Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

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Date: March 15, 1996
Refer to: EM/ER:96-139

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

SUBJECT: FINAL VOLUNTARY CORRECTIVE ACTION (VCA) PLAN FOR REMEDIATION ACTIVITIES AT TECHNICAL AREA (TA) 32 FOR POTENTIAL RELEASE SITES (PRSs) 32-001 AND 32-003

Dear Mr. Garcia:

Enclosed please find an informational copy of the final VCA Plan for activities in TA-32 for PRSs 32-001 and 32-003 to be completed in Fiscal Year 1996.

The Department of Energy (DOE) participated in developing and reviewing this plan. The VCA Checklist and Field Authorization Form have been completed and signed. DOE authorization for field work to proceed has been granted and is included with the enclosed plan.

If you have any questions, please call Garry Allen at 505-667-3394 or Bonnie Koch at 505-665-7202.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/rfr

Enclosure: Final VCA Plan for TA-32 for PRSs 32-001 and 32-003

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Voluntary Corrective Action Plan for

Potential Release Sites

32-001
32-003

Field Unit 1

Environmental Restoration Project

March 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-763

1.0 INTRODUCTION

This plan describes the voluntary corrective actions (VCA) for potential release sites (PRSs) 32-001 and 32-003. Each of these PRSs is a solid waste management unit (SWMU) listed in the Hazardous and Solid Waste Amendments (HSWA) Module of Los Alamos National Laboratory's (LANL's) Resource Conservation and Recovery Act (RCRA) Part B Operating Permit (EPA 1990, **0306**).

1.1 Site Type and Description

PRS 32-001 is a former incinerator site, and PRS 32-003 is the site of a former transformer station and associated wood debris pile. Both PRSs are located south of Trinity Drive at the site of the present Los Alamos County Roads Division, near the north rim of Los Alamos Canyon (Annex 7.3, Figure 7.3-1).

1.1.1 Operational History

The former incinerator and transformer station served part of TA-32, which served as the former Medical Research and Training Facility at the Los Alamos Scientific Laboratory from 1944 until it was decommissioned in 1954 (Annex 7.3, Figure 7.3-2).

PRS 32-001

PRS 32-001 adjoined the northeast corner of the Medical Research Facility's main laboratory building (Building 32-1). The incinerator was constructed of brick and was 2.5 ft. wide, 2.5 ft. long, and 10 ft. high. It was removed sometime prior to 1954. The incinerator received combustible wastes from the medical research facilities, and the ash was disposed at a LANL disposal facility. The former incinerator location (PRS 32-001) is determined, based on engineering drawings and aerial photographs, to be beneath the asphalt working area of the Los Alamos County Roads Division (ICF Kaiser, 1993, **06-0103**).

PRS 32-003

Based on a review of historic aerial photographs, it has been determined that the transformer station was located approximately 5 to 8 feet east of the present wood debris pile and consisted of

three transformers on a wooden platform elevated 19.5 feet off the ground. The wood debris pile is believed to be remnants of the transformer platform which was apparently dismantled and placed on the ground in its present location.

1.1.2 COPCs and Rationale for Proposed Remedial Action

PRS 32-001

Analytical results from the RFI Phase I soil sampling at the former incinerator location showed above-background concentrations of Aroclor 1260™, acetone, toluene, lead, mercury, and silver (Annex 7.1). The multiple constituent evaluation (MCE) was calculated at 0.2, eliminating acetone, lead, mercury, silver and toluene as chemicals of potential concern (COPCs) because the additive effect does not present a health risk. The screening assessment performed as part of the RFI Phase I report (LANL 1995, **06-0128**) identified Aroclor 1260™, a polychlorinated biphenyl (PCB), as the only chemical to be retained as a COPC.

Phase I RFI sampling results indicate the presence of PCBs at 2 mg/kg in one shallow subsurface (10-14 in.) soil sample (AAA4690) collected at or near the base of the former incinerator. The Phase II workplan (LANL 1995, **06-0128**) recommends that additional samples be collected in the vicinity of the former incinerator to evaluate the extent of PCB contamination; proposed sampling locations are presented in Annex 7.3, Figure 7.3-3. Field efforts will include additional sampling for extent and subsequent removal of PCB-contaminated soils as necessary to minimize the potential risk to human health and the environment. Verification/confirmation samples will be collected to confirm that the PCB contamination has been removed in accordance with this plan.

PRS 32-003

Analytical results from the RFI Phase I soil sampling at the wood debris pile show above-background concentrations of Aroclor 1260™, acetone, toluene, lead and zinc (Annex 7.1). The multiple constituent evaluation (MCE) was calculated at 0.58, eliminating acetone, toluene, lead and zinc as COPCs because the additive effect does not present a health risk. The screening assessment performed as part of the RFI Phase I Report (LANL 1995, **06-0128**) identified Aroclor 1260™, polychlorinated biphenyl, as the only chemical to be retained as a COPC. The location of the former transformer station was not sampled.

Phase I RFI sampling results indicate the presence of PCBs at 4.0 and 1.5 mg/kg in two shallow subsurface (0-4 in.) samples (AAA4693 and AAA4694) collected at the wood debris pile.

Samples will be collected beneath the former location of the transformer station and at the wood debris pile to evaluate the extent of PCB contamination during the Phase II RFI. Proposed sampling locations are presented in Annex 7.3, Figure 7.3-3. Removal of PCB-contaminated soils will be conducted as necessary to minimize the potential risk to human health and the environment. Verification/confirmation samples will be collected to confirm that the PCBs have been removed in accordance with this plan. The wood debris pile will also be removed as part of the VCA.

2.0 SITE CHARACTERIZATION

2.1 RFI Information/Other Decision Data

PRS 32-001

The RFI Phase I sampling, conducted in 1993, consisted of collecting two shallow subsurface soil samples. No known sampling was conducted prior to the Phase I sampling. Archival searches did not reveal evidence of spills or releases. Analytical results from soil sampling at the former incinerator location are presented in Annex 7.2. Sampling locations from the Phase I RFI are presented in Annex 7.3, Figure 7.3-4.

PRS 32-003

Archival searches did not reveal evidence of spills at PRS 32-003. As part of the RFI Phase I investigation conducted in 1993, two surface samples were collected at the former transformer platform (wood debris pile), and three samples were collected in the drainage below the wood debris pile to confirm that no contaminants had migrated down slope. Analytical results from soil sampling at the wood debris pile and the drainage are presented in Annex 7.2. Sampling locations from the Phase I RFI are presented in Annex 7.3, Figure 7.3-4.

2.2 Nature and Extent of Contamination

PRS 32-001

The extent of PCB contamination will be determined during the Phase II RFI in accordance with EPA guidance on PCB spill verification. Seven locations (six perimeter and one center) will be sampled centered on coordinates determined to be at the location of the former incinerator (Annex 7.3 Figure 7.3-3). Grab samples will be collected according to a hexagonal equidistant grid pattern. Soil samples will be analyzed in a mobile analytical laboratory using EPA Method (SW-846) 8080 for PCBs, in accordance with EPA Level III protocols. Since the PRS is relatively small,

seven sampling locations should be adequate to bound contamination, if present. To support the determination of extent, samples will be collected from two depth intervals at each location: 0 to 10 inches, and 10 to 15 inches. The sampling will advance to greater depths as dictated by analytical results. As needed, sampling may also extend laterally from the points to further define the extent of contamination.

PRS 32-003

The extent of PCB contamination will be determined during the Phase II RFI in accordance with EPA guidance on PCB spill verification. Seven locations (six perimeter and one center point) will be sampled in the vicinity of the wood debris pile centered on the point where the highest concentrations of PCBs were detected in the Phase I sampling (Annex 7.3 Figure 7.3-3). Grab samples will be collected according to a hexagonal equidistant grid pattern. Soil samples will be analyzed in a mobile analytical laboratory using EPA Method (SW-846) 8080 for PCBs in accordance with EPA Level III protocols. Since the wood debris pile is approximately 6 feet in diameter, seven sampling locations should be adequate to bound contamination, if present. To support the VCA, samples will be collected from two depth intervals at each location: 0 to 10 inches, and 10 to 15 inches. The sampling will advance to greater depths as dictated by analytical results. Two soil samples will also be collected from beneath the former position of the PCB transformer station (which was 19.5 feet above ground). These samples will also be analyzed for PCBs in a mobile analytical laboratory using EPA method (SW-846) 8080 for PCBs in accordance with EPA Level III protocols.

3.0 PROPOSED REMEDY

3.1 Description of the Proposed Remedial Action

PRS 32-001

After the vertical and horizontal extent of contamination has been determined from Phase I sampling, all contaminated soil above 1 mg/kg from 0 to 10 inches and 10 mg/kg below 10 inches will be removed from the site. Asphalt will first be removed from above the area to be excavated. Contaminated soil will then be removed by shovels or a backhoe depending on the extent of contamination. All asphalt will be disposed of in accordance with the Waste Characterization Strategy form for PRS 32-001, 32-002(a, b), 32-003, and 32-004. The site will then be restored to its original grade and repaved (see section 3.3).

PRS 32-003

After the vertical and horizontal extent of contamination has been determined from Phase I sampling, all contaminated soil above 1 mg/kg from 0 to 10 inches and 10 mg/kg below 10 inches will be removed from the site. First the wood debris pile will be removed and placed in either 55 gallon drums, boxes, or directly into a truck for shipment. Contaminated soil will be removed by shovels or a backhoe depending on the extent of contamination. All wood debris will be disposed of in accordance with the Waste Characterization Strategy form for PRS 32-001, 32-002(a, b), 32-003, and 32-004. The site will then be restored to its original grade and revegetated (see section 3.3).

3.2 Basis for Cleanup Levels

Currently, the majority of TA-32 is used by the Los Alamos County Roads Division as a storage yard (Annex 7.3, Figures 7.3-1 and 7.3-2). In the foreseeable future, land use will most likely be the same as the current use of the site(s). Cleanup levels will, however, be based on the potential for future residential land use. Residential land use is proposed because the site is on the mesa top within Los Alamos townsite. In accordance with Toxic Substances Control Act (TSCA) regulations for cleanup of residential property, the cleanup level for soil will be 1 mg/kg for the upper 10 inches and 10 mg/kg for depths greater then 10 inches.

3.3 Site Restoration

When verification sample results confirm that each PRS has been remediated in accordance with this plan, the excavated area(s) will be returned to their original surface grade and either repaved or revegetated. Backfill material will consist of uncontaminated soil (less than 1 mg/kg PCB concentration) excavated from the site and/or clean backfill obtained from the LANL maintenance contractor. Site restoration will comply with requirements outlined in the approved storm water pollution prevention plan, which will be provided upon request.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Wastes to be generated by these VCAs include contaminated soil, possibly asphalt, used personal protective equipment (PPE), and decontamination rinse water. Analytical results from direct sampling of the waste and acceptable knowledge will be used to profile waste. The waste will be sampled for PCBs, organics, and metals. Waste will be managed in accordance with the approved waste characterization strategy form (WCSF), included as Annex 7.7.

PRS 32-001

The estimated volume of waste generated as a result of sampling activities at PRS 32-001 includes a partially full 55-gallon drum of PPE and disposable sampling equipment and approximately 20 gallons of decontamination water. In the event soil is excavated and removed, based on the assumptions of a total area of 79 square feet of PCB-contaminated soil to a depth of 10 inches, approximately 2.4 cubic yards of PCB-contaminated soil and asphalt will be generated. The total volume of PCB contaminated soil may vary depending upon the extent of contamination determined during the Phase II RFI.

PRS 32-003

The estimated volume of waste generated as a result of sampling activities at PRS 32-003 includes a partially full 55-gallon drum of PPE, disposable sampling equipment, and 20 gallons of decontamination water. The wood debris pile will fill approximately two 55-gallon drums but will be placed either in a box or directly into a truck for shipment. In the event soil is excavated and removed, based on the assumptions of a total area of 79 square feet and PCB-contaminated soil to a depth of 10 inches, approximately 2.4 cubic yards of PCB-contaminated soil will be generated. The total volume of PCB contaminated soil may vary depending upon the extent of contamination determined during the Phase II RFI.

4.2 Method of Disposal

Excavation, transportation and disposal of PCB-contaminated soil generated by these VCAs will be performed by an approved and permitted waste treatment, storage, and disposal (TSD) subcontractor currently under contract with LANL through CST-5. The excavated soils, PPE, and disposable sampling equipment will be transported to a permitted TSCA landfill facility or an

approved LANL site for final disposal, as arranged by the TSD subcontractor. No treatment of these solid wastes is anticipated. Decontamination rinse water will be sampled and disposed of in accordance with the approved WCSF.

5.0 DESCRIPTION OF CONFIRMATION/VERIFICATION SAMPLING

After excavation, confirmation/verification samples will be collected from the base of the excavation and analyzed in the mobile analytical laboratory using EPA Method (SW-846) 8080 for PCBs, in accordance with EPA Level III protocols. Verification samples will be collected in a hexagonal equidistant grid pattern as proposed in the EPA Guidance document, *Verification of PCB Spill Cleanup by Sampling and Analysis* (EPA 1985, **06-0117**). If the area of contamination is determined from the Phase II investigation to be less than 50 square feet, seven locations will be sampled, and if the area of contamination is 51 - 150 square feet, 19 locations will be sampled. Samples from these locations will be composited for analysis. As many as four subsamples may comprise a sample submitted for analysis. The analytical results will be compared to the cleanup level divided by the number of subsamples in the composite and evaluated for comparison to the cleanup level to confirm that the remediation goals have been met.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

Site activities for PRS 32-001 are estimated to require a maximum of four days to implement in addition to the duration of the Phase II investigation. This includes two days for excavation, one day for confirmation/verification sampling, and one day for site restoration. Site activities for PRS 32-003 are estimated to require a maximum of five days to implement. This includes one day for removal of wood debris, two days for excavation, one day for confirmation/verification sampling, and one day for site restoration. Final report preparation is estimated to require two weeks for each PRS. Detailed costs to complete these VCAs are included as Annex 7.9. Should the nature or extent of the contamination found during the Phase II RFI be greater, or different than anticipated, the remediation activities will be re-evaluated and EPA and NMED will be contacted.

