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

JUL 05 1995

Barbara Hoditschek
Program Manager, RCRA Permits
Hazardous and Radioactive Materials
Bureau
New Mexico Environment Department
525 Camino de los Marquez
P. O. Box 26110
Santa Fe, NM 87502

RECEIVED

Dear Ms. Hoditschek:

Per your request, enclosed is the soil characterization strategy of Technical Area (TA) 16 Flash Pad 387 and Burn Tray 394. The characterization sampling will occur prior to technology improvements of these areas. As agreed in our conversation with Stuart Dinwiddie June 14, 1995, sampling is scheduled for the week of July 17.

The technology improvements to the areas include weather covers and propane burners. If there are any questions or concerns, please contact me at 665-5042.

Sincerely,

H.L. "Jody" Plum
Office of Environment and Projects

LAAMEP:8JP-007

Enclosure

cc w/enclosure:
J. Plum, AAMEP, LAAO

cc w/o enclosure:
J. Mack, AAMEP, LAAO
J. Ellvinger, ESH-19, LANL, MS-K490
H. Noskin, ESH-19, LANL, MS-K490
R. Conrad, ESH-19, LANL, MS-K490
C. Sandoval, ESA-WMA, LANL, MS-C930
E. Hyde, ESA-WMA, LANL, MS-C930

5976

SOIL CHARACTERIZATION OF FLASH PAD 387 AND SOLVENT/OIL BURN TRAY 394 (SWMUs 16-010B AND 16-010J) AT TA-16

I. PURPOSE

The TA-16 Flash Pad (structure 387 or PRS 16-010b) and the Solvent/Oil burn tray (structure 394 or PRS 16-010j) are structures for which the Laboratory is in the process of submitting a RCRA Part B Permit Application for their open burn units. To meet the requirements for implementation of technology modifications proposed for these units, soil and water sampling and characterization is necessary to determine whether contamination exists, and if so, delineate media contamination associated with the structures, and to define the constituents in any contamination.

The New Mexico Environment Department has determined that this sampling and characterization is necessary for technology modifications and establishing a baseline of data for the area.

The Sampling and Characterization plan below will follow the Performance Standards set out in 40 CFR 264.601 for Subpart X units.

This soil sampling plan is designed to;
1) give an average concentration of constituents of concern (COC) in soil adjacent to these burn units,
2) yield maximum concentrations of COCs in soils collected judgementally from sites such as runoff channels (surface water pathway),
3) yield maximum concentrations of COCs in soils collected judgementally on transects downwind of the two burn units, and
4) yield maximum concentrations of COCs in soils collected from obviously impacted sites such as the oil-stained soil adjacent to the burn tray,
5) give information on stormwater runoff for the listed COCs.
Knowing the concentrations of the COCs in soil, one can determine the source terms for the various pathways of dissemination of contaminants. These pathways are surface water runoff, air dispersion of wind-blown soils, and the ground water pathway.

II. SAMPLING PROTOCOLS

All samples will be collected according to ESH-19 chain-of - custody procedures (see attachment 1). Evidence tape will be placed on each sample bottle at the time of collection, chain-of-custody forms will be completed, and the required sign-off procedure will be followed when relinquishing the samples to the Laboratory Sample Management Office (SMO).

The soil samples will be stored in a locked cooler or otherwise be in the custody of the ESH-19 Waste Site Studies Team until release to the SMO. All documents prepared in association with this project will be maintained by ESH-19 and the ESA organization which controls operations at the burn ground.

The following standard operating procedures will be followed in collecting the soil samples.
LANL-ER-SOP-06.09, RO Spade and Scoop Method for Collection of Soil
Samples

LANL-ER-SOP-06.10, R0 Hand Auger and Thin Wall Tube Sampler

In addition, each sampling location will be surveyed in according to SOP
LANL-ER-SOP-03-01, R1 Land Surveying Procedures

Enclosed with this plan is a map depicting the approximate soil sampling locations as proposed in this sampling plan. This enclosed map only approximates the proposed sampling locations. The actual sampling sites will be defined on the day the sampling is to occur.
A map of the actual surveyed-in sampling locations will be provided with the analytical data at the end of the project.

The surveying and soil sampling tasks will be accomplished totally by the
ESH-19 Waste Site Studies Team. Each member of the team has taken HAZWOPER, Radiation Worker, General Employee Training (GET), first aid, CPR and HE Corridor training and is up to date with all of this health and safety training.

Before each surface soil sample is taken, it will be tested for high explosives (HE) by a field spot test kit. This procedure is for safety purposes only and is not to be construed as a screening for the presence or absence of significance concentrations of HE.

Finally, again for safety purposes, the ground surface will be screened at each sampling point by an ESP-1 beta/gamma meter for radioactivity and for volatile organic compounds using a photoionization detector. Modified level D PPE is to be utilized by all personnel unless field screening instruments for radioactivity and volatile organic compounds indicate that an upgrade to modified level C is required.

STORMWATER SAMPLING

Stormwater sampling will follow SW846 methods for analysis, and will be collected by a single stage sampler that will be

installed below TA-16/387 and 394 to collect stormwater runoff. The Burn Ground has a rain gage where precipitation will be monitored to ensure prompt sampling after a rain event. These stations will be located in the channel as close as practical to each of the units. Stormwater samples will follow the ESH-18 chain of custody.

