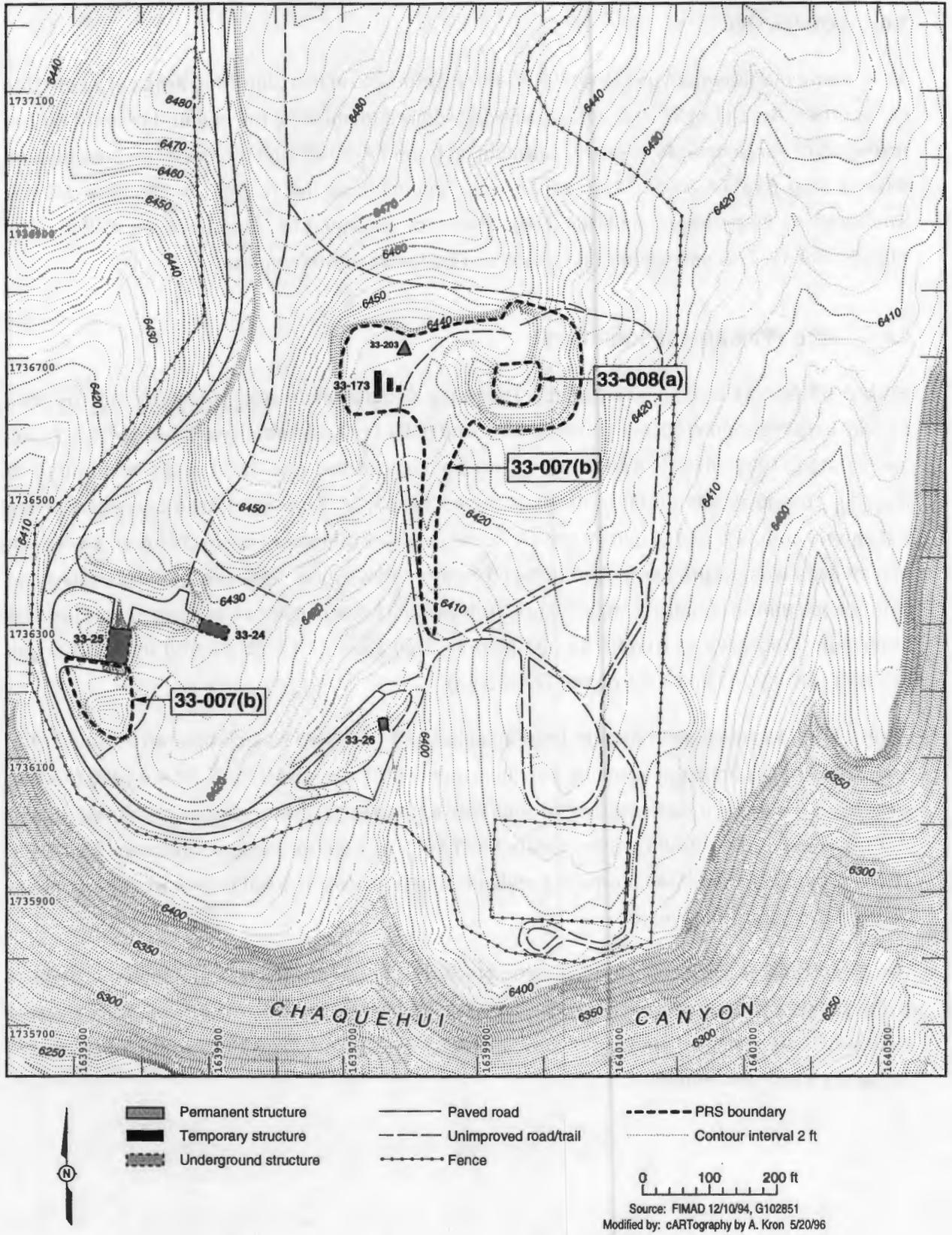


Fig. 1. South Site SWMUs in this interim action report.

### **3.0 CONTAMINANTS**

Potential contaminants at SWMU 33-007(b) are uranium, inorganics, and high explosives (HE). During RFI sampling in 1994 inorganics were detected in the tower area above LANL background upper tolerance limits (UTLs) but well below screening action levels (SALs). Uranium was detected in the drainage at 407.12 mg/kg which is above the SAL of 29 mg/kg.

At berm TA-33-63, inorganics, primarily low levels of nickel, were detected above LANL UTLs in 18 samples. Chromium was detected above the LANL UTL in one sample. Beryllium was detected above SAL in one sample. These chemicals are known to have been used in experiments at TA-33.

Chunks of uranium were found at one spot in the berm. High uranium concentrations were detected in several samples from this berm (see Appendix A of this report for sampling data).

### **4.0 INTERIM ACTION**

An interim action was conducted at the upper and lower berms and drainage associated with SWMU 33-007(b) on March 12, 1996, to prevent migration of contaminants (Fig. 2). This was accomplished at the berm using the following three methods.

- A sandbag retaining wall was constructed along the north-northwest boundary of the berms to prevent the migration of contaminants and expansion of the berm(s).
- Straw bale dams were constructed along the crest of the lower berm to enhance the natural ponding area on the southern part of this berm; additional straw bale dams were constructed within the drainage to the northwest of the berms and between upper and lower berms. This increases the redeposition of sheet and slope wash-transported contaminants within the SWMU boundary and reduces the volume of runoff that discharges through the culvert draining the area to the north.
- Loose straw was spread over all recently disturbed areas on the berms with Poly-Jute™ secured over the straw. This stabilizes the berm slopes, reduces contaminant transport from wind and runoff, and enhances natural revegetation.