7.0 ANNEXES

Annex 7.1

Risk-Based Cleanup Level Assumptions and Calculations

7.1 Risk-Based Cleanup Level Assumptions and Calculations

The result of the background and screening assessments on the Phase I data indicate that Aroclor 1260™ is the only COPC present and serves as a driver for potential remediation at PRSs 32-001 and 32-003.

As stated previously, a cleanup level of 1 mg/kg of Aroclor 1260™ in the upper 10 inches and 10 mg/kg at depths greater than 10 inches will be used assuming the sites may be converted to residential use in the future. The 95th percentile upper confidence limit (UCL) of the mean of all PCB data for each PRS will be calculated and compared to the cleanup level. If PCB levels exceed 1 mg/kg in the upper 10 inches of soil, and/or 10 mg/kg at depths greater than 10 inches, then soil exceeding the respective cleanup level for PCBs will be removed. If deeper excavation (i.e., advancing to a greater depth or interval) does not identify PCBs at or above respective cleanup levels, then no further action will be proposed for this PRS. Attainment of these cleanup levels will be considered achieved when the upper 95% confidence level of the mean concentration of PCBs remaining in the excavated area, as demonstrated by verification sampling, is equal to or less than the established depth-specific cleanup levels stated above.

Annex 7.2

RFI Analytical Results

ANNEX 7.2 RFI Analytical Results

Table 7.2-1 Analytical Results For Inorganic Analytes Detected at PRS 32-001

Sample Number	Sample Location	Sample Depth	Location	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron
AAA1287	32-1035	10-14 in.	Incinerator	8400	< 0.1	2.8	130	0.56	<0.4	5600	6.8	4	4.5	9300
AAA1287D	32-1035	10-14 in.	Incinerator	11000	NA	NA	140	0.7	<0.4	5400	9	4.2	4.9	11000
AAA4690	32-1001	10-14 in.	Incinerator	3700	< 0.1	2.7	50	0.6	1	930	19	1.3	9	4900

Sample Number	Sample Location	Sample Depth	Location	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
AAA1287	32-1035	10-14 in.	Incinerator	11	1600	150	<0.1	7	990	<0.3	<2	750	0.5	17	34
AAA1287D	32-1035	10-14 in.	Incinerator	13	2000	180	NA	9	1300	NA	NA	810	NA	21	42
AAA4690	32-1001	10-14 in.	Incinerator	70	680	210	0.1	6	560	<0.3	3	330	0.6	9	60

Table 7.2-2 Analytical Results For Semivolatile Analytes Detected at PRS 32-001

Sample Number	Sample Location	Sample Depth	Location	Aroclor (mixed)	Aroclor 1260	Benzo(a)pyrene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene
AAA1287	32-1005	10-14 in.	Incinerator	<1	<1	<0.33	<0.33	<0.33	<0.33	<0.33
AAA4690	32-1001	10-14 in.	Incinerator	2	2	<0.33	<0.33	<0.33	<0.33	<0.33

Sample Number	Sample Location	Sample Depth	Location	Bis(2-ethylexyl)phthalate	Butylbenzylphthalate	Chrysene	Di-butylphthalate	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
AAA1287	32-1005	10-14 in.	Incinerator	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
AAA4690	32-1001	10-14 in.	Incinerator	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

Table 7.2-3 Analytical Results For Volatile Organic Analytes Detected at PRS 32-001

Sample Number	Sample Location	Sample Depth	Location	Acetone	Toluene
AAA1287	32-1035	10-14 in.	Incinerator	0.027	<0.005
AAA4690	32-1001	10-14 in.	Incinerator	0.046	0.0098

NOTE: All data were extracted from FIMAD on June 6, 1995, and all results are measured in mg/kg.
NA = No analysis performed.
D after sample AAA1287 denotes a duplicate.

ANNEX 7.2 RFI Analytical Results

Table 7.2-4 Analytical Results For Inorganic Analytes Detected at PRS 32-003

Sample Number	Sample Location	Sample Depth	Location	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron
AAA4693	32-1004	0 to 2 in.	Wood debris pile	4900	< 0.1	2.6	98	0.42	0.7	3200	6	2.5	14	6400
AAA4694	32-1005	0 to 4 in.	Wood debris pile	4800	< 0.1	3.2	78	0.47	0.46	2400	5	2.5	14	6500
AAA4709	32-1020	0 to 15 in.	Drainage	4100	<0.1	5.4	65	0.54	<0.4	3300	4.4	2.1	6.5	5500
AAA4710	32-1021	0 to 15 in.	Drainage	2900	<0.1	2.1	51	0.32	<0.4	5300	3.7	2.2	4.1	5000
AAA4711	32-1022	0 to 15 in.	Drainage	2400	<0.1	2.7	47	0.31	<0.4	1700	3	1.8	4.7	5600

Sample Number	Sample Location	Sample Depth	Location	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
AAA4693	32-1004	0 to 2 in.	Wood debris pile	46	1200	270	< 0.1	8	1000	< 0.3	< 2	110	0.5	12	100
AAA4694	32-1005	0 to 4 in.	Wood debris pile	230	1000	290	< 0.1	4	910	< 0.3	< 2	100	0.4	10	110
AAA4709	32-1020	0 to 15 in.	Drainage	40	1000	250	<0.1	5.7	770	0.7	<2	190	0.3	8.2	65
AAA4710	32-1021	0 to 15 in.	Drainage	25	900	200	<0.1	4	660	0.4	<2	180	<0.1	8.6	39
AAA4711	32-1022	0 to 15 in.	Drainage	23	770	230	<0.1	4	480	0.6	<2	140	0.2	9.4	48

Table 7.2-5 Analytical Results For Volatile Analytes Detected at PRS 32-003

Sample Number	Sample Location	Sample Depth	Location	Aroclor (mixed)	Aroclor 1260	Benzo(a)pyrene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene
AAA4693	32-1004	0 to 2 in.	Wood debris pile	4	4	< 0.33	< 0.33	0.69	< 0.33	< 0.33
AAA4694	32-1005	0 to 4 in.	Wood debris pile	1.5	1.3	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
AAA4709	32-1020	0 to 15 in.	Drainage	<1	<1	<0.33	<0.33	0.51	<0.33	<0.33
AAA4710	32-1021	0 to 15 in.	Drainage	<1	<1	<0.33	<0.33	<0.33	<0.33	<0.33
AAA4711	32-1022	0 to 15 in.	Drainage	<1	<1	<0.33	<0.33	<0.33	<0.33	<0.33

Sample Number	Sample Location	Sample Depth	Location	Bis(2-ethyiexyl)phthalate	Butylbenzylphthalate	Chrysene	Di-butylphthalate	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
AAA4693	32-1004	0 to 2 in.	Wood debris pile	< 0.33	< 0.33	< 0.33	< 0.33	0.7	< 0.33	< 0.33	0.74
AAA4694	32-1005	0 to 4 in.	Wood debris pile	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
AAA4709	32-1020	0 to 15 in.	Drainage	<0.33	<0.33	0.36	1.4	0.53	<0.33	<0.33	0.8
AAA4710	32-1021	0 to 15 in.	Drainage	1.4	1.1	<0.33	1.3	<0.33	<0.33	<0.33	<0.33
AAA4711	32-1022	0 to 15 in.	Drainage	<0.33	<0.33	<0.33	3.5	<0.33	<0.33	<0.33	0.61

Table 7.2-6 Analytical Results For Volatile Organic Analytes Detected at PRS 32-003

Sample Number	Sample Location	Sample Depth	Location	Acetone	Toluene	Xylenes (o+m+p)(mixed)
AAA4694	32-1005	0 to 4 in.	Wood debris pile	0.025	0.013	< 0.005

NOTE: All data were extracted from FIMAD on June 6, 1995, and all results are measured in mg/kg.

Annex 7.3
Site Maps

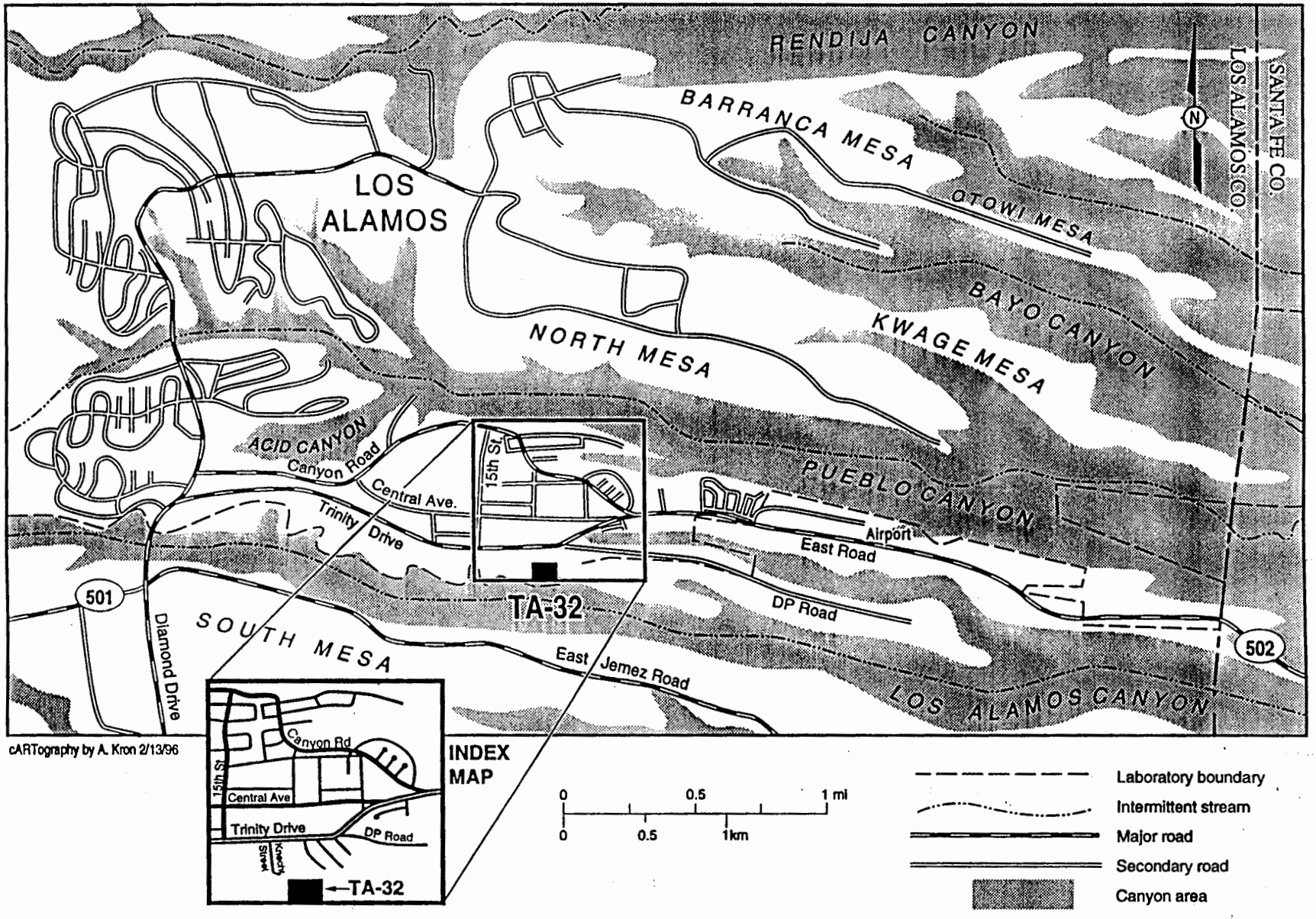

Figure 7.3-1. General location of TA-32.

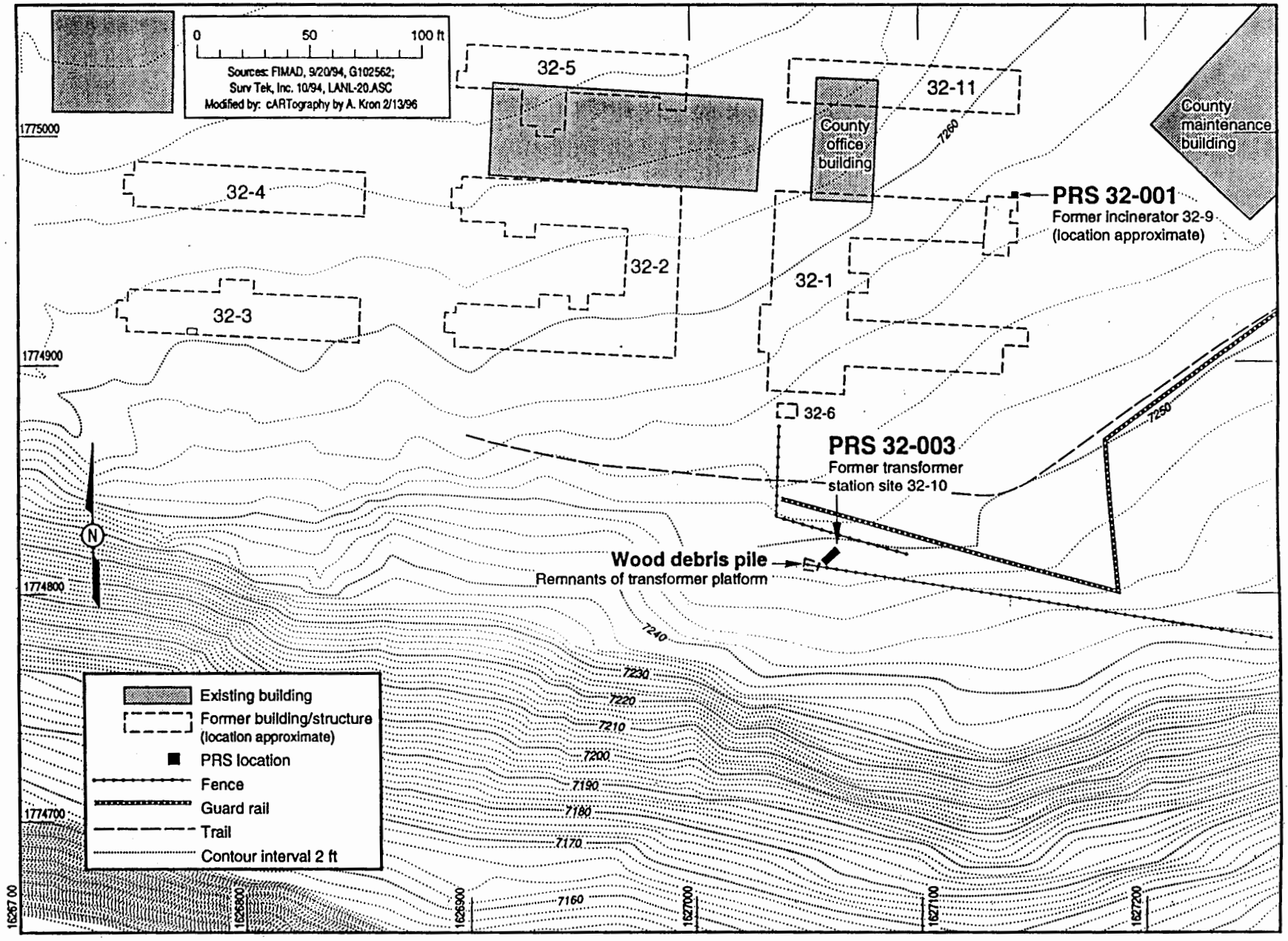

Figure 7.3-2. Locations of PRSs 32-001 and 32-003.