III. CONSTITUENTS OF CONCERN AND ANALYTICAL METHODS

The chemical COCs on soils at these two burn units are based on the materials that have been open burned at these two operations, and include volatile organic compounds (VOAs), semi-volatile organic compounds (SVOAs), total petroleum hydrocarbons (TPH), high explosives (HE), metals, and depleted uranium (U-238). Organics are likely as combustion products of plastics, foams, and other packing materials.

These analyte categories will be analyzed according to EPA SW -846 methods if appropriate.

ANALYTE	METHOD
VOAS	8260
SVOAS	8270
HE	8330
TOTAL URANIUM analysis	Kinetic phosphorescence
METALS followed by AA analysis	3050 extraction appropriate ICP (6010) and
TPH	418.1

IV. RATIONALE FOR SOIL SAMPLES TO BE COLLECTED

PRS-16-010b

1. Five soil samples (randomly chosen) from a grid within 100 x 100 ft fence. Establish a 10 x 10 ft regular grid within fence line of this PRS. Randomly choose from a random number table 5 points (at the grid nodes) to sample. If any randomly chosen point falls on concrete, an alternative point will be randomly chosen to sample. These five sets of analyses should give average concentrations for COCs on soils found within the fence surrounding this burn pad. Only two of these five samples will have analyses for VOAs, SVOAs, HE, TPH and U. It is anticipated that VOAs, SVOAs, HE and TPH will have been preferentially consumed during the burning operation and it is expected that there is little probability of finding these constituents in the five randomly chosen soil samples. Thus, these constituents will be analyzed at a lower frequency.

2. There are two small surface water features within the fence that direct surface water runoff out of this SWMU

into a diversion channel which runs around MDA P. One sampling point from each of these little features will be chosen for the soil sampling. It is anticipated that TPH will have been preferentially consumed during the burning operation and it is expected there is little probability of this constituent in the soil samples taken from the surface water runoff channels. Thus, TPH will be analyzed at a lower frequency.

3. The diversion runoff arroyo will be sampled at a location just before it enters Valle Canyon. 2 judgmental samples will be chosen from sediment traps located above the canyon. Care will be taken to include sediment traps not influenced by runoff from MDA P. It is anticipated that VOAs, SVOAs, HE and TPH will have been preferentially consumed during the burning operation and it is expected that there is little probability of finding these constituents in the five randomly chosen soil samples. Thus, these constituents will be analyzed at a lower frequency.

4. A wind rose has been obtained from data collected at the meteorological tower located at TA-6 (located several miles NE of TA-16) site. Using this wind rose we will establish a 2 point transect downwind (NW of the burn pad) from this PRS and sample at each of these two points. The length of transect will be determined by the topography. It is anticipated that VOAs, SVOAs, HE and TPH will have been preferentially consumed during the burning operation and it is expected that there is little probability of finding these constituents in the five randomly chosen soil samples. Thus, these constituents will be analyzed at a lower frequency.

5. A soil sample from the other side of the asphalt-lined runoff channel adjacent to MDA P will be collected. This point will be located judgementally but will be positioned on a line between the burn pad and MDA P. It is anticipated that VOAs, SVOAs, HE and TPH will have been preferentially consumed during the burning operation and it is expected that there is little probability of finding these constituents in the five randomly chosen soil samples. Thus, these constituents will be analyzed at a lower frequency.

6. One sample of the burned material (sediment type) to serve as a source term will be collected. It is anticipated that VOAs, SVOAs, HE and TPH will have been preferentially consumed during the burning operation and it is expected that there is little probability of finding these constituents in the five randomly chosen soil samples. Thus, these constituents will be analyzed at a lower frequency.

7. One sample will be collected at the soil-tuff interface at the same location as one of the surface soil samples in one of the two runoff channels inside the fence. Except for uranium (which in a solid phase shouldn't percolate into the subsurface), all COCs will be analyzed.

8. One sampling point will be randomly chosen from all the points where we will be sampling where we will collect an additional sample to serve as a replicate. All COCs analyzed for the regular sample will be analyzed for the replicate sample.

9. A background range will have to be established for surface soils. LANL proposes to judgementally choose 3 locations to sample for background. Because of the natural variability of constituents on soils, the background we evolve will be a concentration range based on the three samples. The background samples will be chosen at up-wind locations and analyzed only for metals and total uranium.

PRS 16-010j

1. One judgmental sample will be taken of the soil from the south side of the trays which is stained with oil. Total uranium will not be analyzed on this soil or any soil sample taken around this PRS since there is no evidence that depleted uranium was ever burned at the burn tray.

2. A small 5 ft x 5 ft grid will be established in the area surrounding the tray assembly and 2 sampling locations will be randomly chosen to sample soil at these 2 grid nodes. HE will not be analyzed in this soil sample because if any was present in the oil/solvent burned, HE would have been preferentially consumed. There is little probability that it will be found in soils surrounding the burn tray.

3. There are two runoff channels adjacent to the sampling tray assembly. Each one of these channels will have a location chosen judgementally to collect a surface soil sample. All consituents (VOAs, metals, HE, SVOAs, TPH) except uranium will be analyzed in these soil samples.

4. One sample will be collected from a sediment trap just before the runoff channel from the burn tray encounter the adjacent canyon. VOAs and HE will not be analyzed in these samples since HE should have been consumed during incineration and VOAs would have a short lifetime in surface soils subjected to the extreme temperatures extant at TA-16. There is little probability that HE or VOAs would be found on surface soil samples.

