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FIELD INVESTIGATION ACTIVITIES AT TA-33

East Site, South Site, NRAO Site, Main Site, and Area 6 Site

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ACRONYMS AND ABBREVIATIONS

CRZ	contamination reduction zone
DRI	direct-reading instrument
DU	depleted uranium
EM	electromagnetic induction
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
EZ	exclusion zone
FTL	field team leader
GPS	Global Positioning System
HE	high explosives
HPT	health physics technician
ICF KE	ICF Kaiser Engineers
LA...C	Los Alamos Medical Center
LANL, Laboratory	Los Alamos National Laboratory
MAG	magnometer/gradiometer
MDA	material disposal area
NRAO	National Radio Astronomy Observatory
OU	Operable Unit
PID	photoionization detector
PPE	personal protective equipment
RadCon	Radiological Control
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RFI	RCRA Facility Investigation
RWP	radiological work permit
SOP	standard operating procedure
SSHASP	site-specific Health and Safety Plan
SSO	site safety officer
SWMU	solid waste management unit
SZ	support zone
TA	Technical Area
VOC	volatile organic compound

Section 1

FIELD INVESTIGATION ACTIVITIES AT TA-33
East Site, South Site, NRAO Site, Main Site, and Area 6 Site

1.0 INTRODUCTION

This report summarizes surveying and sampling activities conducted at Los Alamos National Laboratory (Laboratory), Technical Area (TA)-33 East, South, National Radio Astronomy Observatory (NRAO), Area 6, and Main sites from May 24 through July 15, 1994, and from November 29 through December 2, 1994. This work was part of the Phase I Resources Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Operable Unit (OU) 1122. Figure 1 shows the locations of East, South, NRAO, Area 6, and Main sites within TA-33.

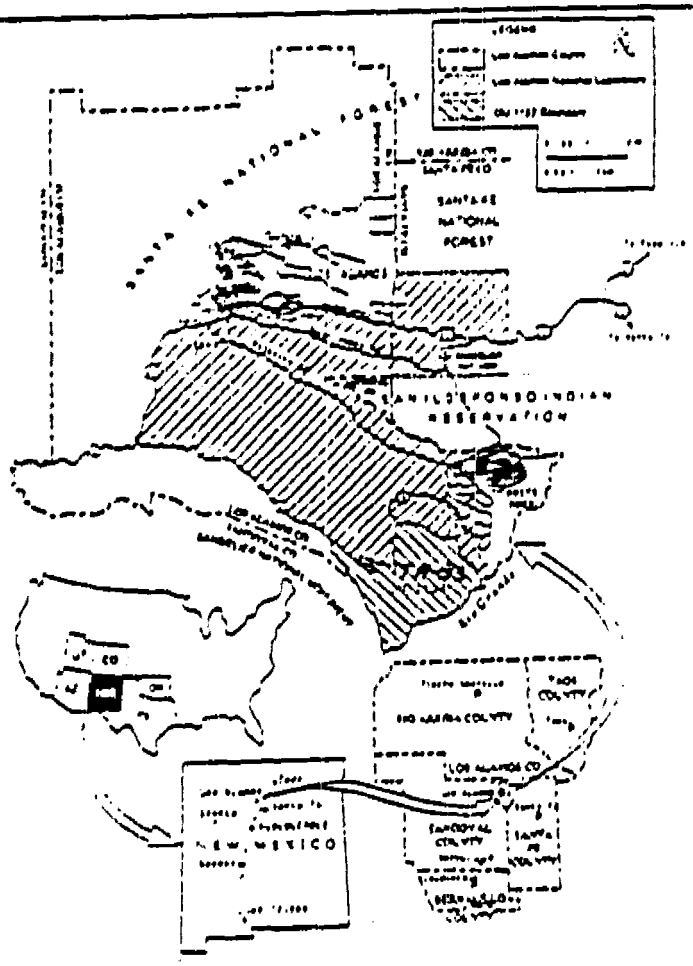
Field activities during this RFI included the following:

- Land surveys
- Radiation surveys
- Geophysical surveys
- Surface soil and sediment sampling
- Structure (e.g., sediments from sumps) sampling
- Shallow subsurface soil sampling (using a hand auger)
- Excavation sampling
- SeaMist™ membrane-filter sampling

The land survey established geodetic control in the form of grids, identifying points for the radiation and geophysics surveys, and coordinates for all sample locations. The radiation and geophysics surveys were implemented so that sample locations based on subsurface structures and elevated (above-background) radiation levels could be determined. During the sampling activities at East Site, South Site, NRAO Site and Area 6, 230 surface soil, 26 subsurface soil, 60 filter, one sludge, and two liquid samples were collected. All sampling information is presented in Exhibit 1.

This summary report includes descriptions of the following:

- Methods for selection of sampling locations
- Field surveys
- Field sampling activities
- Radiation screening during sampling activities
- Decontamination procedures
- Waste management



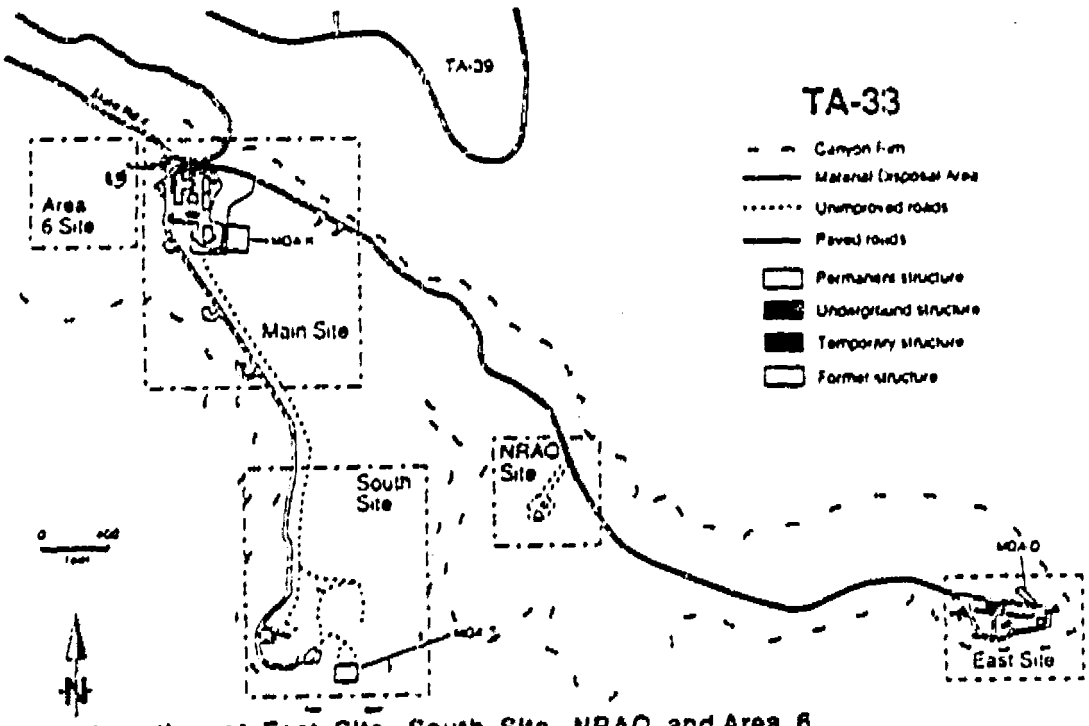


Figure 1. Location of East Site, South Site, NRAO and Area 6

Section 2

2.0 SELECTION OF SAMPLING LOCATIONS

Sample locations at TA-33 were selected using the criteria outlined in the RFI Work Plan for OU 1122 (LANL 1992). The RFI Work Plan identifies selection criteria for locating the following:

- Reconnaissance samples, which provide data that indicate the presence or absence of contamination
- Characterization samples, which provide data needed to complete a baseline risk assessment or to delineate the extent and nature of contamination
- Collocated and neighbor samples, which provide information on the spatial variability of contaminants

2.1 Reconnaissance Sample Locations

Reconnaissance sample locations were selected specifically to maximize the likelihood of detecting any contamination that might be present within the solid waste management unit (SWMU) of interest. The samples were determined, when possible, according to specific site characteristics and professional judgment. For example, samples were collected at sediment catchment areas because these areas would be locations of contaminant accumulation translocated by surface water from upgradient drainages.

Samples were collected from sediment catchment areas at SWMUs 33-006(a), 33-010(d), and 33-004(b). Surface and subsurface soil sample locations were selected next to the septic tanks and leach fields at SWMUs 33-004(b), 33-004(c); and 33-004(m). Excavation and trenching sample locations were selected within berms and catcher boxes located at SWMUs 33-006(b); 33-007(a), 33-007(b), and 33-007(c); 33-B-43; and 33-010(h), where concentrations of potential contaminants were expected.

The reconnaissance sampling scheme also included the selection of biased sample locations using field indicators (e.g., visible stains on the soil and anomalous radiation or geophysical survey measurements). For example, geophysical anomalies identified in the western section of the double berm at East Site were used to assign the locations of two trenches at that site. If no bias criteria were met, then sample locations were selected on a random basis.

2.2 Characterization Sample Locations and Randomization Protocol

Characterization samples were selected within SWMUs of interest without regard to specific site characteristics or professional judgment. Freedom from judgmental influences on selecting sample locations was achieved using grid-based, area-based, and excavation-based randomization protocols.

2.2.1 Grid-based Randomization Protocol

The grid-based randomization protocol used was taken from the U.S. Environmental Protection Agency (EPA) guidance document "Methods for Evaluating the Attainment of Cleanup Standards, Volume 1, Soils and Solid Media" (EPA 1989). This protocol, based on a preestablished regular grid, uses each point of intersection as a reference point from which to choose random sampling locations. It conformed to the following procedure:

1. A random-number generator provides numbers from 0.5x to -0.5x where x is the east-west grid interval distance and from 0.5y to -0.5y where y is the north-south grid interval distance.
2. To determine the sampling location, the resulting values for x and y are used to measure the distances from the intersecting point on the respective north-south and east-west axes.
3. If the resulting location is not feasible (e.g., if it is outside the area that meets the sampling criteria), the randomization process is repeated.

The following SWMUs were sampled using the grid-based randomization technique: 33-006(a) at South Site, 33-011(b) at NRAO Site, and 33-007(a) and 33-003(b) at East Site. (Exhibit 1 provides a summary of sample information.)

Five sample locations at 33-007(a) fell on unobtainable points: 33-007(a)-8, 33-007(a)-12, 33-007(a)-17, 33-007(a)-20. In each of these cases, the procedure was repeated, and a new pair of random numbers was derived for an alternate sampling location. All deviations were recorded in the daily Field Log Notebook.

2.2.2 Area-based Randomization Protocol

An area-based randomization technique was used for those sample locations where a preestablished regular grid was not prescribed in the RFI Work Plan. If a unique reconnaissance sample location could not be identified (i.e., if a biased sample location could not be determined based on specific site characteristics), the location was chosen using the following randomization procedure:

1. North-south and east-west dimensions are measured to establish a rectangle that forms the boundaries of the area.
2. The southwest corner of the rectangle is selected as the origin.
3. Two random numbers between 0 and 1 are generated using a random-number generator.
4. The north-south dimension (y) is multiplied by one random number, and the east-west dimension (x) is multiplied by the other random number.
5. The resulting values for x and y are used to measure the distances from the origin on the respective north-south and east-west axes to determine the sampling location.
6. If the resulting location is not feasible (i.e., if it is outside the area that meets the sampling criteria), the location is discarded, and the randomization procedure is repeated.

Sampling locations within the following SWMUs were determined using this randomization technique: 33-010(d) at East Site; 33-010c and 33-007(b) at South Site (Exhibit 1).

2.2.3 Excavation-Based Radomization Protocol

A randomization technique was used for those sample locations within the trenches where biased sample locations could not be determined (i.e., if no radioactive material, projectiles, debris, etc. were located). The locations were chosen using the following procedure:

1. Random numbers are generated at 5-ft intervals from the origin (toe of the trench) inwardly and horizontally (x axis). The random number between 0 and 1 is generated using a random-number generator and multiplied by 5.
2. Random numbers generated within the above interval in the vertical plane (y axis) have their origin at ground surface. Values may be positive or negative, depending on whether the location was above or below surface. The random number between 0 and 1 is multiplied by the height and/or depth of the trench.
3. The random number in the x plane is between 0 and 5, and the random number in the y plane is between 0 and the specified height and/or depth of the trench.
4. The resulting values for x and y are used to measure the distances from the origins on the respective horizontal and vertical axes to determine the sample location.

SWMU 33-007(b) (Berm at Bunker 25 at South Site), 33-007(a) and 33-006(b) at East Site; and 33-007(c) at Area 6 used this randomization technique (Exhibit 1). Excavation at SWMU 33-010(n) entailed biasing sample locations at the bottom of each trench (i.e., 4-ft depth below ground surface).

2.3 Collocated and Neighbor Samples

Collocated and neighbor samples were collected in the field to provide data for estimating spatial variability of contaminants in surface soils, subsurface soils, and sediments. Collocated samples (designated as field duplicates in the RFI Work Plan) were selected from the following locations:

Site	SWMU	Sample ID
East	33-003(b)-5	AAA9613
	33-007(a)-10	AAA9629
	33-007(a)-5	AAA9623
	33-004(k)-5	AAA9659
	33-010(a)-4	AAA9650
South	33-006(a)-dr-4	AAA9745
	33-007(b)-4	AAA9764
	33-011(c)-2	AAA9756
	33-006(a)-4	AAA9773
	33-004(m)-9	AAA9790
NRAO	33-004(m)-9	AAA9827
	33-011(b)-4	AAA9834

The locations of the collocated samples were established 1 ft north of their respective grid-based sample locations.

Locations of the neighbor samples were determined using the grid-based randomization procedure outlined in Section 2.2, except that the random numbers were constrained within the following ranges:

- From 0.2x to -0.2x where x is the east-west grid interval distance
- From 0.2y to -0.2y where y is the north-south grid interval distance

Neighbor samples were selected from the 4 of the 33 grid-based sample locations at SWMUs 33-006(a): AAA9778, AAA9788, AAA9802, AAA9809 (Exhibit 1). As stated in the RFI Work Plan, these samples will be used to estimate spatial variability on a scale smaller than that of the preestablished regular grids. Doing this will help to determine if enough data was collected either to conduct a baseline risk assessment or to proceed with remediation (LANL 1992a).

Section 3

3.0 FIELD SURVEYS

Land surveys, radiation surveys, and geophysical surveys were conducted at East, NRAO, and South sites to assist in

- establishing geodetic control points and coordinates of sample locations;
- biasing sampling locations to areas that exhibit above-background levels of radioactive contamination; and
- locating subsurface structures.

3.1 Land Survey

The land survey for East, South, and NRAO sites was conducted by ICF Kaiser Engineers (ICF KE) personnel on the following dates in 1993: November 16-20, November 22-24, November 29-30, December 1-3, December 6-8, December 17, and December 21-22. The land survey established geodetic control points at East, South, and NRAO sites from primary Global Positioning System (GPS) survey points published in the Laboratory Survey Procedures Manual (LANL 1993a). Grid systems were then established as required by the RFI Work Plan to identify measurement points for the radiation and geophysical surveys.

Land surveys at Area 6 and a portion of Main Site were conducted by Santiago Romero, Jr., and Associates between February and April 1993. They established geodetic control points from primary survey points set by GPS as published in the LANL Survey Procedures Manual (LANL 1993a). Grid systems were then established as required by the RFI Work Plan to identify measurement points for the radiation and geophysical surveys. Further details are available in the Summary of 1993 Survey and Sampling Activities at TA-33 (LANL 1994b).

Three GPS control points and nine secondary control working points were used to establish the radiation and geophysical survey grids. Hubs and tacks were set at most points; for those points on hard surfaces, P-K nails were set. A Lietz Set-3 Total Station Theodolite Transit with SDR-3 Data Collector was used to conduct the survey. Data was downloaded to an AST Power Premium 4/33 computer using Sokkia/DCA surveying/engineering design software. All points were plotted in the NAD 27 & 83 coordinate system. The land survey report listing the coordinates for all grid markers is presented in Appendix 2.

3.2 Radiation Survey

Radiation surveys were conducted by Environmental Dimensions Inc. at the South, East, and NRAO sites on November 23 through December 2; December 3 through 17; and December 2, 1993, respectively. The surveys were conducted on a fixed grid using the Ludlum Model 2221 44-9 probe and the Ludlum

2221 Fidler probe. Readings were taken on contact with the ground surface every 20 ft. The objective of the surveys was to direct the location of reconnaissance samples if above-background radiation levels were found. Data from the radiation surveys conducted at the South, East, and NRAO sites were recorded on the Daily Activity Logs and Radiation Survey Forms supplied by the Laboratory.

A radiation survey at Area 6, conducted by Altrex Ltd. in conjunction with a survey done at TA-33 Main Site during April 1993, included measurements at approximately 568 grid locations. The Altrex surveys were conducted using a Ludlum Model 12S. Further details are available in the Summary of 1993 Survey and Sampling Activities at TA-33 (LANL 1994b).

Results for the South Site are covered in Section 3.2.1, East Site in Section 3.2.2, and NRAO Site in Section 3.2.3. The radiation survey data are presented in Appendix 3.

3.2.1 South Site

The grid points for the radiation survey at the South Site (Figure 2) were established on 50-ft, 100-ft, and 200-ft uniform spacing at SWMU 33-007(b) (firing site) and SWMU 33-006(a) (drainage channel).

Results. The survey revealed two areas exhibiting elevated radiation. Four elevated readings were located at the berm south of Bunker 25, and one elevated reading was located in the central channel that bisects the site. These readings resulted in the assignment of sample locations at these areas.

3.2.2 East Site

At East Site, a 50-ft grid was established over SWMUs 33-007(a), 33-003(b), and 33-006(b) (gun firing area, shot chamber, and shot pad); 33-004(k) (outfall); and Material Disposal Area (MDA)-D (Figure 3). Additionally, the central drainage channel at East Site was surveyed every 50 ft from beginning to end, along with all sample locations.

Results. No elevated readings were detected.

3.2.3 NRAO Site

At NRAO Site, a 50-ft grid (Figure 4) was established over SWMU 33-011(b) (general storage area) and SWMU 33-004(m) (septic-system leachfield).

Results. No elevated readings were detected.

3.3 Geophysical Survey

ICF KE personnel conducted geophysical surveys at TA-33, East Site and South Site, from April 5 through April 15, 1994. The following is a summary of the geophysical report (Appendix 1).

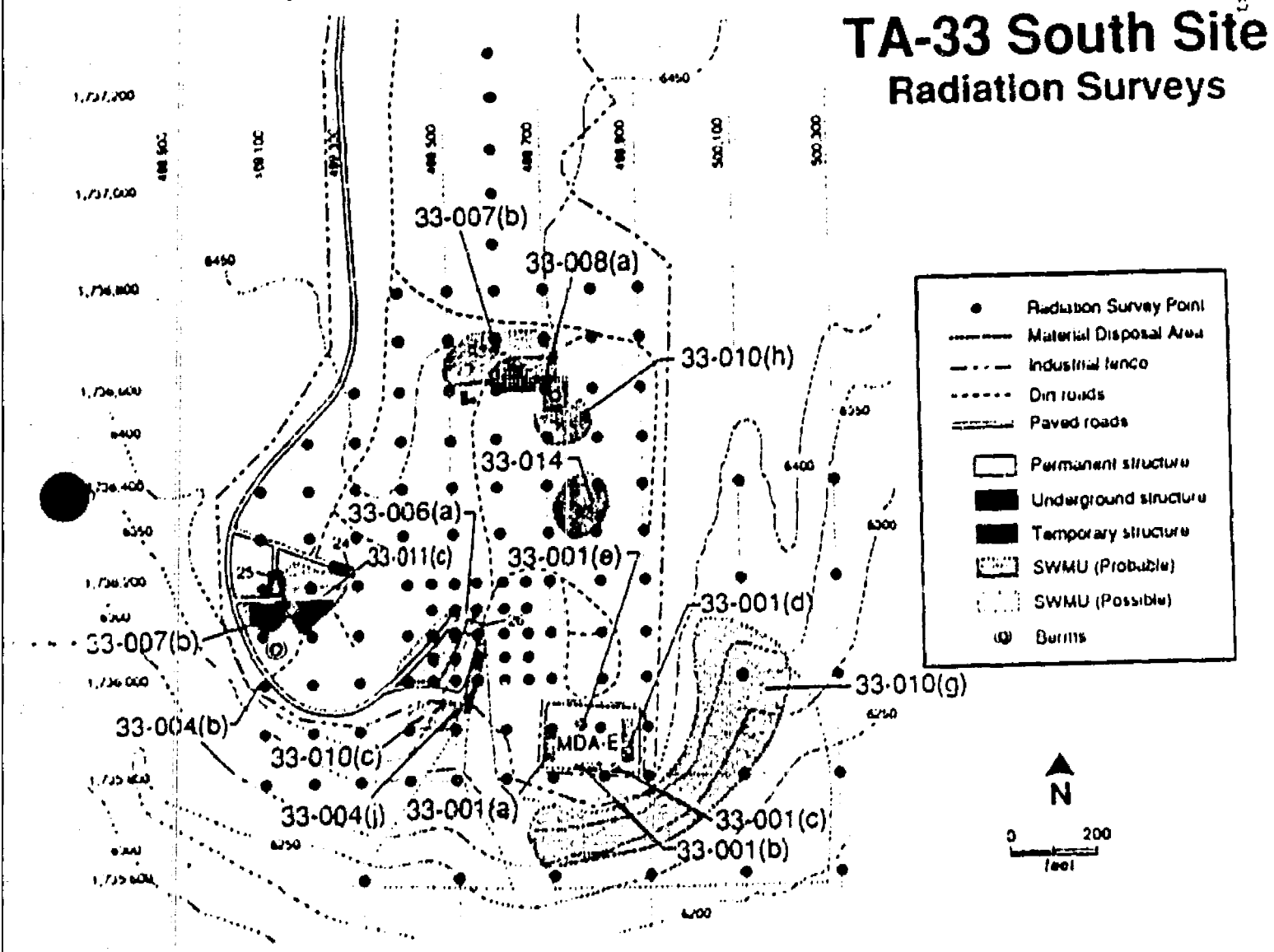


Figure 2. Radiation surveys at South Site

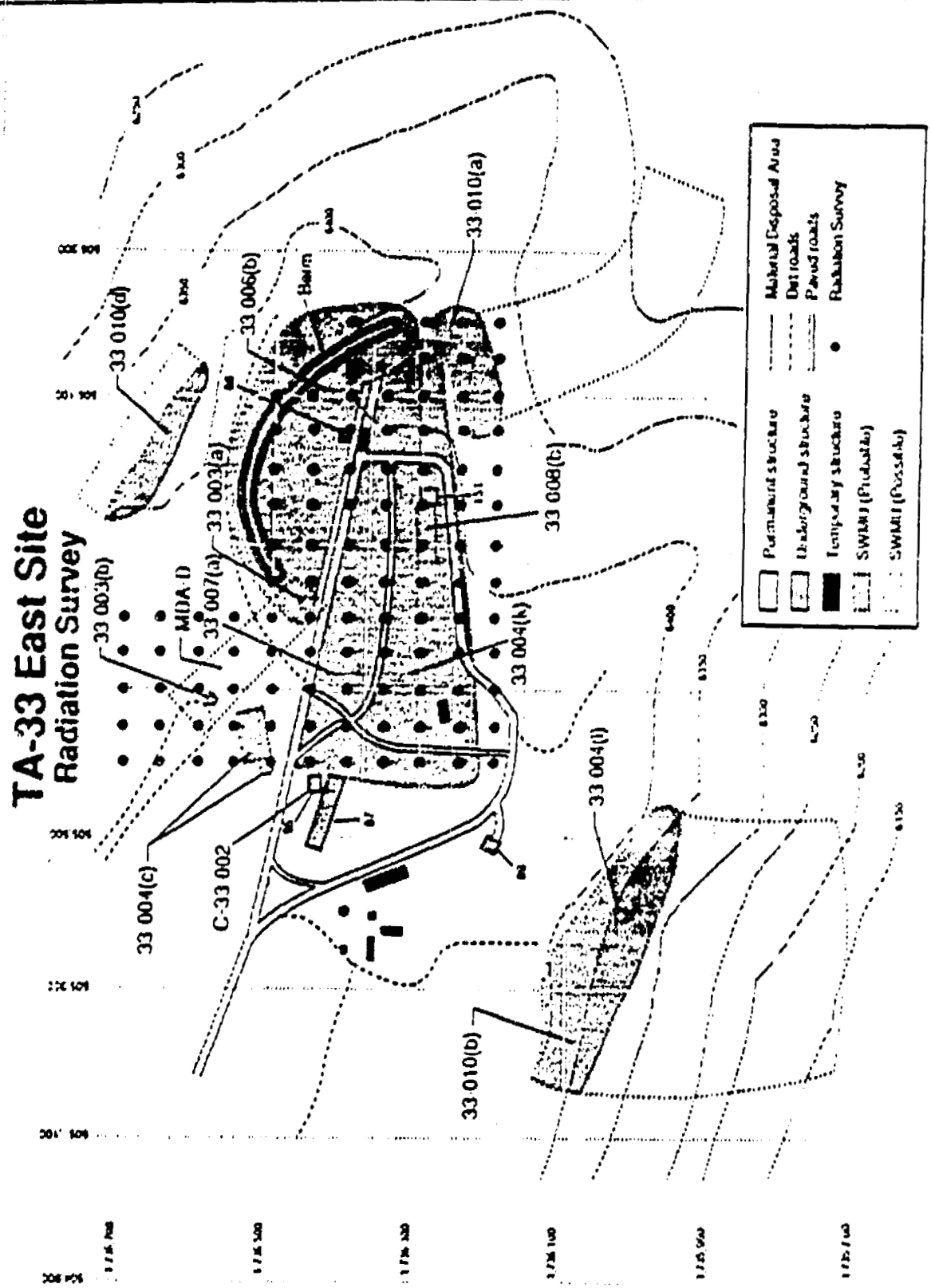
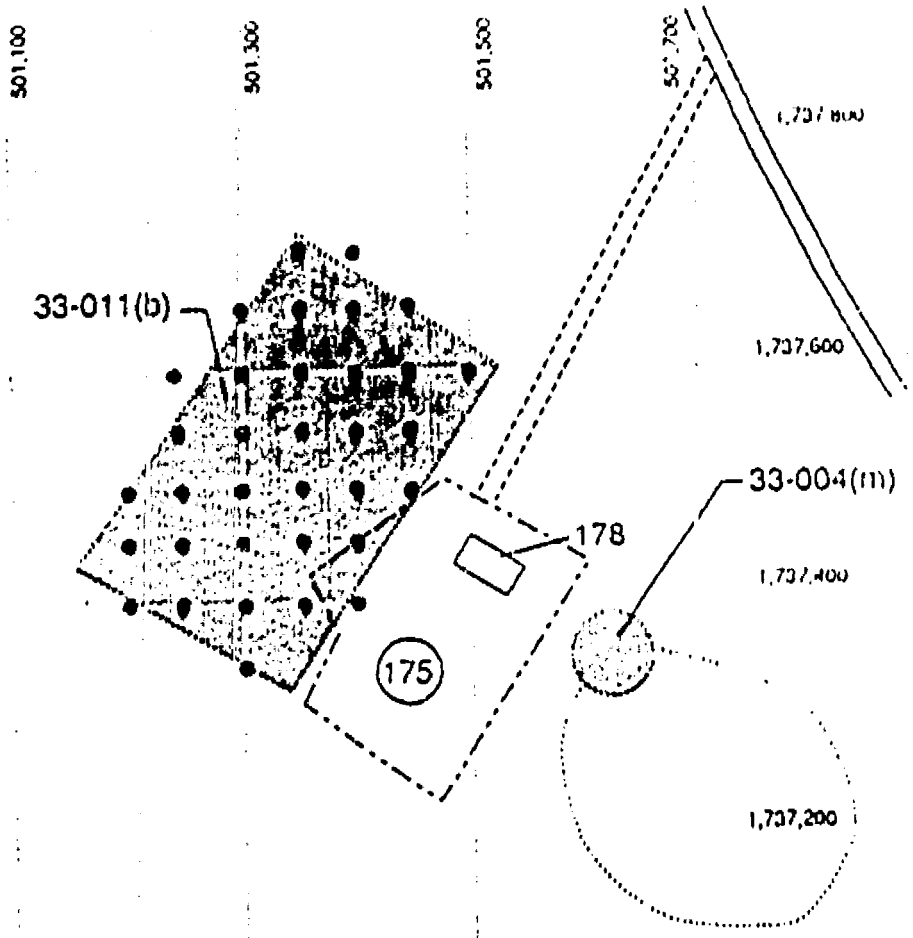


Figure 3. Radiation surveys at East Site

TA-33 NRAO Site
Radiation Survey



- Radiation Survey
- Industrial fence
- Dirt roads
- Paved roads
- Permanent structure
- Underground structure
- SWMU (Probable)
- SWMU (Possible)
- Berms

N

0 200 feet

Figure 4. Radiation surveys at NRAO Site

The surveys investigated SWMUs 33-006(b), 33-008(b), and a portion of 33-007(a) at East Site; and SWMU 33-007(b) at South Site. Electromagnetic induction (EM) and magnetometer/gradiometer (MAG)surveys were performed within these areas. The results of the surveys were used to design a sampling approach and optimally locate subsequent samples. The East Site geophysical surveys assessed the location of geophysical anomalies that might indicate either the presence of buried projectiles (metal objects) or buried metallic and non-metallic debris. SWMU 33-006(b) consists mainly of a large crescent-shaped berm; 33-007(a) consists of a smaller berm. These berms were used for gun tests involving uranium projectiles that often contained other radionuclides. SWMU 33-008(b) had been established in 1984 as a disposal site for a major TA-33 firing site cleanup.

The South Site geophysical surveys were performed to assess the location of geophysical anomalies at 33-007(b) that might indicate the presence of buried projectiles. Historically, the site was used as a firing site for weapons discharging uranium, beryllium, and titanium encased in thin steel shells.

The EM instrumentation consisted of a Geonics EM31-DL ground conductivity meter and an Omnidata data logger. Before performing the EM surveys, zero-calibration and phase-calibration procedures were performed on the EM system and documented. The MAG instrumentation consisted of a GEM GSM-19 proton precession magnetometer/gradiometer. Before the MAG survey, the correct reference field for Los Alamos, NM, was entered into the instrument's memory.

At the end of each field day, the EM and MAG data were downloaded to a floppy disk for further processing. At the conclusion of the survey, the data were collated and processed using Golden Software's SURFER IV© contouring program. EM and MAG contour maps were generated from the data to assess the location of target anomalies. Survey results for East Site and South Site are summarized in Sections 3.3.1 and 3.3.2, respectively.

3.3.1 East Site

Investigation Areas. Three grid systems were established at the East Site (Figure 5). Data were obtained from a 5-ft by 5-ft uniform spacing within each grid. The investigation area for SWMU 33-006(b), approximately 240 ft by 240 ft, encompassed the double berm northeast of TA-33-87 (Large Berm Area). The investigation area for SWMU 33-007(a) was a 50-ft by 200-ft area located south of TA-33-87 that included a single berm (Small Berm Area). The third investigation area, SWMU 33-008(b), was a 70-ft by 240-ft area east of Sandbox TA-33-151 known as the Landfill Site.

Results. Numerous anomalies not associated with known surface structures or objects were detected in the Large Berm Area. The anomalies occurred in two general zones. The first zone extended between 0E, 50N and approximately 200E, 400N. These small-magnitude magnetic anomalies generally occurred

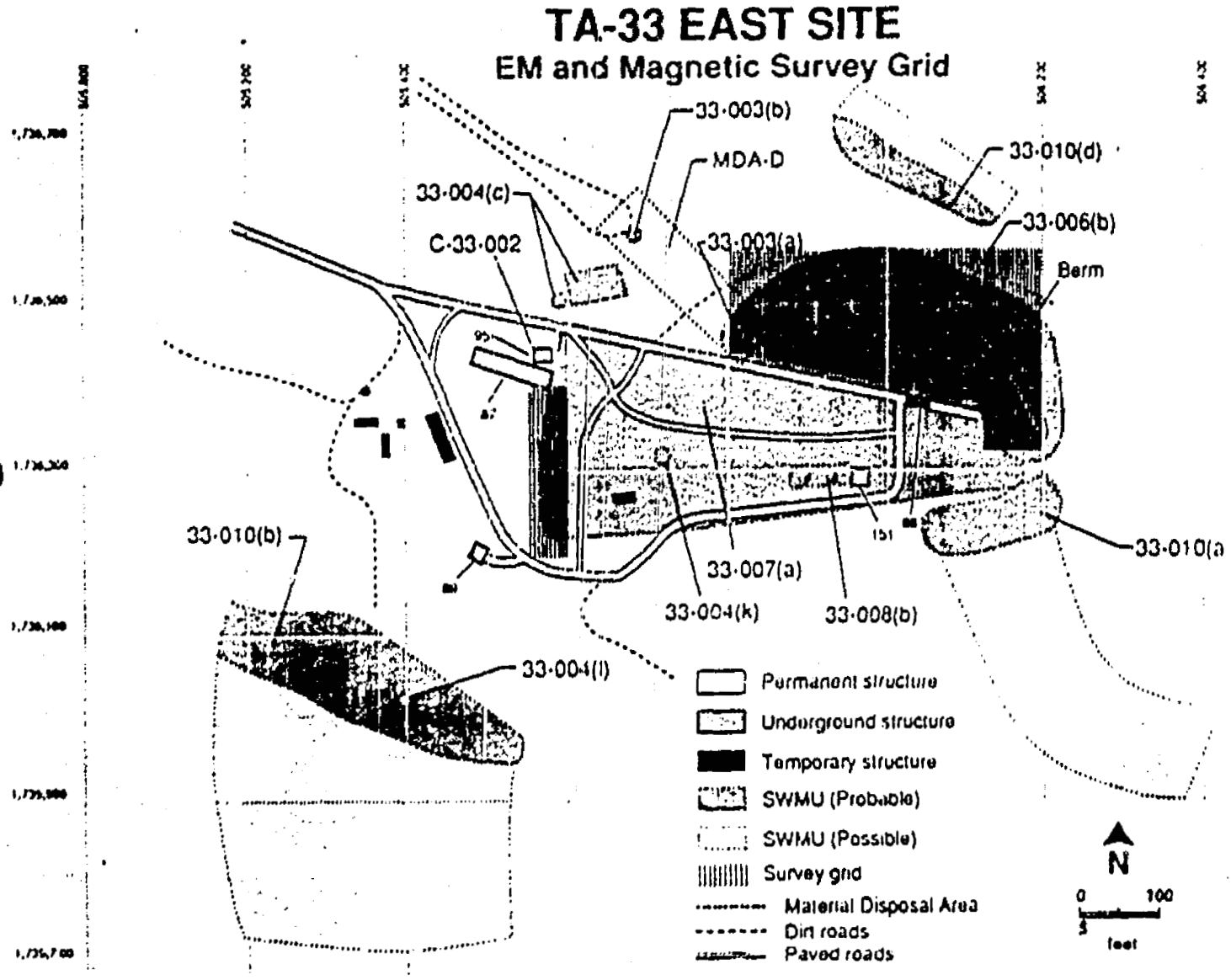


Figure 5. Geophysical surveys at East Site

on the berm material and on the northern slope in that area. The second zone is located between 240E, 340E and between 80N and the northern perimeter of the grid area. A metallic object that resembled apiece of projectile was observed on the surface in the general area.