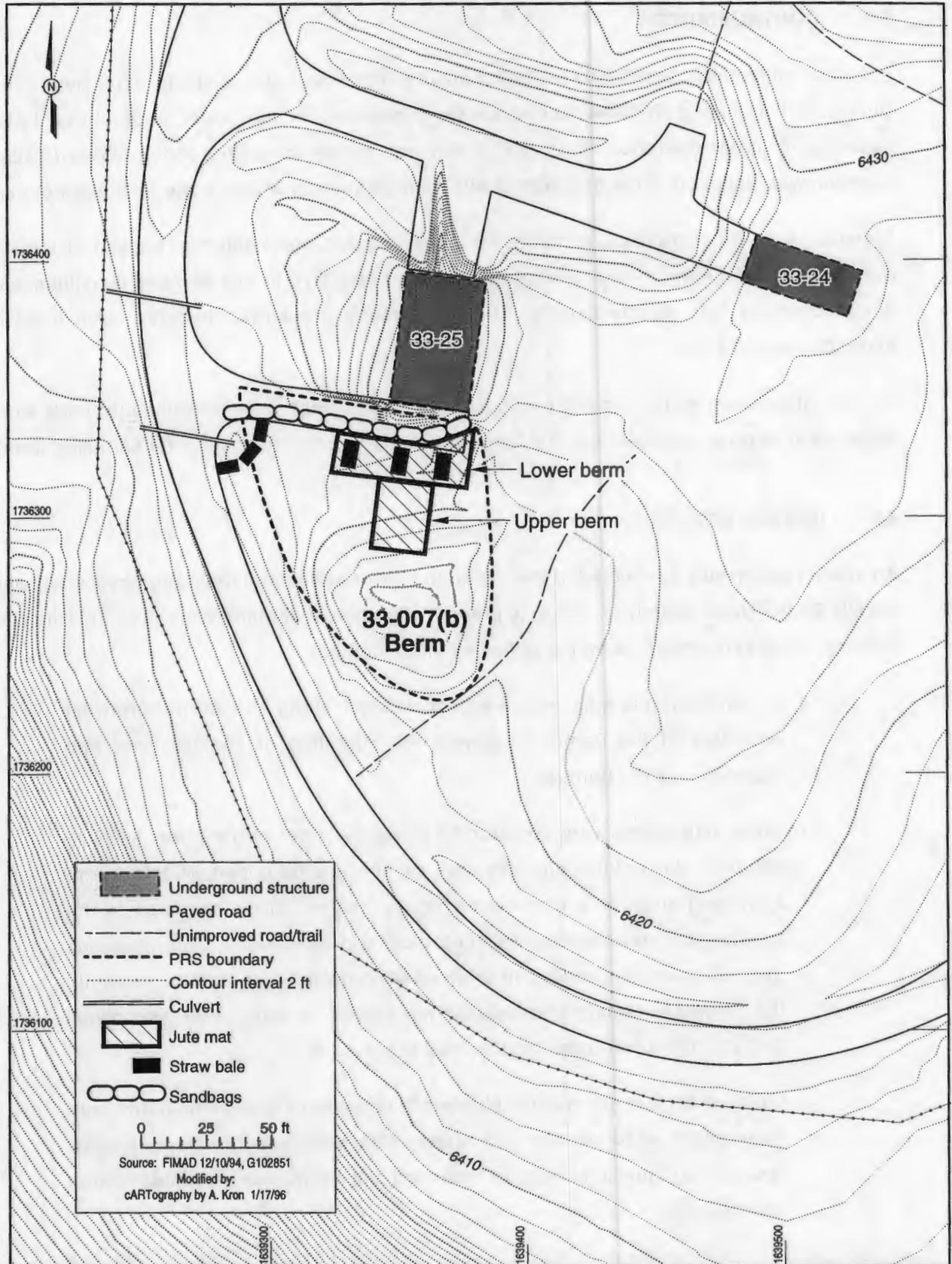


Fig. 2. South Site, SWMU 33-007(b) berm.

Soil that had run off the berm and onto the asphalt was moved back on the berm. A sandbag retaining wall was constructed of approximately 100 sandbags stacked end-to-end and two high. The wall runs along the north-northwest boundary of the berm perpendicular to the asphalt road.

The straw dams consist of straw bales, Poly-Jute™, and rebar. The dams were constructed by placing the Poly-Jute™ along the ground extending past the width of the drainage channel, then placing the straw bales end-to-end upon the Poly-Jute™. The Poly-Jute™ was then pulled over the top of the bales and tucked under, thus completely covering the straw. Rebar was driven through the bales where reinforcement was needed.

The stabilization of the berm consists of straw and Poly-Jute™. The exposed areas on the berm slopes were covered evenly with straw. Poly-Jute™ was laid over the area and anchored with rebar and sandbags.

Figures 3, 4, and 5 are photographs taken before, during, and after the interim action at the berms.

An interim action was also conducted for the central drainage channel associated with SWMU 33-007(b) to prevent migration of contaminants from the site (Fig. 6). This channel also receives runoff from SWMU 33-008(a), a burial site for debris (Fig. 1). The State of New Mexico requested an interim action for SWMU 33-008(a); however, the uranium chunks are not associated with SWMU 33-008(a) and are addressed as part of the interim action for SWMU 33-007(b).