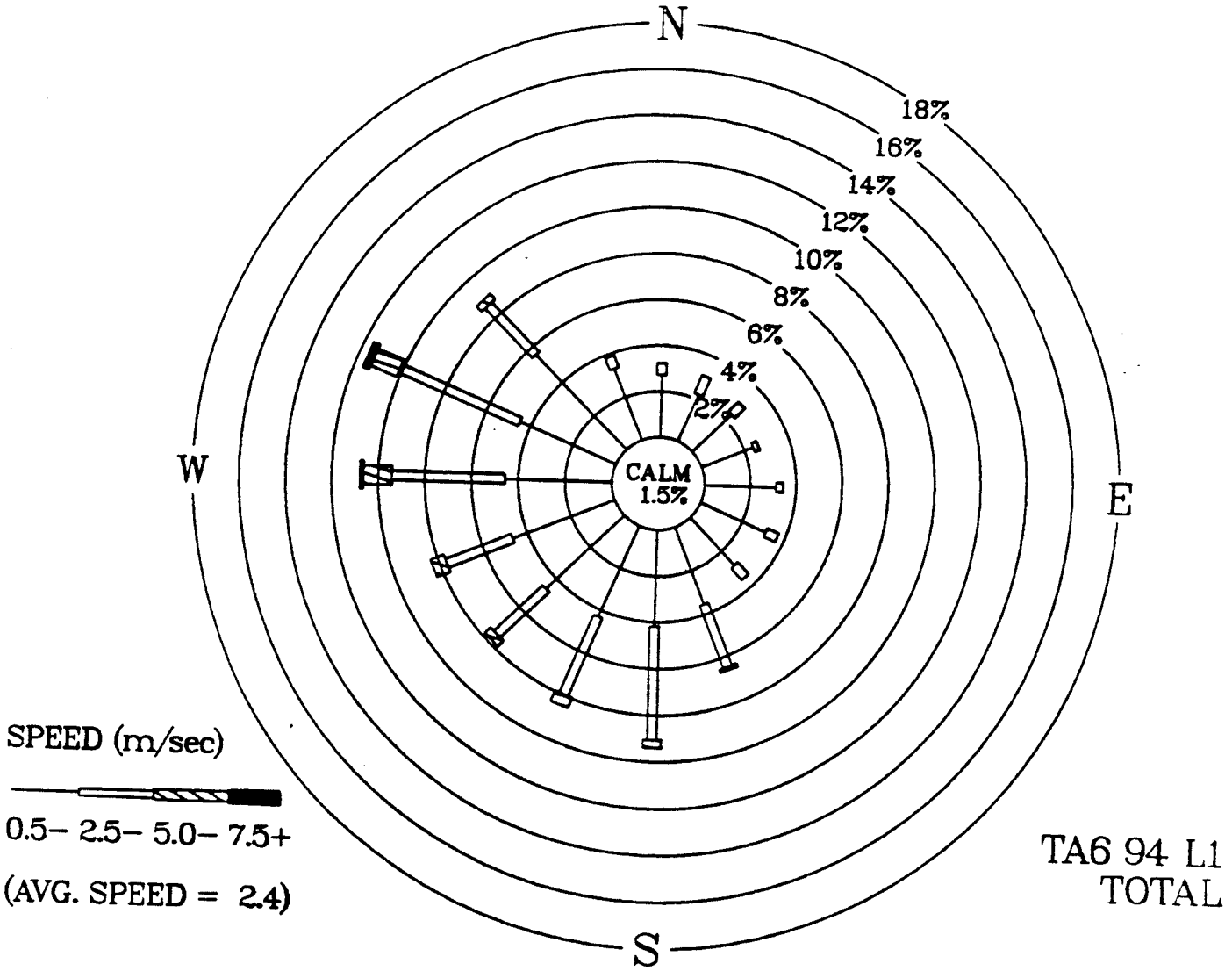
5. A sample of the sediment (beneath the rocks) may be collected from underneath the burn trays. Sampling and analysis will be done for all constituents except uranium.