At the Small Berm Area, two anomalies not associated with surface structures were detected. One was located at 40E, 130N and the other at 45E, 145N. Both anomalies covered small areas and may have been representative of small, buried metal objects. All other anomalies detected in the area coincided with the location of structures/objects located on the ground surface (interference).

Two anomalies not associated with surface structures were detected at the Landfill Site. The most prominent anomalous area occurred between 20E and 60E and between 25N to 55N. No surface structures are associated with that location. The high-magnitude gradiometer measurements in this area are probably caused by a considerable amount of buried ferrous metal or a buried concrete slab with a considerable amount of rebar. One other anomaly, located at 110E, -5N may indicate a possible buried object. However, it is located within 15 ft of a concrete pad that may be causing the anomaly. All other anomalies occurred in areas associated with surface structures/objects or buried utilities. Locations exhibiting geophysical anomalies with no surface features were excavated to determine the cause of the anomaly.

3.3.2 South Site

Investigation Area. The investigation area for SWMU 33-007(b), approximately 250 ft by 400 ft, is located 600 ft north of TA-33-26 (Figure 6). It consists of a 6-ft-square concrete pad (gun mount), a 125-ft-diameter half-circle berm (TA-33-43), and an area west of the berm used to test free-recoil weapons .

Results. Numerous MAG anomalies and generally high gradients were detected throughout the South Site investigation area. Although surface interferences (antennas, trailers, fences, cables, etc.) are located in the area, many of the anomalies occurred in areas of tuff outcrops that are away from other surface features. Because of the occurrence of high-magnetic gradients at these outcrops, the tuff/bedrock is interpreted to contain a relatively high concentration of magnetic or ferrous minerals (magnetite) that interfere with the MAG readings. This was also found other tuff outcrops (e.g., TA-18) within the Laboratory.

One major anomaly, indicated on the EM contour maps, is not associated with any known surface structures or objects. This anomaly is located at approximately 320E, 100N and occurs in a low area surrounded by a crescent-shaped berm covered with loose (fill) material. It is approximately 40 ft long and 20 to 30 ft wide. A magnetic anomaly also occurred at this location. The remainder of the anomalies are associated with the numerous interferences located at the South Site.

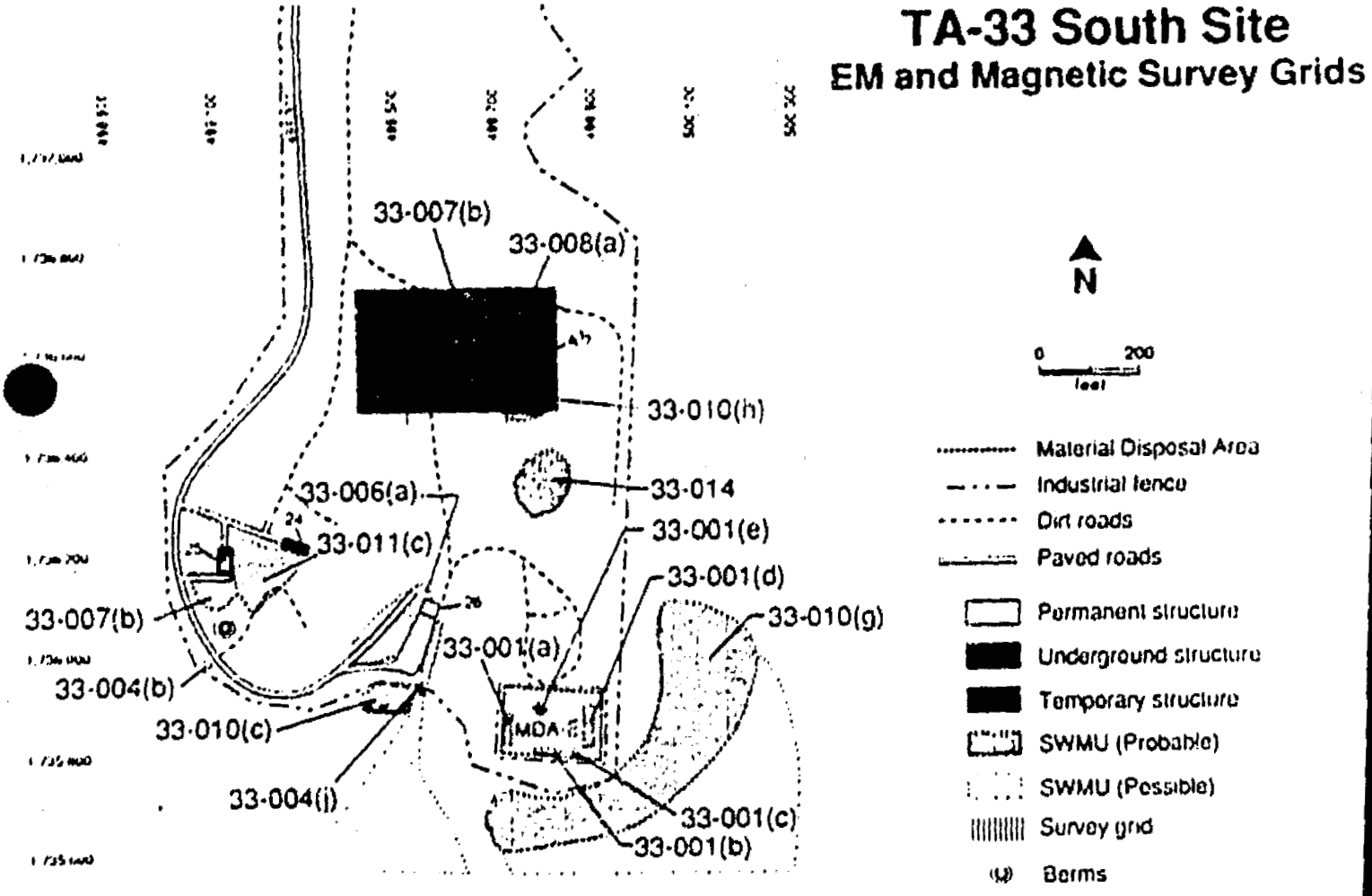


Figure 6. Geophysical surveys at South Site

4.0 FIELD SAMPLING ACTIVITIES

Field sampling for 1994 was conducted at East, South, NRAO, Main, and Area 6 sites from May 24 through July 15 and from November 29 through December 2. Personnel involved with field-sampling activities are listed in Section 4.1; the sampling approach is discussed in Section 4.2; and field documentation is described in Section 4.3. Environmental sampling (described in Section 4.4) consisted of surface soil sampling; fluid and sludge sampling; shallow hand-auger sampling; excavation and trenching; and filter collection. Quality control (QC) sampling (described in Section 4.5) consisted of rinsate blanks and performance evaluation (PE) samples. Section 4.6 lists the samples that deviated from the RFI Work Plan.

4.1 Field Team Members

The sampling team(s) consisted of the following field team members:

Team Member	Role(s)	Organization
Lynn Kidman	Field Team Manager	ICF KE
Linda Fluk	Field Team Leader	ICF KE
Jim Roberts	Field Coordinator	CST-5 (Laboratory)
Mike Powell	Health Physics Technician	EDI
Manly Lee	Health Physics Technician	EDI
Cornelius Flynn	Site Safety Officer	Morrison Knudsen
Ke. 'Hansel	Sampler	ICF KE
Kristi Aamodt	Sampler	ICF KE

The field team members present during any given day are listed in the Field Log Notebook (Appendix 4). Most of the 1994 field sampling at TA-33 was conducted with one sampling team, which typically consisted of the following members:

- A field team leader (FTL)
- A site safety officer (SSO)
- A health physics technician (HPT)
- Two samplers—one to physically take the environmental sample and one to take field notes

4.2 Sampling Approach

Before each sample was taken, the HPT and the SSO checked the undisturbed sample location for the presence of above-background levels of radioactivity and volatile organic compounds (VOC). If VOCs or radioactivity were detected at concentrations or activities above action levels, the site was evacuated, and

sampling procedures for that site were reevaluated. Otherwise, the samplers would proceed to collect the sample(s), document weather and site conditions and sample descriptions, and take photos of every sample location. Photographs documenting site activities are presented in Appendix 20 of this report.

Occasionally during the 1994 sampling activity, two sampling teams conducted sampling simultaneously within two separate areas. Two sampling teams were formed by organizing an additional set of samplers. The FTL, the SSO, and the HPT were common to both sampling teams. The HPT and a FTL (with the appropriate health and safety monitoring equipment) entered the first sampling area and monitored all sample locations for radioactivity and VOCs (where appropriate). If all locations were below action levels, the HPT and SSO (or other field team member) would authorize the first sampling team to proceed with sample collection. This procedure applied to surface soil sampling activities. The HPT and the field team member (with the appropriate health and safety monitoring equipment) then joined the second set of samplers and proceeded to collect samples within the second sampling area as previously described for the one-team approach.

As soon as possible after collection, all samples were cooled with ice packs in portable ice chests in accordance with Laboratory Environmental Restoration Standard Operating Procedure (LANL ER-SOP)-01.02, Sample Containers and Preservation. Samples collected in the morning and mid-afternoon were submitted to both the Laboratory CST-3 mobile radiation laboratory and the CST-3 on-site laboratory on the day of collection. Samples collected in the late afternoon were maintained at the site in a freezer and submitted to the laboratories on the following morning. The mobile laboratory provided radiochemistry screening data for gross alpha/beta and gamma for all samples (Appendix 19)

4.3 Field Documentation

Laboratory ER SOPs were used for all field documentation and sampling activities; these SOPs are listed in Exhibit 2. Field documentation was carried out in accordance with LANL-ER-SOP-1.04, Sample Control and Field Documentation (LANL 1993b). Documentation of 1994 sampling activities at TA-33 provides the necessary evidence to ensure and defend the quality of data derived from the samples. This documentation includes field notes, sample collection logs, and chain of custody forms.

Field notes were recorded in the Field Log Notebook (Appendix 4) during the 1994 sampling activities. The field notes include descriptions of

- field team members for the day's activities,
- general field conditions,
- monitoring and sampling procedures,
- sampling equipment,

- health and safety equipment,
- photograph descr ptions,
- decontamination equipment and practices, and
- other pertinent observations.

Sample Collection Logs were completed for each sample and are presented in Appendix 5. The following information was recorded on these forms:

- Date and time of collection
- Sample identification, type, location, and depth
- Containers used
- Field monitoring results
- Weather conditions at the time of sample collection
- Photograph numbers and descriptions

Chain of Custody/Request for Analysis forms (Appendix 6) were completed at the time of sampling to identify and document those personnel responsible for safeguarding the integrity of the samples. These forms maintain documentation of sample collection, custody chain of analyses requested, and transfer between field personnel and personnel at the CST-3 laboratories.

The FTL submitted the daily field report (Appendix 17) to the ER Project Office to apprise the office of all field activities. The FTL also prepared daily activity reports (Appendix 18) to summarize each day's progress.

4.4 Environmental Samples

Environmental samples taken during the 1994 field sampling activities from the East, South, NRAO Area 6, and Main sites conformed to the RFI Work Plan, except as noted in Section 4.6. The following types of environmental samples were taken:

- Surface samples (Section 4.4.1)
- Fluid and sludge samples (Section 4.4.2)
- Shallow hand-auger samples (Section 4.4.3)
- Excavation samples (Section 4.4.4)
- Filter Collection from Sea Mist™ Membrane (Section 4.4.5)

Detailed descriptions of samples taken during the May through December 1994 sampling activities are presented in the Sample Collection Logs (Appendix 5) and the Field Log Notebook (Appendix 4). Exhibit 1 presents a summary of the samples.

4.4.1 Surface Sampling

All 1994 surface sample collection activities at the East, South, NRAO, and Main sites conformed with LANL-ER-SOP-06.09, Spade and Scoop Method for Collection of Soil Samples (LANL 1992b). No surface samples were collected at Area 6. (Surface samples are defined in the RFI Work Plan as samples taken from the surface to a depth of 6 in.) Surface soil samples were taken from within these depth criteria and within a diameter of approximately 6-8 in. Soil was collected from each sample location using a dedicated stainless steel spoon and bowl. The soil was placed in the stainless steel bowl and homogenized by mixing with the stainless steel spoon. This method was used to collect approximately 230 samples during the 1994 sampling activity. Refer to Exhibit 1 for details on each sample. Section 4.6 discusses deviations from sampling requirements in the RFI Work Plan.

4.4.1.1 East Site

Surface samples were collected at the following localized areas within the East Site:

- Firing site at SWMU 33-007(a)
- Canyonside disposal at SWMU 33-010a, 33-010b, 33-010(d)
- Shot chamber and pad at SWMU 33-003(b), 33-006(b)
- Septic system and leach field at SWMU 33-004(c)
- Drainage areas at SWMU 33-004(k)

No elevated readings for radiation or VOCs were detected during the 1994 surface sampling activities at East Site.

4.4.1.2 South Site

Surface samples were collected at the following localized areas within South Site:

- Septic system and outfall at SWMU 33s
- Firing sites and shot pads at SWMU 33-007(b), 33-006(a)
- Drainage at SWMU 33-006(a)
- Blivit storage at SWMU 33-011c
- Landfill at SWMU 33-008a
- Burn area at SWMU 33-014
- Canyonside disposal at SWMU 33-010c, 33-010g
- Outfall at SWMU 33-004j

Surface samples collected from SWMU 33-008a and 33-010c deviated from sampling required in the RFI Work Plan(see Section 4.6). Surface soil samples from the disposal area at 33-010c were collected to a depth of 1 ft using the spade-and-scoop method.

4.4.1.3 NRAO Site

Surface samples within NRAO Site were collected from the following areas:

- Storage site at SWMU 33-0011b
- Septic system and drainfield at SWMU 33-004(m)

4.4.1.4 Main Site

Surface samples were collected at the following localized areas within Main Site:

- Outfall at SWMU 33-002d
- Drainfield at SWMU 33-004a

Three locations were sampled during the 1993 Phase 1 investigation at SWMU 33-002d, two of which (33-1031 and 33-1033) were found to contain tritium. The purpose of resampling these locations was to determine if the tritium activity is changing over time.

During the 1994 collection activities at SWMU 33-002d, attempts were made to find location 33-1032 (located between 33-1031 and 33-1033). However, the stake marking this location is believed to have been moved during deep drilling activities, and therefore this location could not be located and resampled. A soil sample was collected from the general vicinity and is being analyzed for tritium.

4.4.1.5 Elevated Readings for Surface Samples

Thirteen surface sample locations at South Site showed elevated radiation readings; these are detailed in Exhibit 3. Background readings for beta/gamma in the area is 80-120 cpm.

4.4.2 Fluid and Sludge Sampling

All fluid and sludge sample collection activities at the East, and NRAO sites during 1994 conformed to LANL-ER-SOP-06.15, Coliwasa Liquid Waste Sampler for Liquids and Slurries (LANL 1992c). A HAZCO Teflon™ mucksucker sampler was used to collect fluid and sludge samples from septic tanks and sumps. The translucent plastic sampler consisted of a sampling tube, a stop-cock, and a closure system. The sampler was inserted into the tank, and the fluid or sludge was drawn up and transferred directly to the appropriate sample container(s). Refer to Section 4.6 for deviations from sampling requirements to the RFI Work Plan.

During the 1994 sampling activities, one fluid sample was collected from the septic tank at SWMU 33-004(c) (East Site) using this method. This sample was easily obtained with the 3-ft long mucksucker sampler, either directly or with the aid of an extension. A sludge sample for this septic tank was not collected because no sludge was found in the tank. The bottom of the tank was scraped with a spoon attached to an 8-ft pole. All that was encountered was gravel lining the bottom of the tank.

Using the mucksucker method, one fluid and one sludge sample were collected from the NRAO site from the septic tank at SWMU 33-004(m). This septic system was active at the time of sampling, and both the liquid and sludge samples were easily obtained.

For South Site, the RFI Work Plan states that fluid and sludge samples will be taken at Septic System TA-33-33 (SWMU 33-004(b)). No fluid or sludge was encountered at this septic tank. The sampling team was about to attempt sampling the dry sediment when dead rodents were observed at the bottom of the tank. Because of the potential hanta virus biohazard, the sampling team closed the tank lid, left the area, and sought guidance from the Laboratory Industrial Hygiene Group (ESH-5).

4.4.3 Shallow Hand-Auger Sampling

All shallow hand-auger sample collection activities at the East, South, Main, and NRAO sites during 1994 conformed to the procedures described in LANL-ER-SOP-06.10, Hand Auger and Thin-Wall Tube Sampler (LANL 1992d). Subsurface soil samples were recovered from depths up to 10 ft using a stainless steel hand-held auger that was manually driven into the soil. The soil or sediment was removed from the auger, placed into a stainless steel bowl, and homogenized with a stainless steel spoon. Fifteen samples were collected using this method during the 1994 sampling activities.

The RFI Work Plan required collecting a total of three samples from each hand-auger borehole at the following depths:

- The soil surface
- The bottom of the structure (e.g., tank bottom)
- Either 3 ft below the structure or at the soil/tuff interface, whichever is shallower (LANL 1992a, 0784).

If the soil/tuff interface was encountered before all of these criteria were met, a final sample was taken at the point of encounter. Therefore, the number of samples taken from any borehole was often limited by the depth of the soil/tuff interface (e.g., where the soil/tuff interface was encountered within 6 in. of the surface, only one sample was collected).

4.4.3.1 East Site

The location of the drain field associated with Septic Tank TA-33-96 (SWMU 33-004[c]) was determined by digging a shallow (2-to-3 ft) trench that bisected the expected location of the drainfield. A section of fill material was found in the transection, and the sample team determined that this was the drainfield fill material. Boreholes were hand-augered to the depth of the soil/tuff interface, which ranged from 3 to 8 ft. No structures such as tanks, pipes, or leach field tiles were encountered during the augering.

4.4.3.2 South Site

The location of the drainpipe associated with Septic Tank TA-33-33 (SWMU 33-004[b]) was known because of the tank's visible outfall pipes. Two borehole locations were sampled. The first borehole location was 5 ft south of the tank. The hole was hand-augered to a depth of 5 ft, where concrete was encountered. The second borehole was located approximately 6 ft from the tank, in line with the outfall pipes. The hole was hand-augered to a depth of 4 ft, where the soil/tuff interface was met.

Eight attempts were made to drill to a depth of at least 12 ft below the tank, but all attempts failed. Therefore, a decision was made to collect from the two deepest boreholes, which were 4 ft and 5 ft, respectively, where the soil/tuff interface or concrete was met. No other drainpipes, leach-field tiles or other structures were encountered.

4.4.3.3 NRAO Site

Boreholes were manually driven with the hand auger next to and along the drainpipe. The drainpipe associated with Septic Tank TA-33-179 (SWMU 33-004[m]) was located by manually digging holes adjacent to the tank. A drainage pipe, which drained to the north of the septic tank, was located at a depth of 3 ft. Three boreholes were then each manually driven with the hand auger to a depth of 4 ft. One borehole was located next to the septic tank, and two were located in the drain field north of the septic tank. The soil/tuff interface was encountered at the depth of 4 ft at all the borehole locations. Samples were collected adjacent to gravel/fill material.

4.4.3.4 Main Site

Activities at Main Site in 1994 followed up the earlier investigation of SWMU 33-004(a) to locate the drainfield pipes or leach-field tiles associated with Septic Tank TA-33-31 . The location of the drainfield associated with Septic Tank TA-33-31 was first determined by augering every foot along a transect that crossed the drainfield. A 4-in. vitrified clay pipe was located at a depth of approximately 3 ft. This pipe runs in a north-south direction and is laid out in 3-ft sections.

A construction map of the drainfield (Appendix 4) indicates 10 north-south-running pipes, each approximately 80 ft long and spaced 10 ft apart. These pipes connect to a manhole via an east-west-running feeder pipe.

By excavating with a shovel, a total of five north-south-running pipes were located at their intersection with the feeder pipe. Four soil samples were collected from different pipes spaced as much as 60 ft apart — three were located approximately 3 ft from the feeder pipe, and one was approximately 30 ft from the feeder pipe. All samples were collected from joints in the clay drainpipe sections.

4.4.4 Excavation Sampling

All trenching and logging activities at Area 6, South, and East sites conformed to LANL-ER-SOP-03.10, Trenching and Logging, (LANL 1993e) as well as to LANL-ER-SOP-06.09. A backhoe excavated a total of 10 trenches at berms, catcher boxes, and a disposal area. Biased and random samples were collected as discussed in Sections 2.1 and 2.2.3, respectively.

Trenching was performed

- to remove pieces of projectiles, debris, or cinders;
- to categorize the materials found;
- to measure the volumes; and
- to collect both random and biased samples from the trench and its sides.

Excavated material was examined for radiation and volatile constituents. Pieces of projectiles and debris were located within the trenches by

- excavating soil with the backhoe bucket,
- placing the soil in a pile on the upwind side of the trench,
- exposing as much soil as possible by moving with a shovel,
- scanning the soil with a metal detector, and
- monitoring for radiation and volatile constituents with handheld meters.

A high-pressure water sprayer was used to minimize dust by soaking the ground during excavation activities. Refer to Section 4.6 for a discussion of deviations in sampling and excavating procedures from the RFI Work Plan.

4.4.4.1 South Site

Trenching at SWMU 33-010(h). The purpose of the trenching activities at the South Site disposal area 33-010(h) was to categorize material found under the surface. Sample locations were biased toward large pieces of debris. The backhoe was used to scrape 6 to 12 in. of soil along a north-south transect in line with Berm 43. No debris was located during the scraping, so two trench locations were selected at one-quarter and three-quarters distance from the start of the transect. Two small trenches, each approximately 3 ft by 3 ft, were dug to a depth of 4 ft. No pieces of debris were found at these locations. Samples were collected at the bottom of each trench (4-ft depths).

Trenching at Catcher Box, SWMU 33-007(b). The trench at Catcher Box 33-007(b) was excavated 21 ft inward from the toe of the trench, 7 ft above ground surface, and 2 ft wide (the approximate width of the backhoe bucket). No pieces of projectiles were found; therefore, no biased samples were collected from the trench.

Trenching at Berm 43, SWMU 33-007(b). The trench at Berm 43 was excavated 20 ft inward from the toe of the trench, 6 ft above and 9 ft below ground surface, and 2 ft wide (the approximate width of the bucket). One piece of shrapnel, approximately 3 in. by 1 in., was located within the trench. A metal mat, approximately 6 ft by 4 ft, was pulled up with the backhoe bucket from the side of the berm. The shrapnel and mat contained no elevated counts using the direct-reading beta/gamma instrument.

Biased soil samples were collected from around the piece of shrapnel and the mat; all other samples were unbiased.

Trenching at Bunker 25 Berm, SWMU 33-007(b). The berm located south of Bunker 25 was known to be contaminated with depleted uranium (DU) prior to the start of trenching activities. A radiation work permit (RWP) was obtained from the Laboratory Health Physics Operations Group (ESH-1) for the excavation activities. Dust suppression was accomplished by running a sprinkler down the berm overnight. A high-pressure water sprayer was also used to minimize dust by soaking the ground during excavation activities.

The trench south of Bunker 25 was excavated 28 ft inward from the toe of the trench,12.4 ft above ground surface, and 2 ft wide (the approximate width of the bucket). DU, ranging in diameter from 0.4 in. to 1 in., was found within the trench. A large pocket of DU was found from the toe of the trench inward 5 ft and from ground surface to 5 ft above ground surface. Activity of the DU ranged from 5,000 to 100,000 cpm beta/gamma. A piece of shrapnel with a reading of 500 cpm beta/gamma was found approximately 11 ft in and 4 ft above ground surface. Charred wood was found scattered throughout the trench.

Two biased samples were collected from areas where DU was found. All other samples were collected in accordance with protocol discussed in Section 2.2.3 of this report.

Because of the extent of DU contamination within this berm, the trench was backfilled and the area will be revisited in the future. Data obtained from the trenching and sampling activities will be used to characterize the berm for future cleanup decisions.

4.4.4.2 East Site

Trenching at SWMU 33-007(a). The trench at SWMU 33-007(a) was excavated 19 ft inward from the toe of the trench, 10 ft above ground surface, and 2 ft wide (the approximate width of the bucket). No projectiles or debris were found, however a pocket of sand was discovered approximately 5 ft above ground surface.

No contamination or debris was found to base biased sample locations. Random samples were collected in accordance with protocol discussed in Section 2.2.3 of this report.

Trenching at SWMU 33-006(b), West Berm (Double Berm). The trench at SWMU 33-006(b) was excavated approximately 20 ft inward from the toe of the trench, 8 ft above ground surface, and 2 ft wide (the approximate width of the bucket). Four pieces of projectiles were found in the berm. Biased soil samples were collected from around the projectiles. Additional random samples were collected in accordance with protocol discussed in Section 2.2.3 of this report.

Trenching at SWMU 33-006(b), East Berm (Double Berm). The trench at SWMU 33-006(b) was excavated approximately 20 ft inward from the toe of the trench, 8 ft above ground surface, and 2 ft wide (the approximate width of the bucket). No projectiles or debris were found in the berm to base biased sample locations. Additional random samples were collected, in accordance with protocol discussed in Section 2.2.3 of this report.

Trenching at SWMU 33-006(b), North Side of the Double Berm. Two trenches were excavated on the north side of the Double Berm where anomalies were detected during the East Site geophysical survey. The excavation was conducted to determine whether projectiles were present and were the cause of the anomalies.

The first trench, located at anomaly #3 (approximately 90E, 50N [Appendix 1, Figure 2]) was dug 18 ft inward from the toe of the trench, 8 ft above ground surface, and 8 ft wide. No projectiles or debris were located, however a large (10-ft by 8-ft) block of tuff was located.

The second trench, located at anomaly # 4 (120E, 70N [Appendix 1, Figure 2]), was dug 20 ft inward from the toe of the trench, 15 feet above ground surface, and 10 ft wide. No projectiles or debris were located; however, several large blocks of tuff measuring 2 to 4 ft in diameter were located near the ground surface.

A geophysicist was contacted to verify that the location of the anomalies corresponded with the location of the trenches. He determined that the occurrence of high magnetic gradients at bedrock (tuff) and the high concentration of magnetic or ferrous minerals within the rock could have interfered with the MAG readings, causing the geophysical anomalies.

4.4.4.3 Area 6

Two catcher boxes were dismantled with a backhoe, and the material within the boxes was characterized.

Western Catcher Box at SWMU 33-007(c). The trench within the western catcher box was excavated approximately 7 ft inward from the toe of the trench, 5 ft above ground surface, and 5 ft wide (the approximate width of the catcher box). Four solid metal cylinders and one metal cap were found at approximately 7 ft inward from toe of the trench, 4 ft above ground surface, x=7 ft, y=+4 ft. One cylinder was 1 ft long and 3 in. in diameter. The other cylinders were 6 in. long and 3 in. in diameter. The metal cap

was 3 in. in diameter and 0.5 in. long. Material suspected to be DU, with an activity of 13,000 cpm beta/gamma, was found at approximately 3 ft inward from the toe of the trench, 2 ft above ground surface.

Because of the high activity, all work was stopped and ESH-1 was contacted so that an RWP could be processed to finish backfilling the catcher box and to excavate in the eastern catcher box. The excavated soil containing the suspected DU was wrapped in a tarp and placed back in the trench. The rest of the excavated soil was placed on and covered with tarps to prevent the spread of contamination.

Biased soil samples were collected from around the cylinders and the DU. Additional random samples were collectedin accordance with the protocol discussed in Section 2.2.3 of this report.

Eastern Catcher Box at SWMU 33-007(c). The trench within the eastern catcher box was excavated approximately 7 ft inward from the toe of the trench, 5 feet above ground surface, and 5 ft wide (the approximate width of the catcher box). A large solid metal cylinder 12 in. long and 3 in. in diameter was found between the two catcher boxes. Material suspected to be DU with an activity of 135,000 cpm beta/gamma was found at this same location.

Biased soil samples were collected from around the cylinder and the DU. Additional random samples were collected in accordance with protocol discussed in Section 2.2.3.

Because of the extent of DU contamination found within the two catcher boxes, the trenches were backfilled; this area will be revisited in the future. Data obtained from the trenching and sampling activities will be used to characterize the catcher boxes for future cleanup decisions.

4.4.4.4 Elevated Readings for Trench Samples

Thirteen sample locations at South Site and Area 6 showed elevated radiation readings (Exhibit 3). Background readings for beta/gamma in the area is 80-120 cpm.

4.4.5 SeaMist™ Membrane - Filter Sampling

The SeaMist™ Membrane sampling was a follow-up investigation conducted to determine the moisture content and tritium activity throughout the depth of Borehole #2 at MDA-K, Main Site. Work was conducted at Borehole #2 from October 14 through November 30, 1994, in three stages:

- Stage 1 - installation of the membrane
- Stage 2 - monitoring of the membrane
- Stage 3 - removal of the membrane and sample collection.

The SeaMist™ membrane was installed by Cherrington EVI Environmental on October 14, 1994. It contained approximately 60 1-ft by 1-ft absorbent filters three-eighths to one-quarter-inch thick. These

felt-like filters were placed at 5-ft intervals within the membrane, which is approximately 300 ft long. The membrane was monitored for electrical resistivity on a weekly basis from installation to removal.

Membrane removal and filter sampling occurred on November 29, 1994. The membrane was removed from the borehole by a cord attached to the inside of the deepest end of the membrane. As the cord was reeled out of the hole, the membrane was pulled into a blue tube with the inside of the membrane facing out, and the tube was reeled onto a large spool. The filled spool was moved to a secluded roadway (the road leading to the southern tip of TA-33) where the tube and the membrane were unreeled. Using air pressure, the membrane was forced from the tube, its outside and the attached filters exposed, onto clean plastic sheeting. Each filter was collected and placed inside a 1-L plastic bottle as soon as it was exposed, and submitted for tritium and moisture analysis. A more detailed explanation is found in Appendix 4.

4.5 Quality-Control Samples

Field QC samples were collected during all 1994 field-sampling activities at TA-33 to provide the means of assessing the quality of the resultant data. Field QC samples — rinsate blanks, PE field blanks, and field duplicates— were collected during the investigation as specified and defined in the site-specific Quality Assurance/Quality Control (QA/QC) Plan (Appendix 14). All QC samples were collected at a frequency of 1 per 20 to 1 per 32 samples.

Rinsate blanks. Rinsate-blank samples were submitted to check for cross-contamination of samples from decontamination procedures. After nondedicated equipment was decontaminated, it was rinsed with CST-3-issued deionized and distilled water, which was collected in dedicated stainless steel bowls. Rinsate-blank samples from this water were collected under the same conditions as the environmental field samples.

Performance evaluation field blanks. PE samples were used for the following reasons:

- To check for contamination that may have been introduced from ambient conditions or improper handling procedures
- To check on laboratory recovery of metals and radioactive constituents in order to evaluate matrix effects
- To provide information on how well the analytical procedures work typical on-site soils

Since the majority of the samples collected at TA-33 are soil, the PE blanks were of soil matrix. Material for the PE soil samples were purchased from off-site sources. Inorganic Ventures, Inc. provided soil spiked with known concentrations of inorganic constituents suspected to be present at TA-33. Idaho National Engineering Laboratory provided soil spiked with known amounts of radioactive and metal constituents

suspected to be present at TA-33. The PE soil was supplied in bulk and placed in sample containers along with the environmental samples.

Field duplicates. Collocated samples served as field duplicates and were collected 1 ft north of their respective sample location. The purpose of the samples is to provide data to evaluate contaminant variability, to meet the criteria of variance parameter estimates, and to evaluate the data's completeness, representativeness, and comparability.

4.5 Deviations from RFI Work Plan

Some of the sampling procedures deviated from those specified in the 1132 RFI Work Plan. The following sections identify these procedures and discuss the data quality objectives for the modified procedures. If sampling procedures were modified, these changes were noted in the Daily Field Log Notebook (Appendix 4).

SWMU 33-004(c). A sludge sample was not collected from SWMU 33-004(c), a septic system, because the structure did not contain sludge.

SWMU 33-006(b) and 33-007(a). The work plan specifies excavating to depths of 4 ft and collecting samples from given depths within the 4-ft profile. The work plan also specifies submitting samples of the projectiles recovered in each pile for laboratory analysis.

The field unit members changed the objective of sampling in the berms to better characterize the excavated areas. The depths of the trenches (which included the vertical extent of excavation above ground surface) ranged from 8 ft to 15 ft, as opposed to the required 4-ft depths. Rather than sampling the projectiles recovered from the debris pile, soil surrounding the projectiles was collected for analysis. This soil characterization better represents the presence of contamination, which most likely is attributable to transport from the projectiles. The number of samples collected was equal to or greater than the number called for in the work plan.

Biased and random samples were collected from SWMU 33-006(b); random samples were collected from SWMU 33-007(a). Since no projectiles were located in SWMU 33-007(a) to bias sample locations, characterization of the soils will provide data needed to complete a baseline risk assessment.

Two additional trenches were excavated on the north side of the double berm at SWMU 33-006(b), where anomalies were detected during the geophysics survey. This additional excavation was conducted to determine whether projectiles were present and were the cause of the anomalies.