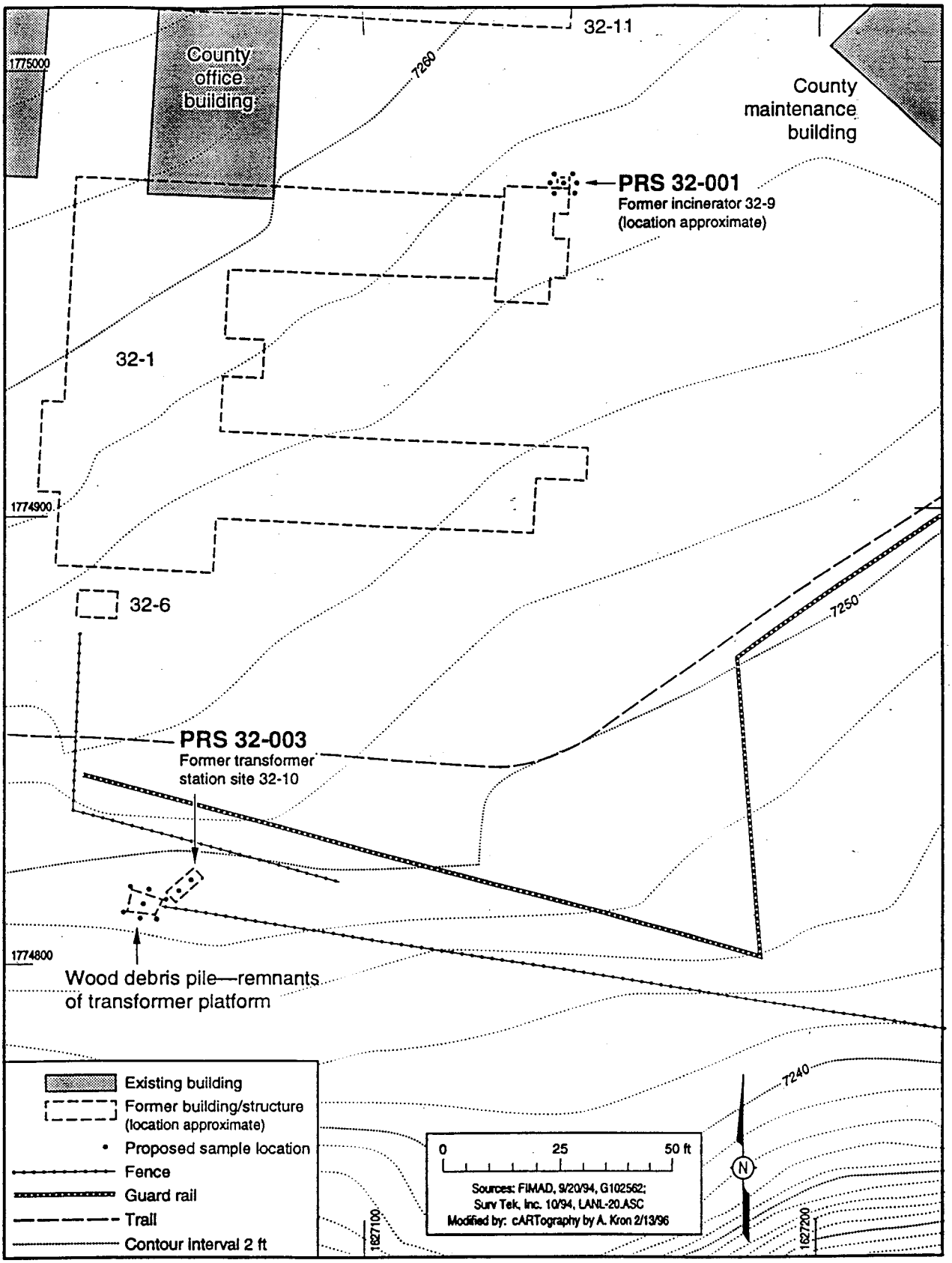

Figure 7.3-3. Proposed Phase II sampling locations.

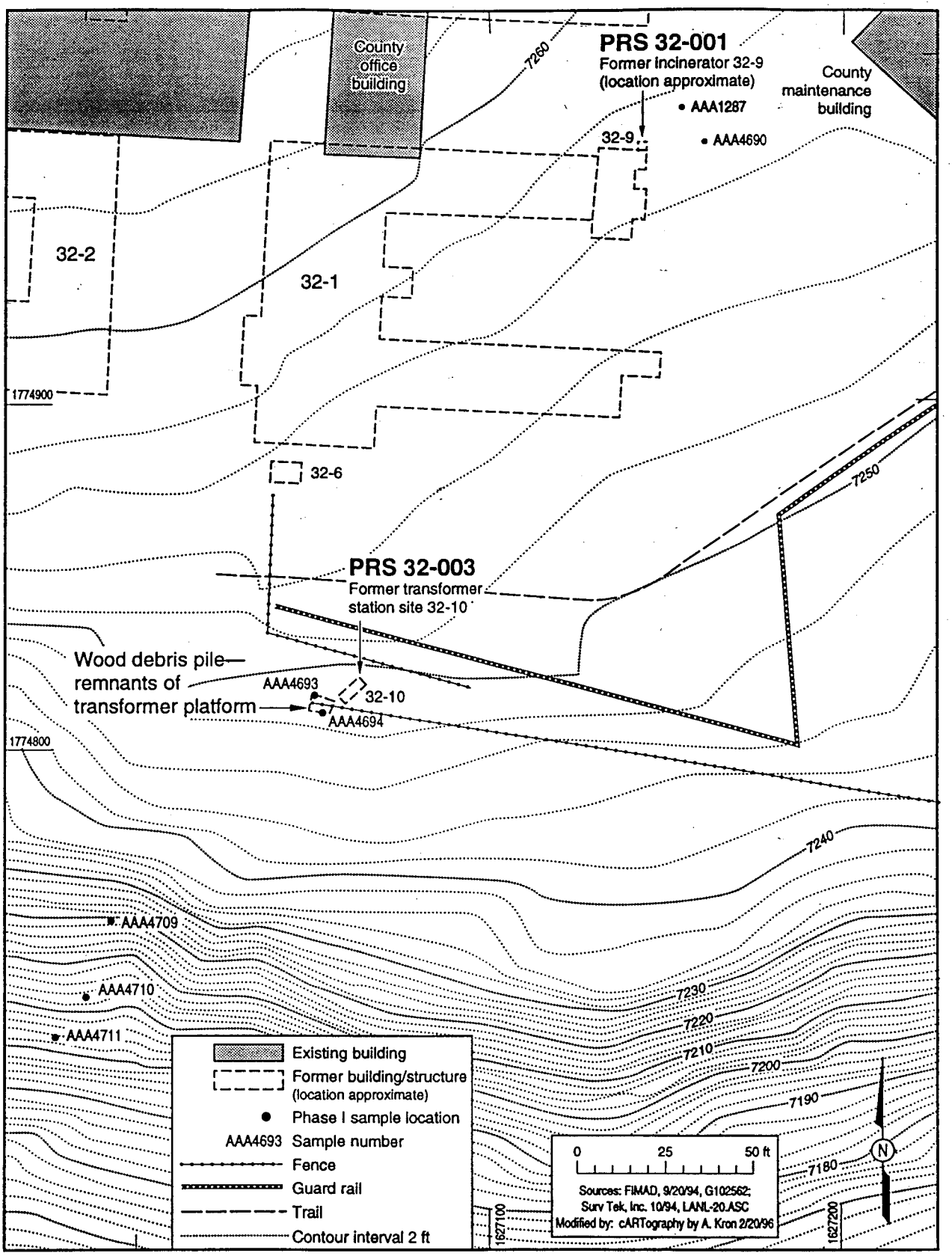

Figure 7.3-4. Phase I sampling locations at PRSs 32-001 and 32-003.

Annex 7.4
Implementation SOPs

See Environmental Restoration Standard Operating Procedures, Volumes I and II, November 17, 1993, Los Alamos National Laboratory.

Annex 7.5

Quality Assurance Plan

See Quality Program Plan and Quality Assurance Project Plan for Environmental Restoration, February 1996 revision, Los Alamos National Laboratory.

Annex 7.6

Site Specific Health and Safety Plan

Los Alamos National Laboratory

ER PROJECT SHORT FORM SSHASP

SSHASP Number 095

Location TA-32 (Townsite) *Field Unit* 1

Task Name Phase II Investigation *Date* 10/2/95 -10/30/95

SSO Approval [signature] *Date* 10/13/95

Field Project Leader Approval Beverly Martin for Garry Cullen *Date* 10/13/95

Field Unit HS Rep. Approval [signature] *Date* 10/19/95

ESH-1 ER/D&D Team Leader [signature] *Date* 10/19/95

Subcontractor HS Approval [signature] *Date* 27 OCT 95

Facility Representative Concurrence N.A. *Date*

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Field Team Manager Danny Katzman *Phone/Pager* 662-1318/470-4747

Field Team Leader Andy Crowder *Phone/Pager* 662-1338/470-2497

Site Safety Officer John Hayes/Bill Holland (alternate) *Phone/Pager* 662-1348/820-4141

RCT John Hayes *Phone/Pager* 662-1348/820-4141

Field Unit HS Representative Joe Louck *Phone/Pager* 665-5669/104-6959 (665-9800)

ESH-1 Oversight Marty Peifer *Phone/Pager* 667-0083/104-6649 (665-9800)

Task Description

TA-32 is located south of Trinity Drive, behind the present Los Alamos County Roads Division, at the north edge of Los Alamos Canyon. The site served as the medical research and training faciltiy from 1944 until decomissioning in 1955. Three solid waste management units (SWMUs) were identified in LANL's RCRA Facility Permit. Two more were identified during a Phase I study. All of the SWMUs at TA-32 are included in the Phase II investigation. The tasks associated with the Phase II investigation are summarized in Appendix A.

Hazard Analysis

List all chemical, biological, physical, and radiological hazards associated with this task including hazard assessment ratings (ER Project HASP, Appendix C).

Chemical: Metals[1] -HAR of negligible except for lead and mercury (HAR-minimal). VOCs[2] - HAR of negligible. SVOCs[3] - HAR of Negligible. PCBs[4]- HAR of Minimal.

Biological: Snakes, ticks, rodents (hantavirus), bloodborne pathogens. HAR of Minimal.

Physical: Slips, trips, and falls, working around an open excavation, noise, working around heavy equipment. HAR of Minimal.

Radiological: Process knowledge indicates potential contamination with tritium, Am-241 C-14. U-234,235, 238 Pu -238, 239,240. HAR of minimal.

List all other associated Special Work Permits/Procedures and Number :
(include RWP, SWP, CSP, LO/TO, Spark/Flame, etc.) : Excavation Permit. Spark/Flame. An RWP is not expected to be necessary.

Will task affect other LANL operations, other employees, or other tasks? No X Yes

If yes, explain precautions taken and contacts notified

Hazard Controls

Engineering/Administrative Controls, Special Equipment, etc. Dust suppression techniques (wetting) will be used to keep dust levels at a minimum. Heavy equipment shall be used to excavate and expose pipe. Shoring and/or sloping shall be used if personnel enter the excavation and it exceeds 5 feet in depth. ALARA will be practiced.

Additional Comments Attached: Yes___No__

PPE (Personal Protective Equipment)

Head Hard Hat
Face & Eye Safety Glasses
Gloves Outer = leather Inner = Nitrile should be worn when handling contaminated soil/pipe.
Hearing Hearing plugs shall be worn if noise levels exceed 85 dB(A)
Body Coveralls (cotton or Kleenguard at SSO discretion)

1 Metals: Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Zinc. Only Lead and Mercury were above the screening action level (SAL).

2 VOCs: Acetone, Benzene, Toluene, Xylenes. None above SAL.

3 SVOCs: Di-n-butyl phthalate, bis (2-ethylhexyl phthalate), Butylbenzyl phthalate, PAHs (Benzo (b) fluoranthene, Chrysene, Fluoranthene, Pyrene). None above SAL.

4 PCBs: Aroclor 1260™. Not above SAL.

Foot: Steel toes

Respiratory: Type of Respirator: NA Type of Cartridge:

Additional Protection/Comments:

Monitoring

List all personnel and area monitoring to be performed for this task, including action levels and equipment to be used, and any dosimetry requirements.

Chemical: A PID with a 10.6 eV lamp shall be used to monitor for all VOC constituents. Action level will be based on one-half the TWA for benzene, 0.5 ppm sustained in the BZ for 5 min. If wetting does not provide adequate dust control a mini-ram shall be used. Action Level = 1 mg/m^3.