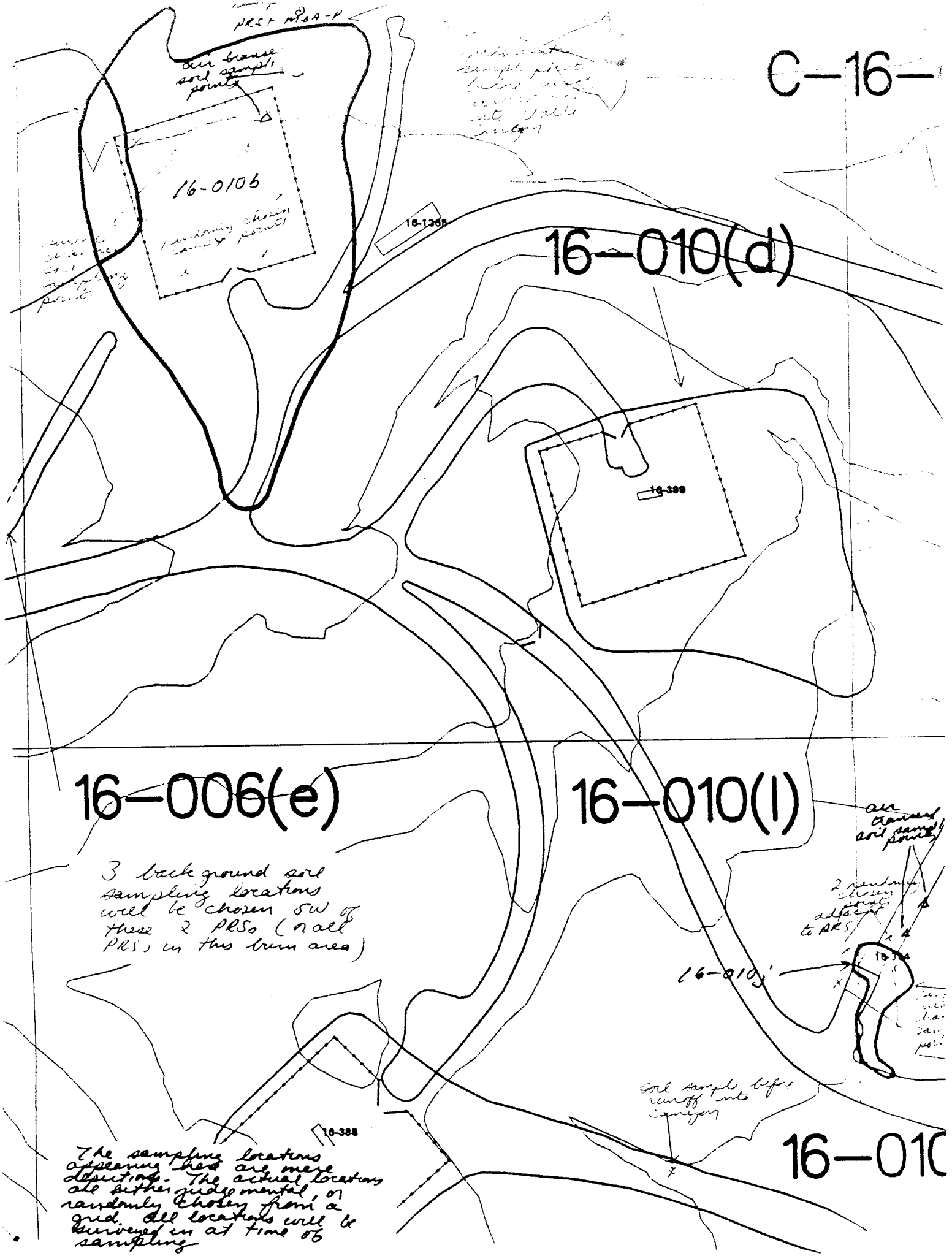
6. Using the wind rose again, a transect will be established downwind from the burn trays. Length of transect to be determined but samples will be collected at two locations along the transect. All COCs will be analyzed on these samples except HE. It is expected that if any HE was in the oil/solvent, it would be preferentially incinerated and would not be found down wind from the source.

7. LANL is proposing to use the same soil background data that we will be collecting for PRS 16-010b. No additional sampling here.

A summary of all of the soil samples to be taken and COCs to be analyzed is found in the following table.

Modified by Ron Conrad June 22, 1995								
PROPOSED SAMPLING FOR PRS 16-010B AND 16-010J FY 95				SOIL SAMPLING				
		Method	8260	3050/ICP,AA	8330	8270	418.1	KPA
			VOAS	METALS	HE	SVOAS	TPH	U
PRS 16-010B								
SAMPLE	TYPE		NUMBER OF SAMPLES FOR EACH CONSTITUENT CATEGORY					
5 random grid inside fence			2	5	2	2	1	2
2 channels inside fence-biased			2	2	2	2	1	1
2 downsteam just before canyon			2	2	2	2	0	1
2 downwind air emiss. transect			0	2	2	2	0	2
1 other side of culvert			0	1	1	0	0	0
1 sample of burned material			1	1	1	1	1	1
1 duplicate			1	1	1	1	1	1
3 background soils-need range			0	3	0	0	0	3
1 sample at tuff interface			1	1	1	1	1	0
PRS-16-010j								
SAMPLE TYPE								
1oily soil sample-biased			1	1	1	1	1	0
2 random grid around tray			2	2	0	2	2	0
2 from runoff channels			2	2	2	2	2	0
1 downstream from tray			1	1	1	1	1	0
1 of burned material below tray			1	1	1	1	1	0
2 air emission transect downwind			2	1	0	1	1	0
Background-use same soil background as above					0	0	0	0
								0
TOTAL # OF SAMPLES			18	26	17	19	13	11


N
E
S
W
18%
16%
14%
12%
10%
8%
6%
4%
2%
CALM
1.5%
SPEED (m/sec)
0.5– 2.5– 5.0– 7.5+
(AVG. SPEED = 2.4)
TA6 94 L1
TOTAL


C-16-
16-010(d)
16-006(e)
16-010(l)
16-010j
16-010
16-1305
16-399
16-388
air transect soil sampling points
16-010b
randomly chosen sampling points
3 background soil sampling locations will be chosen SW of these 2 PRSs (or all PRSs in this burn area)
soil sample before runoff into canyon
The sampling locations appearing here are mere depictions. The actual locations are either judgemental, or randomly chosen from a grid. All locations will be surveyed in at time of sampling

ATTACHMENT 1
SAMPLING AND ANALYSIS
STANDARD OPERATING PROCEDURES

Los Alamos National Laboratory **Environmental Restoration Program** Standard Operating Procedure	No: LANL-ER-SOP-06.09 Rev: 0

Spade and Scoop Method for Collection of Soil Samples

	(Print Name)	(Signature)	(Date)
Preparer:	Sandra E. Wagner	Sandra E. Wagner	10-16-91
Quality Review by:	Richard Romero	R. Romero	10/23/91
Technical Review by:	Philip R. Fresquez	Philip R. Fresquez	10/28/91
QPPL Approval:	Karen L Warthen	Karen L Warthen	3/3/92
PM Approval:	Robert W Vocke	Robert W Vocke	3-4-92

Effective Date: 3-16-92

SPADE AND SCOOP METHOD FOR COLLECTION OF SOIL SAMPLES

1.0 PURPOSE

This procedure describes the spade and scoop method.