SWMU 33-008b. This SWMU, a nonradioactive landfill at which the RFI Work Plan required two trenches to be excavated, was not sampled during the 1994 sampling activities. It was determined that the backhoe was not sufficient to excavate the large material expected to be within the landfill. A new sampling plan will be developed to better address the sampling needs of the landfill, and sampling activities will be conducted at a later date.

SWMU 33-004(b). Sludge and liquid samples were not collected from SWMU 33-004(b), a septic tank, because the structure contained neither sludge nor liquid.

SWMU 33-006(a). An additional sample (33-006(a)-40), which was not required by the RFI Work Plan, was collected from the top of the shot pad. The objective of collecting this sample was to further characterize the contamination from the implosion location.

SWMU 33-007(b). Additional samples (33-007(b)-10 through 12), which were not required in the RFI Work Plan, were collected from the drainage leading to the canyon. The objective of collecting these samples was to characterize runoff from the berm next to Bunker 25.

SWMU 33-008a. SWMU 33-008a, a nonradioactive landfill at which the RFI Work Plan required two trenches to be excavated, was not sampled during the 1994 sampling activities. Three surface samples were collected from the toe of the landfill to determine if there was run-off from the fill area. A new sampling plan will be developed to better address the sampling needs at the landfill, sampling activities will be conducted at a later date.

SWMU 33-010(b). The work plan specifies excavating to depths of 4 ft and collecting samples from given depths within the 4-ft profile. The work plan also specifies submitting for laboratory analysis samples of each type of material recovered.

Discarded material reportedly was scattered along the mesa surface at this SWMU; however, no surface debris was observed. Therefore, excavation procedures were changed to increase the likelihood of locating subsurface debris. Members of the field unit changed the procedures for sampling the debris pile to better characterize the pile.

SWMU 33-010c. The work plan specifies excavating to a depth of 4 ft and collecting samples within the 4-ft profile. The work plan also specifies submitting for laboratory analysis samples of each type of material recovered.

Since contamination was detected in previous studies, the objective of this investigation was to determine whether to conduct a corrective action or to request No Further Action finding based on a site risk assessment. Because the pile material is believed to be the same on the surface as below it, a decision

was made to collect surface, rather than subsurface, samples for reasons of health and safety and expediency. Six locations, as opposed to one trench location, were sampled to better characterize the pile.

SWMU 33-007(b), Berms. The work plan specifies excavating to a depth of 4 ft and collecting samples within the 4-ft profile. The work plan also specifies submitting for laboratory analysis samples of each type of material recovered.

Members of the field unit changed the procedures for sampling the berms to better characterize the excavated areas. The depth of the trenches (including the vertical extent of excavation above and below ground surface) were 4 ft and 15 ft, as opposed to the required 4-ft depths. Rather than collecting samples of each type of material recovered from the excavated area, soil surrounding each piece of material was collected for analysis if material was found. This soil characterization better represents the presence of contamination, which most likely is attributable to transport from the debris. The number of samples collected were equal to or greater than the number called for in the RFI Work Plan. Biased and random samples were collected from the berm next to Bunker 25. Random samples were collected from the catcher box because no debris or projectiles were located to bias-sampling location.

SWMU 33-007(c). The work plan specifies excavating to depths of 4 ft and collecting samples from within the 4-ft profile. The work plan also specifies submitting samples of the projectiles recovered in each pile for laboratory analysis.

Members of the field unit changed the procedures for sampling the berms to better characterize the excavated area and to consider conducting a cleanup during the investigation period. The depth of the trenches (which included the vertical extent of excavation above ground surface) was 5 ft as opposed to the 4 ft specified in the work plan. Rather than collecting samples of the projectiles recovered from the excavated area, soil surrounding the projectiles was collected for analysis. This soil characterization better represents the presence of contamination, which most likely is attributable to transport from the projectiles. The number of samples was equal to or greater than the number called for in the work plan. Bias and random samples were collected for the excavated areas. Characterization of the soils will provide data needed to complete a baseline risk assessment.

Section 5

5.0 HEALTH AND SAFETY

Health and safety monitoring was conducted to protect field workers from suspected or known physical, chemical, and radiological hazards during on-site operations. This section discusses field monitoring for physical and chemical hazards. Field monitoring for radiological hazards is discussed in Section 6.0. General heath and safety requirements are described in Section 5.1, direct-reading instrument (DRI) monitoring is described in Section 5.2, and other personal monitoring is described is Section 5.3.

5.1 Health and Safety Requirements

5.1.1 Health and Safety Plan

A site-specific health and safety plan (SSHASP) was prepared to establish procedures, minimum safety and health requirements, and emergency actions for all personnel involved in TA-33 field activities (Appendix 8). All field personnel, subcontractors, regulatory personnel, and visitors were required to sign a statement acknowledging that they have read, understood, and agreed to abide by the requirements of the SSHASP. The SSHASP met the requirements of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response; the LANL Radiological Control (RadCon) Manual; and the Laboratory ER Program. The SSO maintained the ultimate authority for interpreting the SSHASP and served as the primary contact for health and safety issues.

5.1.2 Site Control

Before field operations began, site control measures were implemented to control employee exposures and to ensure only trained and fully informed persons gained access to the site. Three work zones were established: Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Support Zone (SZ).

The EZ included the area most likely to have contamination or in which work activities were most likely to present hazards to personnel. All EZs were demarcated using barrier tape, except when a zone, such as at the side of a canyon, was deemed both large and significantly remote enough that intruders would not be expected. In such cases, the zones were administratively controlled by visual inspection and by prohibiting untrained personnel and visitors from gaining access.

The CRZ was established, in most cases, next to the SZ. All decontamination occurred in the CRZ. In addition, all generated waste was temporarily placed in drums and stored at satellite accumulation.

The SZ included uncontaminated areas where a command post for administrative tasks and operations support were located. Safety and first aid supplies, emergency contact numbers, material safety data sheets, and the waste staging area were all in the SZ.

A muster area was designed on a daily basis and communicated to all field members during the daily Tailgate Safety Meeting. This muster area was not marked or labeled in any way, but its location was noted on a bulletin board in the SZ.

Site access control was achieved through use of postings at site and work zone boundaries, badges, and entry/exit logs.

5.1.3 Personal Protective Equipment

Selection of PPE was based on an evaluation of the PPE performance characteristics relative to the requirements and limitations of the site/task-specific conditions, duration and the hazards and potential hazards identified in the SSHASP. Table 8-1 of the SSHASP presented a detailed description of PPE required for each task. No requirement modifications were made during the field work.

5.1.4 Emergency Action Plan

An Emergency Action Plan was designed to meet the requirements of 29 CFR 1910.38. Posted onsite were emergency contacts and phone numbers, along with the most direct route to the Los Alamos Medical Center (LAMC). Personnel using a cellular phone were instructed in the event of an emergency not to call 911 (this would connect the caller to Santa Fe) but to call LAMC directly. This direction was repeated at every daily Tailgate Safety Meeting. First aid supplies, an eyewash station, and a fire extinguisher were maintained onsite at locations known to all team members. In the event of an emergency, an alarm would have been raised by use of an air-horn; however, no event warranting the use of the air-horn occurred. Further information can be found in the SSO's Field Summary Report (Appendix 13).

5.1.5 Site Inspections

Daily health and safety inspections were conducted and are documented in Appendix 13. Site inspections were carried out by all field members before any intrusive work was conducted. Any evidence of rodent infestation lead to alternative measures such as sample relocation, to prevent possible hanta virus contamination of the field crew. In one instance, the sample was not taken from a septic tank containing dead rats, since the biological hazard present in the sample could cause difficulties in the process of laboratory notification and possible analysis inconsistencies, and no alternative sampling location was feasible.

5.2 Direct-Reading Instrument Monitoring

DRI were used to monitor the work environment of on-site workers. The following instruments and their action levels were used for sampling activities:

Instrument	Action Level
• HNu photoionization detector (PID), Model PI101 with a 10.2 ev probe	5 ppm
• MSA oxygen/combustible gas meter	22% ≤ O_2 ≥19.5% combustible gas ≥ 10% LEL
• MIE Miniram aerosol dust monitor, Model PDM-3	5.0 mg/m^3
• Tritium Analyzer	5 µg/m^3

Each instrument was calibrated at the beginning of the workday. The calibration logs are provided in Appendix 10. The PID was used to monitor organic vapor concentrations in sampler breathing zones and downwind of sampling activities, where VOCs were potential contaminants of concern. Monitoring results are documented in the Sample Collection Logs (Appendix 5) and the Field Log Notebook (Appendix 4).

The oxygen/combustible-gas meter was used at septic-tank sample locations. These measurements are documented in the Sample Collection Logs and the Daily Field Log Notebook.

The Miniram aerosol dust monitor was used downwind of sampling activities and excavation operations. The instrument was placed on samplers and on the backhoe. Readings were taken on a continuous basis. Miniram measurements are documented in the SSO's field notebook (Appendix 11).

The tritium analyzer was used during both the SeaMist Filter sampling and the surface sampling at SWMU 33-002d outfall to monitor for tritium vapors. Tritium measurements are documented in the Field Log Notebook.

The results of DRI monitoring were as follows:

- Organic vapors were not detected at sample locations or in the breathing zone of field workers using the PID.
- Readings taken from the Miniram worn by the sampler ranged from 0.04 mg/m^3 to 0.19 mg/m^3. The reading taken from the Miniram worn by the backhoe operator did not exceed 0.01 mg/m^3. These readings are well below the screening action level (SAL) of 5.0 mg/m^3 for particulates listed in the SSHASP.
- Tritium concentrations were below the SAL of 5.0 mg/m^3.

5.3 Personal Monitoring

Personal-air sampler pumps (SKC Universal Constant Flow Sampler) were worn by the site workers determined to be most exposed. The personal air-sampler pumps sampled air from the working environment through 37-mm paper filters during a sampling period of approximately 8 hours. These filters were then removed and submitted for beryllium, cadmium, and lead analyses.

The pumps were worn on four sampling days in the following locations, at which beryllium, cadmium, and lead were PCOCs:

- During surface sampling activities at East Site, June 2, 1994
- During surface sampling activities at South Site, June 10, 1994
- During trenching activities at South Site, June 28, 1994
- During trenching activities at Area 6, July 8, 1994

Analyses for all elements were below the reported detection limit. These results indicate that personnel involved with sampling activities at TA-33 were not exposed to harmful or measurable levels of contaminants (Appendix 13).

Section 6

6.0 RADIATION SCREENING DURING SAMPLING ACTIVITIES

Pre- and post-sampling radiation screening of soil sample locations was performed using the Ludlum 2221 with a 44-9 alpha-beta-gamma detector. Results were recorded in the Field Log Notebook (Appendix 4) and on Sample Collection Forms (Appendix 5). Approximately 300 samples were taken, the majority of which were surface samples. Of the 300, 26 showed elevated readings. Results of the radiation screening are summarized in Appendix 3. Elevated readings of soil samples and their locations are listed in Exhibit 3.

In addition to soil-sampling operations, other duties included initiating and closing out RWPs, monitoring personnel and equipment exiting the EZ, and performing equipment release surveys on materials or equipment leaving TA-33. Free-release surveys entailed surveying for direct alpha-beta-gamma using the above-mentioned instruments and collecting alpha smears using a Ludlum 139 with a 43-32 alpha/beta/gamma detector and a Ludlum 2221 with a Ludlum 43-10 tray counter. No radioactive contamination was ever detected on equipment or personnel leaving the work area.

At South, East, and Area 6 sites, trenches were excavated to characterize the material and potential contamination within projectile catcher boxes and berms. Every two or three buckets of dirt removed by backhoe was placed to one side and scanned as discussed in Section 4.4.4. Because of the detailed procedures followed during excavation, confidence is high that any existing DU contamination was detected. While trenching operations were in progress, water was always used as a dust suppressant.

Three RWPs were generated during work at TA-33. The criterion for initiating an RWP was a Ludlum 44-9 reading above 800 cpm. When this criterion was met, a Stop Work order was initiated and ESH-1 contacted to review the situation and determine whether an RWP was required.

Personnel working in RWP areas wore Tyvek™ coveralls, two pairs or rubber gloves, and rubber booties over steel-toed work boots; duct tape was used to cover all seams. In non-RWP areas, standard work dress consisted of cotton coveralls, one pair of rubber or cotton gloves (depending on the job), and steel-toed work boots.

6.1 East Site

Work at the East Site consisted of trenching into and characterizing catcher berms, collecting surface/subsurface soil samples, and sampling disposal areas, gunfire sites, outfalls, and a septic tank. No contamination was detected during work at the East Site sampling operation.

6.2 NRAO Site

Work at the NRAO Site consisted of sampling a general storage area and septic tank, taking alpha/beta/gamma measurements, and collecting surface/subsurface soil samples. No contamination was detected during work at NRAO Site.

6.3 South Site

Work at South Site entailed trenching into and characterizing projectile catcher berms, collecting surface/subsurface soil samples, and sampling at outfalls, implosion waste areas, a drainage ditch, disposal areas, a shot area, a burn area, a blivit, and a septic tank. Contamination was detected at five South Site sampling areas: the berm south of Bunker 25, the implosion waste area, the shot area, the drainage ditch, and the burn area. Detected contamination from soil samples are noted in Appendix 12. Two RWPs were issued at South Site: one at the berm south of Building 25 (SWMU 33-007(b)) and the other at the implosion waste area (SWMU 33-010c).

- The berm south of Bunker 25 was excavated inward 28 ft from its base The area displayed widespread contamination. DU detected in the trench within the top 5 ft of the berm's surface was dispersed within an area 5 ft from the berm base. A Giraffe Air Sampler was used to take continuous air samples during the trenching operation; results are pending.
- The implosion area was sampled to a depth of 1 ft. Above-background radiation counts were detected at all sample locations.

6.4 Area 6

The work at Area 6 consisted of trenching into and characterizing two projectile catcher boxes. All dirt removed from the boxes was placed on tarps to prevent the spread of possible contamination. A Giraffe Air Sampler was used to take continuous air samples during the trenching operation; results are pending.

While trenching into the western catcher box, DU at 13,000 cpm was detected in the soil approximately 3 ft in and 1 ft above ground. At that time, a Stop Work Activity was initiated, and ESH-1 was contacted. Work continued the next day after issuance of a RWP. While trenching into the eastern catcher box, DU at 135,000 cpm was detected 2 ft to the right and 4 ft in front of the box. Once again, the presence of contamination was confirmed, and the trenching operation at Area 6 was halted. All soil was put back into the two catcher boxes, and the area was cleaned up.

Elevated readings of soil samples and readings of all soil sample locations, both pre- and post-sampling, are listed in Appendixes 4 and 5 and in Exhibit 3.

Section 7

7.0 EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination of non-expendable equipment is a critical part of data quality assurance. All sampling equipment was carefully decontaminated before reuse. Sampling equipment that was not to be reused (such as sampling spoons and bowls) was stored pending analytical results of a rinsate sample. All of the decontaminated sampling equipment was rinsed in a large bucket containing the appropriate volume of water needed to fill rinsate-sample bottles. This rinsate water was poured into the appropriate bottles and submitted for analysis for all PCOCs. This equipment may be reused for future activities if analytical results of the corresponding samples indicate that no contamination was present.

Specific procedures used for the decontamination of the manual sampling equipment are described in Section 7.1.

7.1 Decontamination of Manual Sampling Equipment

Sampling equipment such as hand augers, the Teflon™ mucksucker sampler, and non-dedicated stainless steel spoons and bowls were decontaminated before each reuse. Decontamination procedures entailed scanning the equipment with the Ludlum 2221 44-9 GM Probe, swiping the equipment to verify the absence or the presence of radiation, washing the equipment in a solution of Alconox™ and water, rinsing in water, and rinsing again in distilled water. As specified in the approved site-specific Waste Management Plan (Appendix 15), decontamination sediments were returned to the SWMU from which the samples were collected. The decontamination water evaporated in the hot, dry New Mexico air.

7.2 Decontamination of Backhoe

After trenching and backfilling each site being investigated, the backhoe was decontaminated. Decontamination of the backhoe was conducted for data quality assurance reasons as well as to avoid the spread of contamination from one site to another.

Decontamination entailed

- spraying the backhoe, while in the SWMU, with a high-pressure sprayer following excavation to remove the sediments;
- driving the sprayer-cleaned backhoe from the SWMU into the CRZ;
- scanning the backhoe with the Ludlum 2221 44-9 GM probe for beta/gamma radiation;
- swiping the backhoe;
- analyzing the swipes with the Ludlum 2221, 43-10 alpha/beta/gamma tray counter to verify the absence or presence of radiation; and

- spraying the backhoe a second time with a high-pressure sprayer if results from the radiation indicated contamination was still present.

The decontamination process was conducted over two plastic tubs to capture all the decontamination liquids. Decontamination sediments were returned to the SWMU from which they came.

7.3 Management of Liquid Waste

Liquid wastes generated from decontamination wash and rinse processes during 1994 sampling activities were minimal. Very small amounts of water were used for the decontamination process. This water evaporated by day's end, and so no wastewater was accumulated from this process. Dry sediments that remained in the tub bottoms were returned to the SWMUs from which associated samples were taken, in accordance with the site-specific Waste Management Plan and LANL-ER-SOP-1.06, Management of RFI-Generated Wastes (now LANL-ER-AP-05.03, Management of Environmental Restoration Project Wastes).

Section 8

8.0 WASTE MANAGEMENT

All wastes generated during sampling activities at TA-33 were managed in accordance with the approved site-specific Waste Management Plan (Appendix 15). This plan complies with Laboratory Administrative Requirement (AR) 10-1, Radioactive Liquid Waste (LANL 1992f); AR 10-2, Low-Level Radioactive Solid Waste (LANL 1991c); AR 10-3, Hazardous and Mixed Waste (LANL 1993e); AR 10-9, Waste Profile Form (LANL 1993f); and LANL-ER-SOP 1-06, Management of RFI Generated Waste (LANL 1992g). The practice of waste minimization (as required by Laboratory AR 10-8, Waste Minimization (LANL 1991d)) was incorporated into the plan and greatly reduced the amount of waste that needed to be stored and managed.

During site activities, RCRA hazardous wastes were gathered into one of the three satellite accumulation areas — one each at East Site, South Site and Area 6. The satellite accumulation area contained drums for RCRA hazardous solid waste and radioactive waste. All solid wastes generated as a result of sampling activities were screened for gross beta/gamma activity and were swiped and counted for alpha activity.

Radioactive waste was generated from the sampling activities at the RWP areas. Wastes volumes in the satellite accumulation areas were less than 55 gal. at the end of site activities. At that time, the wastes were moved to the less-than-90-day storage area at Area 6. One 55-gal. drum contains solid RCRA hazardous waste, such as swipes and gloves; another contains solid radioactive waste, such as swipes and PPE. The drum containing solid RCRA hazardous waste will remain at the less-than-90-day storage area until the material can be picked up by the Laboratory Waste Management Group and disposed of appropriately. * The drum containing solid radioactive waste is presently stored adjacent to the less-than-90-day storage area.

The 55-gal. steel waste drums with rigid plastic liners provide both primary and secondary containment. Additional secondary containment is proviced by the bermed areas constructed at each waste management area. The bermed areas consist of heavy mil plastic placed under the waste drums, with overlying frameworks of polyvinyl chloride (PVC) pipe that form the area boundaries. The 55-gal. drums are set on wooden pallets inside the bermed areas, covered with tarps, and labeled (Appendix 16).

Management of solid wastes generated during sampling activities at TA-33 is described in Section 8.1. No water was accumulated during the 1994 sampling activities at TA-33

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* The 55-gal. drum was removed from the less-than-90-day storage area on _____.

8.1 Management of Solid Waste

During 1994 sampling activities, solid wastes consisted of personal protective clothing, swipes, and filter papers and Kimwipes™ from the HE field test kit. Personal protective clothing was placed in heavy-duty bags and transferred into the designated drums at the satellite accumulation areas. The filter papers and Kimwipes™ were placed in small, resealable plastic bags labeled as "HE kit waste," and placed into drums labeled for disposal of hazardous solid waste.

Section 9

9.0 CONCLUSION

The 1994 RFI sampling at the East Site, South Site, NRAO Site, Main Site, and Area 6 completes Phase I sampling at these areas with the following exceptions:

- Two landfills at East Site and South Site
- The polychlorinated-biphenyl area of concern at East Site.

Land, radiation, and geophysical surveys were conducted in accordance with ER SOPs and the RFI Work Plan. All surface soil, subsurface soil, fluid, and sludge samples were collected in accordance with ER SOPs and the RFI Work Plan. Health and safety monitoring was conducted in compliance with the SSHASP. Decontamination and waste management were conducted in compliance with the Waste Management Plan.

Results from this Phase I investigation will determine the necessity of a Phase II investigation. If required, the Phase II data will be designed to characterize the nature and extent of contamination for a baseline risk assessment or to evaluate remedial alternatives at the site.

Section 10

10.0 REFERENCES

EPA (U.S. Environmental Protection Agency), February 1989. "Methods for Evaluating the Attainment of Cleanup Standards," Volume 1: Soils and Solid Media, EPA 230/02-89-042, National Technical Information Service, Springfield, Virginia. (EPA 1989, 0794)

LANL (Los Alamos National Laboratory), 1991. Quality Program Plan and Quality Assurance Project Plan for Environmental Restoration, Environmental Restoration Program, Los Alamos, New Mexico, 1991 (LANL 1991a)

LANL (Los Alamos National Laboratory), 1991. "Radiation Exposure Control," Administrative Requirement 3-7, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1991 (LANL 1991b)

LANL (Los Alamos National Laboratory), 1991. "Low-Level Radioactive Solid Waste," Administrative Requirement 10-2, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1991 (LANL 1991c)

LANL (Los Alamos National Laboratory)1991. Los Alamos National Laboratory, "Waste Minimization," Administrative Requirement 10-8, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1991 (LANL 1991d)

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

LANL (Los Alamos National Laboratory),1992. Los Alamos National Laboratory, "Spade and Scoop Method for Collection of Soil Samples," Environmental Restoration Standard Operating Procedure 06.09, Los Alamos, New Mexico, 1992 (LANL 1992b)

LANL (Los Alamos National Laboratory), 1992. Los Alamos National Laboratory, "Coliwasa Sampler for Liquids and Slurries," Standard Operating Procedure 06.15, Environmental Restoration Program, Los Alamos, New Mexico, 1992 (LANL 1992c)

LANL (Los Alamos National Laboratory), 1992. "Hand Auger and Thin-Wall Tube Sampler," Standard Operating Procedure 06.10, Environmental Restoration Program, Los Alamos, New Mexico, 1992 (LANL 1992d)

LANL (Los Alamos National Laboratory), 1992. Los Alamos National Laboratory, "Radioactive Liquid Waste," Administrative Requirement 10-1, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1992 (LANL 1992e)

LANL (Los Alamos National Laboratory) ,1993. Los Alamos National Laboratory, Survey Procedures Manual, Facilities Engineering Division, Los Alamos, New Mexico, 1993 (LANL 1993a)

LANL (Los Alamos National Laboratory),1993. Los Alamos National Laboratory, "Sample Control and Field Documentation," Standard Operating Procedure 01.04, Environmental Restoration Program, 1993 (LANL 1993b)

LANL (Los Alamos National Laboratory)1993. Los Alamos National Laboratory, "Hazardous and Mixed Waste," Administrative Requirement 10-3, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1993 (LANL 1993c)

LANL (Los Alamos National Laboratory)1993. Los Alamos National Laboratory, "Waste Profile Form," Administrative Requirement 10-9, The Laboratory Manual, Chapter 1, Health and Safety Manual, Los Alamos, New Mexico, 1993 (LANL 1993d)

LANL (Los Alamos National Laboratory), 1994. Los Alamos National Laboratory, "Management of Environmental Restoration Program-Generated Wastes," Administrative Procedure 05.03, Environmental Restoration Project, Los Alamos, New Mexico, 1994 (LANL 1994a)

LANL (Los Alamos National Laboratory), 1994. "Summary of 1993 Survey and Sampling Activities at TA-33," Environmental Restoration Program, Los Alamos, New Mexico, 1994. (LANL 1994b)

Exhibit 1

EXHIBIT 1
SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-003B-1	AAA9608	33-1300	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-003B-2	AAA9609	33-1300	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-003B-3	AAA9610	33-1302	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-003B-4	AAA9611	33-1303	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-003B-5	AAA9612	33-1304	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-003B-5C	AAA9613	33-1452	Random	Shot Chamber	5/27/94	Surface	Soil	Spade-spoon	6	in
33-004B-3	AAA9735	33-1305	Biased	Septic Tank	6/14/95	Surface	Soil	Spade-spoon	6	in
33-004B-4	AAA9736	33-1305	Biased	Septic Tank	6/14/95	Subsurface	Soil	Auger	72	in
33-004B-5	AAA9737	33-1305	Biased	Septic Tank	6/14/95	Subsurface	Soil	Auger	4	ft
33-004B-6	AAA9738	33-1306	Biased	Septic Tank	6/8/94	Surface	Soil	Spade-spoon	6	in
33-004B-7	AAA9739	33-1307	Biased	Septic Tank	6/8/94	Surface	Soil	Spade-spoon	6	in
33-004B-8	AAA9740	33-1308	Biased	Septic Tank	6/8/94	Surface	Soil	Spade-spoon	6	in
33-004C-1	AAA9597	33-1451	Biased	Septic Tank	7/5/94	Liquid	Liquid	Sucker Tube	8	ft
33-004C-1	AAA9850	33-1451	Biased	Septic Tank	7/15/94	Liquid	Liquid	Sucker Tube	8	ft
33-004C-10	AAA9606	33-1310	Random	Septic Tank	7/5/94	Subsurface	Soil	Auger	2.5	ft
33-004C-11	AAA9607	33-1310	Random	Septic Tank	7/5/94	Subsurface	Soil	Auger	4	ft
33-004C-12	AAA9709	33-1450	Biased	Septic Tank	7/12/94	Surface	Soil	Spade-spoon	6	in
33-004C-13	AAA9710	33-1450	Biased	Septic Tank	7/12/94	Subsurface	Soil	Auger	3	ft
33-004C-14	AAA9711	33-1450	Biased	Septic Tank	7/12/94	Subsurface	Soil	Auger	6	ft
33-004C-3	AAA9599	33-1523	Biased	Septic Tank	7/5/94	Surface	Soil	Spade-spoon	6	in
33-004C-4	AAA9600	33-1523	Biased	Septic Tank	7/5/94	Subsurface	Soil	Auger	2.5	ft
33-004C-5	AAA9601	33-1523	Biased	Septic Tank	7/5/94	Subsurface	Soil	Auger	4.5	ft
33-004C-6	AAA9602	33-1309	Random	Septic Tank	7/5/94	Surface	Soil	Spade-spoon	6	in
33-004C-7	AAA9603	33-1309	Random	Septic Tank	7/5/94	Subsurface	Soil	Auger	2.5	ft
33-004C-8	AAA9604	33-1309	Random	Septic Tank	7/5/94	Subsurface	Soil	Auger	5	ft
33-004C-9	AAA9605	33-1310	Random	Septic Tank	7/5/94	Surface	Soil	Spade-spoon	6	in
33-004J-1	AAA9752	33-1311	Biased	Outfall	6/6/94	Surface	Soil	Spade-spoon	6	in
33-004J-2	AAA9753	33-1312	Biased	Outfall	6/6/94	Surface	Soil	Spade-spoon	6	in
33-004K-3	AAA9656	33-1315	Biased	Outfall	6/3/94	Surface	Soil	Spade-spoon	6	in
33-004K-4	AAA9657	33-1316	Biased	Outfall	6/3/94	Surface	Soil	Spade-spoon	6	in
33-004K-5	AAA9658	33-1317	Biased	Outfall	6/3/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-004K-5C	AAA9659	33-1456	Biased	Outfall	6/3/94	Surface	Soil	Spade-spoon	6	in
33-004M-1	AAA9818	33-1469	Biased	NRAO Septic Tank	6/20/94	Liquid	Liquid	Sucker Tube	3	ft
33-004M-10	AAA9828	33-1320	Biased	NRAO Septic Tank	6/30/94	Subsurface	Soil	Auger	4	ft
33-004M-11	AAA9829	33-1320	Biased	NRAO Septic Tank	6/30/94	Subsurface	Soil	Auger	5	ft
33-004M-2	AAA9819	33-1469	Biased	NRAO Septic Tank	6/20/94	Sludge	Sludge	Spade-spoon	6	in
33-004M-3	AAA9820	33-1318	Biased	NRAO Septic Tank	6/27/94	Surface	Soil	Spade-spoon	6	in
33-004M-4	AAA9821	33-1318	Biased	NRAO Septic Tank	6/27/94	Subsurface	Soil	Auger	2	ft
33-004M-5	AAA9822	33-1318	Biased	NRAO Septic Tank	6/27/94	Subsurface	Soil	Auger	4	ft
33-004M-6	AAA9823	33-1319	Biased	NRAO Septic Tank	6/20/94	Surface	Soil	Spade-spoon	6	in
33-004M-6	AAA9906	33-1503	Biased	NRAO Septic Tank	6/30/94	Surface	Soil	Spade-spoon	6	in
33-004M-7	AAA9824	33-1503	Biased	NRAO Septic Tank	6/27/94	Subsurface	Soil	Auger	3.5	ft
33-004M-8	AAA9825	33-1319	Biased	NRAO Septic Tank	6/27/94	Subsurface	Soil	Auger	4	ft
33-004M-9	AAA9826	33-1320	Biased	NRAO Septic Tank	6/30/94	Surface	Soil	Spade-spoon	6	in
33-004M-9C	AAA9827	33-1470	Biased	NRAO Septic Tank	6/30/94	Surface	Soil	Auger	6	in
33-006A-1	AAA9769	33-1321	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-10	AAA9780	33-1322	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-11	AAA9781	33-1323	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-12	AAA9782	33-1324	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-13	AAA9783	33-1325	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-14	AAA9784	33-1326	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-15	AAA9785	33-1327	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-16	AAA9786	33-1328	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-17	AAA9787	33-1329	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-17N	AAA9788	33-1465	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-18	AAA9789	33-1330	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-18C	AAA9790	33-1466	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-19	AAA9791	33-1331	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-2	AAA9770	33-1332	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-20	AAA9792	33-1333	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-21	AAA9793	33-1334	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-22	AAA9794	33-1335	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-006A-23	AAA9795	33-1336	Random	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-24	AAA9796	33-1337	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-25	AAA9797	33-1338	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-26	AAA9798	33-1339	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-27	AAA9799	33-1340	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-28	AAA9800	33-1341	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-29	AAA9801	33-1342	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-29N	AAA9802	33-1467	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-3	AAA9771	33-1343	Random	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-30	AAA9803	33-1344	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-31	AAA9804	33-1345	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-32	AAA9805	33-1346	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-33	AAA9806	33-1347	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-34	AAA9807	33-1348	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-35	AAA9808	33-1349	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-35N	AAA9809	33-1475	Random	Shot Pad	6/13/94	Surface	Soil	Spade-spoon	6	in
33-006A-36	AAA9810	33-1350	Random	Shot Pad	6/14/95	Surface	Soil	Spade-spoon	6	in
33-006A-37	AAA9811	33-1351	Random	Shot Pad	6/14/95	Surface	Soil	Spade-spoon	6	in
33-006A-38	AAA9812	33-1352	Random	Shot Pad	6/14/95	Surface	Soil	Spade-spoon	6	in
33-006A-39	AAA9813	33-1353	Random	Shot Pad	6/14/95	Surface	Soil	Spade-spoon	6	in
33-006A-4	AAA9772	33-1354	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-40	AAA9891	33-1473	Biased	Shot Pad	6/10/94	Surface	Soil	Spade-spoon	6	in
33-006A-4C	AAA9773	33-1460	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-5	AAA9774	33-1355	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-6	AAA9775	33-1356	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-7	AAA9776	33-1357	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-8	AAA9777	33-1358	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-8N	AAA9778	33-1464	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-9	AAA9779	33-1359	Biased	Shot Pad	6/9/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-1	AAA9741	33-1360	Biased	Shot Pad	6/6/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-10	AAA9751	33-1361	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-006A-dr-2	AAA9742	33-1362	Biased	Shot Pad	6/6/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-3	AAA9743	33-1363	Biased	Shot Pad	6/6/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-4	AAA9744	33-1364	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-4C	AAA9745	33-1463	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-5	AAA9746	33-1365	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-6	AAA9747	33-1366	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-7	AAA9748	33-1367	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-8	AAA9749	33-1368	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006A-dr-9	AAA9750	33-1369	Biased	Shot Pad	6/7/94	Surface	Soil	Spade-spoon	6	in
33-006B-1	AAA9614	33-1370	Biased	Shot Pad	6/1/94	Surface	Soil	Spade-spoon	6	in
33-006B-15	AAA9910	33-1375	Biased	Shot Pad	7/7/94	Subsurface	Soil	Space-spoon	Unknown	
33-006B-16	AAA9911	33-1375	Biased	Shot Pad	7/7/94	Subsurface	Soil	Spade-spoon	Unknown	
33-006B-17	AAA9912	33-1375	Biased	Shot Pad	7/7/94	Subsurface	Soil	Spade-spoon	Unknown	
33-006B-18	AAA9706	33-1543	Random	Shot Pad	7/8/94	Subsurface	Soil	Spade-spoon	5;7*	ft
33-006B-19	AAA9707	33-1544	Random	Shot Pad	7/8/94	Subsurface	Soil	Spade-spoon	8;2*	ft
33-006B-2	AAA9615	33-1372	Biased	Shot Pad	6/1/94	Surface	Soil	Spade-spoon	6	in
33-006B-20	AAA9708	33-1545	Random	Shot Pad	7/8/94	Subsurface	Soil	Spade-spoon	20; 8*	ft
33-006B-3	AAA9616	33-1373	Biased	Shot Pad	6/1/94	Surface	Soil	Spade-spoon	6	in
33-006B-4	AAA9617	33-1374	Biased	Shot Pad	6/1/94	Surface	Soil	Spade-spoon	6	in
33-006B-7	AAA9672	33-1540	Random	Shot Pad	7/7/94	Subsurface	Soil	Space-spoon	6;7*	ft
33-006B-8	AAA9673	33-1541	Random	Shot Pad	7/7/94	Subsurface	Soil	Spade-spoon	7;6*	ft
33-006B-9	AAA9674	33-1542	Random	Shot Pad	7/7/94	Subsurface	Soil	Spade-spoon	15;7*	ft
33-007A-1	AAA9618	33-1376	Random	Gun Firing Area	5/27/94	Surface	Soil	Spade-spoon	6	in
33-007A-10	AAA9628	33-1377	Random	Gun Firing Area	5/31/94	Surface	Soil	Spade-spoon	6	in
33-007A-10C	AAA9629	33-1454	Random	Gun Firing Area	5/31/94	Surface	Soil	Spade-spoon	6	in
33-007A-11	AAA9630	33-1378	Random	Gun Firing Area	6/1/94	Surface	Soil	Spade-spoon	6	in
33-007A-12	AAA9631	33-1379	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-13	AAA9632	33-1380	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-14	AAA9633	33-1381	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-15	AAA9634	33-1382	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-16	AAA9635	33-1383	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1
SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-007A-17	AAA9636	33-1384	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-18	AAA9637	33-1385	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-19	AAA9638	33-1386	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-2	AAA9619	33-1387	Random	Gun Firing Area	5/27/94	Subsurface	Soil	Spade-spoon	6	in
33-007A-20	AAA9639	33-1388	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-21	AAA9640	33-1389	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-22	AAA9641	33-1390	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-23	AAA9642	33-1391	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-24	AAA9643	33-1392	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-25	AAA9644	33-1393	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-26	AAA9645	33-1394	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-3	AAA9620	33-1395	Random	Gun Firing Area	5/27/94	Surface	Soil	Spade-spoon	6	in
33-007A-3	AAA9682	33-1457	Random	Gun Firing Area (Berm)	7/6/94	Subsurface	Soil	Space-spoon	5;3*	ft
33-007A-4	AAA9621	33-1396	Random	Gun Firing Area	5/27/94	Surface	Soil	Spade-spoon	6	in
33-007A-4	AAA9683	33-1538	Random	Gun Firing Area (Berm)	7/6/94	Subsurface	Soil	Space-spoon	9;4*	ft
33-007A-5	AAA9622	33-1397	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-5	AAA9684	33-1539	Random	Gun Firing Area (Berm)	7/6/94	Subsurface	Soil	Spade-spoon	19;8*	ft
33-007A-5C	AAA9623	33-1453	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-6	AAA9624	33-1398	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-7	AAA9625	33-1399	Random	Gun Firing Area	5/31/94	Surface	Soil	Spade-spoon	6	in
33-007A-8	AAA9626	33-1400	Random	Gun Firing Area	6/2/94	Surface	Soil	Spade-spoon	6	in
33-007A-9	AAA9627	33-1401	Random	Gun Firing Area	5/31/94	Surface	Soil	Spade-spoon	6	in
33-007B-1	AAA9761	33-1402	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-10	AAA9768	33-1403	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-3	AAA9762	33-1405	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-4	AAA9763	33-1406	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-4C	AAA9764	33-1462	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-7	AAA9765	33-1409	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-007B-8	AAA9766	33-1410	Biased	Gun Firing Area	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-9	AAA9767	33-1411	Biased	Gun Firing Area (Berm)	6/15/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-1	AAA9685	33-1448	Random	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	4;5*	ft
33-007B-B-11	AAA9894	33-1491	Random	Gun Firing Area (Berm)	6/29/94	Subsurface	Soil	Spade-spoon	3	in
33-007B-B-12	AAA9895	33-1492	Random	Gun Firing Area (Berm)	6/29/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-13	AAA9896	33-1493	Random	Gun Firing Area (Berm)	6/29/94	Subsurface	Soil	Spade-spoon	6;+4*	ft
33-007B-B-14	AAA9897	33-1494	Random	Gun Firing Area (Berm)	6/29/94	Subsurface	Soil	Spade-spoon	12;5*	ft
33-007B-B-15	AAA9898	33-1495	Random	Gun Firing Area (Berm)	6/29/94	Subsurface	Soil	Spade-spoon	17;5*	ft
33-007B-B-16	AAA9899	33-1496	Random	Gun Firing Area (Berm)	6/29/94	Subsurface	Soil	Spade-spoon	24;7*	ft
33-007B-B-17	AAA9900	33-1497	Random	Gun Firing Area (Berm)	6/30/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-18	AAA9901	33-1498	Random	Gun Firing Area (Berm)	6/30/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-19	AAA9902	33-1499	Random	Gun Firing Area (Berm)	6/30/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-2	AAA9686	33-1535	Random	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	7;4*	ft
33-007B-B-20	AAA9903	33-1500	Random	Gun Firing Area (Berm)	6/30/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-21	AAA9904	33-1501	Random	Gun Firing Area (Berm)	6/30/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-22	AAA9905	33-1502	Random	Gun Firing Area (Berm)	6/30/94	Subsurface	Soil	Spade-spoon	27;5*	ft