Approximately five straw dams were constructed within the central drainage channel. The dams consist of straw bales, Poly-Jute™, and rebar and were constructed by placing the Poly-Jute™ along the ground extending past the width of the drainage channel. The straw bales were placed end-to-end upon the Poly-Jute™. The Poly-Jute™ was then pulled over the top of the bales and tucked under, thus completely covering the straw. Rebar was driven through the bales where reinforcement was needed.

In low gradient areas the dams were placed in a semicircle (the apex being downgradient) and extend past both sides of the drainage channel to prevent water from being diverted out of the channel.



**Fig. 3. SWMU 33-007(b) before interim action.**



Fig. 4. SWMU 33-007(b) during interim action.



**Fig. 5. SWMU 33-007(b) after interim action.**

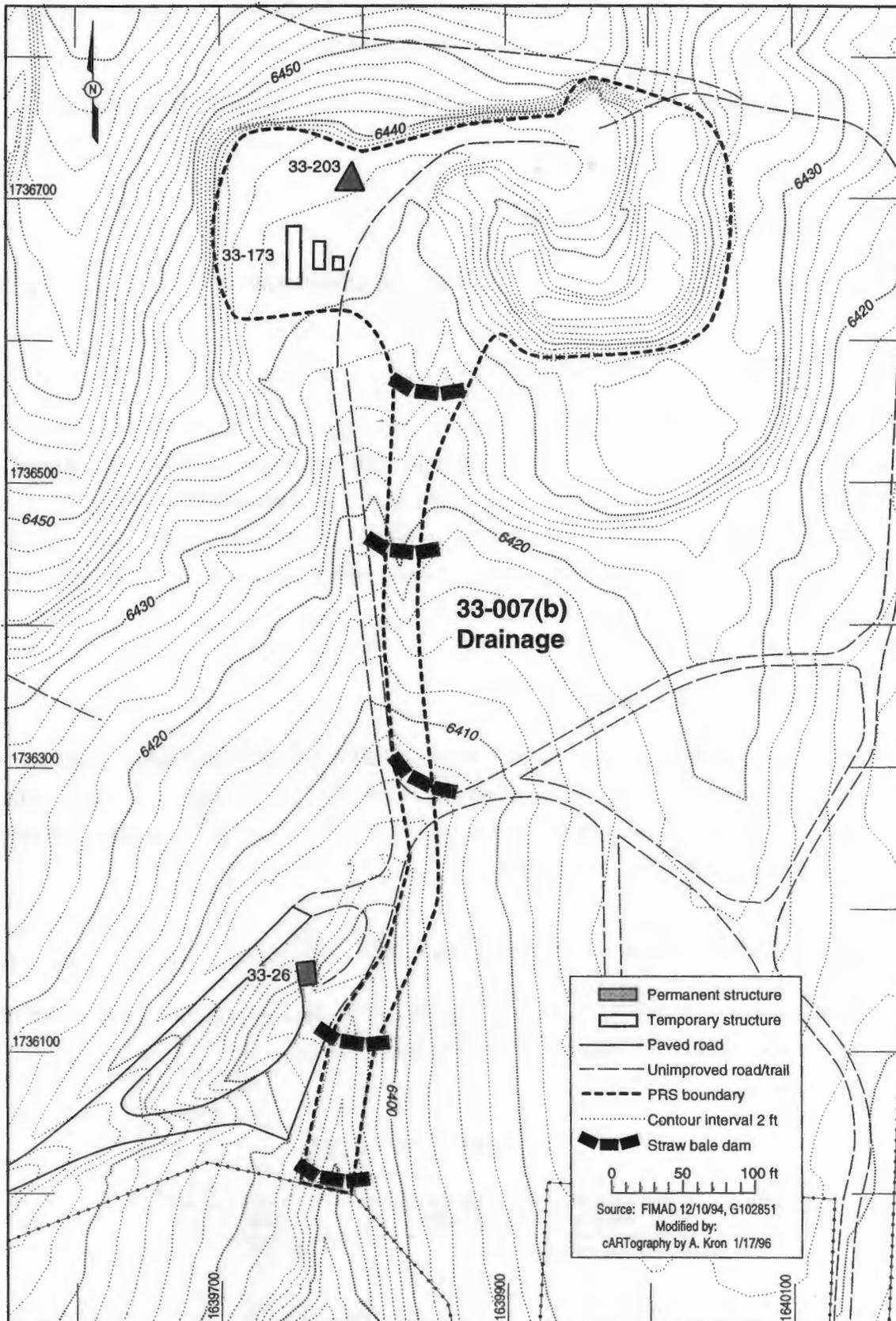


Fig. 6. South Site, SWMU 33-007(b) drainage.

These dams reduce the water flow rate, thereby allowing sediments to settle out and preventing contaminants from moving down the drainage toward the canyon.

Figures 7, 8, and 9 are photographs taken before, during, and after the interim action in the drainage channel.

#### **5.0 CONFIRMATORY ACTIVITIES**

Visual evaluation will be the only activity to confirm the effectiveness of the interim action.

#### **6.0 MANAGEMENT AND INSPECTION**

To comply with the Storm Water Pollution Plan required by the federal government, an inspection of the Poly-Jute™ matting, straw bales, and sandbags will be conducted once every three months and after major storm water runoff events (Federal Register 1992, 02-111). If it becomes necessary to move or replace these materials, ICF Kaiser engineers will take the required actions to restore the site. Inspection and maintenance reports will be placed in the project file.