2.0 SCOPE

2.1 Applicability

This procedure is applicable for collection of shallow soil samples with a spade and scoop for the Environmental Restoration Program.

2.2 Training

Field team members must document that they have read and understand this procedure, and the procedures in Section 1.0, General Instructions.

3.0 DEFINITIONS

N/A

4.0 BACKGROUND AND/OR CAUTIONS

The "spade and scoop method" is simply digging a hole and collecting a grab sample from the bottom. A spade is recommended because it digs a flatter bottomed-hole than a shovel.

The spade and scoop method will work in any soil type, including cobbles (which will stop a hand auger). If a spade will not work in a given area, an alternate tool must be used. This could be a concrete saw for concrete, a pick-axe for asphalt, a maddox for roots and rocks, or a back hoe or post hole digger for deep holes or hard soil.

Holes deeper than 2 or 3 feet require much labor; a hand auger or back hoe may be more effective.

Proper back care must be exercised when digging. Work gloves may be needed to prevent blisters. Sturdy work boots are needed for pushing the spade into the ground. Goggles are needed when using a maddox, pick-axe, or concrete saw. Personnel are not to enter excavations deeper than 4 feet unless the hole is shored or terraced.

5.0 EQUIPMENT

Equipment required to implement this procedure is listed in Attachment A.

8.0 RECORDS

Records generated as a result of this procedure are the completed following:

Completed Borehole Log (Soil) Form
Completed Chain-of-Custody/Request for Analysis Form
Completed Daily Activity Log, including any deviations or other pertinent information

9.0 ATTACHMENTS

Attachment A - Equipment and Supplies Checklist for the Spade and Scoop Method

EQUIPMENT AND SUPPLIES CHECK LIST FOR THE SPADE AND SCOOP METHOD (continued)

_____ Camera and film

_____ Sample containers and preservatives

_____ Borehole Log (Soil) Form

_____ Daily Activity Logs

_____ Chain-of-Custody/Request for Analysis Forms

_____ Sample Collection Logs

_____ Custody Seals

_____ Unique Sample Stickers

_____ Sample Labels

_____ Any additional supplies listed in associated procedures, as needed

ENVIRONMENTAL RESTORATION PROGRAM
INTERIM CHANGE NOTICE

EFFECTIVE DATE : (Dist. Date) 2/14/95 ICN No. 007 Page 1 of 1

Document No. LANL-ER-SOP-06.09 **Rev.** 0 **Title:** Spade and Scoop Method of Collection of Soil Samples

Reason for Change:

The form that would be used in the field, The Sample Collection Log Form, is not identified in the Records section.

Description of Change (Specify page, paragraph, and/or section revised, and clearly write new text to be incorporated in the document).

Page 4, Section 8.0, add:
Completed Sample Collection Log Form

Change Requested by:	PATRICIA M. TILLERY (Print)	Patricia M Tillery (Signature)	1/31/95 (Date)
Technical Reviewer	Linda Fluk (Print)	Linda Fluk (Signature)	1/31/95 (Date)
Program Manager Approval:	M. Quinn (Print)	JORG JANSEN (Signature)	2-3-95 (Date)
Quality Program Project Leaser (QA review and approval)	LAWRENCE A. SOUZA (Print)	(Signature)	2/1/95 (Date)

Los Alamos National Laboratory Environmental Restoration Program Standard Operating Procedure	No: LANL-ER-SOP-06.10 Rev: 0

Hand Auger and Thin-Wall Tube Sampler

	(Print Name)	(Signature)	(Date)
Preparer:	Sandra E. Wagner	Sandra E. Wagner	10-16-91
Quality Review by:	Philip R. Fresquez	Philip R. Fresquez	10-23-91
Technical Review by:	Richard Romero	R Romero	10/23/91
QPPL Approval:	Karen L Warthen	Karen L Warthen	3/3/92
PM Approval:	Robert W Vocke	Robert W Vocke	3-4-92

Effective Date: 3-16-92

Proper back care must be exercised when pulling a stuck auger out of a hole and turning an auger for long periods of time. Work gloves may be needed to prevent blisters.

5.0 EQUIPMENT

Refer to Attachment A for equipment list.

6.0 PROCEDURE

A. Coordinate the sampling effort with the Sample Coordination Facility (SCF). The SCF will give guidance regarding sample containers, preservation, and shipment to the SCF.

B. Gather and decontaminate needed supplies and equipment (SOP.02.07, General Equipment Decontamination).

C. To dig with the bucket auger:

1. Assemble the auger with a 2-, 3-, or 4-foot-long shaft. Put 1/2-inch Teflon™ tape on all threads to facilitate disassembly.

2. Press down and turn on the auger, dig down 6 to 12 inches then lift the auger out of the hole and remove the soil from the auger bucket. Experience will show how far one can dig with each auger bucket load and still get the auger out of the hole easily. Repeat until the required depth is reached adding additional shaft sections.