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1
SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-007B-B-23	AAA9907	33-1504	Random	Gun Firing Area (Berm)	7/1/94	Subsurface	Soil	Spade-spoon	3;2*	ft
33-007B-B-24	AAA9908	33-1505	Random	Gun Firing Area (Berm)	7/1/94	Subsurface	Soil	Spade-spoon	3;2*	ft
33-007B-B-3	AAA9687	33-1536	Random	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	11;4	ft
33-007B-B-4	AAA9688	33-1537	Random	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	19;6	ft
33-007B-B-6	AAA9689	33-1534	Random	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	1	in
33-007B-B-7	AAA9690	33-1534	Biased	Gun Firing Area (Berm)	6/28/94	Subsurface	Soil	Spade-spoon	6	in
33-007B-B-8	AAA9691	33-1407	Random	Gun Firing Area (Berm)	6/28/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-10	AAA9893	33-1490	Random	Gun Firing Area (Berm)	6/28/94	Surface	Soil	Spade-spoon	6	in
33-007B-B-9	AAA9692	33-1408	Random	Gun Firing Area (Catcher Box)	6/28/94	Surface	Soil	Spade-spoon	6	in
33-007B-CB-1	AAA9693	33-1404	Random	Gun Firing Area (Catcher Box)	6/21/94	Subsurface	Soil	Spade-spoon	3	ft
33-007B-CB-2	AAA9694	33-1526	Random	Gun Firing Area (Catcher Box)	6/21/94	Subsurface	Soil	Spade-spoon	5	ft
33-007B-CB-3	AAA9695	33-1527	Random	Gun Firing Area (Catcher Box)	6/21/94	Subsurface	Soil	Spade-spoon	10	ft
33-007B-CB-4	AAA9696	33-1528	Random	Gun Firing Area (Catcher Box)	6/21/94	Subsurface	Soil	Spade-spoon	15	ft
33-007B-CB-5	AAA9697	33-1529	Random	Gun Firing Area (Berm)	6/21/94	Subsurface	Soil	Spade-spoon	20	ft
33-007C-A6B-1	AAA9913	33-1512	Biased	Gun Firing Area (Berm)	7/14/94	Subsurface	Soil	Spade-spoon	5;8*	ft

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-007c-A6B-3	AAA9915	33-1514	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	19;0*	ft
33-007C-A6B-10	AAA9916	33-1515	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	3;2*	ft
33-007C-A6B-11	AAA9917	33-1516	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	7;0*	ft
33-007C-A6B-12	AAA9918	33-1517	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	18;6*	ft
33-007C-A6B-2	AAA9914	33-1513	Biased	Gun Firing Area (Berm)	7/14/94	Subsurface	Soil	Spade-spoon	10;6*	ft
33-007C-A6B-4	AAA9843	33-1506	Biased	Gun Firing Area (Berm)	7/14/94	Subsurface	Soil	Spade-spoon	Btwn. CB's	ft
33-007C-A6B-5	AAA9844	33-1507	Biased	Gun Firing Area (Berm)	7/15/94	Subsurface	Soil	Spade-spoon	3	ft
33-007C-A6B-7	AAA9846	33-1509	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	7;4*	ft
33-007C-A6B-8	AAA9847	33-1510	Biased	Gun Firing Area (Berm)	7/13/94	Subsurface	Soil	Spade-spoon	7;4*	ft
33-007C-A6B-9	AAA9848	33-1511	Biased	Non-RAD Landfill	7/14/94	Subsurface	Soil	Spade-spoon	7;0*	ft
33-008A-1	AAA9703	33-1474	Biased	Non-RAD Landfill	6/15/94	Surface	Soil	Spade-spoon	6	in
33-008A-2	AAA9704	33-1475	Biased	Non-RAD Landfill	6/15/94	Surface	Soil	Spade-spoon	6	in
33-008A-3	AAA9705	33-1476	Biased	Canyonside disposal	6/15/94	Surface	Soil	Spade-spoon	6	in
33-010A-1	AAA9646	33-1414	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	6	in
33-010A-2	AAA9647	33-1415	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	6	in
33-010A-3	AAA9648	33-1416	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	6	in
33-010A-4	AAA9649	33-1417	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	6	in
33-010A-4C	AAA9650	33-1455	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	1	ft
33-010B-1	AAA9651	33-1418	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	1	ft
33-010B-2	AAA9652	33-1419	Biased	Canyonside disposal	6/3/94	Surface	Soil	Spade-spoon	6	in
33-010B-3	AAA9653	33-1420	Biased	Surface disposal	6/3/94	Surface	Soil	Spade-spoon	1	ft

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1
SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-010C-1	AAA9713	33-1421	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010C-2	AAA9714	33-1477	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010C-3	AAA9715	33-1478	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010C-4	AAA9716	33-1479	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010C-5	AAA9717	33-1480	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010C-6	AAA9718	33-1481	Random	Surface disposal	7/1/94	Surface	Soil	Spade-spoon	1	ft
33-010D-1	AAA9852	33-1422	Biased	Surface disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010D-2	AAA9853	33-1423	Biased	Surface disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010D-3	AAA9854	33-1424	Random	Surface disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010D-4	AAA9855	33-1425	Biased	Surface disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010D-5	AAA9856	33-1426	Biased	Surface disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010D-6	AAA9857	33-1427	Biased	Canyonside disposal	5/31/94	Surface	Soil	Spade-spoon	6	in
33-010G-1	AAA9814	33-1428	Biased	Canyonside disposal	6/14/95	Surface	Soil	Spade-spoon	6	in
33-010G-2	AAA9815	33-1429	Biased	Canyonside disposal	6/14/95	Surface	Soil	Spade-spoon	6	in
33-010G-4	AAA9817	33-1431	Biased	Canyonside disposal	6/14/95	Surface	Soil	Spade-spoon	6	in
33-010G-3	AAA9816	33-1430	Biased	Surface disposal	6/14/95	Surface	Soil	Spade-spoon	6	in
33-010H-B-1	AAA9723	33-1486	Biased	Surface disposal	6/27/94	Subsurface	Soil	Spade-spoon	4	ft
33-010H-B-2	AAA9724	33-1487	Biased	NRAO Storage Area	6/27/94	Subsurface	Soil	Spade-spoon	4	ft
33-011B-1	AAA9830	33-1433	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-2	AAA9831	33-1434	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-3	AAA9832	33-1435	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-4	AAA9833	33-1436	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-4C	AAA9834	33-1471	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-5	AAA9835	33-1437	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-6	AAA9836	33-1438	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-7	AAA9837	33-1439	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-8	AAA9838	33-1440	Random	NRAO Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011B-9	AAA9839	33-1441	Random	Blivit Storage Area	6/16/94	Surface	Soil	Spade-spoon	6	in
33-011C-1	AAA9754	33-1442	Biased	Blivit Storage Area	6/8/94	Surface	Soil	Spade-spoon	6	in
33-011C-2	AAA9755	33-1443	Biased	Blivit Storage Area	6/8/94	Surface	Soil	Spade-spoon	6	in
33-011C-2C	AAA9756	33-1461	Biased	Burn Site	6/8/94	Surface	Soil	Spade-spoon	6	in

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

EXHIBIT 1

SUMMARY OF 1994 SAMPLING RESULTS AT TA-33

SWMU	Sample ID	Site ID	Sample Approach	Location	Date	Sample Type	Matrix	Sampling Technique	Ending Depth	
33-014-1	AAA9757	33-1444	Biased	Burn Site	6/7/94	Surface	Soil	Spade-spoon	6	in
33-014-2	AAA9758	33-1445	Biased	Burn Site	6/7/94	Surface	Soil	Spade-spoon	6	in
33-014-3	AAA9759	33-1446	Biased	Burn Site	6/7/94	Surface	Soil	Spade-spoon	6	in
33-014-4	AAA9760	33-1447	Biased	Berm #43	6/7/94	Surface	Soil	Spade-spoon	6	in
33-B43-1	AAA9698	33-1449	Random	Berm #43	6/23/94	Subsurface	Soil	Spade-spoon	3;3*	ft
33-B43-2	AAA9699	33-1530	Random	Berm #43	6/23/94	Subsurface	Soil	Spade-spoon	5;+1,-2*	ft
33-B43-3	AAA9700	33-1531	Random	Berm #43	6/23/94	Subsurface	Soil	Spade-spoon	6;+5,-2*	ft
33-B43-4	AAA9701	33-1532	Random	Berm #43	6/23/94	Subsurface	Soil	Spade-spoon	18;7*	ft
33-B43-5	AAA9702	33-1533	Random	Berm #43	6/23/94	Subsurface	Soil	Spade-spoon	20;5*	ft
33-B43-6	AAA9892	33-1449	Random	NA	6/23/94	Subsurface	Soil	Spade-spoon	unknown	
PE Blank	AAA9859	NA	NA	NA	5/31/94	Surface	Soil	Spade-spoon	NA	
PE-Blank	AAA9877	NA	NA	NA	6/10/94	Surface	Soil	Spade-spoon	NA	
PE-Blank	AAA9880	NA	NA	NA	6/14/95	Surface	Soil	Spade-spoon	NA	
PE-Blank	AAA9874	NA	NA	NA	6/15/94	Surface	Soil	Spade-spoon	NA	
PE-Blank	AAA9868	NA	NA	NA	6/23/94	Surface	Soil	Spade-spoon	NA	
PE-Blank	AAA9862	NA	NA	NA	7/13/94	Surface	Soil	Spade-spoon	NA	
PE Blank	AAA9890	NA	NA	NA	6/9/94	NA	Soil	Spade-spoon	NA	NA
PE-Blank	AAA9851	NA	NA	NA	7/14/94	Surface	Soil	Spade-spoon	NA	
projectile	D-1-East	NA	NA	NA	7/7/94	debris	NA	NA	NA	
Rinsate	AAA9889	NA	NA	NA	6/20/94	QA Water	Water	Rinsate	NA	
Rinsate	AAA9871	NA	NA	NA	7/13/94	QA Water	Water	Rinsate	NA	
Rinsate	AAA9867	NA	NA	NA	7/18/94	QA Water	Water	Rinsate	NA	
Rinsate	AAB1205	NA	NA		8/2/94	QA Water	Water	Rinsate	NA	

* Sample excavated from trenches in the horizontal and vertical planes. (e.g., horizontal;vertical)
Refer to Section 2.2.3

Exhibit 2

EXHIBIT 2

STANDARD OPERATING PROCEDURES USED DURING 1994 SAMPLING ACTIVITIES AT TA-33

Procedure	Procedure Title	ER	Other
Survey/Sampling Instructions			
Channel Mapping	Geomorphic Characterization	3.08	
Magnetic	General Surface Geophysics	3.02	
Electromagnetic		3.02	
Excavation and Logging	Trenching and Logging	3.10	
Radiation	Measurements of Gamma-Ray Fields Using a NaI Detector	6.23	
Explosives	Field Spot Test for Explosives		27.05.011
Hollow-stem Auger Drilling	Drilling Methods and Drill Site Management	4.01	
Lithologic Logging	Field Logging, Handling and Documenting Borehole Materials	12.01	
Surface Soil Sampling	Spade and Scoop Method for Collection of Soil Samples	6.09	
Sludge Sampling from Tank	Coliwasa Samples for Liquids and Slurries	6.15	
Soil Sample from Auger Hole	Hand Auger and Thin-Wall Tube Sampler	6.10	
Tuff Sample from Auger Hole		6.10	
Tuff Sample from Drill Hole	Sample Collection from Split Spoon Samplers and Shelby Tube Samplers	6.24	
Land Survey	LANL Survey Procedures Manual		ENG-3
Waste Management			
Procedure	**Procedure Title**	**ER**	**Other**
Handling of Liquid Wastes	Management of RFI-Generated Waste	1.06*	
Handling of Solid Wastes		1.06*	
General Instructions			
Procedure	**Procedure Title**	**ER**	**Other**
General Field Investigation	General Introduction for Field Investigation	1.01	
Sample Containers	Sample Containers and Preservation	1.02	
Sample Handling	Handling, Packaging, and Shipping Samples	1.03	
Documentation	Sample Control and Field Documentation	1.04	
QC/Chain of Custody	Field Quality Control Samples	1.05	

* Now ER-AP 05.3, Management of Environmental Restoration Program Wastes

EXHIBIT 2

STANDARD OPERATING PROCEDURES USED DURING 1994 SAMPLING ACTIVITIES AT TA-33 (CONTINUED)

Health and Safety in the Field			
Procedure	**Procedure Title**	**ER**	**Other**
Health and Safety	Guidance on Tailgate Safety Meetings	2.05	
	Radiation Safety and Monitoring for Environmental Restoration	2.1	
	Respiratory Protection	NA	HS-5
	Anti-Contamination Apparel	NA	HS-1
	Heat and Cold Stress and Natural Hazards	2.06, Rev 1	
	Guidance on Field Safety & Health Requirements	2.03	
	Noise Monitoring	2.04	
	Field Monitoring Instrumentation - Chemical Parameters	2.11	
	Personal Protective Equipment for Physical Hazards	2.01, Rev 1	
	Bloodborne Pathogen Control	2.12	
	Drilling Safety	2.14	
	Safety Requirements for Canyon/Mesa Samp	2.15	
	Exposure Monitoring Strategy	2.16	

Exhibit 3

EXHIBIT 3
Elevated Radiation Screening Readings

Twenty-six surface sample locations at South Site and Area 6 showed elevated radiation readings. Background readings for beta/gamma in the area is 80-120 cpm.

Sample Location	SWMU	Beta/Gamma (cpm)
South Site		
AAA9900	33-007(b)-17	200-300
AAA9713	33-010c-1	100-220
AAA9714	33-010c-2	200-250
AAA9715	33-010c-3	150-170
AAA9717	33-010c-5	280-350
AAA9718	33-010c-6	150-200
AAA9891	33-006(a)-40	300-600
AAA9796	33-006(a)-24	180-200
AAA9800	33-006(a)-28	180-200
AAA9788	33-006(a)-17n	150-170
AAA9742	33-006(a)-dr-2	200-220
AAA9760	33-014-4	130-150
AAA9759	33-014-3	130-160
AAA9691	33-007(b)-3	130-160
AAA9692	33-007(b)-6	5,000 -10,000
AAA9690	33-007(b)-7	1,145-1,800
AAA9766	33-007(b)-8	80-250
AAA9767	33-007(b)-9	80-150
AAA9685	33-007(b)-1	125-150
AAA9896	33-007(b)-13	100-1,200
AAA9897	33-007(b)-14	100-150
AAA9904	33-007(b)-21	450-500
AAA9007	33-007(b)-23	200-350
AAA9008	33-007(b)-24	300-1,400
Area 6		
AAA9848	33-007(c)-9	6,000-10,000
AAA9844	33-007(c)-5	7,000-135,000

Appendix 1

GEOPHYSICAL INVESTIGATION OF TECHNICAL AREA 33
EAST SITE AND SOUTH SITE
(OPERABLE UNIT 1122),
LOS ALAMOS NATIONAL LABORATORY

Prepared for:

Los Alamos National Laboratory

Los Alamos, New Mexico

Prepared by:

ICF Kaiser Engineers, Inc.

Rancho Cordova, California 95742

April 1994

GEOPHYSICAL INVESTIGATION OF TECHNICAL AREA 33
EAST SITE AND SOUTH SITE (OPERABLE UNIT 1122)
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Martin J. Miele

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GEOPHYSICAL INVESTIGATION OF TECHNICAL AREA 33
EAST SITE AND SOUTH SITE (OPERABLE UNIT 1122)
LOS ALAMOS NATIONAL LABORATORY

1.0 INTRODUCTION

This report presents the results of a geophysical investigation performed by ICF Kaiser at Technical Area 33 (TA-33) in Operable Unit 1122 at the Los Alamos National Laboratory (LANL), Los Alamos, New Mexico. The field survey was performed during the period April 5 through 15, 1994.

2.0 BACKGROUND AND OBJECTIVES

Technical Area 33 (TA-33) is located within Operable Unit 1122 at Los Alamos National Laboratory. Four areas within TA-33 were surveyed with geophysics during this investigation. Three of the four areas are located within the East Site (SWMU 33-006(b) - Large Berm; SWMU 33-008(b) -Landfill Site; and a portion of SWMU 33-007(a) - Small Berm West of Gun Mount TA-33-116). One area is located within the South Site (SWMU 33-007(b) - Firing Area). A discussion of each investigation area and objectives of the geophysical investigations are presented in the following sections.

2.1 TA-33 - East Site - SWMU 33-006(b), SWMU 33-008(b), SWMU 33-007(a)

The three investigation areas located within the East Site at TA-33 are generally adjacent to each other. The largest site is SWMU 33-006(b), referred to as the Large Berm. It consists of two large adjacent crescent-shaped berms with a vault located between them. In the center of each crescent is a concrete shot pad (TA-33-97 and TA-33-98). The investigation area for SWMU 33-006(b) is approximately 240 feet by 400 feet. SWMU 33-007(a) is located southwest of SWMU 33-006(b) and consists of a smaller berm located adjacent to vault TA-33-95. The berm is elongated and extends south of the vault to the local access road. The investigation area for this portion of SWMU 33-007(a) is approximately 50 feet by 200 feet. SWMU 33-008(b) is located immediately east of sandbox TA-33-151 and is referred to as the Landfill Site. It is located adjacent to SWMU 33-006(b) and SWMU 33-007(a). The area of investigation for the Landfill Site is approximately 70 feet by 240 feet.

Uranium projectiles containing beryllium and polonium-210 or cobalt-60 were used in gun tests at SWMU 33-006(b) and SWMU 33-007(a). The projectiles were not detonated. Some were shot into the berms and others were shot into catcher boxes for recovery and later sectioning. During a test firing in 1962, a projectile apparently disintegrated in the gun barrel. Cobalt-60 needles and 30 kg of deleted uranium were lost. A five day search by 10 people failed to locate more than the front end piece and most of the projectile.

The Landfill was established in 1984 as a disposal site for a major cleanup of the firing sites at TA-33. All debris was checked for radioactivity and radioactive material and was sent to TA-54. The non radioactive

debris was then reported to be buried. Buried material was reported to consist of timbers, vermiculite contaminated with small amounts of lead, beryllium and high explosives.

The purpose of the geophysical surveys at SWMU 33-006(b) and SWMU 33-007(a) is to assess the location of geophysical anomalies that might indicate the presence of buried projectiles (metal objects). The purpose of the geophysical surveys at SWMU 33-008(a) is to assess the location of geophysical anomalies that might indicate the presence of buried debris (metallic and nonmetallic).

Electromagnetic induction (EM) and magnetometer/gradiometer (MAG) surveys were performed within the three investigation areas at the East Site (TA-33). The information will be used for assessing the location of possible buried projectiles or fragments and buried debris. The results will be used for locating sample points and designing a sampling approach in these areas.

2.2 TA-33 - South Site - SWMU-007(b)

The TA-33 South Site consists of two gun firing areas, however, one site was investigated with geophysics. The site is located 600 feet north of TA-33-26 and consists of a 6-foot square concrete pad (gun mount TA-33-85); a 125-foot diameter half-circle berm (TA-33-43); and an area west of the berm used to test a free-recoil weapon. The site was excavated into bedrock tuff during construction. The geophysical investigation area covers all of these areas and is approximately 250 feet by 400 feet.

TA-33-43 was built in 1950 and TA-33-85 was completed in 1952. Shots fired at this location contained uranium, beryllium, titanium, and tritium, all encased in thin steel shells. Penetrator tests were performed with a free-recoil weapon firing projectiles into the cliff. Activities at the south site were discontinued in the 1950's.

The western portion of the investigation area is presently being utilized to obtain atmospheric physics measurements. A large tower (TA-33-203) and numerous antennas presently occupy the western section of the investigation area. Numerous cables and wires are located on the ground surface throughout the investigation area. In addition, Trailers TA-33-201 and TA-33-202 are located in the southwestern portion of the investigation area.

The purpose of the geophysical surveys at the South Site (SWMU 33-007(b)) is to assess the location of geophysical anomalies that might indicate the presence of buried projectiles (metal objects). Electromagnetic induction (EM) and magnetometer/gradiometer (MAG) surveys were performed within the investigation area at the TA-33 South Site to assess the location of possible buried projectiles/debris. The results will be used for locating sample points and designing a sampling approach in these areas.

3.0 METHODOLOGY AND INSTRUMENTATION

3.1 Electromagnetic Induction (EM)

The EM method used for this investigation consists of two coils used to measure two subsurface parameters or components. One of these coils transmits a time-varying electromagnetic signal (primary magnetic field) which induces the flow of electrical current in subsurface materials. The amount of current flow is proportional to the electrical conductivity of the material it permeates. A secondary magnetic field associated with the induced current flow is detected by the second or receiver coil. This secondary signal is complex and has both quadrature and in-phase components.

The quadrature component has an amplitude that is proportional to the conductivity of subsurface materials. The measured conductivity is an apparent conductivity, referred to as "terrain conductivity", and represents the resultant conductivity of the particular volume of material. Terrain conductivity values can vary vertically and/or horizontally and are effected by the presence of buried metallic debris, differences in moisture content and the lithologic character of subsurface materials. Terrain conductivity measurements are commonly used in areas where rapid data acquisition is required. These measurements can be used to delineate trench fill material, determine the presence of buried objects (especially metallic), map contaminant plumes and other applications. The in-phase component is sensitive to contrasts in subsurface conductivity's. In-phase measurements are commonly used as a gross indicator of buried metal debris or large metallic objects.

Our instrumentation consists of a Geonics EM31-DL ground conductivity meter and an Omnidata data logger. The data logger stores both the quadrature and in-phase components as well as horizontal grid control data and field notes. These data are downloaded to a computer for further processing.

The EM system has a fixed coil separation of 12 feet which results in a depth of investigation of 15 to 18 feet under optimum conditions. The actual investigation depth is dependent upon local site parameters, in particular the conductivity of shallow subsurface materials. For example, the presence of a highly conductive clay layer can reduce the depth of investigation.

3.2 Magnetometer/Gradiometer (MAG)

A magnetometer is used to measure the earth's resultant magnetic field (total magnetic field) at a particular location on the surface of the earth. The resultant magnetic field consists of the earth's ambient magnetic field as well as contributions from magnetic fields or disturbances caused by localized features or objects. Total magnetic field values are dependent upon factors such as: geographical location, the magnetic susceptibility of shallow and deep subsurface materials, localized buried objects or subsurface features.

A magnetic gradiometer consists of two magnetic sensors separated by a fixed distance (typically one meter) on a staff which is held vertically for each measurement. The total magnetic field is measured at each sensor and the difference in the two readings is proportional to the vertical gradient of the earth's magnetic field. Vertical magnetic gradient measurements act as a high pass filter reducing the effects of low frequency back-

ground variations caused by local geology or topography. Because of this effect, vertical magnetic gradient measurements provide better resolution of sources or targets that are buried relatively shallow (less than 20 feet). Areas with buried ferrous metal objects or a significant amount of small metallic debris typically produce anomalistically high magnitude vertical magnetic gradients.

Magnetometer and gradiometer surveys are used for many purposes related to engineering, environmental, geologic and archaeological studies. However, magnetometers are very sensitive to disturbances or interferences caused by local cultural features such as overhead power lines, buried utilities, fences, surface metal, buildings, as well as by any localized high intensity electromagnetic disturbance (magnetic storms, large transmitters). A field test program should be implemented to assess the utility of magnetometer readings for each separate site.

Our instrumentation consisted of a GEM GSM-19 proton precession magnetometer/gradiometer. The instrument features a microprocessor with memory and stores both total field and vertical magnetic gradient data for each measurement location, as well as survey grid information. The gradiometer function is a "true gradiometer" in that both magnetic sensors are activated at the same instant in time. The magnetic data is down loaded to a computer at the end of each field day for further processing.

4.0 DATA ACQUISITION

A survey grid was established within all of the investigation sites at the TA-33 East Area and South Area prior to our arrival. The grid markers consisted of wooden lath and flagging. The survey grid markers were used to locate all geophysical traverses and measurement locations along each traverse. The grid markers were placed on 20 foot centers in the Large Berm (SWMU 33-006(b)), Western Berm (SWMU 33-007(a)) and Landfill (SWMU 33_008(b), and Antenna Areas (SWMU 33-007(b)). Both EM and MAG measurements were obtained on 5-foot centers throughout each investigation area.

Before performing the EM surveys, zero calibration and phase calibration procedures were performed on the EM system. Prior to the MAG surveys the correct reference field for Los Alamos, New Mexico was entered into the memory of the instrument. For the EM survey both quadrature and in-phase measurements were obtained at 5 foot intervals along traverses spaced 5 feet apart. For the MAG surveys both total field and vertical magnetic gradient measurements were obtained along the same traverses and at the same locations as the EM survey. At the end of each field day the EM and MAG data were downloaded from the data logger to a computer disk for further processing.

During the EM and MAG surveys the locations of all surface features, objects, buildings and debris were noted and referenced to the grid system. The locations of all of the above features were plotted on location maps. These maps were used in conjunction with the geophysical data for interpretation.

5.0 DATA ANALYSIS

The EM and MAG data were downloaded to a computer and stored on magnetic tape at the end of each field day. At the conclusion of the survey, the data were collated and computer processed using a contouring package (SURFER IV, Golden Software). The software first computes a uniform grid from the data. The values at the grid nodes were then computer contoured producing EM and MAG contour maps.

A terrain conductivity (quadrature) and in-phase component contour map was generated from the EM data, and a vertical magnetic gradient contour map was generated from the MAG data. These maps were used to locate target anomalies that are typical of buried metal objects and debris. They are characterized by localized zones of high magnitude quadrature, and/or vertical magnetic gradient contours. They may be an accumulation of small features with closed contours or may be larger areas.

Surface structures/debris can generate similar anomalies as those caused by buried objects or debris. Therefore, the locations of all EM and MAG anomalies were compared with the maps showing locations of surface features, structures and debris in the field area. Careful inspection and comparison between the geophysical maps and maps showing surface features indicates which anomalies are associated with a given surface feature. Geophysical anomalies that were not associated with the location of known surface items were considered target anomalies. The location of these anomalies may represent the location of buried objects/debris. However, due to instrument sensitivity the area covered by the geophysical anomalies is slightly greater than the area where buried debris or an object exists.

6.0 RESULTS

The results of the geophysical surveys are presented on Figures 1 through 12 which are the geophysical contour maps for each area of investigation. The overall results from comparing the geophysical maps with our field maps indicating the location of surface features and structures (interferences) are discussed in the following subsections. For this draft report, the anomalies associated with (caused by) the surface features are not discussed as they are not the objective of these investigations. The anomalies which are not associated with known surface structures are of interest and those are the anomalies discussed in the following subsections of this report.

6.1 TA-33 - East Area Results

<u>Landfill Site Results</u>

Two anomalies exist in the Landfill Site area that are not associated with surface structures. The most prominent anomalous area occurs between 20E and 60E and between 25N to 55N. High magnitude anomalies occur on all of the EM and MAG contour maps (vertical magnetic gradient, terrain conductivity and in-phase) in that area, however the lateral extent of the anomalous zone is best represented on the EM contour maps. The high gradiometer measurements that also occur in the anomalous area are due to the presence of a considerable amount of ferrous metal. This anomalous zone may be the landfill area since no

surface structures are located in that area. One other anomaly located at -5N and 110E may indicate a possible buried object(s) and that location. However, the anomaly occurs within 15 feet of a concrete pad located toward the south which may be the cause of the anomaly. All other EM and MAG anomalies occur in areas where surface structures/objects and buried utilities exist.

Small Berm Area Results

Two anomalies exist in the Small Berm Area that are not associated with surface structures. These anomalies are most prominent on the vertical magnetic gradient contour map. One is located at 40E, 130N and the other is located at 45E, 145N. Both anomalies cover small areas and may be representative if small buried metal objects. They are located between 30 and 50 feet away from the nearest surface feature that could cause interference. At that distance they are most probably caused by buried sources (objects). The other EM and MAG anomalies that exist in the Small Berm Site occur in areas where surface structures/objects exist. These are mostly due to the large test pad and bunkers to the north and two large unmovable metal objects on the western perimeter of the site.

Large Berm Area Results

Numerous anomalies of limited lateral extent occur in the Large Berm area which are not associated with known surface structures or objects. These anomalies are best represented on the vertical magnetic gradient contour map. They occur in two general zones. The first zone consists of the hatchured and non-hachurerd closed contours that extend between 0E, 50N and approximately 200E and 400N. These are small magnitude magnetic anomalies (± 20 to ± 60 gamma's/meter) that are not associated with surface objects and generally occur on the berm material and its northern slope in that area. They may be caused by small to medium sized buried metal objects.

The second zone exhibiting anomalies is located between 240E and 340E and between 80N and the northern perimeter of the area. These anomalies are similar to the MAG anomalies on the western side of the area which are discussed in the previous paragraph. There is one very high magnitude anomaly at approximately 260E, 90N in the second zone. No surface features occur in that area as it is the northern slope of the berm. However, a metallic object which resembles a piece of projectile was observed on the surface in that general area prior to the MAG survey.