Biological: None

Physical: If noise levels exceed 85 dB(A).

Radiological: β/γ ESP-1 with HP-260 probe or equivalent. α -Ludlum 139 with air proportional probe or equivalent. In addition, health physics personal dosimetry will be required per Appendix B. Dust suppression will be implemented to limit the potential for airborne contaminants. In addition to field screening instruments, the rad-van will be utilized to confirm and supplement field measurements.

Site Control

Describe how site access and control will be maintained. Attach a site map.
The site shall be marked off with cones and tape to prevent unauthorized entrance. EZ, CRZ, and SZ shall be established at each SWMU or excavation.

Decontamination

Describe how decon will be performed and which option will be used (ER Project HASP, Section 8).
Decon will be performed using ER Project HASP Option 1 (Appendix C). Decon of equipment will be done in the EZ with decon waste stored on-site. All personnel and equipment will be screened by an RCT or HPT for radiological contamination and for release off-site.

Spill Containment

Unless site personnel are trained to the first responder operations level, all site spills will be handled by LANL Emergency Management and Response (EM&R).

Emergency Response

Attach an emergency call-out list and a route to ESH-2/LAMC (See Appendix D).

First-Aid/CPR Provider: John Hayes

Communications: Cellular phone will be on-site (470-2497)

Incident Response Equipment: An approved first-aid kit, BBP kit, and eye wash shall be kept in the SZ.

Fire Extinguishing Equipment: : A 20 lb. ABC fire extinguisher shall be kept in the SZ.

Medical Surveillance

List all medical surveillance required for this task (ER Project HASP, Section 11).

All personnel shall be medically approved for HAZWOPER work. Any exposure to bloodborne pathogens. Hearing conservation if noise levels exceed 85 dB(A). In addition, health physics personal dosimetry will be required per attached Appendix B.

Training Requirements

Attach a copy of an appropriate training matrix (ER Project HASP, Section 10).

See Appendix E

Participant Acknowledgment: (Per ER Project HASP, Sections 1.2 and 10.1.3)

Pre-job Conference: Date/Initials_____

Printed Name	Z Number	Signature	Date
Grant Evenson	115453	Grant Evenson	10/30/95
John K Hayes	117228	John K Hayes	10/30/95
DAVID MENZIE	117379	David Menzie	10/30/95
William Holwig	11[illegible]9	William Holwig	10/31/95
Jeff Walterscheid	083933	Jeff Walterscheid	1/22/96
Clint Daymon	117208	Clint Daymon	1/29/96
KENT CALDER	115[illegible]7	Kent Calder	8 FEB 96
ERIC MENDOZA	118501	Eric Mendoza	2/8/96
Danny Katzman	114827	Danny Katzman	3/4/96

Appendix A Scope of Work				
Task ID	**Task Description**	**Potential Contaminants & Hazards**	**Anticipated Dates/Duration**	**Site ID(s)**
Task 1 - **Site Preparation**	**1-A** **Site Survey**: Site walk-throughs and visual inspection of site features **1-B** **Geodetic Survey**: Survey contractor will mark former locations of site facilities, proposed sampling locations, and actual locations following subsurface investigation **1-C** **Mobilization/Demobilization**: Set-up and removal of equipment work zones, and portable facilities.	None None All equipment will be screened out (α and β/γ)	10/2/95 - 10/13/95 10/13/95 - 10/14/95 10/16/95 & 10/31/95	32-001 32-002(a) 32-002(b) 32-003 32-004 Former Bldgs
Task 2 - **Pothole-Style Excavations at Septic Tank Piping**	**2-A** **Excavating**: Potholes will be excavated along septic tank piping to a depth of 4 feet to observe and sample drainlines for rad and chemical contamination. **2-B** **Sampling**: The soil beneath the pipes and the contents of the pipes will be sampled after pipe is exposed in potholes.	Rads, SVOCs, VOCs, Metals, PCBs	10/16/95 - 10/30/95	32-002(a, b) (Septic System Lines)
Task 3 - **Hand-Auger Sampling at Septic Tanks**	**3-A** **Hand-Auger Drilling**: Hand-auger boreholes will be drilled at former septic tank locations. **3-B** **Sampling**: Samples will be collected from the hand-auger boreholes.	Rads, SVOCs, Metals, PCBs	10/16/95 - 10/19/95	32-002(a, b) (Septic System)
Task 4 - **Small-Scale Excavations**	**4-A** **Excavating**: Shallow surface excavations ($\leq$ 2 ft) will be conducted to remove PCB-contaminated soil at or near the surface. **4-B** **Sampling**: Samples will be collected to ensure that the lateral and vertical extent of the PCB contamination is removed.	PCBs, Rads	10/23/95 - 10/27/95	32-001 (Incinerator) 32-003 (Former Transformer Pad)
Task 5 - **Hillside Rad/Metals Screening and Sampling**	**5-A** **Screening**: Collect samples from hillside below canyon rim at outfall points and catchments in drainage channels. **5-B** **Sampling**: Collect samples from hillside below canyon rim at outfall points and catchments in drainage channels.	Rads, SVOCs, Metals, PCBs Steep Cliffs	10/23/95 - 10/27/95	32-002(a, b) (Septic System); 32-004 (Source Room Outfall)

Task 6 - **Excavate Source-Room Vault**	**6-A** **Excavating:** The radioactive-source storage vault area will be excavated to the base of the vault. **6-B** **Sampling**: Samples will be collected from the base of the excavation.	Rads	10/16/95 - 10/19/95	32-004 (Source Room Vault)
Task 7 - **Pothole-Style Excavations at Source-Room Drainline**	**7-A** **Excavating**: The drainline will be located and exposed by excavating exploratory trenches or potholes **7-B** **Sampling**: Samples will be collected from within and beneath the drainline.	Rads, VOCs, SVOCs, Metals	10/16/95 - 10/30/95	32-004 (Source Room Drainline)
Task 8 - **Hillside Rad/Metals Screening and Sampling**	**8-A** **Screening**: Collect samples for Rad and Metals screening from hillside below canyon rim at outfall points and catchments in drainage channels. **8-B** **Sampling**: Collect samples for laboratory analysis from hillside below canyon rim at outfall points and catchments in drainage channels.	Rads, SVOCs, Metals Steep Cliffs	10/23/95 - 10/27/95	32-004 (Source Room and Drainline)
Task 9 - **On-Site Waste Management**	**9-A** **Containing and Labeling Waste**: All investigation derived wastes will immediately be placed in 55-gallon drums or roll-off bins and sealed. Wastes generated will include PPE, soils, solid waste, decon water, and rainwater collected from bermed containment areas. **9-B** **Movement and Storage of Waste Containers**: All waste containers will be placed in a designated storage area on-site until they can be characterized and transferred off-site for appropriate disposal.	Rads, SVOCs, VOCs, Metals, PCBs Heavy Lifting Pinch Points	10/16/95 - 10/30/95	32-001 32-002(a) 32-002(b) 32-003 32-004

APPENDIX B
PERSONAL DOSIMETRY REQUIREMENTS

HEALTH PHYSICS (RADIATION) *[Refer to Section 6 of the HASP.]*

Hazardous Substance/ Condition	Task(s)	Action Level(s)	Dosimetry Requirement	Action Level(s) Rationale
External Sources of Radiation Exposure	All	Potential to exceed 100 mREM/year dose limit	Monthly TLD Badge	10 CFR 835

APPENDIX C
PERSONNEL AND EQUIPMENT DECONTAMINATION

Personnel and Environmental Monitoring Equipment (EME)

DECON REQUIREMENTS	Tasks								
	1	2	3	4	5	6	7	8	9
Option 1 Standard Approach Level D									
Wash Soap	X	X	X	X	X	X	X	NA	NA
Wash Solvent	NA	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	NA	NA
Aqueous Rinse	NA	X	X	X	X	X	X	NA	NA
Rinse Solvent	NA	NA	NA	NA	NA	NA	NA	NA	NA
PPE to be Disposed	NA	X	X	X	X	X	X	NA	NA
PPE to be Laundered	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sampling and Heavy Equipment

DECON REQUIREMENTS	TASK(s)								
	1	2	3	4	5	6	7	8	9
Sampling Equipment Decon									
Localized at work site in CRZ	NA	X	X	X	X	X	X	X	NA
Wash Soap	NA	X	X	X	X	X	X	X	NA
Wash Solvent	NA	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	X (water)	NA
Aqueous Rinse	NA	X	X	X	X	X	X	X	NA
Rinse Solvent	NA	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	X (methanol <10%)	NA
Heavy Equipment Decon									
Localized at work site in CRZ	NA	X	NA	X	NA	X	X	NA	NA
Wash Soap	NA	X	NA	X	NA	X	X	NA	NA
Wash Solvent	NA	X (water)	NA	X (water)	NA	X (water)	X (water)	NA	NA
Aqueous Rinse	NA	X	NA	X	NA	X	X	NA	NA
Rinse Solvent	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX D
EMERGENCY CONTACTS AND PHONE NUMBERS

TA-32

MEDICAL EMERGENCY/FIRE:

Los Alamos Fire Dept. **667-7080**

HAZARDOUS RELEASE/SPILL:

LANL HAZMAT Team (EM&R) **667-6211**

LANL Occupational Medicine Clinic (ESH-2) **667-7848**
Los Alamos Medical Center Hospital **662-2455**
Security OS/Pro Force **667-6534**
Los Alamos Police **662-8222**
LANL Health and Safety ESH-5 ..... **665-7221**
LANL Radiation ESH-1 ..... **667-7137**
FPL: Garry Allen **667-3394**
Alternate FPL: Beverly Martin **665-7430, 699-4091**
FTM:Danny Katzman **662-3700, 4704747**
FTL: Andy Crowder **662-3700, 470-2497**
Field Unit HS Rep.: Joe Louck ..... **665-5669,104-6959** access 665-9800
Field Unit RCT: Marty Peifer ..... **667-0083,104-6649** access 665-9800

Management Contacts:

ERM/Golder Contacts: **Al Funk 662-3700, John Williams 662-3700**

Construction Project Coordinator: **Henry Nunez (505) 699-1318**

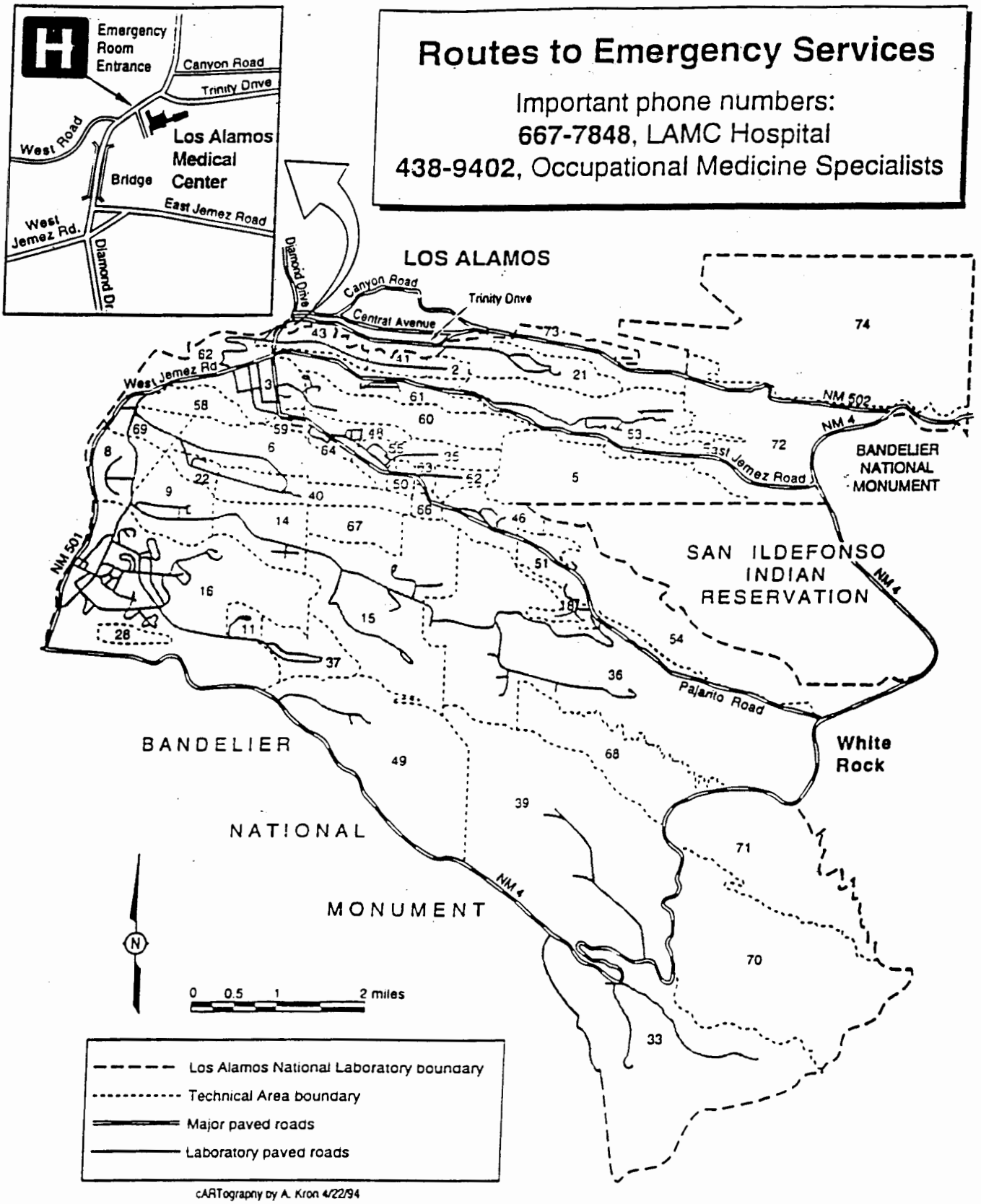
EMERGENCY REPORTING INFORMATION:

When calling for emergency services, have the following information available to report:

- Site name/location/phone #
- Number of personnel involved
- Caller ID
- Name and condition of affected employees
- Nature of emergency
- Actions taken and assistance required

Routes to Emergency Services

Important phone numbers:
667-7848, LAMC Hospital
438-9402, Occupational Medicine Specialists



cARTography by A. Kron 4/22/94

APPENDIX E

Training Requirements

R = Read training; C = Class training; F = Field training; AN = As needed per the HASP; ER = Employer required.