D. To collect a sample with the bucket auger:

1. Dig to 6 inches above the required depth. With a clean auger, dig out enough soil for the sample. Discard any soil you suspect fell down the hole and is not from the required sample depth. Put the sample material in the pan. Continue until the required sample volume is reached, then homogenize the sample and put it into the sample containers (SOP-01.02, Samples, Containers, and Preservation).

2. When collecting a composite sample, keep the pan of soil out of the sun and covered with aluminum foil; collect all the aliquots as quickly as possible; do not decontaminate the auger between aliquots.

3. Whenever a sample is collected for chemical analyses, a custody record must be initiated on the Chain-of-Custody/Request for Analysis form and a Sample Label affixed to the sample container (SOP-01.04, Sample Control and Field Documentation).

4. Whenever a sample is collected, complete a description of the sample using the Borehole Log (Soil) Form. An example of this form and instructions for completing this form are supplied in SOP-06.12, Soil and Rock Borehole Logging and Sampling Methods.

DeVera, E. R., B. P. Simmons, R. D. Stephens, and D. L. Storm. 1980. "Samplers and Sampling Procedures for Hazardous Waste Streams." U.S. Environmental Protection Agency report EPA 600/2-80-018, January 1980. U.S. Government Printing Office, Washington, D.C.

8.0 RECORDS

A. Completed Chain-of-Custody/Request for Analysis Form

B. Completed Borehole Log (Soil) Form

C. Record all other pertinent information on the Daily Activity Log.

9.0 ATTACHMENTS

A. Equipment and Supplies Checklist for Sampling Soil with Hand Augers

B. Equipment and Supplies Checklist for Soil Sampling with Thin-Wall Tube Samplers

C. Three Types of Augers

EQUIPMENT AND SUPPLIES CHECKLIST FOR SAMPLING SOIL WITH HAND AUGERS (CONTINUED)

_____ Sample Collection Logs

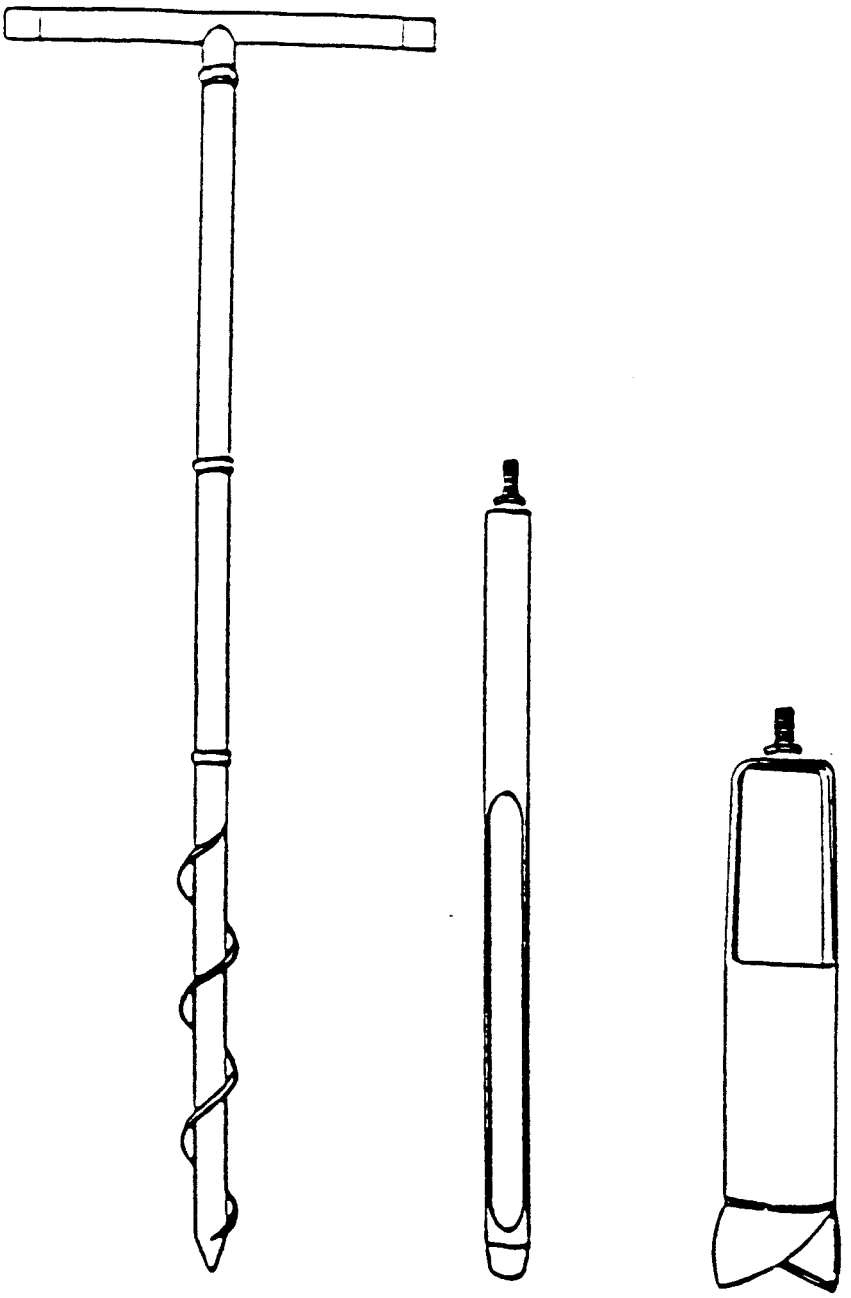
_____ Variance Logs

_____ Custody Seals

_____ Unique Sample Stickers

_____ Sample Labels

THREE TYPES OF AUGERS



Los Alamos National Laboratory **Environmental Restoration Program** Standard Operating Procedure	No: LANL-ER-SOP-03.01 Rev: 1