#### **7.0 WASTE MANAGEMENT**

No waste was generated during implementation. The Poly-Jute™ matting and straw bales will eventually deteriorate. This interim action will need to be maintained until a final remedy is performed. At that time any remaining materials will be managed in the same manner as the waste generated from the final remedy.

#### **8.0 ESTIMATED SCHEDULE AND COST TO COMPLETE**

The interim action at SWMU 33-007(b) was started November 10, 1995, but could not be completed until March 12, 1996, due to inclement weather.

**TABLE 1**  
**INTERIM ACTION COST**

<b>MATERIALS AND LABOR</b>	<b>COST</b>
Materials (Poly-Jute™, sandbags, and straw bales)	\$2 000
Labor	\$3 000
<b>Total</b>	<b>\$5 000</b>



**Fig. 7. SWMU 33-007(b) drainage before interim action.**



**Fig. 8. SWMU 33-007(b) drainage during interim action.**



Fig. 9. SWMU 33-007(b) drainage after interim action.

**9.0 REFERENCES**

Ahlquist, A. J., November 1, 1983. "Conversations with Harlow Russ Regarding TA-33, 10/27/83," Los Alamos National Laboratory Memorandum HSE-8/83-733 to HSE-8 file from A. J. Ahlquist (HSE-8), Los Alamos, New Mexico. **(Ahlquist 1983, 02-006)**

Federal Register, September 9, 1992. "Final NPDES General Permits for Storm Water Discharges from Construction Sites, Section IV, Storm Water Pollution Prevention Plan, D, 2a," Federal Register, Vol. 57, 175. **(Federal Register 1992, 02-111)**

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)**

## APPENDIX A SAMPLING DATA

TABLE A-1

## SUMMARY OF SAMPLES TAKEN FOR SWMU 33-007(b), TOWER AREA

SAMPLE ID	SITE ID	DEPTH (in.)	MATRIX	INOR-GANICS	RADIO-NUCLIDES	SVOCs <sup>a</sup>	HE <sup>b</sup>
AAA9741	33-1360	0-6	Sediment	20384	19433	NA <sup>c</sup>	17789
AAA9742	33-1362	0-6	Sediment	20384	19433	NA	17789
AAA9761	33-1402	0-6	Soil	19113	19472	17838	17839
AAA9762	33-1405	0-6	Soil	19113	19472	17839	17839
0333-95-0078	33-1405	0-6	Soil	14384	NA	NA	NA
AAA9763	33-1406	0-6	Soil	19113	19472	17839	17839
0333-95-0079	33-1406	0-6	Soil	14384	NA	NA	NA
AAA9764	33-1462	0-6	Soil	19113	19472	17839	17839
AAA9765	33-1409	0-6	Soil	19113	19472	17839	17839
AAA9766	33-1410	0-6	Soil	19113	19472	17839	17839
AAA9767	33-1411	0-6	Soil	19113	19472	17839	17839
0333-95-0080	33-1411	0-6	Soil	14384	NA	NA	NA
AAA9768	33-1403	0-6	Soil	19113	19472	28676	17839
AAA9776	33-1357	0-6	Soil	19405	19414	NA	17786

<sup>a</sup> SVOCs = Semivolatile organics.

<sup>b</sup> HE = High explosives.

<sup>c</sup> NA = Not analyzed.

TABLE A-2

SUMMARY OF SAMPLES TAKEN FOR SWMU 33-007(b), BERM TA-33-43

SAMPLE ID	SITE ID	DEPTH (ft)	MATRIX	INOR-GANICS	RADIO-NUCLIDES	HE <sup>a</sup>
AAA9698	33-1449	3	Soil	19399	19418	18859
AAA9699	33-1449	5	Soil	19399	19418	18859
AAA9700	33-1449	6	Soil	19399	19418	18859
AAA9701	33-1449	20	Soil	19399	19418	18859
AAA9702	33-1449	20	Soil	19399	19418	18859

<sup>a</sup> HE = High explosives.

TABLE A-3

## SUMMARY OF SAMPLES TAKEN FOR SWMU 33-007(b), BERM TA-33-63

SAMPLE ID	SITE ID	DEPTH	MATRIX	INOR- GANICS	RADIO- NUCLIDES	HE <sup>a</sup>
AAA9685	33-1448	4 ft	Soil	19388	19469	18006
AAA9686	33-1448	7 ft	Soil	19388	19469	18006
AAA9687	33-1448	11 ft	Soil	19388	19469	18006
AAA9688	33-1448	19 ft	Soil	19388	19469	18006
AAA9689	33-1487	1 in.	Soil	19388	19469	18006
AAA9690	33-1487	6 in.	Soil	19164	19165	NA <sup>b</sup>
AAA9691	33-1407	6 in.	Soil	19388	19469	18006
AAA9692	33-1408	6 in.	Soil	19388	19469	18006
AAA9893	33-1490	6 in.	Sediment	19388	19469	18006
AAA9894	33-1491	3 in.	Sediment	19254	19977	18003
AAA9895	33-1492	6 in.	Soil	19254	19977	18003
AAA9896	33-1493	6 ft	Soil	19254	19977	18003
AAA9897	33-1494	12 ft	Soil	19254	19977	18003
AAA9898	33-1495	17 ft	Soil	19254	19977	18003
AAA9899	33-1496	24 ft	Soil	19254	19977	18003
AAA9900	33-1497	6 in.	Soil	19128	19313	18119
AAA9901	33-1498	6 in.	Soil	19128	19313	18119
AAA9902	33-1499	6 in.	Soil	19128	19313	18119
AAA9903	33-1500	6 in.	Soil	19128	19313	18119
AAA9904	33-1501	6 in.	Soil	19128	19313	18119
AAA9905	33-1502	27 ft	Soil	19128	19313	18119
AAA9907	33-1504	3 ft	Soil	18593	18760	18072
AAA9908	33-1505	3 ft	Soil	18593	18760	18072

<sup>a</sup> HE = High explosives.