6.2 TA-33 - South Site Results

The vertical magnetic gradient contour map shows generally high gradients and numerous MAG anomalies throughout the South Site investigation area. Although there are numerous surface interferences in the area (antennas, trailers, fences, cables, powerless, etc.), many of the anomalies occur in areas where bedrock (tuff) outcrops which are reasonably far enough away from surface features. Due to the occurrence of high magnetic gradients at these bedrock outcrops it is interpreted that the bedrock contains a relatively high

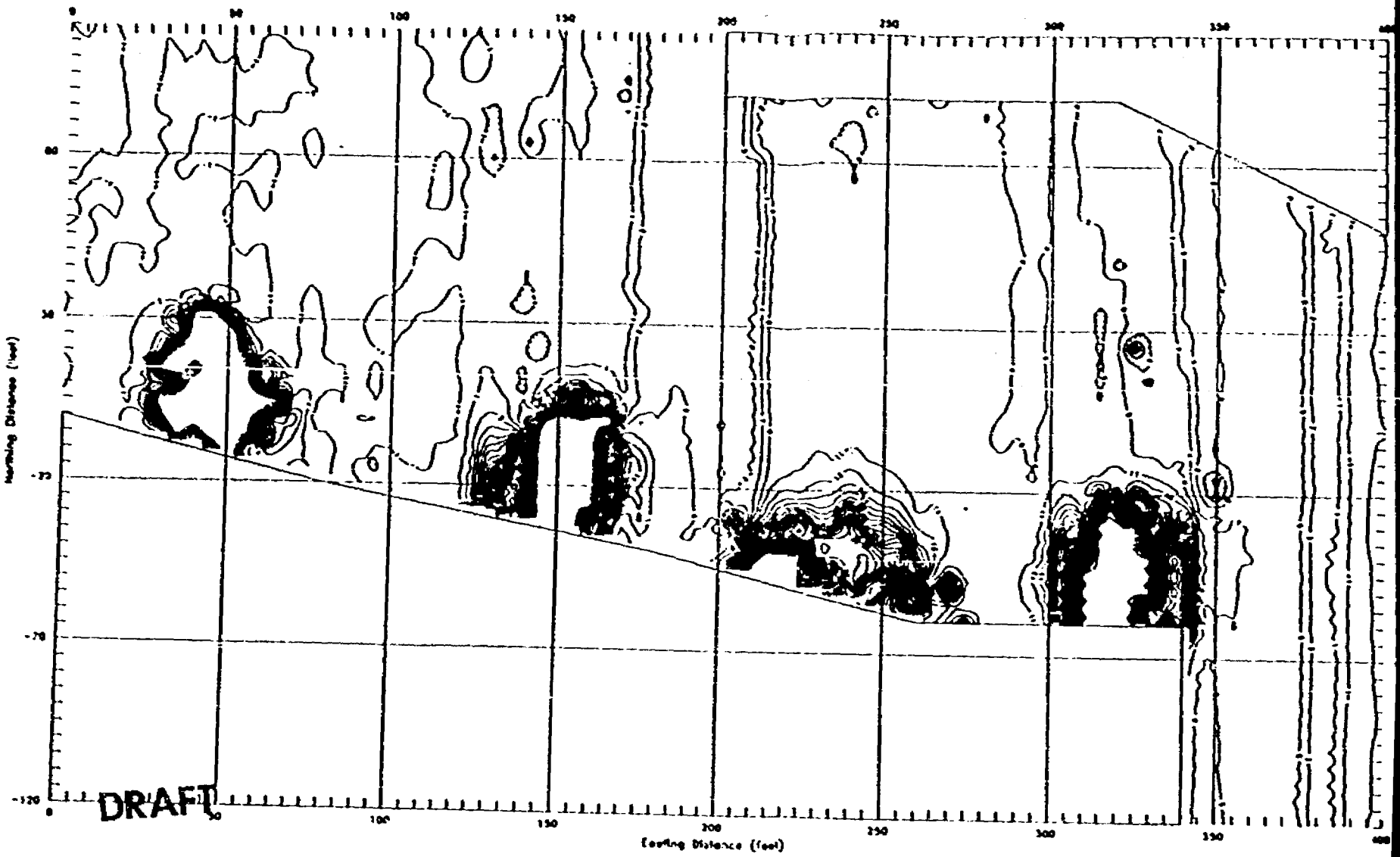
concentration of magnetic or ferrous minerals that interfere with the magnetometer readings. We have encountered these conditions at three other sites at Los Alamos National Lab.

One anomaly occurs on the EM contour maps that is not associated with a known surface structure or object. It occurs at approximately 320E, 100N and is a high magnitude anomaly which is approximately 40 feet long and 20 to 30 feet wide on the EM contour maps. A magnetic anomaly also occurs at that location. The anomaly occurs in a low area surrounded by a crescent shaped berm. The surface consists of loose soil or fill material at that location. There are no surface features that would cause the anomalous readings at that location. The anomaly is similar to the anomaly located at 320E, 175N which is associated with a metal reinforced concrete slab.

The remainder of the anomalies located on the EM contour maps are associated with (probably caused by) the numerous interferences located at the South Site (antennas, trailers, fences, cables, power lines, etc.).

7.0 DISCUSSION

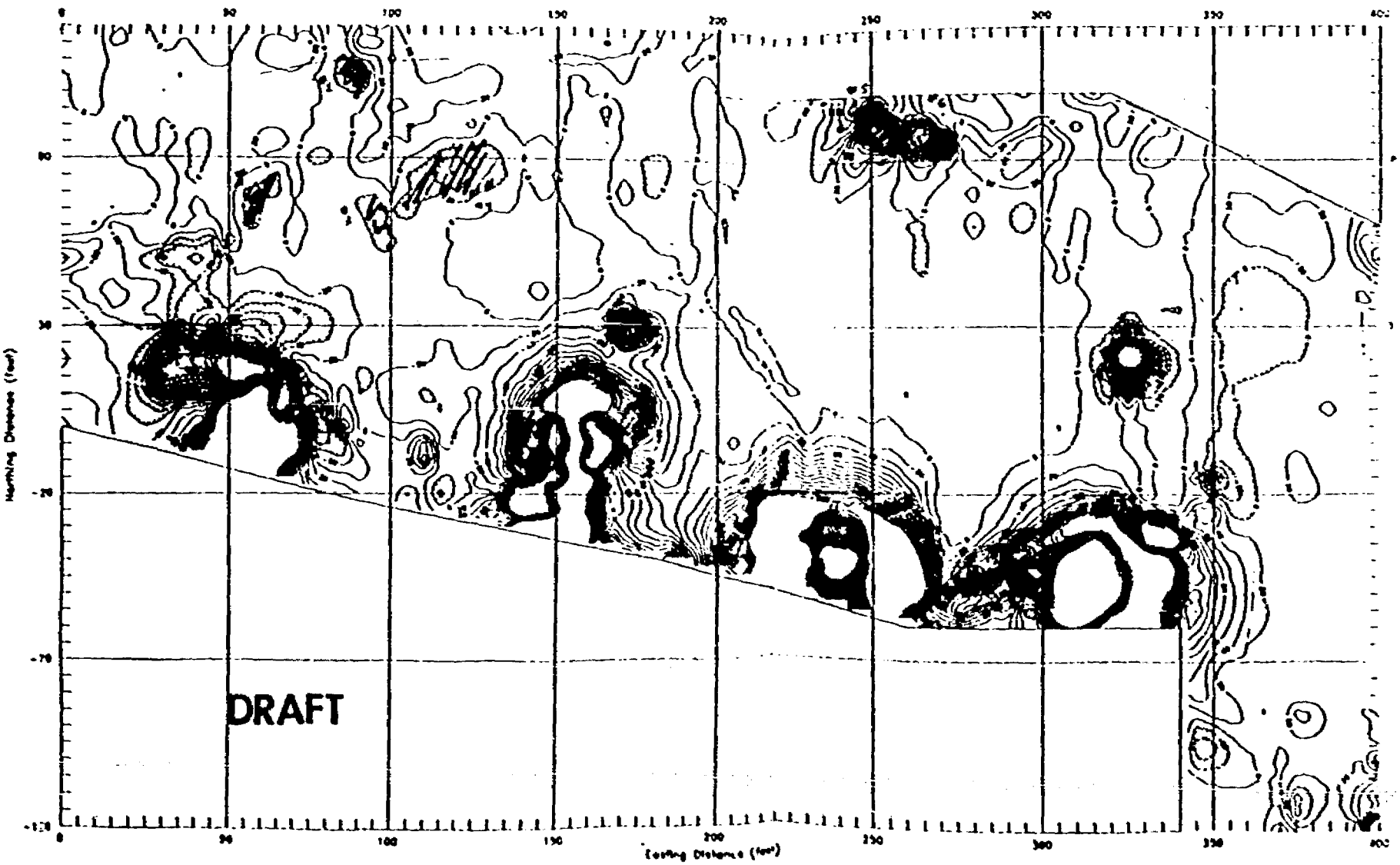
TA-33 EAST AREA - LARGE BERM - IN PHASE COMPONENT (ppt)



#1

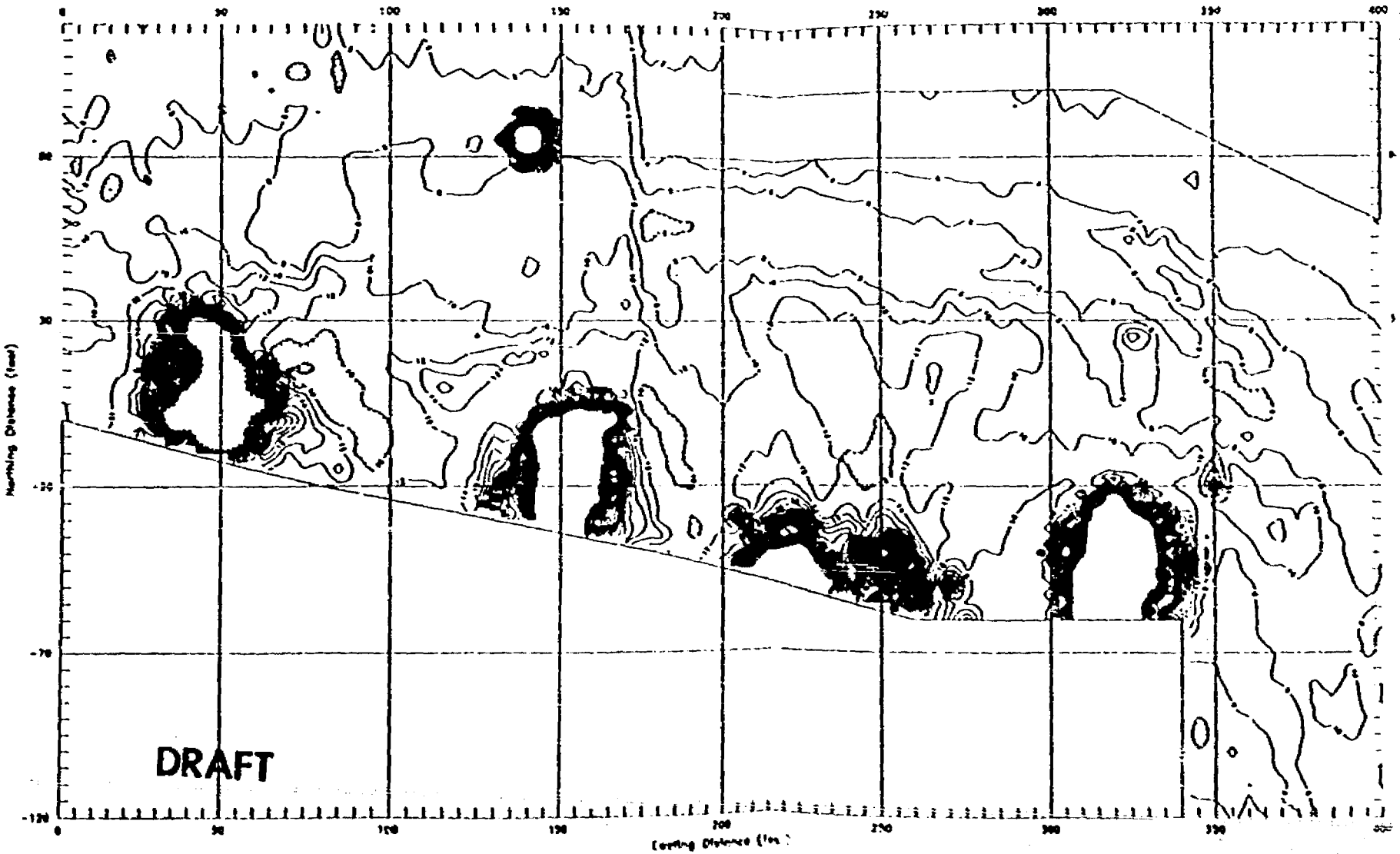
#2

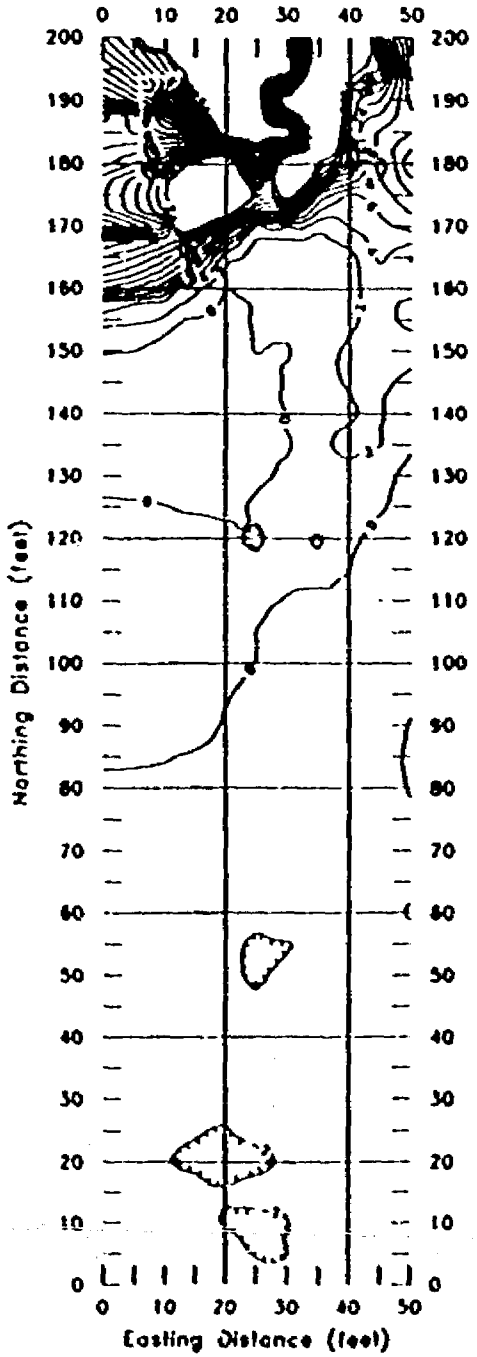
TA-33 EAST AREA – LARGE BERM – VERTICAL MAGNETIC GRADIENT (gammas/m)



#3

TA-33 EAST AREA - LARGE BERM - TERRAIN CONDUCTIVITY (mS/m)



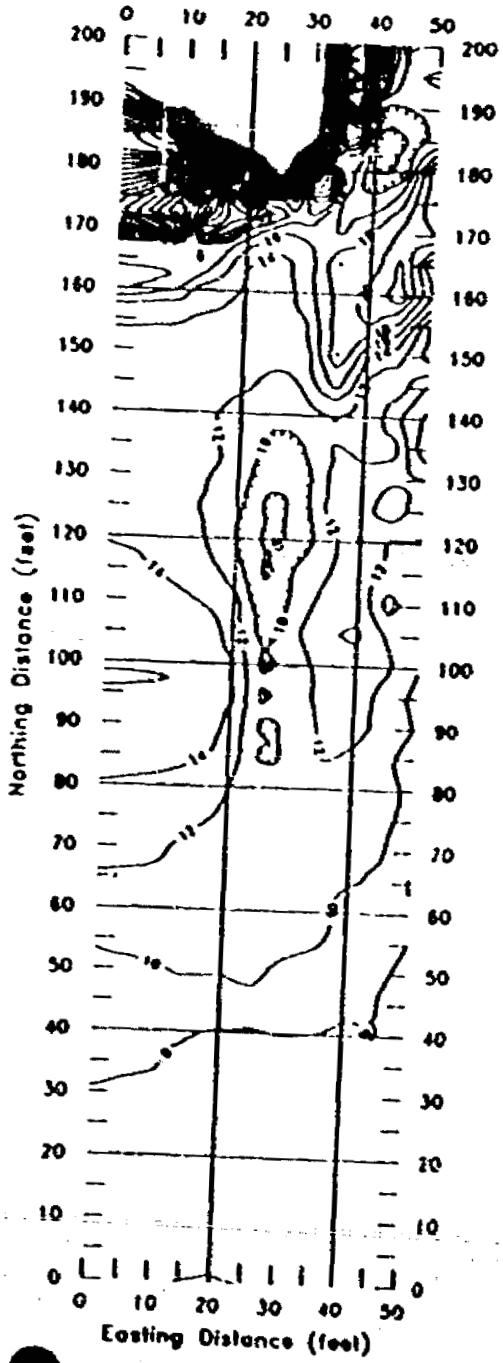


TA-33 EAST AREA - WEST BERM - IN-PHASE COMPONENT (ppt)

SCALE 1 inch = 30 feet

DRAFT

#4

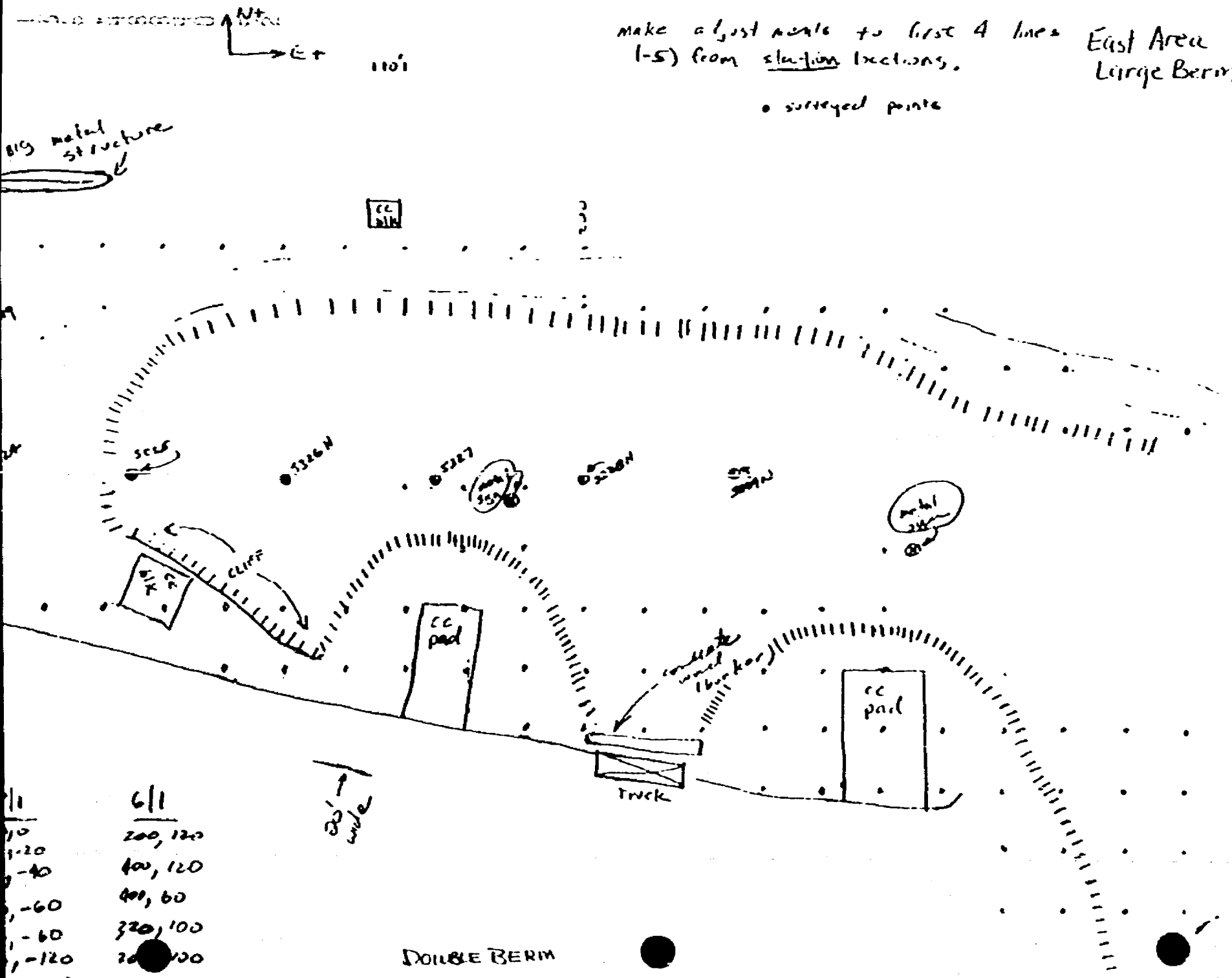


TA-33 EAST AREA - WEST BERM - TERRAIN CONDUCTIVITY (mS/m)

SCALE 1 inch = 30 feet

DRAFT

#5


N+
E+
110'
make adjust scale to first 4 lines (1-5) from station locations.
East Area Large Berm
• surveyed points
#6
big metal structure
CC blk
SCCS
5326N
5327
CC blk
CLIFF
CC pad
concrete wall (bunker)
CC pad
Truck
30' wide
6/1
200, 120
400, 120
400, 60
320, 100
DOUBLE BERM

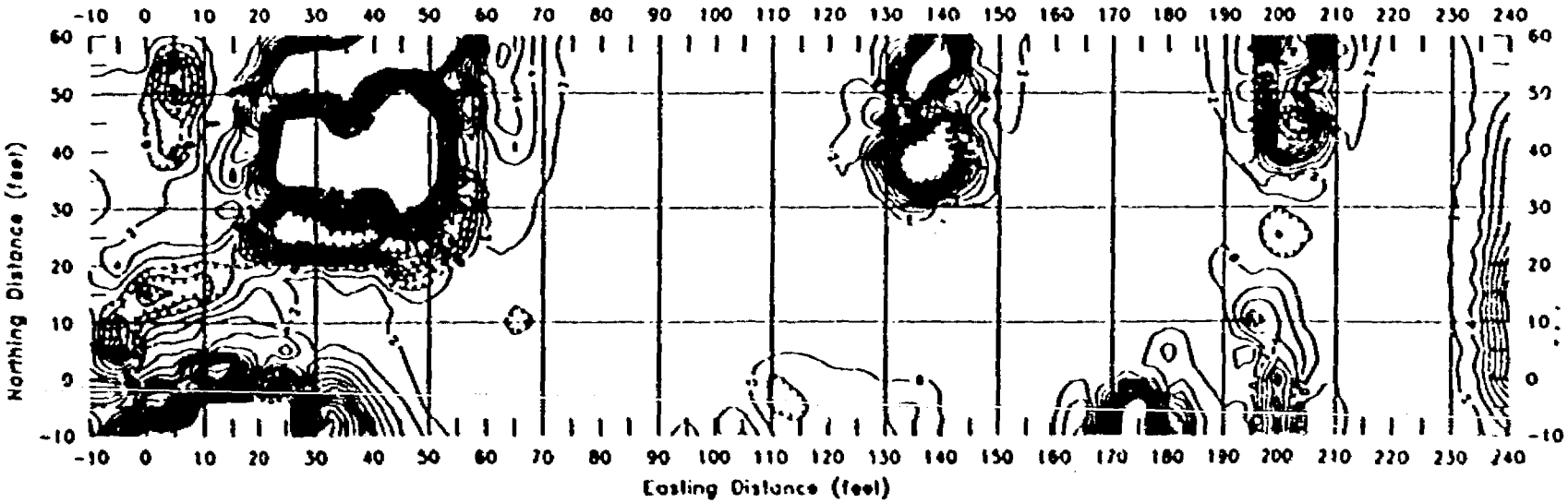
110'
SW
(5'0")
5313
5320
5315
Forested (Mature)
Site of the proposed
Dish
Lumber
#7

8

DRAFT

SCALE 1 inch = 30 feet

TA-33 EAST AREA - LANDFILL SITE - IN-PHASE COMPONENT (ppt)

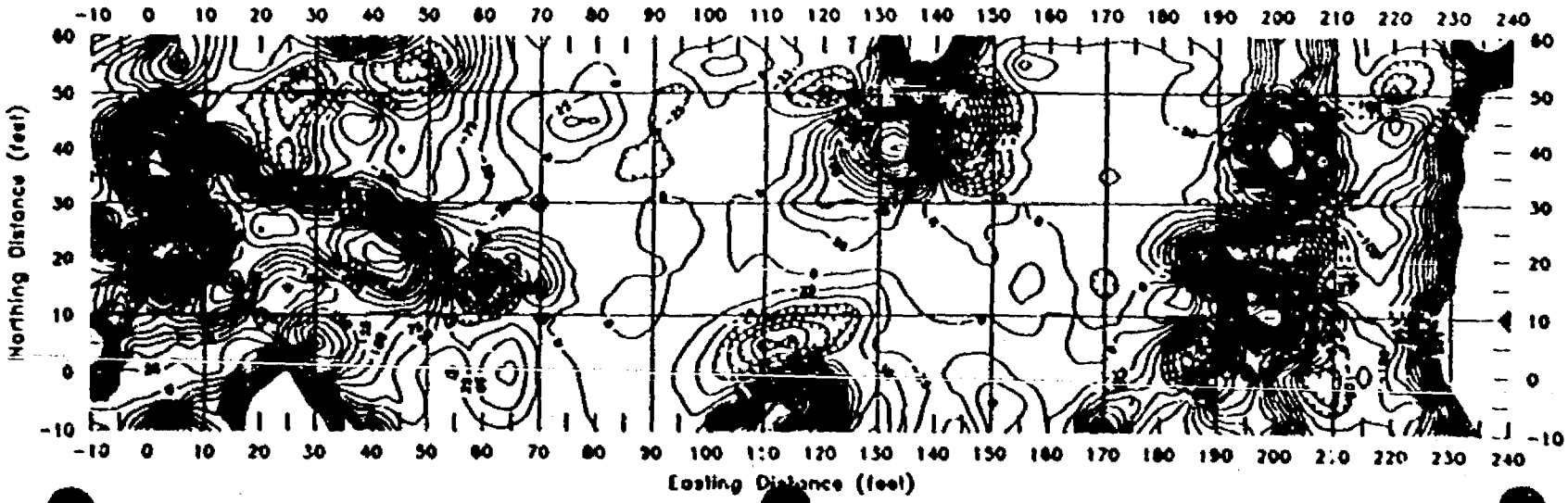


#5

DRAFT

SCALE 1 inch = 30 feet

TA-33 EAST AREA – LANDFILL SITE – VERTICAL MAGNETIC GRADIENT (gammas/m)

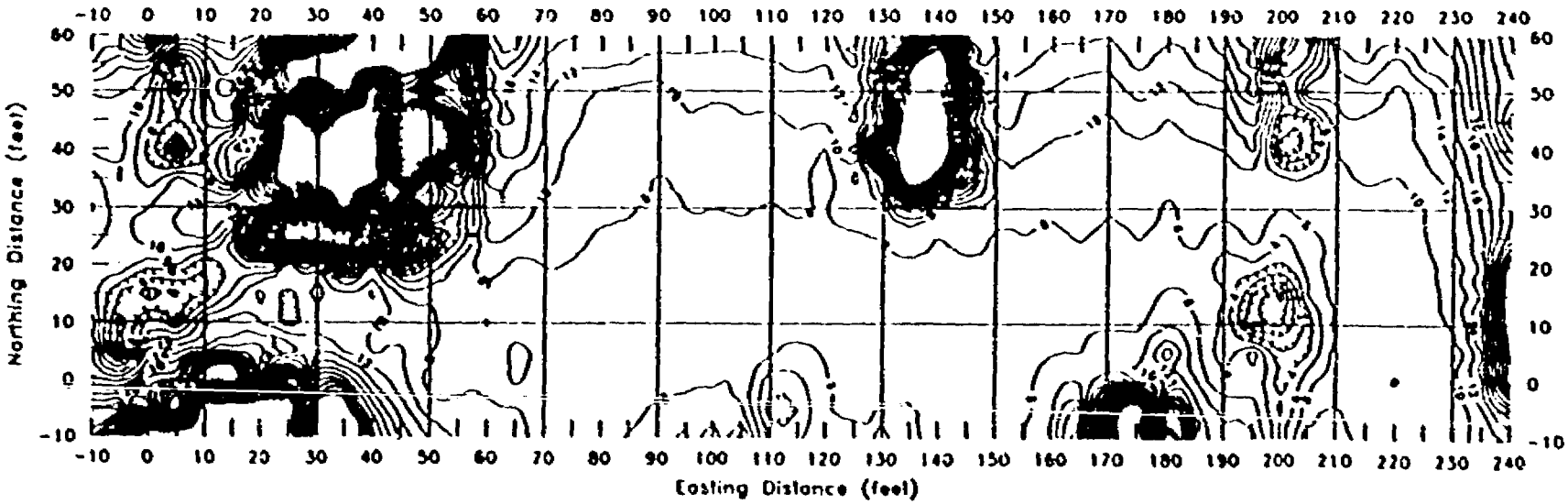


#10

DRAFT

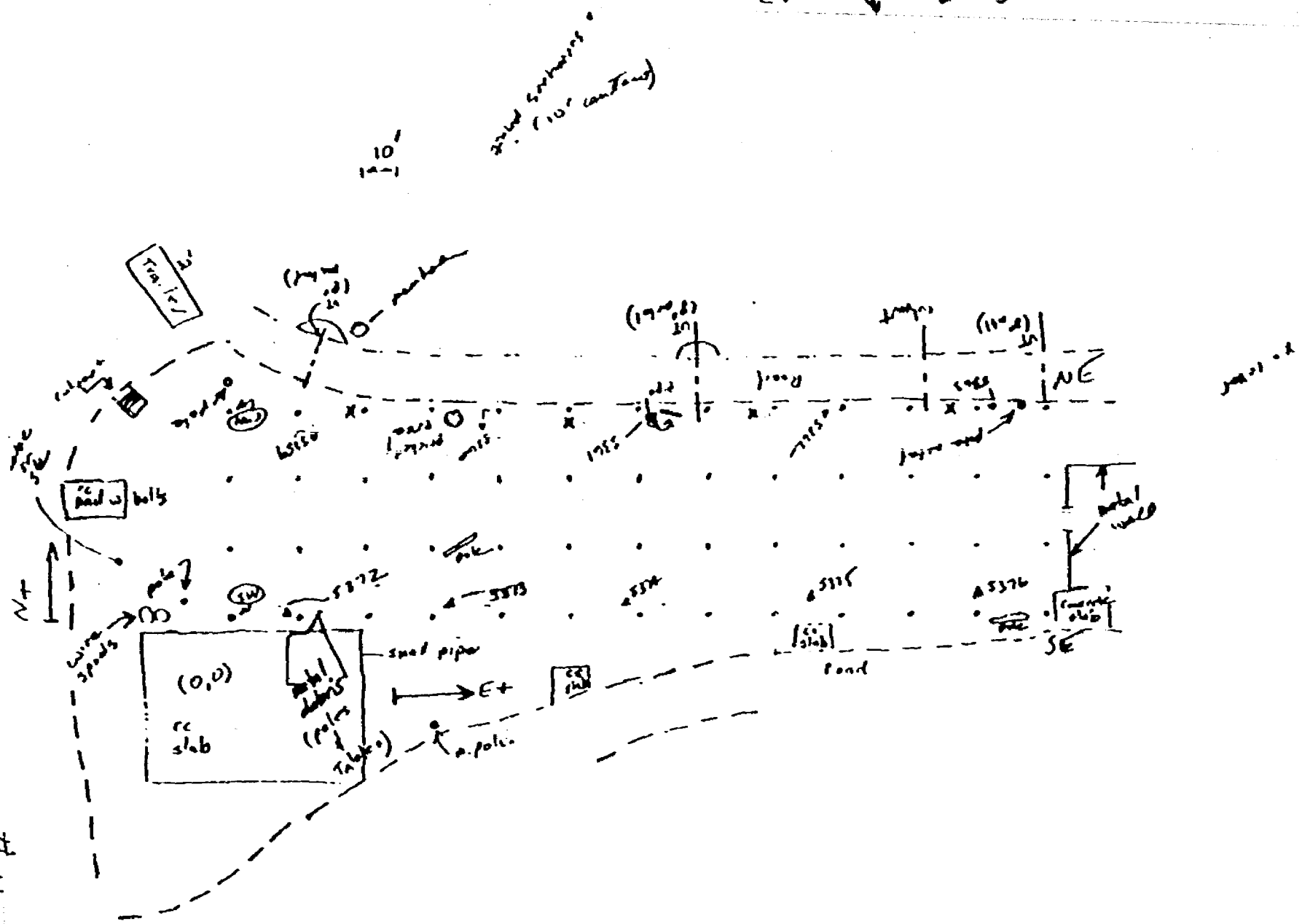
SCALE 1 inch = 30 feet

TA-33 EAST AREA - LANDFILL SITE - TERRAIN CONDUCTIVITY (mS/m)