Land Surveying Procedures

Prepared by	DAVID K. O'FLYNN (Print Name)	(Signature)	6/27/94 (Date)
Quality Review by	Patricia F. Goulding (Print Name)	(Signature)	6/23/94 (Date)
Technical Review by	ERNEST T. PEIFFER (Print Name)	(Signature)	6/28/94 (Date)
PM Approval	JORG JANSEN (Print Name)	(Signature)	9-2-94 (Date)
QPPL Approval	LAWRENCE A. SOUZA (Print Name)	(Signature)	9/1/94 (Date)

Effective Date: 9/6/94

LAND SURVEYING PROCEDURES

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to define requirements for land surveying performed for the Environmental Restoration (ER) Program. This SOP incorporates many of the same procedures contained in the Los Alamos National Laboratory (the Laboratory's) Survey Manual, as prepared by the Facilities Engineering Division (ENG). This SOP supplements and modifies those procedures.

2.0 SCOPE

2.1 Applicability

This SOP is applicable to all land surveying activities performed under the ER Program. This SOP covers all personnel who perform land surveying and mapping activities related to the ER Program.

2.2 Training

All personnel who perform land surveying must have read the Laboratory Survey Manual and this SOP. All land surveys conducted for the ER Program at the Laboratory must be performed under the direction and supervision of a professional land surveyor registered in the state of New Mexico, except when the Field Project Leader or designee is willing to document and accept responsibility for the deviation in accordance with 6.0 (100.4.C) of this SOP.

3.0 DEFINITIONS

Refer to the Laboratory Survey Manual and Section 6.0 of this SOP for definitions.

4.0 BACKGROUND AND/OR CAUTIONS

This SOP is intended to supplement and modify the procedures listed in the Laboratory Survey Manual with regard to various special requirements of the ER Program. The Laboratory Survey Manual serves two basic purposes: 1) to provide standard procedures and methods for conducting surveys and transmitting data, and 2) to provide a standard list of coordinates. Contact Mr. Larry Jones, P.E., of ENG-3 at (505) 667-0142 to obtain copies of the Laboratory Survey manual.

Because of the sensitive nature of the work, the requirement that sample locations be staked out accurately, and the ability to resurvey sample points based on survey data and field notes, only personnel with experience in land surveying and/or who are registered New Mexico professional land surveyors should use this procedure. Much of the information and direction contained herein requires professional judgment to properly apply.

The third party final survey information must be submitted to is

Mailing Address	For UPS
Ms. Renee Archuleta Los Alamos National Laboratory Environmental Restoration Records Processing Facility Mail Stop M707 Los Alamos, NM 87544	Ms. Renee Archuleta Los Alamos National Laboratory Environmental Restoration Records Processing Facility Trinity Drive Los Alamos, NM 87544 Phone: (505) 665-6498

100.3 Definition of Terms Used

This is entirely wholly applicable to land surveying under the ER Program. The following definition needs to be added:

FIMAD: Facility for Information Management Analysis and Display

100.4 Steps of Procedure in Initiating a Field Survey

A. Central Point. This should be modified to include FIMAD. FIMAD's function is to input the survey data into a database, from which maps can be made. FIMAD is also responsible for storing and retrieving survey data related to the ER Program. In addition, all records generated for the ER Program must be sent to the Environmental Restoration Records Processing Facility (RPF).

B. Performance of Field Surveys. Although the Laboratory Survey Manual does not explicitly require it, all land surveys executed under the ER Program should be performed under the direction of a New Mexico Registered Land Surveyor. This is prudent because of the sensitive nature of the work and the ability to locate sample locations in the future. The involvement of a professional surveyor will ensure that accurate state plane coordinates are calculated and proper field notes compiled. It is also important so that accurate results are ensured.

C. Quality Assurance. The Laboratory Survey Manual requires a quality assurance (QA) check by ENG-3. This ER SOP recommends that all land surveys be conducted under the responsible charge of a New Mexico Registered Land Surveyor. A QA check should also be performed by a New Mexico Registered Land Surveyor. Because such a person is licensed, he is required to work to standards established by the state of New Mexico. Additionally, the surveyor is required to perform to standards established by this SOP. QA is an inherent factor in meeting these two standards. If a New Mexico Registered Land Surveyor is not utilized, the Field Project Leader must record the deviation and the justification in the Logbook or Daily Activity

installation of new items (roads, utilities, etc.) are not applicable, since the ER Program will not be constructing these items.

200.5 Surveys for Location of Existing Underground Utilities

This section is wholly applicable.

200.6 Construction Staking

This section is not applicable. The ER Program will not be building anything.

200.7 Soil Sampling Points

This section is applicable, although it is recommended that the horizontal accuracies be within 0.1 ft and the vertical accuracy within 1.0 ft. Once the horizontal coordinates have been established, the location should be relatively easy to reestablish if the stake or marker is dislodged or washed away. Additionally, a vertical accuracy of 0.1 ft may not be useful or cost-effective in some instances.

200.8 Building Structures/New Utilities

This section is not applicable.

200.9 Survey Information Submittal

Incorporate the changes outlined above in conjunction with those listed in the manual.

300 Monumentation Standards

This part of the Manual is not applicable, since the ER Program will not be installing permanent control monuments.