<sup>b</sup> NA = Not analyzed.

**TABLE A-4**  
**SUMMARY OF SAMPLES TAKEN FOR SWMU 33-007(b), CATCHERBOX**

SAMPLE ID	SITE ID	DEPTH (in.)	MATRIX	INORGANICS	RADIO-NUCLIDES	HE <sup>a</sup>
AAA9693	33-1404	72	Soil	19285	19361	17844
AAA9694	33-1404	72	Soil	19285	19361	17844
AAA9695	33-1404	72	Soil	19285	19361	17844
AAA9696	33-1404	72	Soil	19285	19361	17844
AAA9697	33-1404	72	Soil	19285	19361	17844

<sup>a</sup> HE = High explosives.

**TABLE A-5**  
**INORGANICS DETECTED ABOVE LANL BACKGROUND UTLs AT SWMU 33-007(b) IN THE TOWER AREA**

SAMPLE ID	CHROMIUM (mg/kg)	LEAD (mg/kg)	ZINC (mg/kg)
SAL <sup>a</sup>	210	400	23 000
LANL UTL <sup>b</sup>	19.3	23.3	50.8
TA-33 UTL	14.6	25.2	57.3
AAA9761	18.9	26.4	30.2
AAA9761D <sup>c</sup>	30.1	33.7	28.4
AAA9762	11.2	46.4	54.9
AAA9767	50.4	31.3	51.6

<sup>a</sup> SAL = Screening action level.

<sup>b</sup> UTL = Upper tolerance limit.

<sup>c</sup> D = Analyzed in duplicate by the analytical laboratory.

TABLE A-6

URANIUM DETECTED ABOVE LANL BACKGROUND UTLs AT SWMU 33-007(b) IN THE TOWER AREA

SAMPLE ID	URANIUM (mg/kg)
SAL <sup>a</sup>	29
LANL UTL <sup>b</sup>	5.45
TA-33 UTL	4.12
AAA9742	407.12
AAA9761	12.19
AAA9767	19.27

<sup>a</sup> SAL = Screening action level.

<sup>b</sup> UTL = Upper tolerance limit.

**TABLE A-7**  
**INORGANICS DETECTED ABOVE BACKGROUND UTLS AT SWMU 33-007(b) IN BERM**  
**TA-33-63**

SAMPLE ID	SILVER (mg/kg)	BERYLLIUM (mg/kg)	CHROMIUM (mg/kg)	NICKEL (mg/kg)	ANTIMONY (mg/kg)	SELENIUM (mg/kg)	ZINC (mg/kg)
SAL <sup>a</sup>	380	UTL	210	1 500	31	380	23 000
LANL UTL <sup>b</sup>	NA <sup>c</sup>	1.95	19.3	15.2	1	1.7	50.8
TA-33 UTL	NA	1.22	14.6	11.1	0.17	0.92	57.3
AAA9685	<0.87	0.74	6.9	28.8	<5.5	<0.59	21.4
AAA9685D <sup>d</sup>	<0.87	<0.78	7.3	28.8	6.9	<0.59	21.4
AAA9686	<0.88	<0.77	7.2	41.8	<5.5	<0.6	20
AAA9687	<0.85	<0.71	6.8	32.3	<9.3	<0.58	20.1
AAA9689	<0.88	<0.75	<1.3	17.9	<12.4	<0.59	17.8
AAA9690	<0.9	<0.54	4.8	19.9	<11.2	2.2	34.9
AAA9690D	<0.9	0.5	7.2	27.4	<11.2	1.5	26.4
AAA9691	<0.86	<0.64	5.8	26.7	<10.5	<0.58	22.4
AAA9692	<0.83	<0.75	4.7	27.2	<9.7	<0.56	21.8
AAA9893	<0.83	<0.67	10.8	28.4	<9.3	<0.56	26.5
AAA9894	<0.87	<0.83	34.4	17.3	<5.6	<1	93.1
AAA9895	<0.82	<0.98	5.7	16.8	<4.7	<0.56	48.4
AAA9896	<0.93	<0.88	8.3	34	<9.8	<1.2	25.8
AAA9897	<0.89	<0.9	5.8	16.7	<8.3	<0.6	24.9
AAA9900	<0.2	<0.39	11.5	28.5	<0.31	0.73	35.3
AAA9900D	<0.12	0.36	10.7	27.9	<0.31	<0.97	32.3
AAA9907	130	3.7	<8	23	<1.2	1	17
AAA9908	5	1.1	<8	15	<1.2	1	19

<sup>a</sup> SAL = Screening action level.

<sup>b</sup> UTL = Upper tolerance limit.

<sup>c</sup> NA = Not analyzed.

<sup>d</sup> D = Analyzed in duplicate.