LANDFILL SITE

Mag <--> lines
EM ↕ Lines

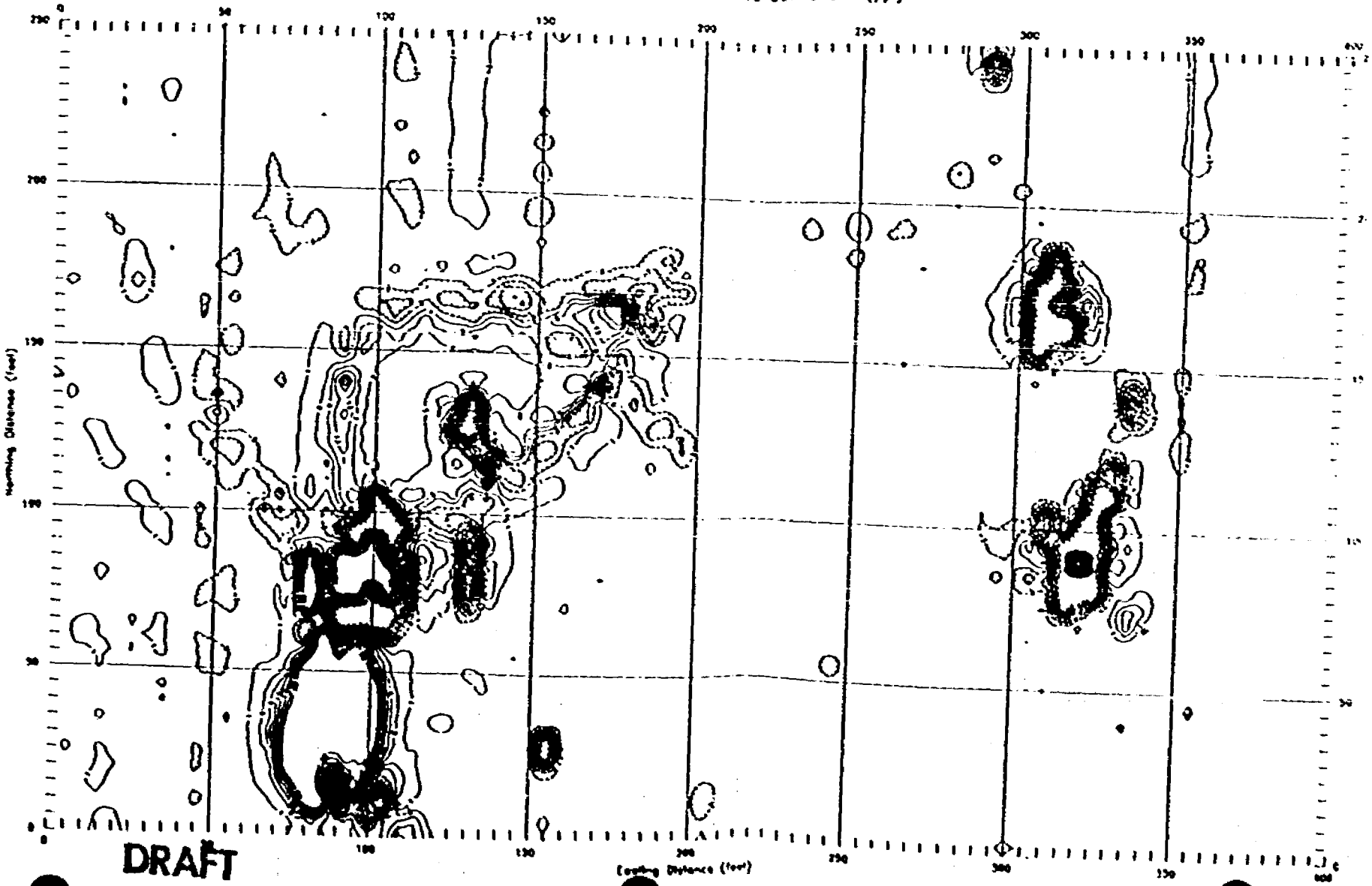


#11

NOT DECODED ONLY

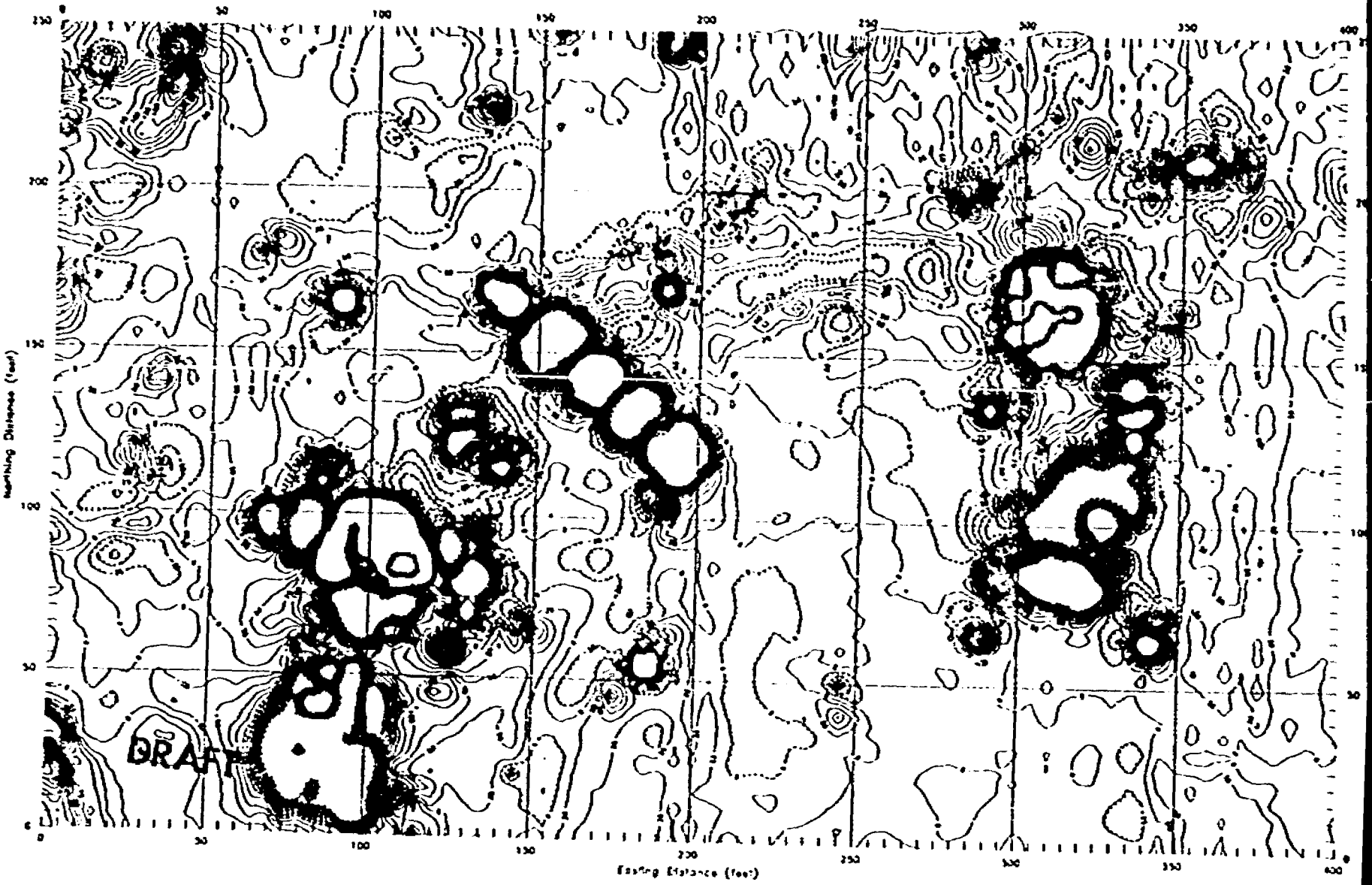
#12

TA-33 SOUTH AREA - IN PHASE COMPONENT (ppt)



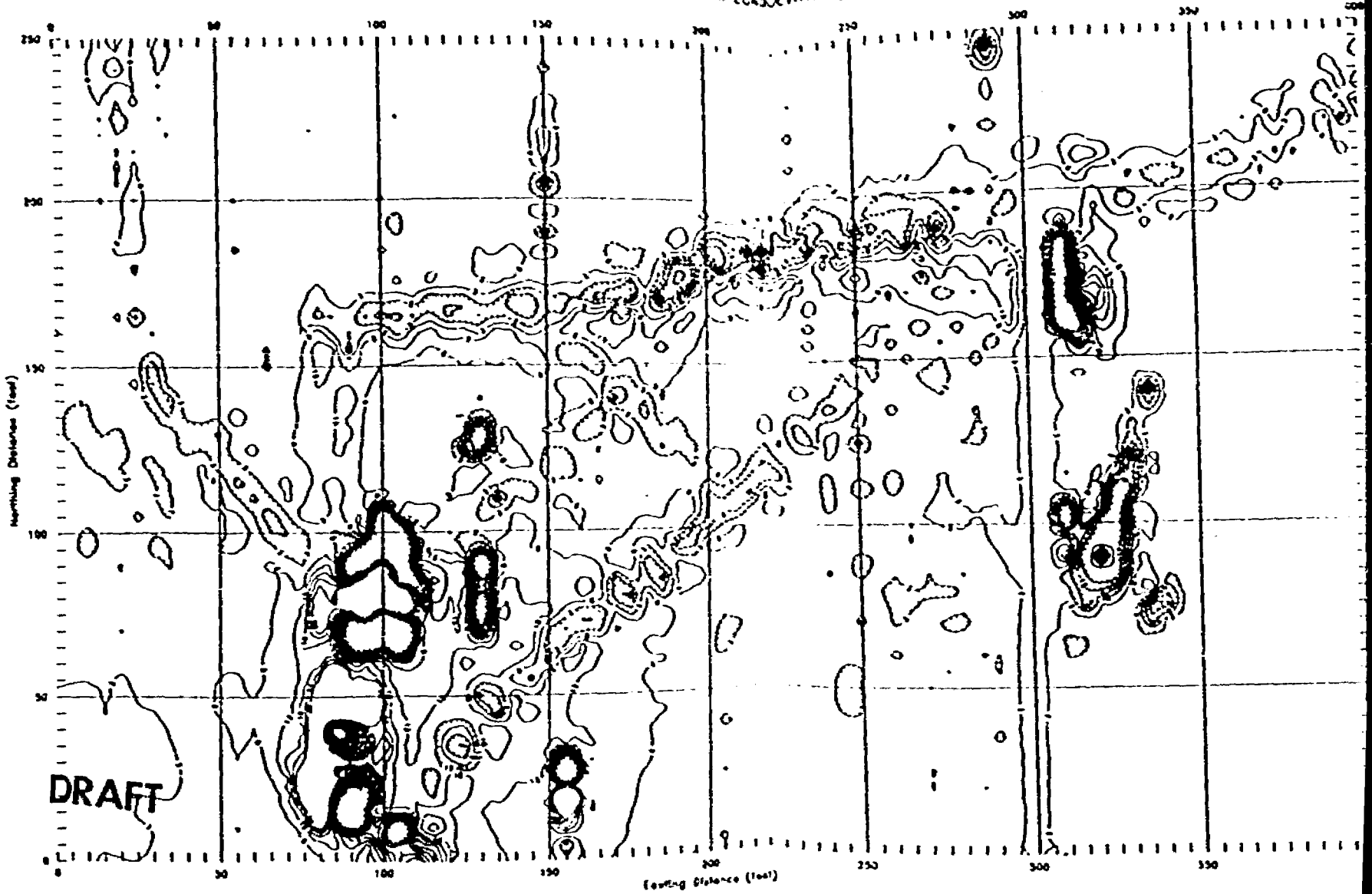
DRAFT

TA-33 SOUTH AREA – VERTICAL MAGNETIC GRADIENT (gammas/m)

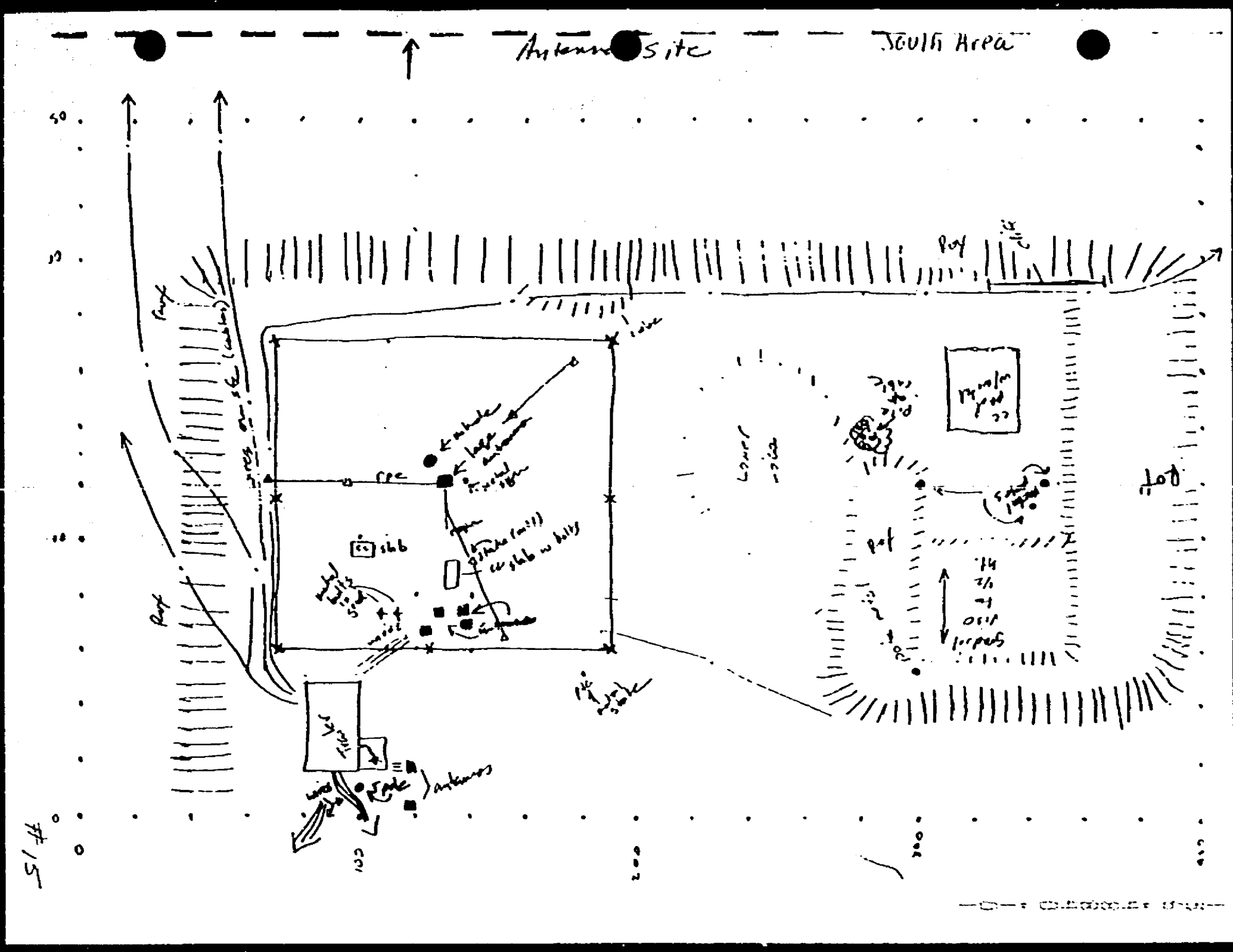


#13

TA-33 SOUTH AREA - TERRAIN CONDUCTIVITY (mS/m)



#14


Antenna site
South Area
Park
Park
Pot
Pot
Pot
Lot
slab
Antennas
#15

Appendix 2

Job ID : 33
Job name : TA33 SITE CONTROL FOR SWMU/GRID POINTS
Description : GRID's/SWMU's FOR SOUTH, EAST AND NRAO SITES
Reference : 93069-010-01 - LYNN KIDMANN
Field surveyor : PEIFFER,TRUJILLO,O'FLYNN,GABALDON
Computer operator : GABALDON
Date printed : 31/01/94 10:47am

----------NAD27 COORDINATE LISTING----------

Pt No.	Northing	Easting	Elev	Code	Description
100	1735946.6	499683.8	6412.3	FENCE CORNER	
101	1735802.1	499676.8	6408.9	FENCE CORNER	
102	1735792.4	499878.2	6409.2	FENCE CORNER	
103	1735933.8	499884.6	6412.5	FENCE CORNER	
104	1735800.0	499900.0	6408.6	5119	
105	1735800.2	499700.0	6409.3	5117	
106	1735800.2	499600.0	6401.9	5116	
107	1735800.0	499500.0	6375.5	5115	
108	1735799.8	499399.9	6404.2	5114	
109	1735800.1	499300.1	6410.1	5113	
110	1735900.0	499300.0	6416.1	5104	
111	1735899.9	499199.9	6416.9	5103	
112	1735900.4	499100.4	6409.8	5102	
113	1735999.9	499099.9	6418.9	5088	
114	1736000.1	499200.1	6423.5	5089	
115	1736000.0	499300.0	6419.6	5090	
116	1735999.5	499399.7	6411.0	5091	
117	1736000.1	499450.0	6405.4	5092	
118	1735999.9	499500.0	6400.6	5093	
119	1735999.9	499550.0	6397.2	5094	
120	1736000.1	499600.0	6405.5	5095	
121	1735999.8	499650.0	6410.4	5096	
122	1735999.7	499699.9	6414.7	5097	
123	1735999.9	499800.0	6417.8	5098	
124	1736000.0	499900.0	6413.6	5099	
125	1735899.6	499900.1	6412.6	5110	
126	1735899.6	499599.9	6403.6	5107	
127	1735900.6	499500.2	6399.2	5106	
129	1735899.9	499400.0	6408.1	5105	
130	1736049.9	499449.9	6408.5	5083	
131	1736049.9	499500.0	6396.5	5084	
132	1736050.1	499550.0	6396.5	5085	
133	1736050.0	499600.0	6405.2	5086	
134	1736050.3	499650.1	6410.6	5087	
135	1736100.2	499650.0	6410.8	5079	
136	1736100.1	499700.0	6416.8	5080	
137	1736099.9	499800.0	6419.6	5081	
138	1736100.0	499900.0	6415.4	5082	
139	1736200.1	499900.0	6415.1	5063	
140	1736200.2	500099.9	6397.0	5064	
141	1736200.0	500250.0	0.0		
142	1736200.0	500250.0	0.0		
143	1736200.0	500250.1	6399.4	5128	
144	1736100.0	499600.0	6405.4	5078	
145	1736099.7	499549.8	6397.5	5077	
146	1736100.2	499500.1	6406.0	5076	
147	1736099.8	499449.8	6407.6	5075	
148	1736100.0	499400.0	6415.2	5074	
149	1736100.1	499300.1	6424.4	5073	
150	1736100.1	499200.1	6424.7	5072	
151	1736100.1	499100.1	6430.5	5071	
152	1736200.0	499100.0	6433.1	5052	
153	1736199.9	499199.9	6428.3	5053	
154	1736200.0	499300.0	6428.5	5054	
155	1736200.1	499400.0	6420.6	5055	

156	1736200.0	499450.0	6415.9	5056
157	1736199.8	499499.9	6412.1	5057
158	1736200.0	499550.0	6407.9	5058
159	1736200.0	499600.0	6405.7	5059
160	1736199.9	499650.0	6411.9	5060
161	1736149.7	499649.9	6411.5	5070
162	1736150.1	499600.0	6406.7	5069
163	1736149.8	499549.9	6403.4	5068
164	1736150.0	499500.0	6406.7	5067
165	1736150.1	499450.1	6412.5	5066
166	1736199.8	499700.0	6416.3	5061
167	1736200.0	499800.0	6421.4	5062
168	1736300.1	499800.0	6423.1	5050
169	1736300.0	499900.0	6415.6	5051
170	1736300.0	499700.0	6418.2	5049
171	1736299.8	499599.9	6414.2	5048
172	1736300.0	499500.0	6417.3	5047
173	1736300.0	499400.1	6427.1	5046
174	1736300.0	499300.1	6434.3	5045
175	1736400.0	499299.9	6450.1	5034
176	1736400.0	499400.1	6436.5	5035
177	1736400.2	499500.3	6428.3	5036
178	1736400.0	499600.0	6420.3	5037
179	1736400.0	499700.0	6425.2	5038
180	1736400.2	499800.0	6425.7	5039
181	1736400.5	499899.6	6418.8	5040
182	1736400.1	500099.8	6402.7	5041
183	1736400.1	500299.8	6404.5	5042
184	1736500.1	499899.9	6420.0	5031
185	1736499.7	499800.2	6435.3	5030
186	1736499.6	499699.6	6433.6	5029
187	1736500.1	499600.4	6427.2	5028
188	1736499.8	499499.3	6432.5	5027
189	1736500.0	499399.9	6450.1	5026
190	1739900.0	498700.0	<Null>	5018
191	1740000.0	498700.0	<Null>	5017
192	1736599.9	499500.4	6433.2	5019
193	1736600.1	499599.8	6430.4	5020
194	1736599.8	499700.4	6440.8	5021
195	1736600.1	499800.1	6441.9	5022
196	1736600.0	499900.2	6423.9	5023
197	1736700.1	499900.0	6430.3	5016
198	1736700.2	499800.0	6439.5	5015
199	1736700.0	499700.0	6435.5	5014
200	1736699.8	499600.3	6443.9	5013
201	1736699.9	499500.2	6444.7	5012
202	1736700.0	499400.1	6465.2	5011
203	1736799.8	499400.3	6474.1	5005
204	1736800.4	499499.6	6463.2	5006
205	1736800.0	499600.0	6460.6	5007
206	1736800.0	499700.0	6458.7	5008
207	1736800.1	499800.0	6443.1	5009
208	1736800.0	499900.0	6428.9	5010
209	1736900.0	499600.0	6467.3	5004
210	1737000.2	499599.9	6471.0	5003
211	1737099.8	499600.0	6474.8	5002
212	1737199.8	499600.0	6479.7	5001
213	1737300.1	499600.0	6485.9	5000
214	1736300.6	499099.9	6416.8	5043
215	1736300.0	499200.0	6421.1	5044
216	1736399.8	499199.9	6435.7	5033
217	1736400.3	499100.0	6427.7	5032
218	1736500.6	499200.2	6437.2	5024
219	1736500.3	499300.2	6458.5	5025
220	1735599.9	499300.2	6301.1	5122
221	1735800.0	499200.0	6388.3	5112

222	1735799.6	499100.9	6353.8	5111
223	1735599.7	499500.8	6304.6	5123
224	1735600.0	499700.2	6342.8	5124
225	1735600.0	499900.1	6313.6	5125
226	1735599.6	500100.6	6264.0	5126
227	1735585.5	500191.1	6235.8	SAMPLE 010-9-2
228	1735600.2	500299.8	6217.6	5127
229	1735799.7	500300.3	6259.6	5121
230	1736000.1	500300.0	6348.1	5101
231	1735999.6	500100.4	6371.9	5100
232	1735800.1	500099.9	6322.4	5120
233	1735734.0	500086.3	6315.4	SAMPLE 010-9-1
600	1737699.8	501350.0	6426.9	5200
601	1737700.1	501400.0	6434.3	5201
602	1737651.9	501450.4	6447.8	5205
603	1737650.1	501400.0	6441.0	5204
604	1737649.9	501350.0	6432.5	5203
605	1737350.0	501300.0	6459.2	5233
606	1737399.9	501299.8	6457.5	5230
607	1737399.9	501249.7	6455.2	5229
608	1737400.0	501200.0	6452.8	5228
609	1737450.0	501200.1	6448.9	5223
610	1737450.0	501250.1	6452.8	5224
611	1737450.0	501299.9	6455.3	5225
612	1737450.0	501349.8	6457.4	5226
613	1737449.9	501400.1	6458.1	5227
614	1737400.1	501400.0	6457.7	5232
615	1737400.1	501350.1	6458.5	5231
616	1737500.0	501450.0	6458.0	5222
617	1737500.1	501400.0	6456.5	5221
618	1737500.0	501350.0	6453.9	5220
619	1737500.0	501299.9	6451.8	5219
620	1737500.0	501250.2	6446.4	5218
621	1737499.9	501200.2	6436.7	5217
622	1737550.1	501249.9	6440.0	5212
623	1737550.0	501300.0	6443.2	5213
624	1737550.1	501350.0	6449.7	5214
625	1737550.4	501400.0	6452.4	5215
626	1737550.0	501450.0	6455.1	5216
627	1737600.2	501500.1	6454.7	5211
628	1737600.1	501450.0	6453.1	5210
629	1737600.2	501400.0	6448.0	5209
630	1737600.1	501350.0	6440.1	5208
631	1737599.8	501299.7	6434.7	5207
632	1737599.9	501250.1	6432.4	5206
633	1737649.8	501300.1	6427.1	5202
634	1737399.8	501633.6	6446.4	004M-3.4.5
635	1737396.8	501651.0	6445.0	004M-6.7.8
636	1737405.1	501651.4	6445.2	004M-9.10.11
701	1736561.5	499726.7	6448.9	B43-P1-5
702	1736584.0	499724.4	6441.8	008A1-10
703	1736654.3	499710.2	6434.7	007B-7
704	1736717.2	499715.1	6437.8	007B-8
705	1736599.7	499614.1	6429.9	006A-1
706	1736687.9	499487.1	6436.2	007B-10
707	1736670.9	499547.7	6434.7	007B-2
708	1736196.8	499843.1	6419.9	014-4
709	1736191.9	499822.5	6421.2	014-1
710	1736182.0	499819.1	6420.9	014-2
711	1736186.5	499789.6	6421.2	014-3
712	1736242.8	499611.7	6408.6	006A-3
713	1736460.2	499594.2	6423.0	006A-2
714	1736046.0	499547.2	6394.3	004J-1
715	1736044.9	499547.2	6394.2	004J-2
716	1735988.7	499540.7	6393.3	006A-5
717	1735932.7	499529.9	6389.8	006A-6

718	1735871.5	499529.5	6388.2	006A-7
719	1735850.7	499521.3	6385.3	006A-8
720	1735821.0	499514.0	6377.7	006A-9
721	1735842.6	499471.0	6398.3	010C1-12
724	1736121.7	500022.0	6402.6	010G-4
725	1736162.1	499980.5	6407.8	010G-3
726	1736415.4	499767.0	6428.5	010H1-10
727	1736435.2	499843.0	6422.8	010H-SE-B
728	1736391.5	499730.3	6424.1	010H-SW-B
729	1736391.7	499714.0	6424.0	010H-SE-A
730	1736396.6	499674.0	6420.4	010H-SW-A
731	1736705.1	499800.9	6439.2	010H-NW-B
732	1736683.3	499735.5	6437.0	010H-NE-B
733	1736638.5	499687.6	6435.0	010H-NE-A
734	1736644.9	499646.9	6440.1	010H-NW-A
735	1736710.2	499698.4	6439.5	007B-2-NW
736	1736714.0	499727.2	6439.9	007B-2-NE
737	1736647.6	499737.3	6436.8	007B-2-SE
738	1736644.6	499695.0	6434.6	007B-2-SW
739	1736622.7	499695.6	6435.8	008-A-NW
740	1736625.3	499734.4	6437.2	008A-NE
741	1736578.2	499731.6	6442.1	008A-SE
742	1736579.2	499690.8	6442.5	008A-SW
743	1736700.4	499584.0	6443.8	007B-1-NE
744	1736717.4	499435.2	6460.3	007B-1-NW
745	1735786.4	499510.7	6370.7	006A-10
746	1735725.1	499511.7	6347.7	006A-4
747	1736153.4	499105.9	6420.8	63-P-1-4
748	1736144.9	499113.8	6420.5	007B-6
750	1736151.2	499149.2	6424.5	007B-5
751	1736163.1	499155.8	6425.6	007B-3-NE
752	1736142.7	499242.6	6428.5	011C-SE
753	1736181.0	499173.8	6427.3	011C-SW
754	1736181.0	499221.0	6428.0	011C-1
755	1736165.1	499229.9	6427.9	011C-2
756	1736231.8	499300.2	6430.0	011B-NE
757	1736246.9	499258.6	6430.6	011C-NW
758	1736069.4	499144.1	6423.2	007B-3-SE
759	1736065.9	499105.1	6421.4	007B-3-SW
760	1736170.5	499060.3	6417.3	007B-NW
761	1735929.2	499016.7	6374.9	SAMPLE-PT-004-8
762	1735950.5	499048.6	6408.0	SMPL-PT-004B-6
763	1735948.9	499042.8	6406.0	SMPL-PT-004B-7
764	1735982.3	499072.5	6413.9	SMPLPT004B-3.4.5
765	1735840.8	499462.5	6399.4	010C-SW
766	1735831.1	499490.6	6389.1	010C-SE
767	1735901.4	499526.4	6390.0	010C-NE
768	1735905.3	499494.3	6400.4	010C-NW
770	1736552.7	499584.3	6430.2	007B-1-SE
771	1736559.0	499438.8	6445.1	007B-1-SW
772	1736595.0	499509.1	6433.1	007B-3
773	1736600.1	499534.7	6432.8	007B-9
774	1736576.7	499530.1	6432.3	007B-1
775	1736606.2	499456.5	6438.1	007B-4
1000	1736700.0	505600.0	6412.7	5300
1001	1736699.8	505650.2	6411.0	5301
1002	1736700.1	505700.0	6410.0	5302
1003	1736700.0	505750.0	6407.8	5303
1004	1736700.0	505800.0	6406.2	5304
1005	1736650.1	505799.9	6406.1	5309
1006	1736649.8	505750.2	6408.6	5308
1007	1736650.1	505699.9	6410.4	5307
1008	1736650.0	505649.9	6411.1	5306
1009	1736649.9	505600.2	6413.2	5305
1010	1736600.0	505600.0	6413.0	5310
1011	1736600.0	505650.0	6411.4	5311

1012	1736599.9	505700.1	6409.8	5312
1013	1736600.0	505750.0	6409.1	5313
1014	1736600.2	505799.8	6407.2	5314
1015	1736549.8	505800.2	6406.9	5319
1016	1736550.0	505750.0	6408.3	5318
1017	1736550.0	505700.1	6409.4	5317
1018	1736549.9	505650.4	6411.0	5316
1019	1736550.0	505599.8	6412.0	5315
1020	1736500.0	505600.2	6411.1	5320
1021	1736500.0	505649.7	6409.8	5321
1022	1736500.0	505700.1	6408.5	5322
1023	1736500.0	505750.3	6406.8	5323
1024	1736500.0	505800.0	6405.6	5324
1025	1736500.0	505849.9	6407.7	5325
1026	1736500.0	505900.0	6417.6	5326
1027	1736499.9	505949.9	6416.8	5327
1028	1736500.0	506000.3	6417.4	5328
1029	1736324.8	506200.2	6410.4	6005
1030	1736325.0	506129.9	6395.5	6004
1031	1736370.1	506129.9	6399.8	6003
1032	1736439.9	505800.3	6408.3	6002
1033	1736575.2	505799.7	6406.6	6001
1036	1736575.0	506000.0	6398.5	6011
1037	1736500.0	506200.0	6395.0	6010
1038	1736410.0	505600.0	6420.0	6006
1039	1736410.0	505550.0	6428.9	6007
1040	1736190.0	505550.1	6410.0	6008
1041	1736190.0	505600.0	6409.1	6009
1042	1736500.1	506100.0	6409.3	5330
1043	1736450.1	506099.9	6404.9	5341
1044	1736449.8	506150.1	6407.1	5342
1046	1736450.1	506200.0	6410.1	5343
1047	1736450.0	506050.0	6416.5	5340
1048	1736450.0	506000.0	6408.0	5339
1049	1736450.0	505950.1	6405.4	5338
1050	1736449.9	505900.1	6410.0	5337
1052	1736450.0	505750.0	6409.4	5334
1053	1736450.0	505700.2	6410.4	5333
1054	1736450.0	505649.9	6410.7	5332
1055	1736450.0	505599.9	6413.3	5331
1056	1736400.0	505600.0	6419.4	5344
1057	1736400.0	505650.0	6409.4	5345
1058	1736400.0	505700.1	6407.1	5346
1060	1736400.1	505799.7	6403.5	5348
1061	1736399.8	505851.0	6403.4	5349
1062	1736400.0	505900.0	6403.8	5350
1063	1736400.0	505949.9	6404.4	5351
1064	1736400.4	505999.0	6402.8	5352
1065	1736400.1	506049.8	6400.9	5353
1066	1736403.1	506096.1	6400.8	5354
1067	1736401.0	506149.4	6400.1	5355
1068	1736400.1	506200.0	6413.0	5356
1069	1736350.0	506200.0	6412.3	5369
1070	1736349.9	506150.1	6397.4	5368
1071	1736350.2	506099.5	6397.1	5367
1072	1736350.1	506049.7	6398.3	5366
1073	1736350.0	505999.9	6399.4	5365
1074	1736350.0	505950.0	6400.0	5364
1075	1736350.0	505899.9	6401.3	5363
1076	1736350.0	505850.1	6401.8	5362
1077	1736350.0	505800.1	6403.1	5361
1078	1736350.0	505750.1	6404.1	5360
1079	1736350.0	505699.9	6405.9	5359
1080	1736350.0	505649.9	6408.3	5358
1081	1736350.0	505599.9	6411.9	5357
1086	1736300.0	505599.9	6411.4	5370

1087	1736300.0	505650.1	6408.1	5371
1088	1736300.0	505700.0	6406.9	5372
1090	1736300.0	505800.2	6404.7	5374
1091	1736300.0	505850.0	6402.4	5375
1092	1736300.0	505900.0	6402.3	5376
1093	1736300.0	505950.0	6410.1	5377
1094	1736300.0	506000.1	6397.3	5378
1095	1736300.0	506050.0	6395.9	5379
1096	1736300.0	506100.1	6394.6	5380
1097	1736300.0	506150.2	6394.0	5381
1098	1736300.0	506200.0	6405.9	5382
1099	1736250.1	506200.0	6373.8	5395
1100	1736250.0	506150.0	6385.7	5394
1101	1736250.0	506100.0	6391.9	5393
1102	1736250.0	506050.0	6394.5	5392
1103	1736250.0	506000.0	6396.0	5391
1104	1736250.0	505949.8	6397.6	5390
1105	1736250.0	505899.9	6397.9	5389
1106	1736250.0	505850.1	6403.2	5388
1107	1736250.0	505800.1	6404.9	5387
1108	1736250.0	505750.0	6406.6	5386
1109	1736250.0	505699.9	6407.7	5385
1110	1736250.0	505650.2	6407.4	5384
1111	1736250.0	505600.1	6409.5	5383
1112	1736200.0	505600.0	6409.0	5396
1113	1736200.0	505650.1	6408.3	5397
1114	1736200.0	505700.2	6408.1	5398
1115	1736200.0	505749.9	6404.7	5399
1116	1736199.9	505799.8	6401.6	5400
1117	1736200.0	505850.0	6398.2	5401
1118	1736200.0	505900.0	6394.0	5402
1119	1736200.1	505950.2	6398.5	5403
1120	1736200.0	506000.0	6385.0	5404
1121	1736200.0	506050.0	6370.8	5405
1122	1736200.1	506099.9	6362.2	5406
1123	1736199.9	506149.9	6357.7	5407
1124	1736199.8	506200.0	6351.9	5408
1126	1736600.0	505650.0	0.0	
1127	1736600.0	505650.0	0.0	
1128	1736400.0	505549.9	6427.2	5412
1129	1736400.0	505500.0	6418.8	5411
1130	1736400.0	505450.0	6414.2	5410
1131	1736400.0	505400.0	6414.2	5409
1132	1740017.0	498739.9	<Null>	SEE-1188(TONTO#1)
1133	1739978.0	498742.2	<Null>	SEE-1187(TONTO#2)
1134	1739913.6	498747.7	<Null>	SEE-1186
1150	1736514.0	505594.5	6411.8	SEPTIC TANK
1151	1736516.2	505607.7	6411.9	004C345
1152	1736512.6	505625.4	6411.2	004C91011
1153	1736520.3	505635.4	6411.6	004C678
1154	1736418.9	505697.5	6407.2	004K1
1155	1736417.7	505699.3	6406.7	004K2
1156	1736385.0	505846.2	6402.9	004K3
1157	1736381.7	505961.4	6401.8	004K4
1158	1736312.8	505920.0	6400.7	008B
1159	1736259.9	506135.0	6392.3	004K5
1160	1736457.7	506160.0	6413.8	006B1015
1161	1736498.0	505963.5	6417.3	006B59
1162	1736423.0	505954.7	6405.9	006B2
1163	1736424.5	505947.0	6406.3	006B1
1164	1736627.1	505957.9	6394.8	010D4
1165	1736635.4	505936.1	6399.6	010D3
1166	1736651.1	505945.9	6399.4	010D1
1167	1736636.5	505951.9	6396.4	010D2
1168	1736360.5	505688.3	6406.1	NW LANDFILL
1169	1736302.1	505677.7	6406.7	SW LANDFILL