Training Requirements	Personnel Role				
	FTM	FTL/ Sampler	SSO/ RCT	Waste Mgt	Heavy Equipment Operator
HASP	R	R	R	R	R
SSHASP	R	R	R	R	R
Pre-Job Brief	F or C	F or C	F or C	F or C	F or C
Daily Tailgate	F	F	F	F	F
TA Specifc	C	C	C	C	C
GET	C	C	C	C	C
HazCom	R	R	R	R	R
Conduct Oper	R	R	R	R	R
Occurence Reporting	R	R	R	R	R
OSHA Rights	R	R	R	R	R
Health Physics Checklist	C	C	C	C	C
Rad Worker II	C	C	C	C	C
40 Hr Worker	C	C	C	C	C
*24 Hr Field Training	F	F	F	F	F
8 Hr Supervisor	C	C			
8 Hr Refresher	C	C	C	C	C
First Aid			C		
CPR			C		
Sanitation [29 CFR 1926.51]			R		
Signs, Signals, Barricades [29 CFR 1926.200]			R		
Excavation/Trenching Competent Person [29 CFR 1926.651(k)(1) and 32(f)]		R	R		R
First Responder Awareness			C		
PPE (level D)	F	F	F	F	F
Lead [29 CFR 1926.62]	A/N	A/N	R	A/N	A/N
Arsenic - inorganic [29 CFR 1926.1118]	A/N	A/N	R	A/N	A/N
Beryllium [LANL-AR 6-7]	A/N	A/N	R	A/N	A/N
Cadmium [29 CFR 1926.63]	A/N	A/N	R	A/N	A/N
Bloodborne Pathogens			C		

SSHASP MODIFICATION FORM

Project Title: Phase II Investigation/Voluntary Corrective Actions

TA(s): 32 SSHASP No.: 095 Modification No.: 1

Modifications of the SSHASP shall be made per Section 1.3 of the HASP.
Attach to this page the SSHASP modifications.

Comments of the following reviewers have been incorporated as stipulated, or resolved with written record and copy to the respective reviewer.

	(Print Name)	(Title)	(Signature)	(Date)
Prepared by	Clint Daymon	Site Safety Officer	Clint Daymon	2/4/96

Review and Approval by:

	(Print Name)	(Title)	(Signature)	(Date)
Field Unit HS Representative	Joe Louck	Field unit 1 Health & Safety Representative		2/5/96
FTM or DPL, or FTL or JS (optional at discretion of FPL)	Danny Katzman	Field Team Manager		2/6/96
Technical Area (TA) Representative (optional at discretion of FPL)	N/A Beverly Martin		Beverly Martin	2/15/96
FPL or designee	Beverly Martin	Field Operations Manager	Beverly Martin	2/15/96

Concurrence by:

	(Print Name)	(Title/Company)	(Signature)	(Date)
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Subcontractor Representative (Management or HS Rep.)				
Other	Kevin Hyde	Health & Safety Coordinator/ERM/Golder	Kevin Hyde	2/5/96

Modification No. 1

Modification:

A) i. The site safety officer position will change from John Hayes to Clint Daymon who will also be will be RSP 662-1326/820-4135
ii. The field team leader position will change from Andy Crowder to Jeff Walterscheid 662-1365/820-4135
iii. Kevin Hyde will replace bill holland as alternate SSO

B) Hard hats will be worn by field team members when working in the vicinity of operating heavy equipment and when overhead hazards exist.

C) All personal leaving the EZ will be screened for radiation by the RSP. If it is necessary to release equipment off-site, an ERM/Golder RCT will be brought in to complete the paperwork.

D) The primary CPR/first-aid provider will be Clint Daymon

E) The new on-site cellular phone number will be 470-4999

F) Methanol will only be used as a rinse solvent to decontaminate sampling equipment if sampling for volatiles/semi-volatiles

G) Modification of the training matrix table(see attached table).

Justification:

A) It was necessary to change field team members.

B) It is not necessary for field team members to where hard hats while sampling, when working in areas where heavy equipment is not operating, and where overhead hazards do not exist.

C) Personnel change from an on-site RCT to RSP.

D) Because of personnel changes in the SSO the primary first-aid/CPR provider is now Clint Daymon.

E) The personnel change in the FTL necessitates a change in phone numbers.

F) It is not necessary to use methanol to decontaminate equipment when sampling for metals, PCBs, radiation, or in situations where low concentrations of VOCs are present.

G) Training requirements for the Field Operations Manager(Bevely Martin) and the surveyors where left out of the original table.

APPENDIX E

TRAINING REQUIREMENTS

R = Read training; C = Class training; F = Field training; AN = As needed per the HASP; ER = Employer required.

Training Requirements	Personnel Role						
	FOM	FTM	FTL/ Sampler	SSO/RSP	Waste Manager	Surveyor	Heavy Equipment Operator
HASP	R	R	R	R	R	R	R
SSHASP	R	R	R	R	R	R	R
Pre-job Brief / TA Specific	C	C	C	C	C	C	C
Daily Tailgate	F	F	F	F	F	F	F
GET [Required for anyone on site > 10 consecutive work days]	C	C	C	C	C	C	C
HazCom	C	C	C	C	C	-	C
Hearing Conservation [per section 4.2.2.7 of HASP]	AN	AN	AN	AN	AN	-	AN
Conduct Oper	R	R	R	R	R	R	R
Occurrence Reporting	R	R	R	R	R	R	R
OSHA Rights	R	R	R	R	R	R	R
Health Physics Checklist	C	C	C	C	C	C	C
Rad Worker II	C	C	C	C	C	C	C
40 Hr Worker	C	C	C	C	C	C	C
*24 Hr Field Training	F	F	F	F	F	F	F
8 Hr Supervisor	-	-	C	C	-	-	-
8 Hr Refresher	C	C	C	C	C	C	C
First Aid	-	-	C	C	-	-	-
CPR	-	-	C	C	-	-	-
SSO [per Section 10.1.1.5 of the HASP]	-	-	-	F	-	-	-
Sanitation [29 CFR 1926.51]	-	-	-	R	-	-	-
Signs, signals, Barricades [29 CFR 1926.200]	-	-	-	R	-	-	-
Excavation/Trenching Competent Person [29 CFR 1926.651(k)(1) and 32(f)]	-	-	R	R	-	-	R

Training Requirements	Personnel Role						
	FOM	FTM	FTL/ Sampler	SSO/RSP	Waste Manager	Surveyor	Heavy Equipment Operator
First Responder Awareness [per 29 CFR 1926.659(q)(6) (i)]	R	R	R	R	R	R	R
Fire Extinguisher Use [per 29 CFR 1926.150(c)(1)(xi)]	-	-	R	R	-	-	-
Materials Handling, Storage, Use, Disposal [29 CFR 1926.250 and 252]	-	-	-	R	R	-	-
PPE(level D)	F	F	F	F	F	F	F
Lead [29 CFR 1926.62]	AN	AN	AN	R	AN	-	AN
Arsenic-inorganic [29 CFR 1926.1118]	AN	AN	AN	R	AN	-	AN
Beryllium [LANL-AR-6-7]	AN	AN	AN	R	AN	-	AN
Cadmium [29 CFR 1926.63]	AN	AN	AN	R	AN	-	AN
Bloodborne Pathogens	-	-	C	C	-	-	-

Annex 7.7

Waste Management Checklist

File #
DA9588.6.2
Final WCSF

WASTE CHARACTERIZATION STRATEGY FORM
ER PROGRAM, PRSs 32-001, 32-002(a), 32-002(b), 32-003, and 32-004
FY 96

Prepared by
Grant Evenson
ERM/Golder

Signature

12/08/95
Date

Reviewed by
John Kelly
ERM/Golder

John C. Kelly
Signature

1/26/96
Date

Reviewed by
Mary Jane Winch
Waste Management

Mary Jane Winch
Signature

2/8/96
Date

Reviewed by
Larry Maassen
ER Program Office

Larry Maassen
Signature

2/9/96
Date

Approved By
Garry Allen
or His Designee
Field Unit 1 FPL

Beverly Martin
Signature

2/15/96
Date

Lacy

WASTE CHARACTERIZATION STRATEGY FORM

OU Number	PRS/SWMU Numbers	Title
Field Unit 1, Former OU 1079	PRS 32-001 PRS 32-002(a) PRS 32-002(b) PRS 32-003 PRS 32-004	TA-32, Former Medical Research and Training Facility

Name: Grant Evenson	**Date:** 8 February, 1996
FPL: Garry Allen	**WMC:** Larry Maassen
Type of Activity: Phase II RFI of all PRSs and Potential VCAs of PRSs 32-001 and 32-003	
Waste Streams: (1) Soil/Rubble (2) Decon Water (3) PPE/Disposable Sampling Equipment (4) Wood Planks	

Site Description and Current Activities:

TA-32 is located south of Trinity Drive, behind the present Los Alamos County Roads Division, at the north edge of Los Alamos Canyon. The Site served as the medical research and training facility at Los Alamos Scientific Laboratory from 1944 until it was decommissioned in 1954. During this time period, research at TA-32 included work in the areas of organic chemistry, radiobiology, and biochemistry. A paved lot and the majority of the mesa top portion (location of the former buildings) of the TA-32 site is on Los Alamos County property. The remainder of TA-32 including the mesa top portion south of the paved lot and the slope, outfalls, and cliff wall is on DOE property. A Phase I RFI investigation was conducted in 1993 consisting of limited site characterization and sampling activities at PRSs 32-001, 32-002(b), and 32-003. Five PRSs have been identified at TA-32, two of which were discovered during the Phase I RFI. The figures associated with the content of this plan are included as Attachment B.

A general phased approach will be implemented for TA-32 Phase II field activities. This will include preliminary field screening, characterization sampling, and possible corrective action measures at PRSs 32-001 and 32-003. At all PRSs, prior to conducting any waste generating activities , preliminary field screening will be conducted consisting of organic vapor monitoring (PID), XRF screening (for metals), and hand-held and Rad Van screening to detect any radioactivity that may exist. Should field screening indicate that unanticipated waste streams may be generated, then field activities will be modified to rule out generation of unmanagable waste types. This modification may be necessary because Phase I analytical results revealed very low level, but detectable concentrations of metals at PRS 32-001 and low levels of toluene and acetone at PRS 32-003.

The PRSs include;

PRS 32-001

PRS 32-001 is the location of a former incinerator that was adjoined to the northeast corner of the medical research facility's main laboratory building. The incinerator was constructed of brick and was 2.5 ft wide, 2.5 ft long, and 10 ft high. It was removed sometime prior to 1954. According to the RFI Work Plan for OU 1079, the incinerator probably received any combustible waste from the medical research facilities. Disposition of the ash from the incinerator is unknown. The former incinerator location is currently under the asphalt parking lot of the Los Alamos County Roads Division. The results of the Phase I RFI sampling activities (Attachment A) indicated low levels of PCBs and metals below RCRA characteristic levels at this PRS. Waste generating activities at this

PRS will consist of hand-augered sampling and possible corrective-action involving soil excavation and removal. Samples will be analyzed for PCBs, VOCs, and gross alpha, beta, and gamma radiation as well as tritium in the MRAL. If radioactivity is elevated, the samples will be sent on to an outside fixed laboratory to be analyzed for selected radioisotopes.

PRS 32-002(a)

The Work Plan for OU 1079 describes SWMU 32-002(a) as a wood-frame septic tank that was 4 ft wide, 8 ft long, and 4 ft deep. Since radionuclides were used for experiments in the TA-32 laboratories, and no industrial waste line served TA-32, it is possible that radionuclides were disposed of through this septic system. The septic tank served laboratory building TA-32-1 and was connected to an outfall over the edge of Los Alamos Canyon. SWMU 32-002(a) is thought to have been either removed or abandoned in place, with the associated piping still in place. A wood debris pile improperly identified as the remains of the septic tank was sampled in the Phase I investigation, is now believed to be remnants of the PRS 32-003 transformer platform. Therefore, no sampling has been conducted at the actual location of the inlet pipe, septic tank, effluent piping, or outfall and runoff channel associated with the PRS. Since no data exists, samples during this investigation phase will be collected and analyzed for TAL metals, VOCs, SVOCs, PCBs, and laboratory-analyzed for radioactivity in the MRAL (gross alpha, beta, and gamma as well as tritium). If radioactivity is detected, samples will be sent on to an outside fixed laboratory and analyzed for specific radioisotopes (depending on the type of radiation detected) such as carbon-14, uranium-234, -235, and -238, plutonium-238 and -239/240, and americium-241.

PRS 32-002(b)

A second septic tank served TA-32 and is designated as SWMU 32-002(b). It is suspected that this septic tank was added when the first septic tank (at PRS 32-002(a)) was no longer able to handle the needs of laboratory building TA-32-1. The septic line from building TA-32-1 to septic tank PRS 32-002(a) was then diverted to septic tank PRS 32-002(b). This second septic tank was constructed of reinforced concrete and was 9 ft wide, 5 ft long, and 6 ft deep. A vitrified clay pipe septic line was also installed between laboratory building TA-32-2 and septic tank PRS 32-002(b). Septic tank PRS 32-002(b) is therefore assumed to have served both buildings. This septic tank was removed in 1988. The former location of the septic tank and its outfall are located on DOE property, while the inflow septic lines are beneath the asphalt of the Los Alamos County Roads Division parking lot. Phase I sampling results (Attachment A) indicate the presence of numerous Metals, SVOCs, and VOC concentrations. Also, an elevated field-screened radiation reading was noted in an outfall soil sample, (it was inadvertently overlooked for laboratory submittal and analysis) which indicates the possibility of radiological contamination in this septic system. The Phase I investigation did not fully bound the extent of contamination in the outfall. The presence of heavy metals, organics, and a possibility of radiological contamination substantiates the need for further sampling and analysis. Samples will be collected and analyzed for SVOCs, VOCs, PCBs, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as in the MRAL and sent on to an outside fixed laboratory for isotopic radiological analyses if MRAL screening results are elevated.