TABLE A-8

## URANIUM DETECTED ABOVE BACKGROUND UTL AT SWMU 33-007(b) IN BERM TA-33-63

SAMPLE ID	URANIUM (mg/kg)
SAL <sup>a</sup>	29
LANL UTL <sup>b</sup>	5.45
TA-33 UTL	4.12
AAA9686	<b>36.33<sup>c</sup></b>
AAA9687	<b>442</b>
AAA9689	<b>6 721</b>
AAA9690	<b>327</b>
AAA9690D <sup>d</sup>	<b>392</b>
AAA9691	<b>607</b>
AAA9692	<b>176</b>
AAA9893	<b>36.</b>
AAA9894	<b>44</b>
AAA9895	6.75
AAA9896	<b>54</b>
AAA9897	<b>41</b>
AAA9900	<b>323</b>
AAA9901	<b>275</b>
AAA9902	6.75
AAA9903	6.41
AAA9904	<b>36</b>
AAA9907	<b>581</b>
AAA9908	<b>3 967</b>
AAA9908D	<b>4 170</b>

<sup>a</sup> SAL = Screening action level.

<sup>b</sup> UTL = Upper tolerance limit.

<sup>c</sup> Bold = Value above SAL.

<sup>d</sup> D = Analyzed in duplicate.

**TABLE A-9**  
**SEMIVOLATILE ORGANIC COMPOUNDS DETECTED ABOVE BACKGROUND UTLs AT SWMU**  
**33-007(b)**

**TOWER AREA**

SAMPLE ID	SVOC <sup>a</sup>	RESULT (mg/kg)	SAL <sup>b</sup> (mg/kg)	EQL <sup>c</sup> (mg/kg)
AAA9765	Di-n-butylphthalate	4.1	NC <sup>d</sup>	0.33

a SVOCs = Semivolatile organic compounds.  
 b SAL = Screening action level.  
 c EQL = Estimated quantification limit.  
 d NC = Not calculated.

**ATTACHMENT 1      CORRESPONDENCE**

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GARY E. JOHNSON  
GOVERNOR

State of New Mexico  
ENVIRONMENT DEPARTMENT  
DOE OVERSIGHT BUREAU  
2044 A Galisteo Street  
P.O. Box 26110  
Santa Fe, New Mexico 87502

MARK E. WEIDLER  
SECRETARY

EDGAR T. THORNTON, III  
DEPUTY SECRETARY

October 23, 1995

Ivan Trujillo DOE/AIP/POC  
Dept. of Energy  
Los Alamos Area Office  
MS: A316  
Los Alamos, NM 87545

Re: Storm Water Pollution Prevention Best Management  
Practices (BMPs) at TA-33, Solid Waste Management Units  
(SWMUs) 33-007(b), 33-010(c), and 33-008(a).

Dear Mr. Trujillo:

On October 20, 1995, New Mexico Environment Department (NMED), Department of Energy Oversight Bureau (DOE OB) personnel visited several TA-33 SWMUs in conjunction with Los Alamos National Laboratory (LANL) Environmental Restoration (ER) staff. The purpose of this visit was to discuss storm water BMPs associated with various SWMUs. Several sites were visited and the DOE OB recommend that the following BMPs be put in place:

- \* SWMU 33-007(b) This site has yellow cake exposed on the surface of the ground and buried in the bunker. The bunker has very little vegetative cover and appears to be actively eroding.
  - (1) Sand bags should be placed to divert surface runoff from the bunker area into the ditch below the bunker.
  - (2) The ditch below the bunker has a culvert that runs beneath the road. This culvert should be plugged or a silt fence should be installed on the upstream side.
  - (3) Polymer should be applied to the surface of the bunker to stabilize the exposed ground.
  
- \* SWMU 33-010(c) is a site where refuse from past detonations was placed into a watercourse which drains directly into Chaquehui canyon. The base of the refuse pile is in the stream course and subject to mobilization and transport during storm runoff events.
  - (1) A silt fence should be placed at the base of the refuse pile and reinforced with sand bags to prevent washout from the active storm drainage channel.

Ivan Trujillo  
page 2

- (2) Polymer should be applied to the surface of the waste pile to stabilize the exposed ground.
- \* SWMU 33-008(a) is a burial site for debris from a variety of sources. In the channel which drains this SWMU there is exposed yellow cake in the arroyo bottom and the contamination extends several hundred feet down the arroyo.
- (1) At least one silt fence should be installed in this arroyo at the furthest extent of detectable contamination. This would reduce further contamination of the arroyo and reduce ultimate clean-up costs.

DOE OB personnel feel that the implementation of these BMPs would significantly reduce contaminant migration due to storm water runoff into Chaquehui canyon.

If you have any questions regarding this matter do not hesitate to call Ralph Ford-Schmid at 827-1536.

Sincerely,



Steve Yanicak  
NMED/DOE OB/POC

SY:rfs

cc:

Neil Weber, Chief, NMED/DOE OB  
Jim Piatt, Chief, NMED/SWQB  
Benito Garcia, Chief, NMED/HRMB  
Brad Martin, LANL, ER/FPL/FU3, MS-E525  
Everett Trollinger, DOE/FPC/FU3, MS-A316  
Roy Michelotti, LANL/ER, MS-E525  
Don Hickmott, LANL/ER, MS-D462  
Steve Rae, Group Leader, UC-LANL/ESH-18, MS K497  
File/LANL/Look

COPY

United States Government

Department of Energy

Albuquerque Operations Office  
Los Alamos Area Office  
Los Alamos, New Mexico 87544

# memorandum

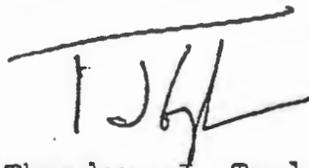
DATE: DEC 14 1995

REPLY TO:  
ATTN OF: LAAO:EP:TJT:1.4.2.6.1.16.2  
SUBJECT: Interim Measure at TA-33, SWMUs 33-007(b), 33-010(c), and 33-008(a) for Storm Water Pollution Prevention

TO: J. Jansen, EM/ER, UC-LANL, MS M992

Attached is a letter from Steve Yanicak, New Mexico Environment Department, dated October 23, 1995, in which Mr. Yanicak expresses a concern regarding the potential release of contaminants from the solid waste management units (SWMUs) 33-007(b), 33-010(c), and 33-008(a). Please review the attached letter and ask your staff to initiate an Interim Measure Plan that will address storm water pollution best management practices (BMPs) for the SWMUs listed above.