1170	1736297.5	505922.9	6399.7	SE LANDFILLL
1172	1736341.0	505916.7	6401.0	NE LANDFILL
1173	1736134.7	505345.3	6415.6	CP1173
1174	1736654.8	505968.8	6393.2	CF1174
1175	1736654.1	505998.7	6374.0	010D5
1176	1736673.8	506017.4	6355.6	010D6
1177	1736014.8	505505.6	6373.5	010B2
1178	1736005.7	505507.8	6369.7	010B1
1179	1736001.2	505509.6	6367.7	010B3
1180	1736216.7	506125.5	6367.2	010A3
1181	1736210.4	506144.2	6362.1	010A4
1182	1736206.0	506154.7	6359.9	010A1
1183	1736204.1	506175.5	6356.9	010A2
1184	1736396.6	506107.4	6401.4	006B3
1185	1736394.2	506114.6	6401.7	006B4
1186	1739913.6	498747.8	6518.5	SOUTH-WELL-TONTO#3
1187	1739976.8	498742.3	6516.9	MID-WELL-STEWART-BRO'S.
1188	1740015.3	498740.1	6517.5	NORTH-WELL-STEWART-BRO'S.
1189	1736397.5	506000.3	6402.6	6012
5000	1737300.0	499600.0	0.0	GRID-PT
5001	1737200.0	499600.0	0.0	GRID-PT
5002	1737100.0	499600.0	0.0	GRID-PT
5003	1737000.0	499600.0	0.0	GRID-PT
5004	1736900.0	499600.0	0.0	GRID-PT
5005	1736800.0	499400.0	0.0	GRID-PT
5006	1736800.0	499500.0	0.0	GRID-PT
5007	1736800.0	499600.0	0.0	GRID-PT
5008	1736800.0	499700.0	0.0	GRID-PT
5009	1736800.0	499800.0	0.0	GRID-PT
5010	1736800.0	499900.0	0.0	GRID-PT
5011	1736700.0	499400.0	0.0	GRID-PT
5012	1736700.0	499500.0	0.0	GRID-PT
5013	1736700.0	499600.0	0.0	GRID-PT
5014	1736700.0	499700.0	0.0	GRID-PT
5015	1736700.0	499800.0	0.0	GRID-PT
5016	1736700.0	499900.0	0.0	GRID-PT
5017	1736600.0	499300.0	0.0	GRID-PT
5018	1736600.0	499400.0	0.0	GRID-PT
5019	1736600.0	499500.0	0.0	GRID-PT
5020	1736600.0	499600.0	0.0	GRID-PT
5021	1736600.0	499700.0	0.0	GRID-PT
5022	1736600.0	499800.0	0.0	GRID-PT
5023	1736600.0	499900.0	0.0	GRID-PT
5024	1736500.0	499200.0	0.0	GRID-PT
5025	1736500.0	499300.0	0.0	GRID-PT
5026	1736500.0	499400.0	0.0	GRID-PT
5027	1736500.0	499500.0	0.0	GRID-PT
5028	1736500.0	499600.0	0.0	GRID-PT
5029	1736500.0	499700.0	0.0	GRID-PT
5030	1736500.0	499800.0	0.0	GRID-PT
5031	1736500.0	499900.0	0.0	GRID-PT
5032	1736400.0	499100.0	0.0	GRID-PT
5033	1736400.0	499200.0	0.0	GRID-PT
5034	1736400.0	499300.0	0.0	GRID-PT
5035	1736400.0	499400.0	0.0	GRID-PT
5036	1736400.0	499500.0	0.0	GRID-PT
5037	1736400.0	499600.0	0.0	GRID-PT
5038	1736400.0	499700.0	0.0	GRID-PT
5039	1736400.0	499800.0	0.0	GRID-PT
5040	1736400.0	499900.0	0.0	GRID-PT
5041	1736400.0	500100.0	0.0	GRID-PT
5042	1736400.0	500300.0	0.0	GRID-PT
5043	1736300.0	499100.0	0.0	GRID-PT
5044	1736300.0	499200.0	0.0	GRID-PT
5045	1736300.0	499300.0	0.0	GRID-PT
5046	1736300.0	499400.0	0.0	GRID-PT

5047	1736300.0	499500.0	0.0	GRID-PT
5048	1736300.0	499600.0	0.0	GRID-PT
5049	1736300.0	499700.0	0.0	GRID-PT
5050	1736300.0	499800.0	0.0	GRID-PT
5051	1736300.0	499900.0	0.0	GRID-PT
5052	1736200.0	499100.0	0.0	GRID-PT
5053	1736200.0	499200.0	0.0	GRID-PT
5054	1736200.0	499300.0	0.0	GRID-PT
5055	1736200.0	499400.0	0.0	GRID-PT
5056	1736200.0	499450.0	0.0	GRID-PT
5057	1736200.0	499500.0	0.0	GRID-PT
5058	1736200.0	499550.0	0.0	GRID-PT
5059	1736200.0	499600.0	0.0	GRID-PT
5060	1736200.0	499650.0	0.0	GRID-PT
5061	1736200.0	499700.0	0.0	GRID-PT
5062	1736200.0	499800.0	0.0	GRID-PT
5063	1736200.0	499900.0	0.0	GRID-PT
5064	1736200.0	500100.0	0.0	GRID-PT
5065	1736200.0	500300.0	0.0	GRID-PT
5066	1736150.0	499450.0	0.0	GRID-PT
5067	1736150.0	499500.0	0.0	GRID-PT
5068	1736150.0	499550.0	0.0	GRID-PT
5069	1736150.0	499600.0	0.0	GRID-PT
5070	1736150.0	499650.0	0.0	GRID-PT
5071	1736100.0	499100.0	0.0	GRID-PT
5072	1736100.0	499200.0	0.0	GRID-PT
5073	1736100.0	499300.0	0.0	GRID-PT
5074	1736100.0	499400.0	0.0	GRID-PT
5075	1736100.0	499450.0	0.0	GRID-PT
5076	1736100.0	499500.0	0.0	GRID-PT
5077	1736100.0	499550.0	0.0	GRID-PT
5078	1736100.0	499600.0	0.0	GRID-PT
5079	1736100.0	499650.0	0.0	GRID-PT
5080	1736100.0	499700.0	0.0	GRID-PT
5081	1736100.0	499800.0	0.0	GRID-PT
5082	1736100.0	499900.0	0.0	GRID-PT
5083	1736050.0	499450.0	0.0	GRID-PT
5084	1736050.0	499500.0	0.0	GRID-PT
5085	1736050.0	499550.0	0.0	GRID-PT
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5087	1736050.0	499650.0	0.0	GRID-PT
5088	1736000.0	499100.0	0.0	GRID-PT
5089	1736000.0	499200.0	0.0	GRID-PT
5090	1736000.0	499300.0	0.0	GRID-PT
5091	1736000.0	499400.0	0.0	GRID-PT
5092	1736000.0	499450.0	0.0	GRID-PT
5093	1736000.0	499500.0	0.0	GRID-PT
5094	1736000.0	499550.0	0.0	GRID-PT
5095	1736000.0	499600.0	0.0	GRID-PT
5096	1736000.0	499650.0	0.0	GRID-PT
5097	1736000.0	499700.0	0.0	GRID-PT
5098	1736000.0	499800.0	0.0	GRID-PT
5099	1736000.0	499900.0	0.0	GRID-PT
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5101	1736000.0	500300.0	0.0	GRID-PT
5102	1735900.0	499100.0	0.0	GRID-PT
5103	1735900.0	499200.0	0.0	GRID-PT
5104	1735900.0	499300.0	0.0	GRID-PT
5105	1735900.0	499400.0	0.0	GRID-PT
5106	1735900.0	499500.0	0.0	GRID-PT
5107	1735900.0	499600.0	0.0	GRID-PT
5108	1735900.0	499700.0	0.0	GRID-PT
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5110	1735900.0	499900.0	0.0	GRID-PT
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5119	1735800.0	499900.0	0.0	GRID-PT
5120	1735800.0	500100.0	0.0	GRID-PT
5121	1735800.0	500300.0	0.0	GRID-PT
5122	1735600.0	499300.0	0.0	GRID-PT
5123	1735600.0	499500.0	0.0	GRID-PT
5124	1735600.0	499700.0	0.0	GRID-PT
5125	1735600.0	499900.0	0.0	GRID-PT
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5127	1735600.0	500300.0	0.0	GRID-PT
5200	1737700.0	501350.0	0.0	GRID-PT
5201	1737700.0	501400.0	0.0	GRID-PT
5202	1737650.0	501300.0	0.0	GRID-PT
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5211	1737600.0	501500.0	0.0	GRID-PT
5212	1737550.0	501250.0	0.0	GRID-PT
5213	1737550.0	501300.0	0.0	GRID-PT
5214	1737550.0	501350.0	0.0	GRID-PT
5215	1737550.0	501400.0	0.0	GRID-PT
5216	1737550.0	501450.0	0.0	GRID-PT
5217	1737500.0	501200.0	0.0	GRID-PT
5218	1737500.0	501250.0	0.0	GRID-PT
5219	1737500.0	501300.0	0.0	GRID-PT
5220	1737500.0	501350.0	0.0	GRID-PT
5221	1737500.0	501400.0	0.0	GRID-PT
5222	1737500.0	501450.0	0.0	GRID-PT
5223	1737450.0	501200.0	0.0	GRID-PT
5224	1737450.0	501250.0	0.0	GRID-PT
5225	1737450.0	501300.0	0.0	GRID-PT
5226	1737450.0	501350.0	0.0	GRID-PT
5227	1737450.0	501400.0	0.0	GRID-PT
5228	1737400.0	501200.0	0.0	GRID-PT
5229	1737400.0	501250.0	0.0	GRID-PT
5230	1737400.0	501300.0	0.0	GRID-PT
5231	1737400.0	501350.0	0.0	GRID-PT
5232	1737400.0	501400.0	0.0	GRID-PT
5233	1737350.0	501300.0	0.0	GRID-PT
5300	1736700.0	505600.0	0.0	GRID-PT
5301	1736700.0	505650.0	0.0	GRID-PT
5302	1736700.0	505700.0	0.0	GRID-PT
5303	1736700.0	505750.0	0.0	GRID-PT
5304	1736700.0	505800.0	0.0	GRID-PT
5305	1736650.0	505600.0	0.0	GRID-PT
5306	1736650.0	505650.0	0.0	GRID-PT
5307	1736650.0	505700.0	0.0	GRID-PT
5308	1736650.0	505750.0	0.0	GRID-PT
5309	1736650.0	505800.0	0.0	GRID-PT
5310	1736600.0	505600.0	0.0	GRID-PT
5311	1736600.0	505650.0	0.0	GRID-PT
5312	1736600.0	505700.0	0.0	GRID-PT
5313	1736600.0	505750.0	0.0	GRID-PT
5314	1736600.0	505800.0	0.0	GRID-PT
5315	1736550.0	505600.0	0.0	GRID-PT
5316	1736550.0	505650.0	0.0	GRID-PT

5317	1736550.0	505700.0	0.0	GRID-PT
5318	1736550.0	505750.0	0.0	GRID-PT
5319	1736550.0	505800.0	0.0	GRID-PT
5320	1736500.0	505600.0	0.0	GRID-PT
5321	1736500.0	505650.0	0.0	GRID-PT
5322	1736500.0	505700.0	0.0	GRID-PT
5323	1736500.0	505750.0	0.0	GRID-PT
5324	1736500.0	505800.0	0.0	GRID-PT
5325	1736500.0	505850.0	0.0	GRID-PT
5326	1736500.0	505900.0	0.0	GRID-PT
5327	1736500.0	505950.0	0.0	GRID-PT
5328	1736500.0	506000.0	0.0	GRID-PT
5329	1736500.0	506050.0	0.0	GRID-PT
5330	1736500.0	506100.0	0.0	GRID-PT
5331	1736450.0	505600.0	0.0	GRID-PT
5332	1736450.0	505650.0	0.0	GRID-PT
5333	1736450.0	505700.0	0.0	GRID-PT
5334	1736450.0	505750.0	0.0	GRID-PT
5335	1736450.0	505800.0	0.0	GRID-PT
5336	1736450.0	505850.0	0.0	GRID-PT
5337	1736450.0	505900.0	0.0	GRID-PT
5338	1736450.0	505950.0	0.0	GRID-PT
5339	1736450.0	506000.0	0.0	GRID-PT
5340	1736450.0	506050.0	0.0	GRID-PT
5341	1736450.0	506100.0	0.0	GRID-PT
5342	1736450.0	506150.0	0.0	GRID-PT
5343	1736450.0	506200.0	0.0	GRID-PT
5344	1736400.0	505600.0	0.0	GRID-PT
5345	1736400.0	505650.0	0.0	GRID-PT
5346	1736400.0	505700.0	0.0	GRID-PT
5347	1736400.0	505750.0	0.0	GRID-PT
5348	1736400.0	505800.0	0.0	GRID-PT
5349	1736400.0	505850.0	0.0	GRID-PT
5350	1736400.0	505900.0	0.0	GRID-PT
5351	1736400.0	505950.0	0.0	GRID-PT
5352	1736400.0	506000.0	0.0	GRID-PT
5353	1736400.0	506050.0	0.0	GRID-PT
5354	1736400.0	506100.0	0.0	GRID-PT
5355	1736400.0	506150.0	0.0	GRID-PT
5356	1736400.0	506200.0	0.0	GRID-PT
5357	1736350.0	505600.0	0.0	GRID-PT
5358	1736350.0	505650.0	0.0	GRID-PT
5359	1736350.0	505700.0	0.0	GRID-PT
5360	1736350.0	505750.0	0.0	GRID-PT
5361	1736350.0	505800.0	0.0	GRID-PT
5362	1736350.0	505850.0	0.0	GRID-PT
5363	1736350.0	505900.0	0.0	GRID-PT
5364	1736350.0	505950.0	0.0	GRID-PT
5365	1736350.0	506000.0	0.0	GRID-PT
5366	1736350.0	506050.0	0.0	GRID-PT
5367	1736350.0	506100.0	0.0	GRID-PT
5368	1736350.0	506150.0	0.0	GRID-PT
5369	1736350.0	506200.0	0.0	GRID-PT
5370	1736300.0	505600.0	0.0	GRID-PT
5371	1736300.0	505650.0	0.0	GRID-PT
5372	1736300.0	505700.0	0.0	GRID-PT
5373	1736300.0	505750.0	0.0	GRID-PT
5374	1736300.0	505800.0	0.0	GRID-PT
5375	1736300.0	505850.0	0.0	GRID-PT
5376	1736300.0	505900.0	0.0	GRID-PT
5377	1736300.0	505950.0	0.0	GRID-PT
5378	1736300.0	506000.0	0.0	GRID-PT
5379	1736300.0	506050.0	0.0	GRID-PT
5380	1736300.0	506100.0	0.0	GRID-PT
5381	1736300.0	506150.0	0.0	GRID-PT
5382	1736300.0	506200.0	0.0	GRID-PT

5383	1736250.0	505600.0	0.0	GRID-PT
5384	1736250.0	505650.0	0.0	GRID-PT
5385	1736250.0	505700.0	0.0	GRID-PT
5386	1736250.0	505750.0	0.0	GRID-PT
5387	1736250.0	505800.0	0.0	GRID-PT
5388	1736250.0	505850.0	0.0	GRID-PT
5389	1736250.0	505900.0	0.0	GRID-PT
5390	1736250.0	505950.0	0.0	GRID-PT
5391	1736250.0	506000.0	0.0	GRID-PT
5392	1736250.0	506050.0	0.0	GRID-PT
5393	1736250.0	506100.0	0.0	GRID-PT
5394	1736250.0	506150.0	0.0	GRID-PT
5395	1736250.0	506200.0	0.0	GRID-PT
5396	1736200.0	505600.0	0.0	GRID-PT
5397	1736200.0	505650.0	0.0	GRID-PT
5398	1736200.0	505700.0	0.0	GRID-PT
5399	1736200.0	505750.0	0.0	GRID-PT
5400	1736200.0	505800.0	0.0	GRID-PT
5401	1736200.0	505850.0	0.0	GRID-PT
5402	1736200.0	505900.0	0.0	GRID-PT
5403	1736200.0	505950.0	0.0	GRID-PT
5404	1736200.0	506000.0	0.0	GRID-PT
5405	1736200.0	506050.0	0.0	GRID-PT
5406	1736200.0	506100.0	0.0	GRID-PT
5407	1736200.0	506150.0	0.0	GRID-PT
5408	1736200.0	506200.0	0.0	GRID-PT
5409	1736400.0	505400.0	0.0	GRID-PT
5410	1736400.0	505450.0	0.0	GRID-PT
5411	1736400.0	505500.0	0.0	GRID-PT
5412	1736400.0	505550.0	0.0	GRID-PT
6000	1736575.0	506200.0	<Null>	
6001	1736575.0	505800.0	<Null>	GEOGRID
6002	1736440.0	505800.0	<Null>	GEOGRID
6003	1736370.0	506130.0	<Null>	GEOGRID
6004	1736325.0	506130.0	<Null>	GEOGRID
6005	1736325.0	506200.0	<Null>	GEOGRID
6006	1736410.0	505600.0	<Null>	GEOGRID
6007	1736410.0	505550.0	<Null>	GEOGRID
6008	1736190.0	505550.0	<Null>	GEOGRID
6009	1736190.0	505600.0	<Null>	GEOGRID
6010	1736500.0	506200.0	<Null>	GEOGRID
6011	1736575.0	506000.0	<Null>	GEOGRID
6012	1736397.6	506000.0	<Null>	

Appendix 3

OU 1122 RADIATION SURVEY SUMMARY

SOUTH, EAST, NRAO SITES

November 9, 1993 - December 23,1993

ENVIRONMENTAL DIMENSIONAL INC.

May 4,1994

Fidlen & 44-9

TA-33 Survey Summary South Site, NRAD Site, East Site

South Site: The south site was survey on a fixed grid set out by the surveyors. Grid stakes were setup at 200', 100' & 50' intervals across the site. Also a 20' was set up by EDI personnel working off of 100' stakes in three areas. Additionally the central water drain channel for the site was surveyed. The survey at TA 33 was conducted 11-22-93 To 12-17-93

The point survey made across the site at 200', 100' & 50' intervals turned up very little in the way of elevated readings. Only one survey location turned up elevated, stake # 3403 read 173 cpm w/44-9 but only 4158 cpm w/Fidlen.

Three areas at the site were surveyed on a 20' grid. Two sites (Firing sites) near the large antenna surveyed on a 20' grid showed no elevated readings. However, the site south of bunker #25 revealed four elevated reading made on the 20' grid. A detailed walkover survey was conducted locating several elevated areas. Ten spots were marked out. The highest readings detected with the Fidlen and the 44-9 was 82070 and 48392 cpm. Bill Sommers at HS-1 was informed.

A surveyed was also conducted at the central channel. Reading all ICF Kaiser sample points. No elevated reading were detected on the point survey. Later a walkover was conducted of the entire channel showing one elevated spot. The spot was no more than 1'by1' BACK reading

49952 cpm & 1442 cpm with the Fidlen and the 44-9.
At the NRAO site a grid was established on 50' centers by the surveyors. A survey was made useing the Fidlen & the 44-9. The entire area was surveyed showing no elevated readings.
Also at the east site a 50' grid was laid out by the surveyors. A survey was made useing the Fidlen and the 44-9. No elevated readings were detected. Additionally the central channel was surveyed every 50' from beginning to end along with all ICF Kaiser sample points.
No elevated readings were detected.

TABLE OF CONTENTS FOR OU 1122 RADIATION SURVEY SUMMARY (SOUTH, EAST, NRAO SITES)

SURVEY SUMMARY

ATTACHMENT 1. SOUTH SITE SURVEY DOCUMENTS

- SOUTH SITE DATA SURVEY SHEET
- SOUTH SITE HOT SPOT SURVEY
- SOUTH SITE RAD SURVEY
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, 44-9 PROBE
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, FIDLER PROBE

ATTACHMENT 2. EAST SITE SURVEY DOCUMENTS

- EAST SITE RAD SURVEY SHEETS
- EAST SITE AREA SURVEY SHEET
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, FIDLER PROBE
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, 44-9 PROBE

ATTACHMENT 3. NRAO SITE RAD SURVEY DOCUMENTS

- NRAO SITE RAD SURVEY
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, FIDLER PROBE
- OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, 44-9 PROBE

ATTACHMENT 4. FIELD NOTES

SURVEY SUMMARY

ATTACHMENT 1

SOUTH SITE SURVEY DOCUMENTS

SOUTH SITE DATA SURVEY SHEET

(12-1-93)

SOUTH SITE HOT SPOT SURVEY

(11-30-93, 12-2-93)

SOUTH SITE RAD SURVEY

(11-23-93, 11-29-93)

OPERATIONAL CHECK DATA SHEET FOR

LUDLUM MODEL 2221, 44-9 PROBE

(11-23-93,12-2-93)

OPERATIONAL CHECK DATA SHEET FOR

LUDLUM MODEL 2221, FIDLER PROBE

(11-23-93,12-2-93)

Job Number: 9209.010-08

AREA SURVEY SHEET

Site: TA-33 South Site
Firing site east of antenna

Date: 12-1-93
Time: 1530

Technician: M. Powell

Operable Unit: 1122
Area Size: 60' by 80'

RWP or Work Plan:
Grid Size: 100' by 100'

Purpose of Survey:

Instrument: Ludlum 2221 / Ludlum 2221

Serial Number: 71235 / 103134

Detector: Fidler 44-9

Serial Number: 000159 PR087463

Background: 1130 / 64

Response Check: Should read: 30195 / 10307 +-20%

Did read: 30211 / 11034

Count Rate (CPM)

Coordinates North	Coordinates East 0	20	40		
120	3918 - 115	4453 - 95	3792 - 91		
100 Grid Stake 5014	3286 - 95	3036 - 99	3730 - 110		
80	3088 - 91	3311 - 116	3105 - 118		
60	3164 - 107	3238 - 115	3519 - 126		
40	3291 - 114	3439 - 130	4311 - 121		
20					
0 Grid Stake # 5091					

Remarks: Readings taken on contact w/ surface survey 20' Fidler - 44-9

Signature:

Reviewed by:

Job Number: 93269-010-08

AREA SURVEY SHEET

Site: TA-3B South Site South of bunker #5

Date: 12-1-93
Time: 0930

Technician: M Powell

Operable Unit: 1122
Area Size: 80'x 200'

RWP or Work Plan:
Grid Size: 20'x 20'

Purpose of Survey:

Instrument: Ludlum 2221 / Ludlum 2221

Serial Number: 71235 / 105934

Detector: Fidler 44-9

Serial Number: 000154 / PR097463

Background: 1430/011

Response Check: Should read: 80195 / 10307 +-20%

Did read: 8201 / 11094

Count Rate (CPM)

Coordinates North	Coordinates East 0	20	40	60	80
20	Concrete 3042 - 79	3795 - 151	4022 - 141	4327 - 117	4217 - 140
40	6288 - 164	7068 - 201	7320 - 126	7992 - 99	3807 - 109
60	7543 - 780	7022 - 130	6565 - 362	4406 - 125	4262 - 126
80	4321 - 140	4411 - 129	4353 - 82	4129 - 120	4065 - 125
0	3900 - 126	4267 - 114	4371 - 129	4192 - 117	4320 - 114

Remarks: Readings taken every 20' on concrete / surface (Fidler - 44-9)

Signature: M Powell

Reviewed by:

Job Number: 93262-010-08

AREA SURVEY SHEET

Site: TA-33 South Site South of bunker #5

Date: 12-1-93
Time: 0830

Technician: M Powell

Operable Unit: 1122

RWP or Work Plan:

Area Size: 80' by 200'

Grid Size: 20' by 20'

Purpose of Survey:

Instrument: Ludlum 2221 / Ludlum 2221

Serial Number: 71235 / 105934

Detector: Fidler 44-9

Serial Number: 900154 / PR092403

Background: 1430/1411

Response Check: Should read: 20195 / 10507 +-20%

Did read: 22011 / 11054

Count Rate (CPM)

Coordinates North	Coordinates East 100	120	140	160	180
50	3985 - 121	4024 - 115	4109 - 122	3865 - 125	3844 - 128
60	4042 - 115	4095 - 132	3914 - 100	3901 - 94	3713 - 114
40	4021 - 123	3927 - 127	3985 - 114	3921 - 108	3911 - 119
30	4051 - 127	4003 - 135	3932 - 112	3923 - 107	3922 - 89
0	3906 - 96	4056 - 129	3837 - 101	4095 - 104	3925 - 120

Remarks: Readings taken every 20' on contact w/ surface (Fidler - 44-9)

Signature: M Powell

Reviewed by:

Job Number: 93202-010-08

AREA SURVEY SHEET

Site: TA-33 South Side South of bunker #5
Date: 12-1-93
Time: 0830
Technician: M Powell

Operable Unit: 1122
RWP or Work Plan:
Area Size: 80' by 200'
Grid Size: 50' by 50'
Purpose of Survey:
Instrument: Ludlum 2221 / Ludlum 3221
Serial Number: 71235 / 105934
Detector: Fidler 44-9
Serial Number: 200154 / PR092403
Background: 1930/101
Response Check: Should read: 50195 / 10307 +-20%
Did read: 52011 / 11054

Count Rate (CPM)

Coordinates North	Coordinates East: 200				
30	4213 - 107				
40	4283 - 136				
45	4131 - 130				
50	3600 - 119				
0	4215 - 121				

Remarks: Readings taken every 30' on contact w/ surface (Fidler - 44-9)

Signature: M Powell
Reviewed by:

12-2-93 Hot spot survey south of bunker #25, TA-55 South Site.

Loc #	N	E	GPM	Fiffer
1	28.5	2.0	2731	16017
2	31.0	6.0	5061	46926
3	33.0	12.0	301	41247
4	37.5	5.0	11516	27091
5	46.0	14.0	49392	70811
6	53.5	23.0	1653	50517
7	45.0	28.0	360	48748
8	51.0	32.0	1847	50323
9	54.5	42.0	38132	27042
10	55.5	50.0	10628	82070

Ludlum 2221 - 112.35
Fiffer - 500156
Ludlum 2221 - 105434
Ludlum 414.7 - 1027463

10'

EDI Al Powell

Location are north and East of grid point 5071

Grid Point 5053 X

40

80

70

Page 1 of 2
Job Number: 9322.010-05

AREA SURVEY SHEET

Site: TA-33 South Site Central Channel
Date: 11-30-93
Time:
Technician: M Bell

Operable Unit: 1122
RWP or Work Plan:
Area Size:
Grid Size:
Purpose of Survey: Sample points central channel TA-33 South site.
Instrument: Ludlum 2221 / Ludlum 2221
Serial Number: 71235 / 159521
Detector: Fidler
Serial Number: 000156 / PR097463
Background: 1671/1661
Response Check: Should read: 30195 / 10200 ±20%
Did read: 29014 / 10791

Count Rate (CPM)

Coordinates North	Coordinates East				
GP-1	4366-124				
GP-2	3922-117				
GP-3	4215-193				
GP-4	4297-126				
GP-5	4240-139				
GP-7	4199-103				
GP-8	4046-122				
GP-9	4313-151				
GP-10	4483-118				

Remarks: A survey was made at all ICE Kaiser sample points along the central channel TA-33 South Site. [illegible]

Signature: M Bell
Reviewed by:

Job Number: 23002-210-03

AREA SURVEY SHEET

Site: TA-33 South Side Central Channel
Date: 11-30-93
Time:
Technician: M Powell

Operable Unit: 1122
Area Size:
RWP or Work Plan:
Grid Size:
Purpose of Survey: Hot spot location central channel south side TA-33
Instrument: Ludlum 2221 / Ludlum 2221
Serial Number: 71235 / 155431
Detector: Ludlum
Serial Number: 30176 / PR037463
Background: 1678/1662
Response Check: Should read: 40195 / PR037463
Did read: 39041 / 40201

Count Rate (CPM)

Coordinates North	Coordinates East: 93.5				
01	45952-1442				
02 Grid Point #33					

Sample 33-006A-2

Remarks: Auldlum survey is made of the central channel looking an elevated spot. Location of spot is approx. and 93.5 EAST of Grid point #33.

Signature: M Powell
Reviewed by:

Note the sample location was moved to this location after hot spot was detected. (The original 06A-2 location was abandoned)

Job Number: 93C02-010-08

AREA SURVEY SHEET

Site: TA-33 South Site
Firing site near antenna

Date: 12-2-93
Time: 0900

Technician: M. Powell

Operable Unit: 1122

R'WP or Work Plan:

Area Size: 100'x 100'

Grid Size: 100'x 100'

Purpose of Survey:

Instrument: Ludlum 2221
Ludlum 2221

Serial Number: 71225
105134

Detector: Fidler

Serial Number: 000156
PR077-463

Background: 1522/101

Response Check: Should read: 80195 / 10307 +-20%

Did read: 79501 / 10463

Count Rate (CPM)

Coordinates North	Coordinates East 60	80	Grid Stake # 5010 100	120	140
100	4101 - 112	4072 - 124	4050 - 125	4040 - 146	4010 - 125
80	4015 - 119	4116 - 122	4118 - 116	3566 - 127	4075 - 120
60	4109 - 117	4122 - 128	3708 - 90	3700 - 105	3578 - 120
40	4069 - 122	3778 - 110	3609 - 132	3617 - 126	3527 - 145
20	4027 - 101	3786 - 117	3613 - 104	3627 - 96	3536 - 115
0	4164 - 118	3747 - 126	3593 - 126	3626 - 122	3691 - 119
			Grid Stake 5010		

Remarks: Readings taken every 20' in center of 1/2 acre Fidler = 4412

Signature: M Powell

Reviewed by:

Job Number: 93[illegible]-[illegible]-05

AREA SURVEY SHEET

Site: TA-33 South Site Firing site near antenna
Date: 12-2-93
Time: [illegible]
Technician: M. Powell

Operable Unit: 1122
Area Size: 100' by 100'
Purpose of Survey:
RWP or Work Plan:
Grid Size: 20' by 20'

Instrument: Ludlum 2221 / Ludlum 2221
Serial Number: 71225 / 159341

Detector: Fidler
Serial Number: 000134 PR08746-3
Background: 1552/61

Response Check: Should read: 30195 / 10567 +-20%
Did read: 39501 / 10763

Count Rate (CPM)

Coordinates North	Coordinates East: 160	180	Grid State 5013 ↓ 200		
100	4227 - 126	3867 - 112	4455 - 113		
80	3844 - 133	4162 - 130	4531 - 135		
60	3691 - 123	3554 - 124	3952 - 109		
40	3570 - 127	3804 - 122	4185 - 97		
20	3752 - 117	3653 - 140	4395 - 124		
0	3681 - 119	3842 - 111	3952 - 119 ← 5020 Grid State		

Remarks: Readings taken average 20' on contact w/ surface

Signature: M Powell
Reviewed by:

TA-33 South Site Rad Survey 11-23-93

Site #	Fidler	44-9
2	5291	119
26	6290	128
1.5	5944	135
124	5963	117
1.3	7411	156
122	6611	160
1.1	6621	127
120	7230	116
1.9	4693	86
118	5149	101
1.7	6552	114
116	5021	133
1.5	4504	124
11		← In Fence area MDA
1.3	4676	114
112	5679	108
1.1	8164	153
110	7311	180
1.9	7916	141
108	4466	102
5.07		← In Fence area MDA
106	"	" " " "
1.05	5144	101
104	7704	120
5.03	4750	93
5102	4785	122
5.01	4959	103
5100	5465	108

Ludlum 2221 - 86306
Fidler - 000156
Ludlum 2221 - 105934
Ludlum 44-9 - PR087463

See Attached Map for Locations

TA-33 South Site Rad Survey 11-29-93

Stake #	Fidler	44-9
5099	4788	111
5098	4361	109
5097	4260	112
5096	5288	116
5095	4823	115
5094	6121	138
5093	3645	92
5092	3939	104
5091	4862	113
5090	4755	112
5089	4810	122
5088	3879	110
5087	5016	140
5086	5508	166
5085	5807	193
5084	5836	121
5083	3962	93
5082	5248	105
5081	4426	107
5080	4822	92
5079	6342	207
5078	5443	169
5077	4477	106
5076	6344	168
5075	6808	138
5074	6169	112
5073	5122	113
5072	4952	111
5071	5069	104
5070	6324	163
5069	8719	482
5068	5638	151
5067	7955	136

	Fidler	44-9
5066	8429	121
5065	5574	126
5064	5621	137
5063	5890	118
5062	5211	131
5061	5317	128
5060	5096	119
5059	5415	111
5058	5441	140
5057	5532	135
5056	5561	142
5055	5411	102
5054	5614	137
5053	4119	142
5052	4087	110
5051	3961	113
5050	4041	127
5049	4719	136
5048	4206	116
5047	5252	157
5046	4520	113
5045	4306	117
5044	4411	146
5043	3705	127

Ludlum 2221 - 71235
Fidler - 000156
Ludlum 2221 - 105934
Ludlum 44-9 - PR097463

See attached map for Locations

TA-33 South Site Rad Survey 11-30-93

Lake #	Fidler	44-9
5042	4355	118
5041	4321	110
5040	4017	116
5039	4628	138
5038	4361	111
5037	4183	94
5036	4570	132
5035	4713	141
5034	4260	93
5033	4360	113
5032	3724	109
5031	4184	113
5030	4429	120
5029	4314	91
5028	4139	126
5027	3564	103
5026	4308	164
5025	4914	94
5024	4002	111
5023	4116	120
5022	4597	122
5021	4146	109
5020	4313	73
5019	3746	134
5018	4482	95
5017	4198	150
5016	4274	135
5015	4512	119
5014	3583	115
5013	4513	119
5012	4445	142
5011	4479	130
5010	4018	117

	Fidler	44-9
5009	4411	110
5008	4291	145
5007	4835	124
5006	4335	126
5005	4303	113
5004	4011	123
5003	4175	100
5002	4182	117
5001	4122	126
5000	4045	127

Ludlum 2221 - 71235
Fidler - 000156
Ludlum 2221 - 105934
Ludlum 44-9 - PR087463

See attached Map Con locations

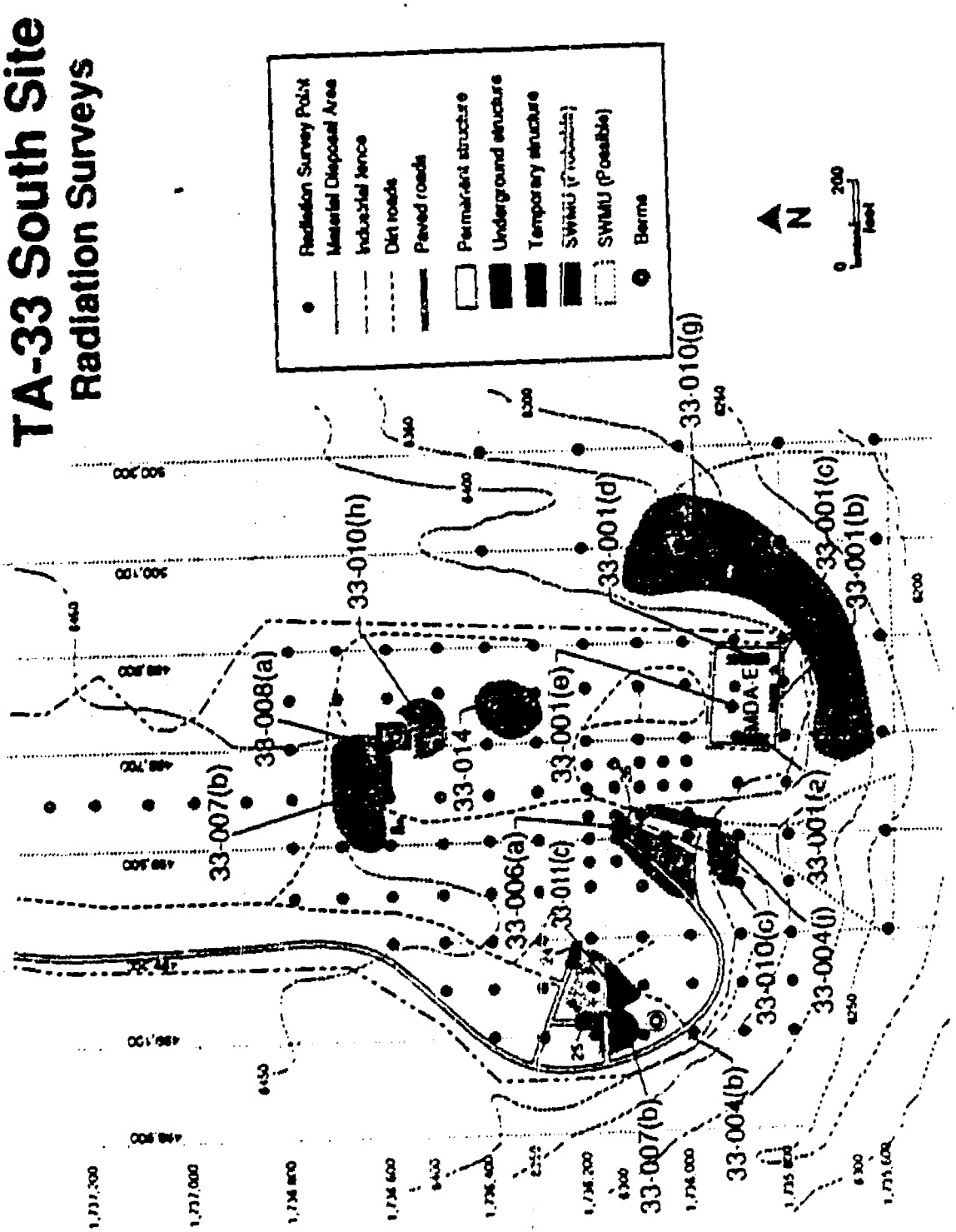


Fig. 4-15. Radiation surveys at South Site.