PRS 32-003

A wood debris pile (originally identified as the location of the SWMU 32-002(a) septic tank remains during the Phase I investigation) is the remnants of the transformer platform. Analytical results from Phase I soil sampling results (Attachment A) indicate concentrations of PCBs, acetone, toluene, lead and zinc. Current efforts will focus on defining the extent of contamination and a possible excavation and removal of PCB-contaminated (and possibly VOC-contaminated) soils, and the removal of the wood debris pile as a good housekeeping measure. Samples will be collected and analyzed for PCBs, VOCs, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as tritium in the MRAL and subsequent radioisotopic analyses for select isotopes if elevated activity is detected in the MRAL.

PRS 32-004

Recent evaluation of archival engineering drawings revealed the location of a vitrified clay drain line that served a room adjacent to a radiation source room and vault in building TA-32-3 (Attachment B). The line leads to an outfall that discharged directly to the hillside in Los Alamos Canyon. It is unknown if the pipe passed through a septic tank. No sampling activities were conducted during

the Phase I investigation and no previous investigations are documented. Waste generating activities to be conducted during this investigation will consist of hand-augered sampling at both the outfall beneath the drain line discharge point and at the location of the former source room. Samples will be collected and analyzed for PCBs, VOCs, SVOCc, TAL metals in the MCAL, and for gross alpha, beta, and gamma radiation as well as tritium in the MRAL. If radioactivity is elevated, the samples will be sent to a fixed laboratory to be analyzed for selected radioisotopes.

Investigation or Remediation Waste Description and Volume Estimate:

PRSs 32-001 (Former Incinerator Location) and 32-003 (Former Transformer Location)

Types of waste that may be generated during the sampling activities at PRSs 32-001and 32-003 will consist of non-indigenous waste including personal protective equipment (PPE), disposable sampling equipment, and equipment decontamination (decon) water. Decon water will consist of potable water, Liquinox™ detergent,and de-ionized water, and will be generated as a product of sampling equipment and personnel decontamination. In the event that corrective action is required, additional waste types will include PCB-contaminated (and possibly VOC-contaminated) soils and plastic sheeting.

The estimated volume of the wastes that may be generated as a result of sampling and/or corrective-action activities at PRSs 32-001 and 32-003 includes 10 gallons of decon water per PRS. Decon fluids generated will be discharged at each PRS in accordance with established NMED and Laboratory guidelines unless contamination levels are considered too high based on field observations and/or screening. PPE and disposable sampling equipment from each PRS, 32-001 and 32-003, will be segregated into individual drums with the waste contents placed in labeled, plastic bags in the drums. PPE and disposable sampling equipment characterization is discussed later under the Acceptable Knowledge paragraph. The wood-debris pile will fill approximately three 55-gallon drums or this volume in similar containers. In the event that corrective action is implemented, a significantly greater volume of waste will be generated in the form of PCB-contaminated (and possibly VOC-contaminated) soils. The total area potentially requiring remediation at PRS 32-001 is approximately 400 square feet and the total area of PRS 32-003 is approximately 300 square feet. If it is assumed that the entire PRS area is contaminated to a depth of 1 foot, then approximately 15 cubic yards of soil for PRS 32-003 and 9 cubic yards for PRS 32-001 (soil) will be excavated and subsequently disposed of in accordance with the Waste Acceptance Criteria (WAC) for TA-54. Special attention and planning will be given to assure that mixed waste requiring special off-site shipment for disposal is not generated in bulk quantities. In addition, proper segregation of PCB-contaminated soils, from other soil generated from a corrective action, will take place on-site.

PRSs; 32-002(a) Septic Tank System, 32-002(b) Septic Tank System, and 32-004 Former Radiation Source Room and Vault

Types of waste that may be generated during the sampling activities at these PRSs will consist of non-indigenous waste including PPE, disposable sampling equipment, and equipment decon water. Decon water will consist of potable water, Liquinox™ detergent, and de-ionized water, and will be collected as a rinsate from equipment and personnel decontamination.

The estimated volume of the wastes that may be generated as a result of sampling activities at PRS 32-002(a), 32-002(b) and 32-004 includes 10 gallons per each PRS of waste decon water which will be discharged to the site in accordance with NMED and Laboratory guidelines. Each of these PRSs will also have its own individual used PPE with disposable sampling equipment drum. PPE and disposable sampling equipment will be containerized and segregated per PRS by sealing the contents in labeled, plastic bags within drums.

Waste Characterization Strategy:

Acceptable Knowledge

If corrective actions are implemented (PRSs 32-001 and 32-003) waste characterization of soil-waste will be based primarily on direct sampling of the material in the waste containers. If corrective actions are not implemented, ideally, the only waste generated for TA-32 Phase II activities will be decon water (approximately 10 gallons per PRS) and 5 individual PRS-specific used PPE with disposable sampling equipment drums. The intent for the decon fluids is to discharge them back to the site unless field observations or screening indicate noticeable contaminants in which case the water will be sampled and analyzed prior to final disposition. The used PPE with disposable sampling equipment drums will be characterized based primarily on acceptable knowledge, and to a lesser degree, on analytical results of RFI and waste-characterization sampling. Acceptable knowledge, as used here, will consist of documented field observations and sampling procedures.

No archival information or knowledge of operational practices at TA-32 exists to indicate the presence of high explosive compounds or asbestos. These components are therefore not expected to be encountered at this site and are therefore not a waste concern.

Waste segregation and minimization

Investigation-derived materials (excess soil cuttings and other excavated soil) generated during hand-augered sampling or exploratory trenching will be returned to the original locations or sampling points in a manner to best recreate original placement. This will comply with LANL-AR 5.3 criteria, which should result in the generation of no residual soil. In the event that a volume of soil-waste is generated due to possible corrective actions at PRS 32-001 and 32-003, the residual soil will be directly put into waste containers. This scenario would result in creating primary waste streams for both PRS 32-001 and PRS 32-003. In order to minimize waste, efforts will be made to knock-off excess soil from scoops, bowls and other sampling or excavating equipment, and to discourage kneeling in potentially contaminated soil during sampling activities.
Dry decontamination of non-disposable sampling equipment will be performed whenever possible to reduce the volume of any generated waste decon water.

Waste Characterization Analyses

In general, investigation derived-material (soil, wood) samples from corrective-action activities will be composited from individual grabs from each appropriate waste container and homogenized to produce a representative sample of the soil or wood waste streams. The exception to this procedure will be for grab samples for VOC analyses which will not composited and homogenized. Decon water will be directly sampled only if field observations/screening prevent direct discharge.

Specific Waste Characterization Analyses

VCAs at PRS 32-001 and/or PRS 32-003

If corrective actions are conducted at PRSs 32-001 and/or 32-003, the excavated soil and wood debris generated will be containerized in individual sets specific to each PRS and associated waste stream involved. Two composite samples from containers of waste-soil generated for each PRS; 32-001 and 32-003, will be collected for waste characterization. The waste-soil analytical suites will consist of TCLP Metals (PRS 32-003 only), VOCs (not composited, discrete samples), the Organochlorine Pesticides and PCBs analysis, and MRAL radiological gross alpha, beta, gamma, and subsequent isotopic speciation analyses (fixed lab) if radiological activity is detected. If corrective action is implemented at PRS 32-003, the potentially PCB-contaminated wood will be treated as a unique waste stream with all individual wood debris containers composited yielding a single sample. The analytical suite for this waste-wood sample will consist of an Organochlorine Pesticides and PCB analysis, a VOC sample, and a TCLP Metals sample. If necessary based on the discussion above, a waste decon water sample will be submitted for TCLP metals, VOCS, MRAL gross alpha, beta, gamma, and the Organochlorine Pesticides and PCB analysis.

Waste Characterization Analyses at PRSs 32-002(a), 32-002(b), 32-004 and PRSs 32-001 and 32-003 with no VCA activities

There will be no derived-material waste to be characterized, and the used PPE with disposable sampling equipment waste stream will not be sampled, but will be characterized with the previously stated application of Acceptable Knowledge rationale.

Preliminary RCRA Determination:

Based on acceptable knowledge and Phase I RFI analytical data (Attachment A), it is anticipated that all PPE, disposable sampling equipment, and wood from the debris pile generated will be non-hazardous. Upon generation, the waste will be stored on-site in a temporary storage area. If corrective actions are implemented and RCRA-regulated contaminated soil is generated, a less than 90 day storage area will be set up and the waste will be managed in accordance with State and Federal regulations. Any PCB contaminated soils will be stored in compliance with temporary storage requirements listed in 40 CFR 761.65. If any TSCA or RCRA regulated waste is generated on County Land, ESH-19 will be notified and a provisional EPA identification number will be assigned to the site prior to any waste shipments off-site.

All waste materials will be properly containerized for disposal using DOT-approved drums, boxes, or bins. Hazardous and TSCA regulated waste materials will be properly labeled in accordance with State and Federal regulations .

PRS 32-001 and PRS 32-003
Soil waste from possible VCA activities.
Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒ 1	☐	☐	☐
Gross Beta	☒ 1	☐	☐	☐
Gross Gamma	☒ 1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒ 2	☐	☐	☐
Organics	☒3	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radiological activities.
2 PRS 32-003 only, and PRS 32-001 if field screening (XRF) detects elevated concentrations.
3 TCLP organic analysis will be conducted only if VOC and SVOC data indicates elevated levels.

PRS 32-001, PRS 32-002(a), PRS 32-002(b), PRS 32-003, and PRS 32-004
Decontamination water waste.
Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒ 1	☐	☐	☐
Gross Beta	☒ 1	☐	☐	☐
Gross Gamma	☒ 1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒	☐	☐	☐
Organics	☒2	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radiological activities.
2 TCLP organic analysis will be conducted only if VOC and SVOC analyses show elevated levels.

PRS 32-003
Waste wood
Analyte Suite:

Analyte	Direct Sampling of Waste	Acceptable Knowledge		
		Existing Information		Data from Site Characterization
		Present	Absent	
Volatile Compounds	☒	☐	☐	☐
Semi-Volatile Compounds	☐	☒	☐	☐
Organochlorine Pesticides & PCBs	☒	☐	☐	☐
Inorganic Compounds	☐	☒	☐	☐
High Explosive Compounds	☐	☐	☒	☐
Gross Alpha	☒1	☐	☐	☐
Gross Beta	☒1	☐	☐	☐
Gross Gamma	☒1	☐	☐	☐
Tritium	☒	☐	☐	☐
Asbestos	☐	☐	☒	☐
TCLP	☒	☐	☐	☐
Metals	☒	☐	☐	☐
Organics	☒2	☐	☐	☐
Pesticides, Herbicides, Fungicides	☐	☐	☒	☐

1 Waste will be further analyzed for select radioisotopes if MRAL screening results indicate the presence of elevated radioactivity.
2 TCLP organic analysis will be conducted only if VOC analysis shows elevated levels.