If you have any questions concerning this action, please contact Joe Mose at 667-5808.



Theodore J. Taylor  
Program Manager  
Environmental Restoration Program

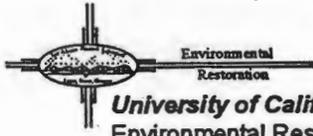
Attachment

- cc w/ attachment:
- D. Griswold, ERD, AL, MS A906
- T. Taylor, EP, LAAO, MS A316
- J. Mose, EP, LAAO, MS A316
- K. Zamora, EP, LAAO, MS A316
- N. Naraine, EM-452, HQ
- J. White, ESH-19, MS K498
- RPF, UC-LANL, MS M707

- cc w/o attachment:
- J. Vozella, AAMEP, LAAO
- G. Rael, ERD, AL9
- W. Spurgeon, EM-452, HQ
- T. Baca, EM, UC-LANL, MS J591

# Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION



**University of California**  
Environmental Restoration, MS M992  
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505-665-4557  
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**U. S. Department of Energy**  
Los Alamos Area Office, MS A316  
Los Alamos, New Mexico 87544  
505-665-7203  
FAX 505-665-4504

*Date:* February 6, 1996  
*Refer to:* EM/ER:96-037

Mr. Steve Yanicak  
New Mexico Environment Department  
DOE-Oversight Bureau  
P.O. Box 1663, MS J993  
Los Alamos, NM 87545

**SUBJECT: STABILIZATION OF SOLID WASTE MANAGEMENT UNITS (SWMUs) 33-007(b,c), 33-008(a), AND 33-010(c)**

This letter is in response to the New Mexico Environment Department (NMED) letter dated October 23 and the US Department of Energy's (DOE's) request dated December 14 that interim measures be implemented at the subject SWMUs to prevent or reduce contaminant migration.

In coordination with NMED, DOE, and the Water Quality Group (ESH-18) at the Los Alamos National Laboratory, Field Unit 3 implemented the approved best management practices (BMP), as described in the enclosed fact sheets, for SWMUs 33-007(c) and 33-010(c). These BMPs consisted of sandbags for run-on diversion, hay-bale check dams to collect sediments, and matting to prevent mobilization of contaminants.

SWMU 33-007(c) is a site that was not originally listed as an interim action candidate; however, after discussions with NMED and DOE, it was agreed that Field Unit 3 personnel should implement an interim action for this SWMU. On December 14, 1995, SWMU 33-007(c) was stabilized with a liner and sandbags to reduce contaminant mobilization and migration, as discussed in the enclosed fact sheet.

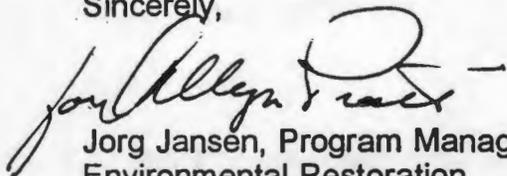
Field Unit 3 is in the process of implementing BMPs at a berm and a drainage channel which are part of SWMU 33-007(b). The NMED requested that action be taken at SWMU 33-008(a); however, the uranium chunks identified in the drainage are attributed to 33-007(b) and not to 33-008(a). The interim action at 33-007(b) was started but could not be completed due to snow; activities will resume as soon as practical. Field Unit 3 will continue to inform DOE and NMED of their progress.

Mr. Yanicak  
EM/ER:96-037

-2-

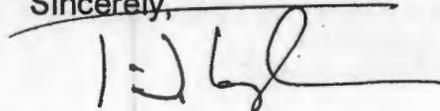
Final interim action reports for 33-007(c) and 33-010(c) will be submitted to DOE and NMED by February 29, 1996. The final interim action report for 33-007(b) will be submitted on May 30, 1996. If you have any questions, please call Brad Martin at (505) 667-6080 or Joe Mose at (505) 667-5808.

Sincerely,



Jorg Jansen, Program Manager  
Environmental Restoration

Sincerely,



Theodore J. Taylor, Program Manager  
Los Alamos Area Office

JJ/TT/bp

Enclosure: Fact Sheets

Cy (w/enc.):

P. Bussolini, NIS/FM, MS E522  
B. Driscoll, EPA  
B. Garcia, NMED-HRMB  
D. Griswold, ERD, AL, MS A906  
B. Hoditschek, NMED-HRMB  
R. Kern, NMED-HRMB  
B. Martin, CST-18, MS E525  
R. Michelotti, CST-18, MS E525  
J. Mose, LAAO, MS A316  
N. Naraine, EM-453, DOE-HQ  
T. Taylor, LAAO, MS A316  
N. Weber, Bureau Chief, NMED-AIP  
J. White, ESH-19, MS K490  
EM/ER File, MS M992  
RPF, MS M707