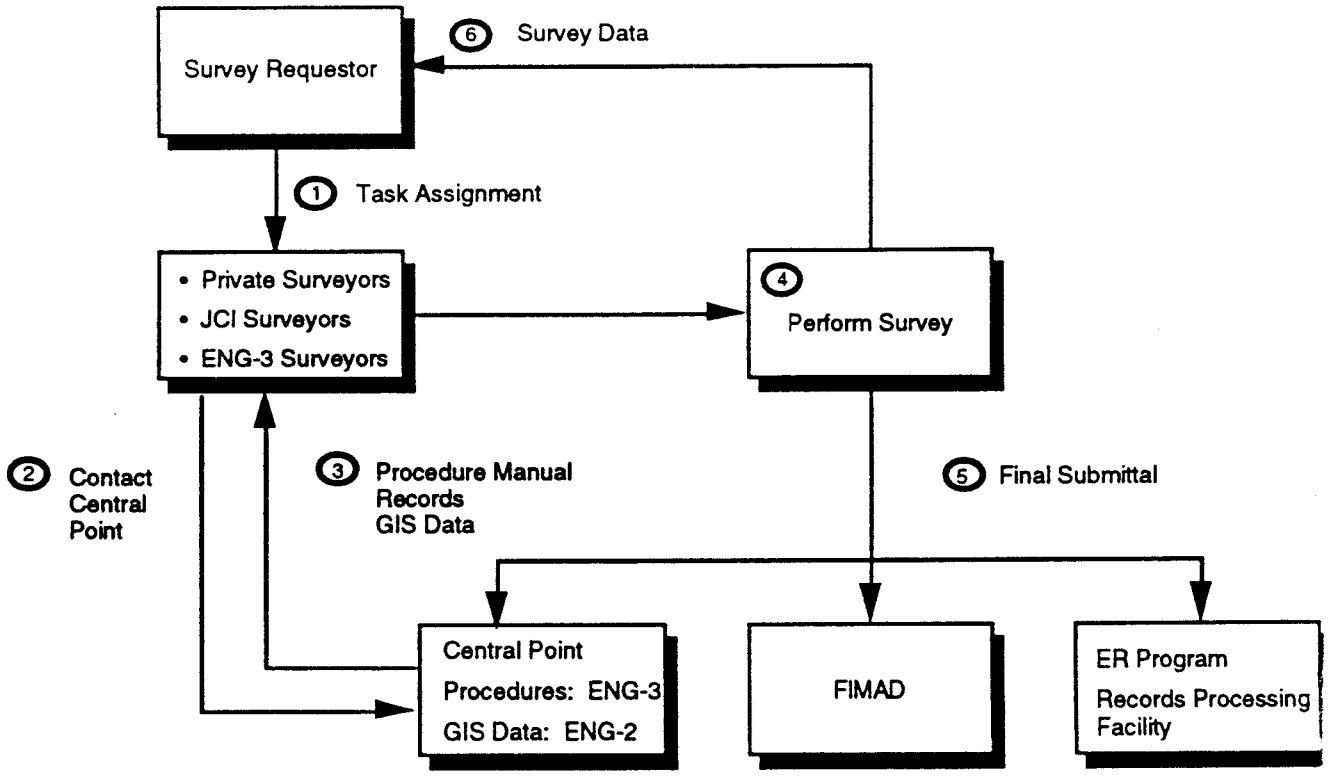
400 Monument Coordinates

This section is wholly applicable to the ER Program.

Miscellaneous

The "Minimum Standards for Land Surveying in New Mexico," included in the back of the Laboratory Survey Manual are wholly applicable. (Standards updated February 2, 1994, or use latest editions.)

Los Alamos National Laboratory Environmental Restoration Program
100.6 SURVEY PROCEDURE FLOW CHART



LOS ALAMOS ENVIRONMENTAL RESTORATION PROGRAM
INTERIM CHANGE NOTICE

EFFECTIVE DATE : (Dist. Date) 2/14/95 ICN No. 006 Page 1 of 1

Document No. 3.01 Rev. 1 Title: Land Surveying Procedures

Reason for Change:

Point of clarification:

Under New Mexico Engineering and Surveying Practice Act, Licensed Professional Engineers or other surveyors with comparable qualifications and demonstrated experience and can perform design, construction, or topographic surveys including photogrammetric methods. Only licensed, Professional Land Surveyors are authorized to perform control, property, easement, or boundary surveys.

Description of Change (Specify page, paragraph, and/or section revised, and clearly write new text to be incorporated in the document).

1) Page 2, Section 2.2, in second line after "Program",

add: control, boundary, property, or easement;

end fourth line after "New Mexico", and

delete: "except when the Field Project Leader or designee is willing to document and accept esponsibility for the deviation in accordance with 6.0 (100.4) of this SOP."

2) Page 5, first line, delete: "The Field Project Leader or designee will then accept any liability resulting from not using licensed surveyor."

3) Page 7, Section 8, replace first line with:

It is the responsibility of the Field Team Leader to submit all records generated by this SOP to the ER Records Processing Facility including:

Change Requested by:	[signature] (Print)	DAVID McINROY (Signature)	1/27/95 (Date)
Functional Reviewer	Dave Bradbury (Print)	[signature] (Signature)	1/18/95 (Date)
Program Manager Approval:	[signature] (Print)	JORG JANSEN (Signature)	1-31-95 (Date)
QPPL (QA review and approval)	[signature] Lawrence A. Souza (Print)	[signature] (Signature)	1/31/95 (Date)

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