Attachment A

Summary of Phase I Analytical Results

Table 1. TA-32 Environmental Restoration 1993 Field Survey Results

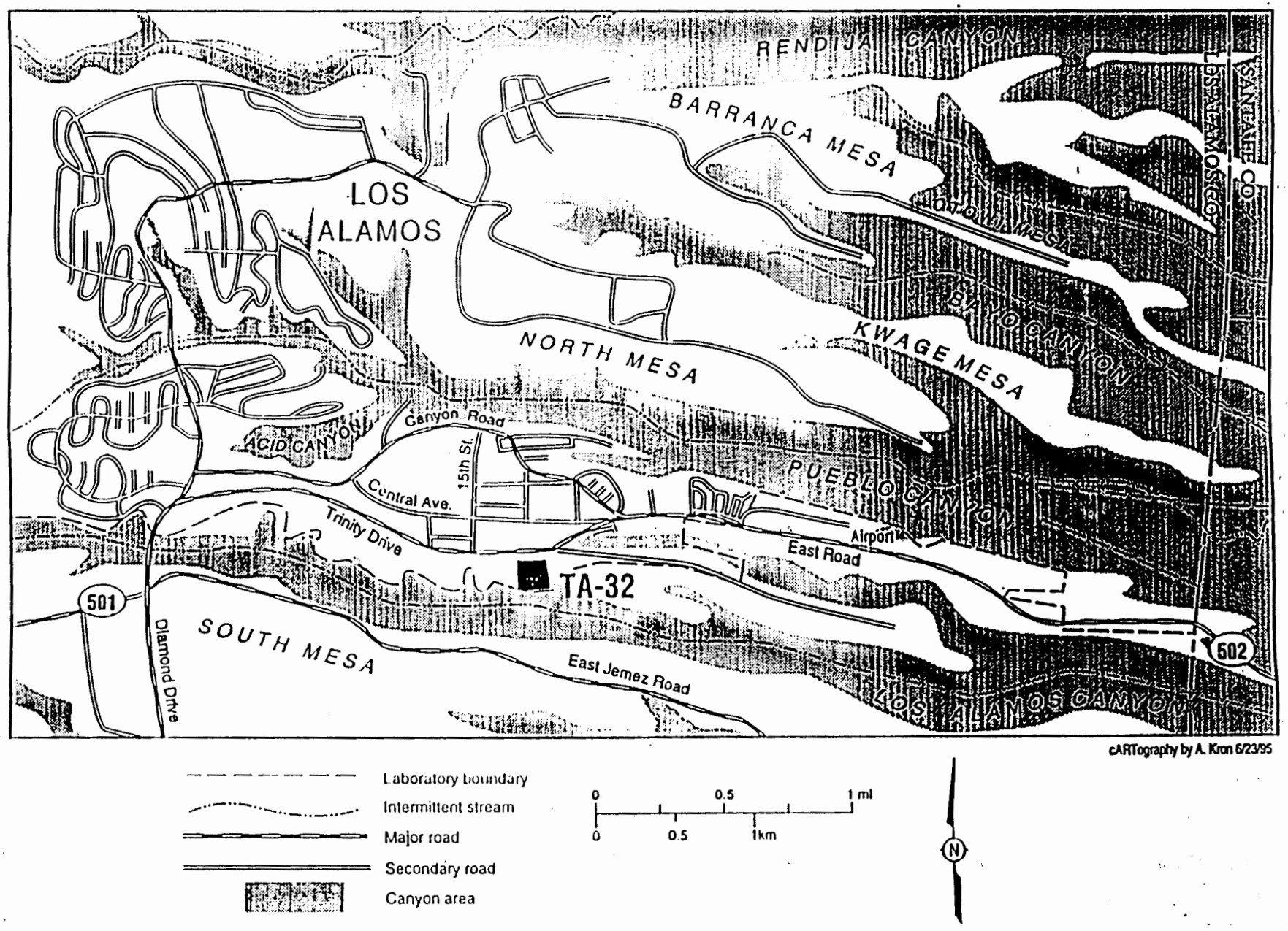
FACILITY	BMAU	SAMPLE ID#	RADIOACTIVITY (pCi/g)			TCLP METALS (mg/L)								TOTAL RECOVERABLE METALS (mg/kg)															
			Alpha	Beta	Gamma	Ag	As	Ba	Cd	Cr	Hg	Pb	Se	Ag	As	Ba	Be	Cd	Cr	Cu	Hg	Mn	Ni	Pb	Sb	Se	Tl	V	Zn
						TCLP Compliance Criteria								Screening Action Level															
						5.0 mg/L	5.0 mg/L	100 mg/L	1.0 mg/L	5.0 mg/L	0.2 mg/L	5.0 mg/L	1.0 mg/L	400 mg/kg	check background	5,600 mg/kg	0.15 mg/kg	80 mg/kg	check background	3,000 mg/kg	24 mg/kg	6,000 mg/kg	1,000 mg/kg	500 mg/kg	32 mg/kg	400 mg/kg	0.4 mg/kg	540 mg/kg	24,000 mg/kg
Incinerator	32-001	AAA1287	-7.30	-12.50	-7.90	--	--	--	--	--	--	--	--	<2	7.0	130	0.0	0.4	6.0	4.0	<0.1	180	7	11	<0.1	<0.3	0.5	17	34
Incinerator	32-001	AAA4688	10.00	1.30	-0.10	--	--	--	--	--	--	--	--	3.0	7.7	50	0.0	1.0	19	9.0	0.1	210	6	70	<0.1	<0.3	0.6	9	60
Septic Tank	32-002(a)	AAA1288	3.60	0.00	-0.40	--	--	--	--	--	0.000	<0.03	--	4.3	3.7	76	0.0	0.53	11	13.0	4.7	310	9.5	70	<0.1	<0.3	0.2	10	290
Septic Tank	32-002(a)	AAA1289	0.00	0.00	-0.40	--	--	--	--	--	--	--	--	<2	2.0	36	0.0	<0.4	3	6.0	0.3	180	0.0	10	<0.1	<0.3	0.7	5.0	200
Septic Tank	32-002(a)	AAA4691	0.00	12.10	-1.00	--	--	--	--	--	0.002	--	--	<2	3.7	100	0.0	<0.4	0	0.0	14	230	7.3	22	<0.1	<0.3	0.0	18	54
Septic Tank	32-002(a)	AAA4692	3.60	-3.20	-3.60	--	--	--	--	--	--	--	--	3.0	0.0	55	0.0	<0.4	0	0.0	2.2	210	0	50	<0.1	<0.3	0.4	0	120
Septic Tank	32-002(b)	AAA4693	0.00	1.90	-0.60	--	--	--	--	--	--	--	--	<2	2.0	90	0.4	0.7	0	14.0	<0.1	270	0	40	<0.1	<0.3	0.5	12	100
Septic Tank	32-002(b)	AAA4694	3.60	10.40	-0.40	--	--	--	--	--	--	<0.03	--	<2	3.2	70	0.0	0.48	0	14.0	<0.1	290	4	230	<0.1	<0.3	0.3	10	110
Septic Tank Line	32-002(a)	AAA4696	0.00	1.10	-0.30	--	--	--	--	--	--	--	--	<2	2.4	120	0.0	<0.4	0	0.0	<0.1	370	0	31	<0.1	0.4	0.4	22	50
Septic Tank Line	32-002(a)	AAA4697	-7.30	-15.90	-0.30	--	--	--	--	--	--	--	--	<2	3.0	120	0.0	<0.4	10	9.0	<0.1	370	12	28	<0.1	0.4	0.3	23	54
Septic Tank Line	32-002(a)	AAA4698	-3.60	0.00	-0.60	--	--	--	--	--	--	--	--	<2	2.2	130	0.7	<0.4	0	8.7	<0.1	330	12	26	<0.1	<0.3	0.3	21	43
Septic Tank Line	32-002(a)	AAA4699	3.60	1.30	-0.40	0.05	--	--	<0.003	--	--	<0.03	--	200	2.9	91	130.0	10	42	1.3	<0.1	490	200	120	<0.1	<0.3	0.7	23	28
Septic Tank Line	32-002(a)	AAA4700	3.60	-2.90	-0.90	--	0.024	--	--	--	0.0005	0.9	--	9.2	28	150	0.0	<0.4	170	73.0	180	420	17	570	<0.1	1.1	1.4	42	89
Septic Tank Line	32-002(a)	AAA4701	3.60	-0.20	-0.90	--	--	--	--	--	0.0000	--	--	<2	2.9	71	0.0	<0.4	6.0	4.1	4.0	280	7	61	<0.1	0.7	0.5	14	53
Outfall	32-002(a)	AAA4702	3.60	-2.90	-0.90	--	--	--	--	--	<0.0002	<0.03	--	3.5	2.0	120	0.0	1.3	31	22	16	1,300	0	110	<0.1	0.9	0.3	13	120
Outfall	32-002(a)	AAA4703	0.00	12.90	-1.00	--	--	--	--	--	<0.0002	0.07	--	7	3.1	77	0.7	1.6	37	16	17	280	0	160	<0.1	0.4	0.2	11	73
Outfall	32-002(a)	AAA4704	32.00	10.60	0.30	--	--	--	--	--	0.0005	0.23	--	28	0.0	180	0.0	3.0	190	36	36	580	0	460	<0.1	0.9	0.8	20	170
Outfall	32-002(a)	AAA4705	29.20	32.40	24.90	0.03	--	--	--	0.06	0.001	0.07	--	150	10	920	0.7	5.0	440	170	270	180	11	1,600	<0.1	1.7	2.4	59	320
Outfall	32-002(a)	AAA4706	7.30	7.20	1.00	--	--	--	--	--	--	0.03	--	12	1.1	110	0.71	0.6	66	17	17.0	630	0	200	<0.1	0.4	0.1	16	140
Outfall	32-002(a)	AAA4707	3.60	1.70	2.00	--	--	--	--	--	--	--	--	2.0	2.1	33	0.7	0.4	8.0	4.3	3.3	290	2	40	<0.1	0.0	0.1	8.5	50
Outfall	32-002(a)	AAA4708	-3.60	0.40	1.00	--	--	--	--	--	--	--	--	<2	2.3	16	0.0	<0.4	1.0	1.0	<0.1	210	2	15	<0.1	0.5	0.1	3.3	32
Outfall	32-002(b)	AAA4709	0.00	-7.60	-0.10	--	--	--	--	--	--	--	--	<2	5.4	65	0.5	<0.4	4.4	8.5	<0.1	250	0	40	<0.1	0.7	0.3	8.2	45
Outfall	32-002(b)	AAA4710	0.00	-15.90	-1.60	--	--	--	--	--	--	--	--	<2	2.1	51	0.3	<0.4	3.7	4.1	<0.1	200	4	25	<0.1	0.4	0.1	6.0	39
Outfall	32-002(b)	AAA4711	-7.30	-19.30	-1.20	--	--	--	--	--	--	--	--	<2	2.7	47	0.3	<0.4	3.0	4.7	<0.1	230	4	23	<0.1	0.6	0.2	9.4	48

Radioactivity Analytical Uncertainties:
Alpha, +/- 63.1 pCi/g; Beta, +/- 23.8 pCi/g; Gamma, +/-4.4 pCi/g

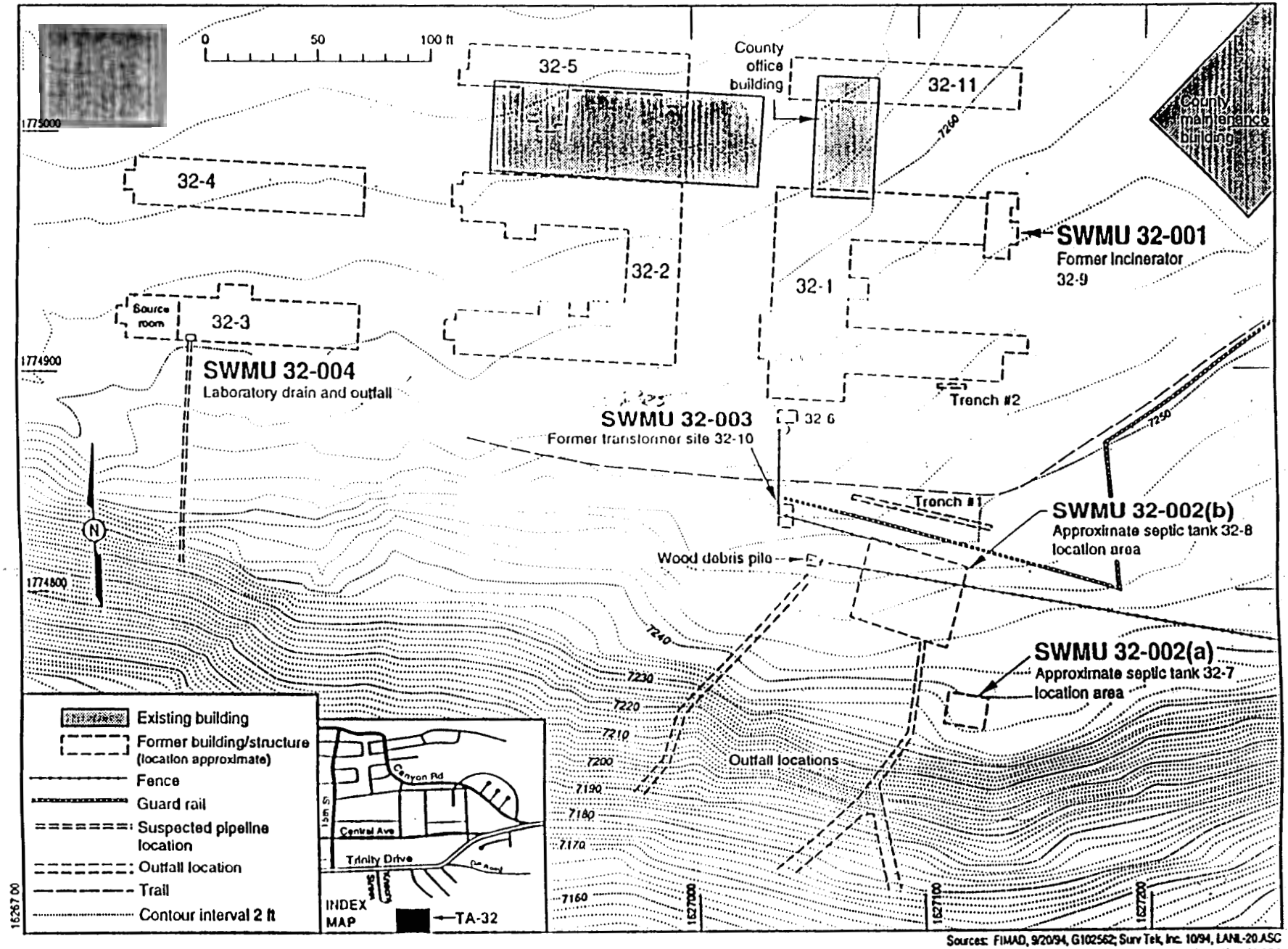
FACILITY	SWMU	SAMPLE ID#	VOLATILE ORGANIC COMPOUNDS (mg/kg)					SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)							PCBs (mg/kg)
			Acetone	Benzene	Tetrachloroethylene	Toluene	Total Xylenes	Di-N-Butylphthalate	Butylbenzylphthalate	Bis-2-Ethylhexylphthalate	Fluoranthene	Pyrene	Chrysene	Benzo(b)fluoranthene	Aroclor 1260
		Screening Action Level	8,000 mg/kg	0.67 mg/kg	5.9 mg/kg	818 mg/kg	160,000 mg/kg	8,000 mg/kg	16,000 mg/kg	50 mg/kg	3,200 mg/kg	2,400 mg/kg	96 mg/kg	1.0 mg/kg	0.09 mg/kg
Incinerator	32-001	AAA1287	0.027	--	--	--	--	--	--	--	--	--	--	--	--
Incinerator	32-001	AAA4690	0.048	--	--	0.01	--	--	--	--	--	--	--	--	1.8
Septic Tank	32-002(a)	AAA1285	--	0.01	--	0.028	0.012	--	--	--	--	--	--	--	--
Septic Tank	32-002(a)	AAA1286	--	--	--	0.013	0.01	--	--	--	--	--	--	--	--
Septic Tank	32-002(a)	AAA4691	--	--	--	0.011	--	--	--	--	--	--	--	--	--
Septic Tank	32-002(a)	AAA4692	--	--	--	0.029	0.039	--	--	--	--	--	--	--	--
Septic Tank	32-002(b)	AAA4693	--	--	--	--	--	--	--	--	--	--	--	--	4.2
Septic Tank	32-002(b)	AAA4694	0.026	--	--	0.013	--	--	--	--	--	--	--	--	1.3
Septic Tank Line	32-002(a)	AAA4696	--	--	--	--	--	--	--	--	--	--	--	--	--
Septic Tank Line	32-002(a)	AAA4697	0.04	--	--	0.011	--	--	--	--	--	--	--	--	1.0
Septic Tank Line	32-002(a)	AAA4698	--	--	--	--	--	--	--	--	--	--	--	--	1.0
Septic Tank Line	32-002(a)	AAA4699	0.037	--	--	0.023	0.028	--	--	--	--	--	--	--	--
Septic Tank Line	32-002(a)	AAA4700	0.034	--	--	0.012	--	--	--	--	--	--	--	--	--
Septic Tank Line	32-002(a)	AAA4701	--	--	--	0.0096	--	--	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4702	--	--	--	--	--	--	--	--	--	--	--	--	17.2
Outfall	32-002(a)	AAA4703	--	--	--	--	--	--	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4704	--	--	--	--	--	--	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4705	--	--	--	--	--	--	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4706	--	--	--	--	--	1.7	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4707	--	--	--	--	--	2.2	--	--	--	--	--	--	--
Outfall	32-002(a)	AAA4708	--	--	--	--	--	2.9	--	--	--	--	--	--	--
Outfall	32-002(b)	AAA4709	--	--	--	--	--	1.4	--	--	0.53	0.8	0.36	0.51	--
Outfall	32-002(b)	AAA4710	--	--	--	--	--	1.3	1.1	1.4	--	--	--	--	--
Outfall	32-002(b)	AAA4711	--	--	--	--	--	3.5	--	--	--	0.8	--	--	--