Cy (w/o enc.):

T. Baca, EM, MS J591  
T. Glatzmaier, DDEES/ER, MS M992  
D. McInroy, EM/ER, MS M992  
G. Rael, ERD, AL, MS A906  
W. Spurgeon, EM-453, DOE-HQ  
J. Vozella, LAAO, MS A316

**ATTACHMENT 2    FACT SHEET**

**ATTACHMENT 2      FACT SHEET**

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**Los Alamos National Laboratory  
Environmental Restoration Project  
PRS Fact Sheet for Interim Action**

**Description**

Potential Release Site (PRS) 33-007(b) consists of two gun-firing areas at South Site. One area lies 600 ft north of TA-33-26, PRS 33-006(a). This firing area consisted of the 6-ft square concrete pad of gun mount TA-33-85; a 125-ft-diameter half-circle berm, TA-33-43; and an area west of the berm used to test a free-recoil weapon. This site was excavated into bedrock tuff during construction, leaving a 10-ft vertical embankment at its north perimeter. The drainage area associated with this site is being addressed in the interim action and includes PRS 33-008(a). TA-33-43 was built in August 1950 and TA-33-85 was completed in June 1952. The other gun-firing area of PRS 33-007(b) is located west of TA-33-26 and includes a gun building (TA-33-25) and a barricade (TA-33-63). Activities at South Site were discontinued in the late 1950s. The firing area is currently inactive.

Shots fired here contained uranium, beryllium, some titanium, and tritium and were all encased in steel shells. Penetrator tests were performed with a free-coil weapon firing projectiles into the cliff (Ahluquist 1983, 02-006). Guns of 2–4-in. bore located in TA-33-25 fired projectiles south into barricade TA-33-63. These projectiles contained uranium, beryllium, and tungsten.

**Contaminants**

Potential contaminants at PRS 33-007(b) are uranium, inorganics, and high explosives (HE). During RFI sampling in 1993 no contamination above LANL upper tolerance limits (UTLs) were detected in any sample from berm TA-33-43 and no experimental debris was found. Inorganics, primarily low levels of nickel, were detected above LANL UTLs in 18 samples. Chromium and beryllium were detected above the screening action level (SAL) in one sample associated with high levels of uranium. These chemicals are known to have been used experimentally at TA-33. Chunks of yellow uranium were found at one spot in the berm. High uranium concentrations were detected in several samples from this berm. Six samples contained uranium only slightly above the SAL of 29 mg/kg.

**Interim Actions**

As requested by the State of New Mexico and DOE, an interim action for the berm was implemented using the following measures to reduce the off-site migration of contaminants.

- A sandbag retaining wall was constructed along the north-northwest boundary of the berms to prevent the migration and expansion of the toe of the berm(s).
- Straw bale dams were constructed along the crest of the lower berm to enhance the natural ponding area on the southern part of this berm; additional straw bale dams were constructed within the drainage to the northwest of the berms and between upper and lower berms (Figure 1). This will increase the redeposition of sheet and slope wash-transported contaminants within the PRS boundary and will reduce the volume of runoff that discharges through the culvert draining the area to the north.
- Loose straw was spread over all recently disturbed areas on the berms and Poly-Jute™ was secured over the straw. This will stabilize the berm slopes, reduce wind and runoff derived contaminant transport, and enhance natural revegetation.

Soil that has run off the berm and onto the asphalt was moved back on the berm. A sandbag retaining wall was constructed of approximately 100 sandbags stacked end-to-end and two high. The wall runs along the north-northwest boundary of the berm paralleling the intersection of the dirt and the asphalt road.

The straw dams consist of straw bales, Poly-Jute™, and rebar. The dams were constructed by placing the Poly-Jute™ along the ground extending past the width of the drainage channel, then placing the straw bales end-to-end upon the Poly-Jute™. The Poly-Jute™ was pulled over the top of the bales and tucked under, thus completely covering the straw. Rebar was driven through the bales where reinforcement was needed.

The stabilization of the berm consists of straw and Poly-Jute™. The exposed areas on the berm slopes were covered evenly with straw; Poly-Jute™ was laid over the area and anchored with rebar and sandbags.

An interim action was also conducted for the central drainage channel associated with PRS 33-007(b) to prevent the migration of contaminants from the site. This channel also receives runoff from PRS 33-008(a), a burial site for debris. The State of New Mexico requested an interim action for this PRS; however, the uranium chunks are not associated with PRS 33-008(a) and will be addressed as part of the interim action for PRS 33-007(b).

Approximately five straw dams were constructed within the central drainage channel. (See Figure 2). Best professional judgment was used in choosing these locations.

The dams consist of straw bales, Poly-Jute™, and rebar and was constructed by placing the Poly-Jute™ along the ground extending past the width of the drainage channel. The straw bales were placed end-to-end upon the Poly-Jute™. The Poly-Jute™ was pulled over the top of the bales and tucked under thus completely covering the straw. Rebar was driven through the bales where reinforcement was needed.

In low gradient areas the dams were placed in a semicircle (the apex being downgradient) and extend past both sides of the drainage channel to prevent water from being diverted out of the channel.

These dams will reduce the water flow rate, allowing sediments to settle out, thus preventing contaminants from moving down the drainage toward the canyon.

#### **Estimated Cost**

Materials (Poly-Jute™, sandbags, and straw bales)	\$2 000
Labor	\$3 000
Total	<u>\$5 000</u>

#### **Schedule:**

The interim actions took place on March 12, 1996.