Attachment B

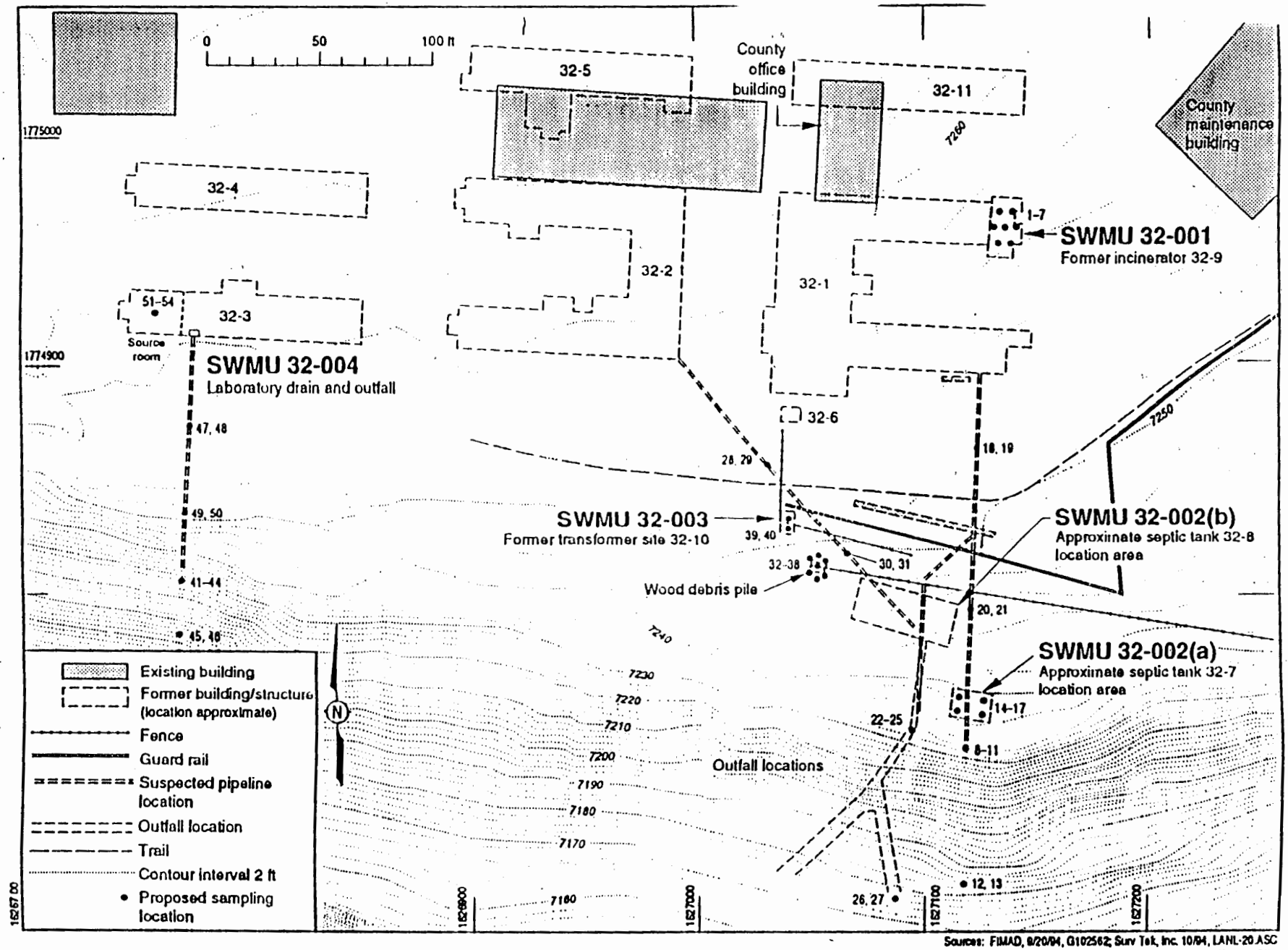
FIGURES



General location of TA-32.



Locations of SWMUs at TA-32.



Sources: FIMAD, 8/20/94, G102562; Surv Tek, Inc. 10/94, LANL-20.ASC
Modified by: cARTography by A. Kron 6/25/95

Proposed Phase II sampling locations.

Annex 7.8

Field Work Approval Form

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form

PRS No. 32-001-R, 32-003 **HSWA** or **AOC**

✓ PCOC(s) defined.

____ Nature and extent defined or field screening method available to guide where not defined.

✓ Remedy is obvious.

✓ Time for removal is less than 6 months.

✓ Remedy is final.

✓ Land use assumptions straightforward.

✓ Treatment, Storage, Disposal Facilities are available for waste type and volume.

✓ Cleanup cost is reasonable for the planned action, and meets accelerated decision logic criterion for decision to proceed with VCA.

Explain criteria not checked above. Extent is currently being defined during Ph 2 RFI.

Through reviewing the above criteria associated with this site, I believe that a VCA is the appropriate Accelerated Cleanup approach.

FPL JR Allen Date 7 March 96

FPC [signature] Date 3-7-96

Through reviewing the VCA Plan, for site 32-001 & 32-003, and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager [signature] Date 3/12/96

EM/ER:96-020

Los Alamos National Laboratory Environmental Restoration Project
READINESS REVIEW CHECKLIST

Field Unit: 1 TA(s): 32 Date: 3/4/96
PRS Types
Description of Field Activity: Phase II Investigation

Applicable	Complete	R/A Assignment*	1. GENERAL
√	√		Scope of Activity Defined

Applicable	Complete	R/A Assignment	2. ENVIRONMENTAL AND CULTURAL PROTECTION (Section 5.1.1)
√			ES&H Questionnaire Submitted and Approved
	√		Appropriate NEPA Approval is Received
	√		Flood Plains/Wetlands Assessment Performed
	√		Threatened and Endangered Species Assessment Performed
	√		Cultural Resources Assessment Performed
	√		NESHAP Evaluated
	√		NPDES Evaluated

Applicable	Complete	R/A Assignment	3. HEALTH & SAFETY (Section 5.1.2)
√	√		Site-Specific H&S Plan Approved
	√	Surv-Tek	Contractor H&S Program Approved
√	N/A		Medical Monitoring Established
√	√		Health Physics Checklist Completed

Applicable	Complete	R/A Assignment	4. WASTE MANAGEMENT (Section 5.1.3)
	√		Site-Specific Waste Management Plan Completed
	√		Waste Characterization Checklist Approved
	N/A		On-Site Waste Storage Areas Arranged
	√		Trained Waste Coordinator Assigned
	√		Trained Waste Generator Assigned

Applicable	Complete	R/A Assignment	5. TRAINING (Section 5.1.4)
	√		HAZWOPER
	√		GET
	√		First Aid and CPR
	√		HAZCOM
	√		Procedural Training
	N/A		Site-Specific Training
	√		Radiation Worker Training
	N/A		Respirator Training and Fit Test
	N/A		Lockout/Tagout Training
	√		Documentation of Personnel Training Forwarded to the EF Training Coordinator

Los Alamos National Laboratory Environmental Restoration Project
READINESS REVIEW CHECKLIST (continued)

Applicable	Complete	R/A Assignment	**6. WORK REQUESTS AND PERMIT REVIEWS (Section 5.1.5)**
___	N/A	_____	Fencing
___	✓	_____	Excavation/Fill
___	N/A	_____	Special Work
___	N/A	_____	Confined-Space
___	N/A	_____	Radiation Work
___	N/A	_____	Burn/Hot Work

Applicable	Complete	R/A Assignment	**7. SUPPORT AND EQUIPMENT** (Section 5.1.6)
___	N/A	_____	Support Services Arranged
___	✓	Surv-Tek	Subcontractors Identified
___	✓	_____	Utilities Located and Marked
___	✓	_____	Sanitation Facilities Arranged
___	✓	_____	Communication Equipment Obtained
___	✓	_____	Sampling and Survey Equipment and Supplies Obtained
___	✓	_____	H&S Equipment and Supplies Obtained
___	✓	_____	Copies of Applicable Precedures, H&S Plan, etc., on site

Applicable	Complete	R/A Assignment	**8. SAMPLE PLANNING (Section 5.1.7)**
___	✓	_____	Data Quality Objectives Prepared
___	✓	_____	Sample Documentation Database Prepared
___	N/A	_____	Field Implementation Plan and Other Appropriate Plans Pr and Approved
___	N/A	DOE approved	Sampling Analysis Plan Approved by NMED and/or EPA a Appropriate
___	✓	_____	SOPs and Forms Prepared and/or Obtained
___	✓	_____	FIMAD Location Numbers Obtained
___	N/A	_____	Transportation of Hazardous Materials Arranged

Applicable	Complete	R/A Assignment	**9. SAMPLE COORDINATION AND MANAGEME (Section 5.1.8)**
___	✓	_____	SMO or Analytical Laboratory Notified of Analytical Requir
___	✓	_____	Mobile Chemistry Laboratory Scheduled
___	✓	_____	Mobile Radiation Laboratory Scheduled
___	✓	_____	SMO or Analytical Laboratory Instructed on Sample Analys Requirements

Applicable	Complete	R/A Assignment	**10. SUBSURFACE TECHNICAL TEAM NOTIFIC (Section 5.1.9)**
___	N/A	_____	Drilling Package Submitted
___	N/A	_____	Drilling Scheduled
___	N/A	_____	Geophysical Contractor Scheduled

Los Alamos National Laboratory Environmental Restoration Project
READINESS REVIEW CHECKLIST (continued)

Applicable	Complete	R/A Assignment	**11. LABORATORY AND SITE ACCESS** (Section 5.1.10)
___	~~N/A~~	_____	Operating Group Interface Established
___	✓	_____	Site Access Coordinated
___	✓	_____	Access Agreement and Other Permissions Obtained
___	✓	_____	Site Control and Security Planned and Arranged
___	~~N/A~~	_____	Laboratory Identification Badges Issued

Applicable	Complete	R/A Assignment	**12. NOTIFICATIONS (Section 5.1.11)**
___	~~N/A~~	_____	ES&H Officer(s), Group Leader(s), and Facility Managers at Affected TA(s)
___	~~N/A~~	_____	Non-DOE Property Owners
___	✓	_____	Los Alamos County
___	✓	_____	Regulatory Compliance Manager
___	✓	_____	Policy and Public Involvement Representative

Applicable	Complete	R/A Assignment	**13. OTHER**
___	___	_____	
___	___	_____	
___	___	_____	

Signature confirms that all actions for readiness review have been completed.

Signature: Beverly Martin, FOM Date: 3/4/96
FPL, Field Unit # 1

Los Alamos National Laboratory Environmental Restoration Program
READINESS REVIEW MEETING ATTENDANCE FORM

Field Unit: 1 TA (s): 32 Date: 3/4/96

Description of Field Activity: ______

PRINTED NAME	SIGNATURE	ORGANIZATION	MS	PHONE
Beverly Martin	[signature]	CIC-12	E525	5-7430
Clint J Dayman	[signature]	ERM/Golder	M329	662-1326
Danny Katzman	[signature]	ERM/Golder	M329	2-1318
Jeff Walterscheid	[signature]	ERM/Golder	M327	662-1365

Annex 7.9
Cost Estimate

VCA Cost Estimate
PRS 32-001 and 32-003

Pre-Field Activities:	$15,366
Field Activities:	$45, 475
Waste Disposal:	$12,975
Sampling/Analytical:	$20,361
Post-Field Activities:	$12,679
Total:	$106,856

Annex 7.10
References

REFERENCES

EPA (US Environmental Protection Agency), 1985. "Verification of PCB Spill Cleanup by Sampling and Analysis," EPA-560/5-85-026, Washington, DC. (**EPA 1985, 06-0117**)

EPA (US Environmental Protection Agency), April 10, 1990. Module VIII of RCRA Permit No. NM0890010515, EPA Region 6, issued to Los Alamos National Laboratory, Los Alamos, New Mexico, effective May 23, 1990, EPA Region 6, Hazardous Waste Management Division, Dallas, Texas. (**EPA 1990, 0306**)

ICF Kaiser Engineers, October 1993. "Field Sampling Activities at TA-32," ICF Kaiser Engineers Report, Los Alamos, New Mexico. (**ICF Kaiser 1993, 06-0103**)

LANL (Los Alamos National Laboratory), June 30 1995. "RFI Report for Potential Release Sites 32-001, 32-002(a), 32-002(b), 32-003, and 32-004", Field Unit 1, Los Alamos National Laboratory Report LA-UR-95-2231, Los Alamos, New Mexico. (**LANL 1995, 06-0128**)