O. ..AT.. AL :CK TA ET RI LUI DDI :22:

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105934

Make: Ludlum Model: 44-9 SN: PR082463

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
11-23-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 90TH430, 4627 SOURCE: TH-230 10-31-90 9638dpm	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10773	X1 SCALE	
X10 SCALE	10694	X10 SCALE	
X100 SCALE	10741	X100 SCALE	
X1K SCALE	10732	X1K SCALE	
LOG SCALE	10791	LOG SCALE	
Background 1 minute count: 65, 22, 61		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

Date: 11-21-95

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105954

Make: Ludlum Model: 44-9 SN: PR 082463

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
11-29-95	0700	OK	OK	OK	OK	M Pa[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 90TH470, 4627 10-31-90 SOURCE: TL-230 96, 3 Alpha	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10895	X1 SCALE	
X10 SCALE	10739	X10 SCALE	
X100 SCALE	10886	X100 SCALE	
X1K SCALE	10893	X1K SCALE	
LOG SCALE	10798	LOG SCALE	
Background 1 minute count: 68, 74, 58		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% [illegible] of the acceptable [illegible]

Date: 11-30-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105934
Make: Ludlum Model: 44-9 SN: PE037463

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
11-30-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 90TH870, 4629 SOURCE: Th-230, 9636 dpm	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10701	X1 SCALE	
X10 SCALE	10537	X10 SCALE	
X100 SCALE	10629	X100 SCALE	
X1K SCALE	10691	X1K SCALE	
LOG SCALE	10549	LOG SCALE	
Background 1 minute count: 60, 61, 73.		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% of the [illegible]

Date: 12-1-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105934
Make: Ludlum Model: 44-9 SN: PR087463

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-1-93	0730	ok	ok	ok	ok	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 4627, 90TH470 SOURCE TK-230 10-31-90 96368 dpm	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	11084	X1 SCALE	
X10 SCALE	10947	X10 SCALE	
X100 SCALE	10985	X100 SCALE	
X1K SCALE	11037	X1K SCALE	
LOG SCALE	11054	LOG SCALE	
Background 1 minute count: 68, 71, 54		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

Date: 12-2-93

NVI[illegible]AL [illegible]EN[illegible]NS,

OPERATIONAL CHECK DAT[illegible]HEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105934

Make: Ludlum Model: 44-9 SN: PR087443

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-2-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 4627 90TH 470 SOURCE: 74230 9638 10-31-90	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10963	X1 SCALE	
X10 SCALE	10686	X10 SCALE	
X100 SCALE	10103	X100 SCALE	
X1K SCALE	10761	X1K SCALE	
LOG SCALE	10593	LOG SCALE	
Background 1 minute count: 43, 57, 64		Background 1 minute count:	

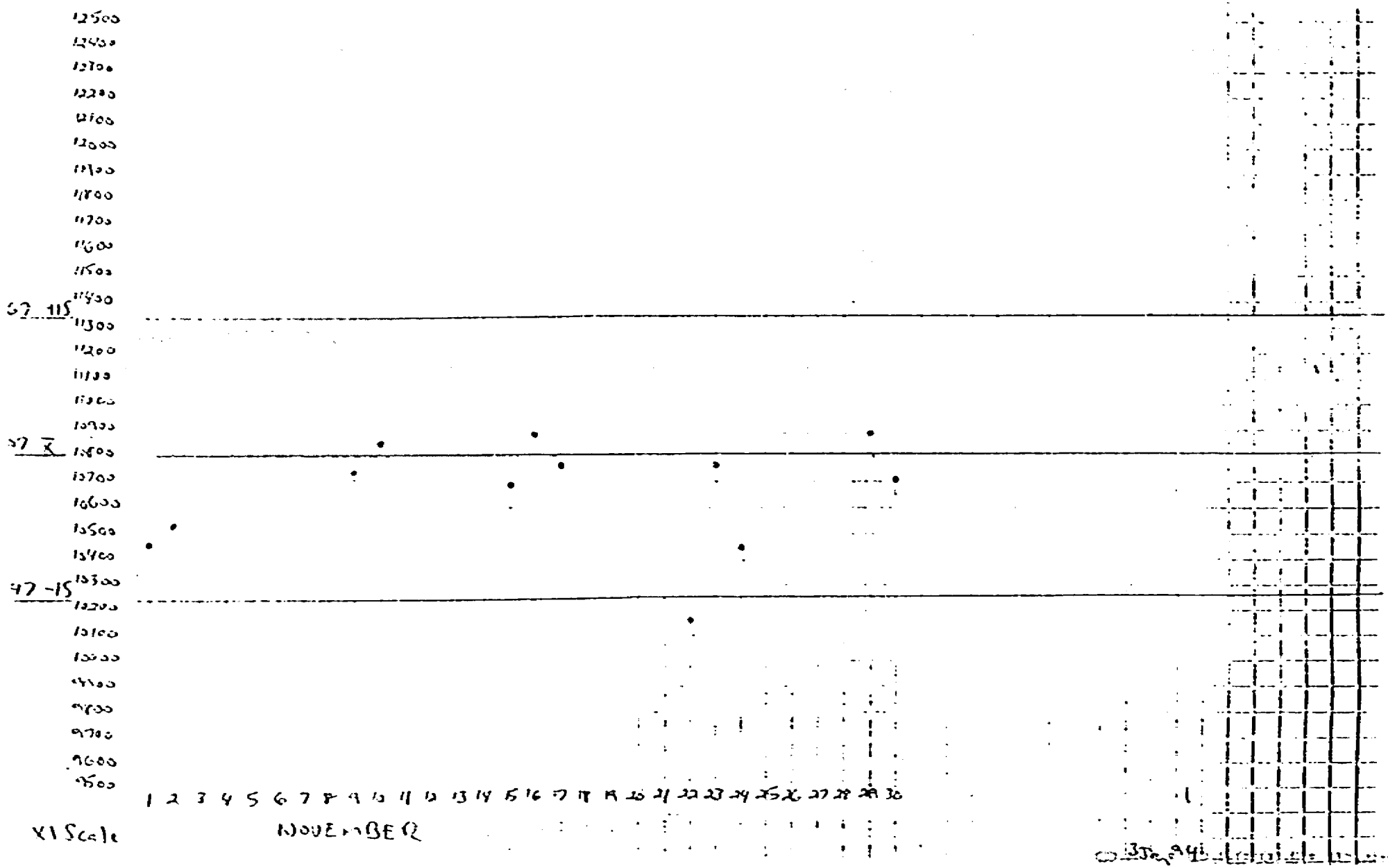
NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

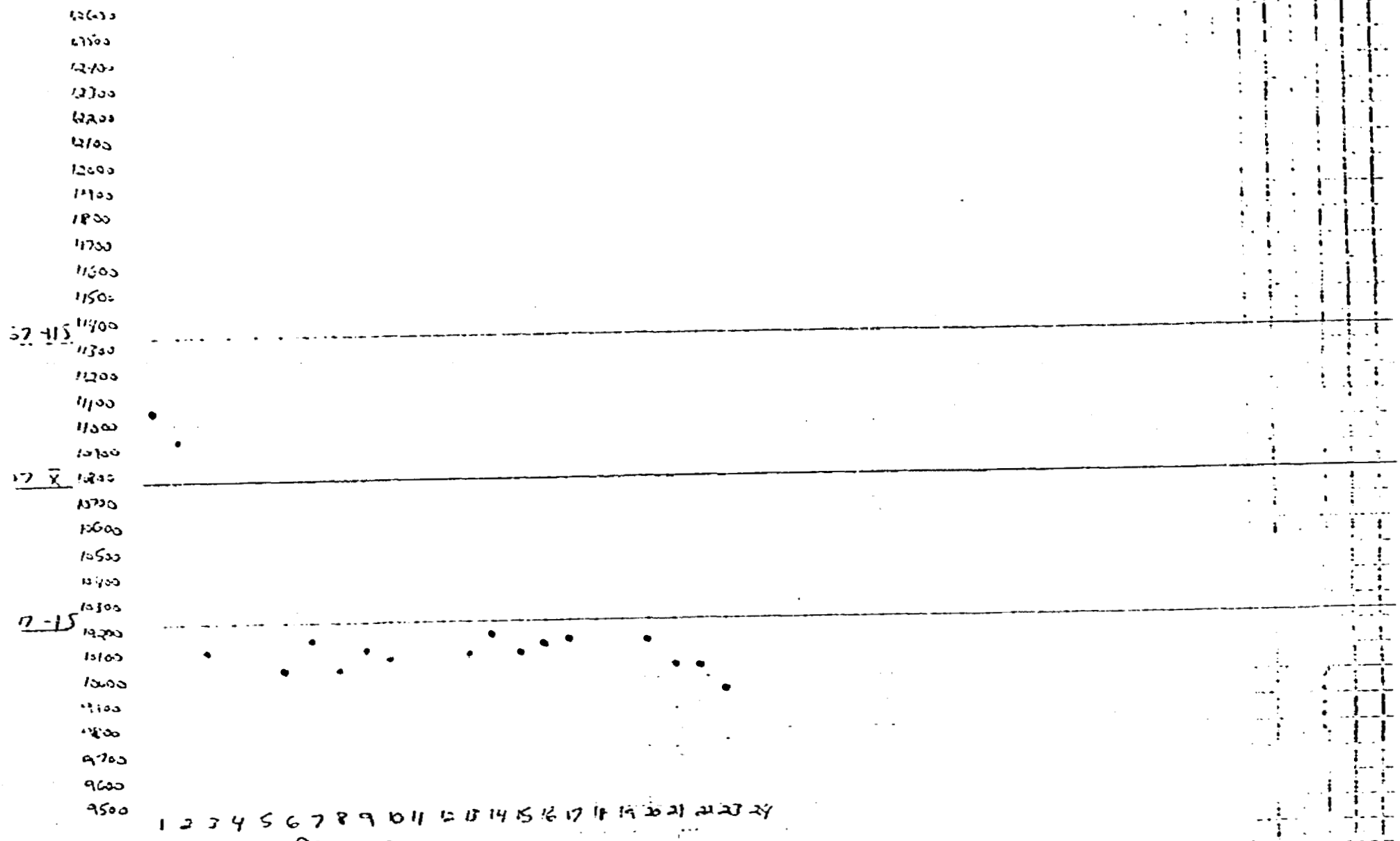
Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Range
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% [illegible] of the acceptable [illegible]ding

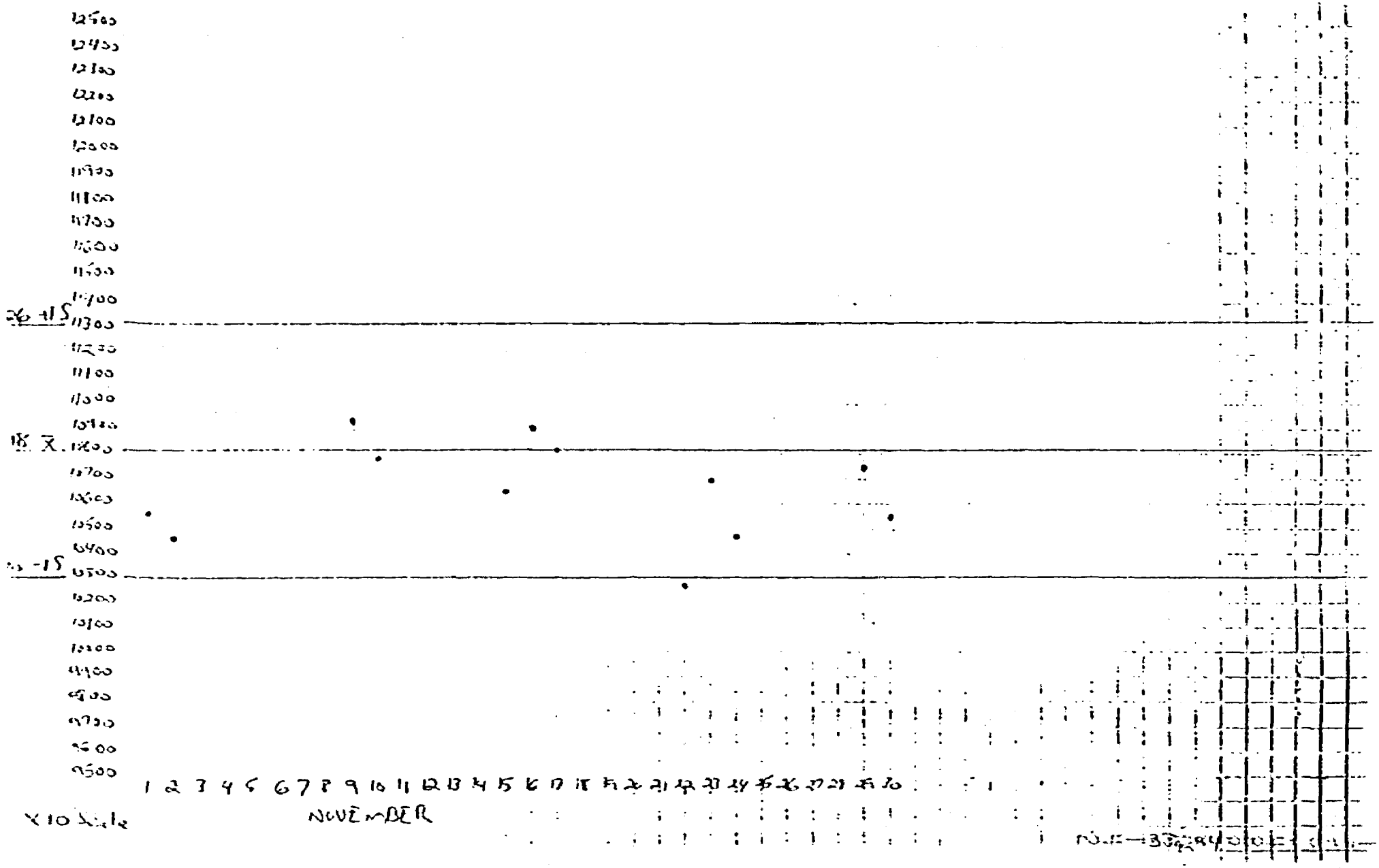
SN: 105934
Using Colon Probe 44-9
SN: PR087463



LUDLUM 2221
SN: 105931
Using Ludlum Probe 44-9
SN: PR087463



SN: 105939
US: Lodian Pole 44-9
SN: PR0X7463



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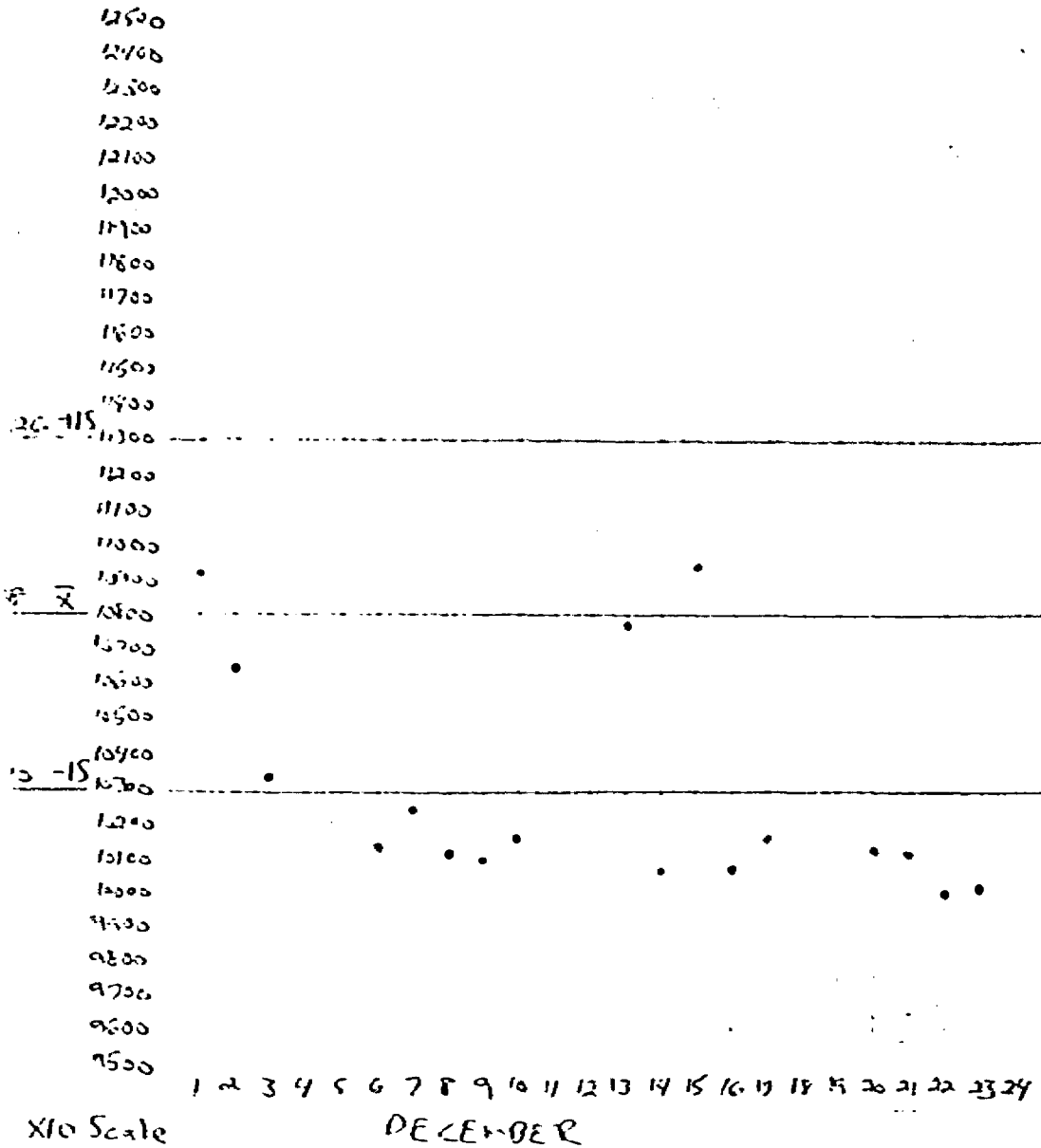
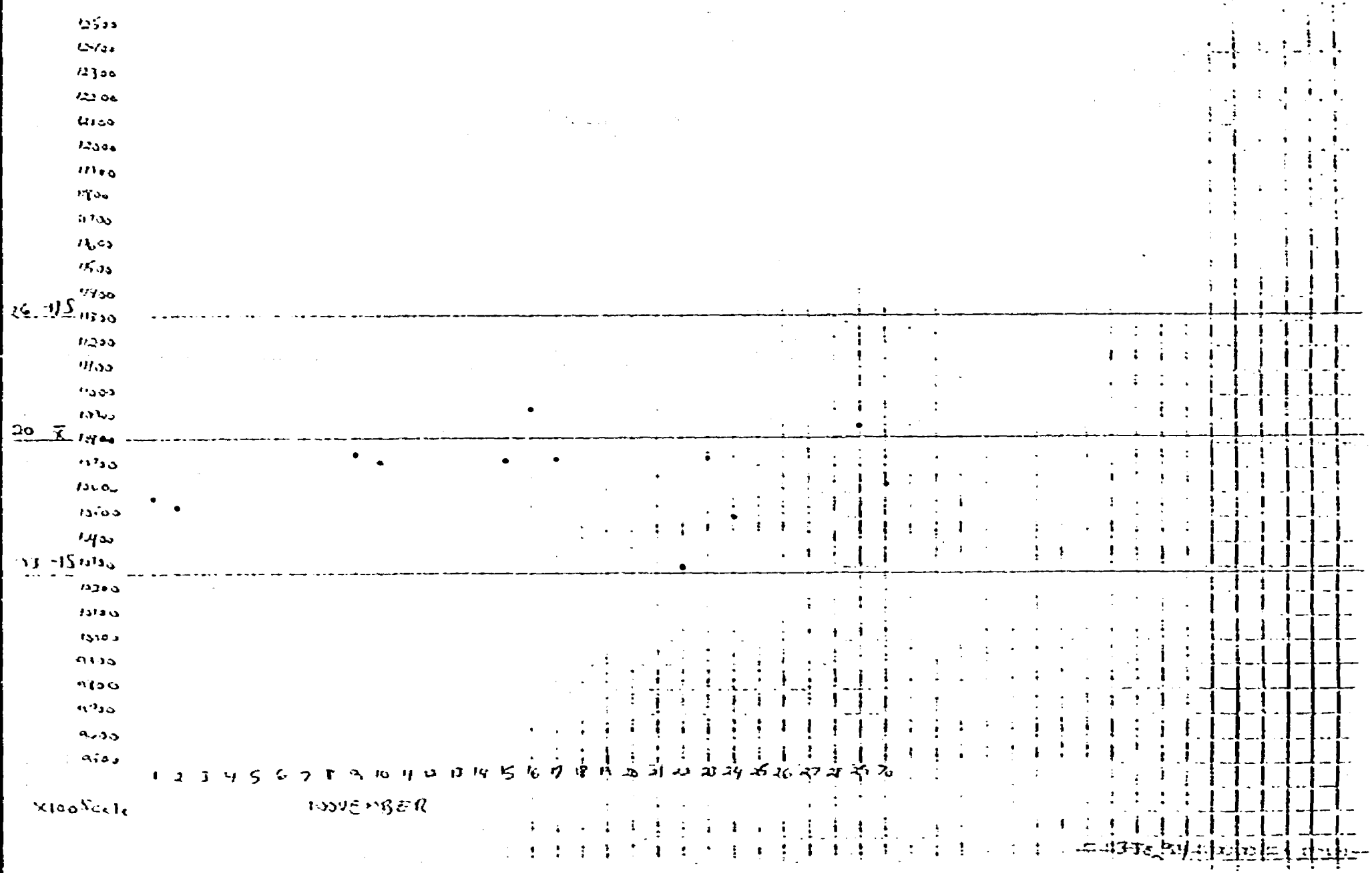
Using Lodism Probe 44-9
SN: PR087463

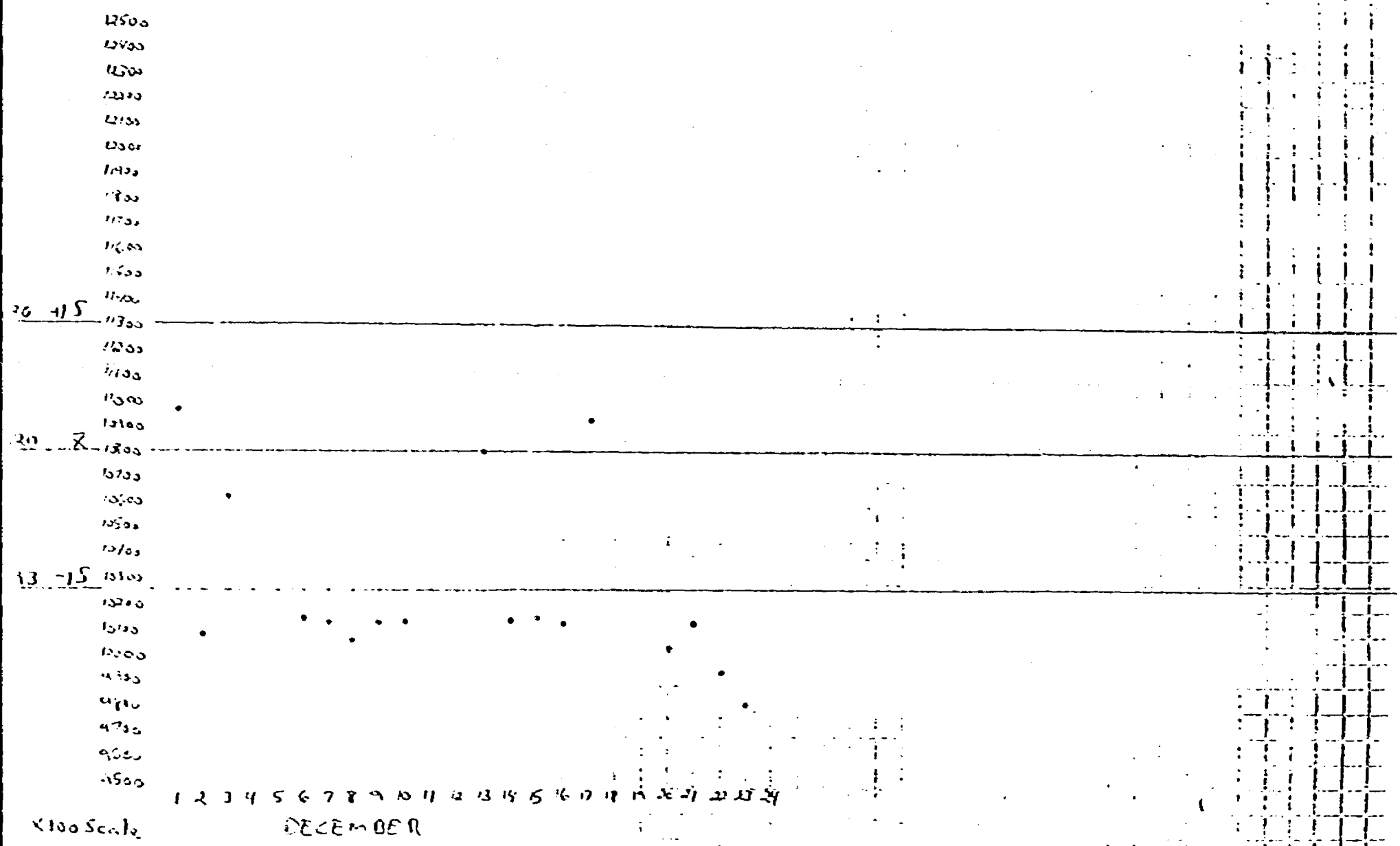


X10 Scale

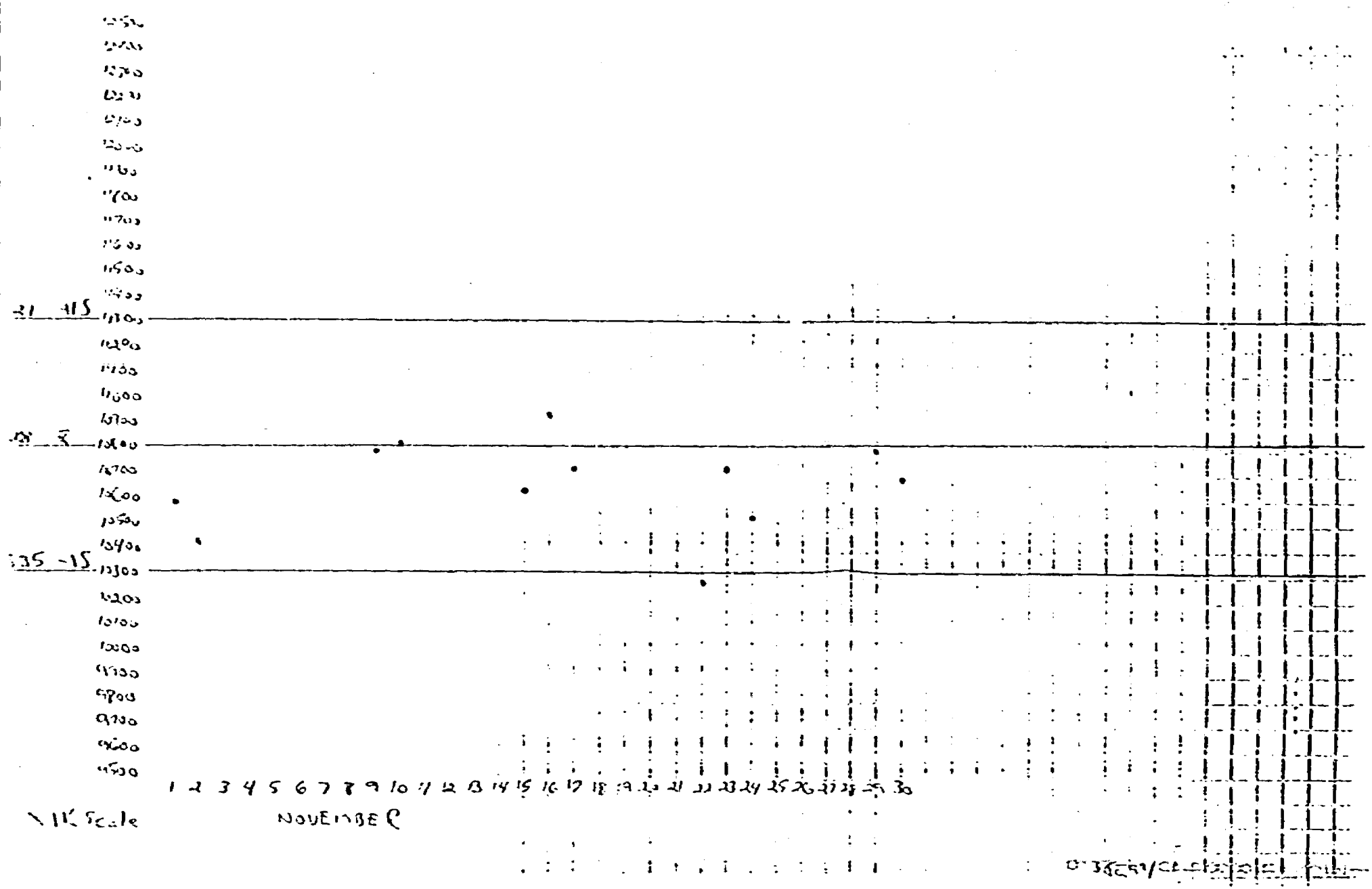
SN: 105934
Using Ludlum Probe 44-9
SN: PR087463



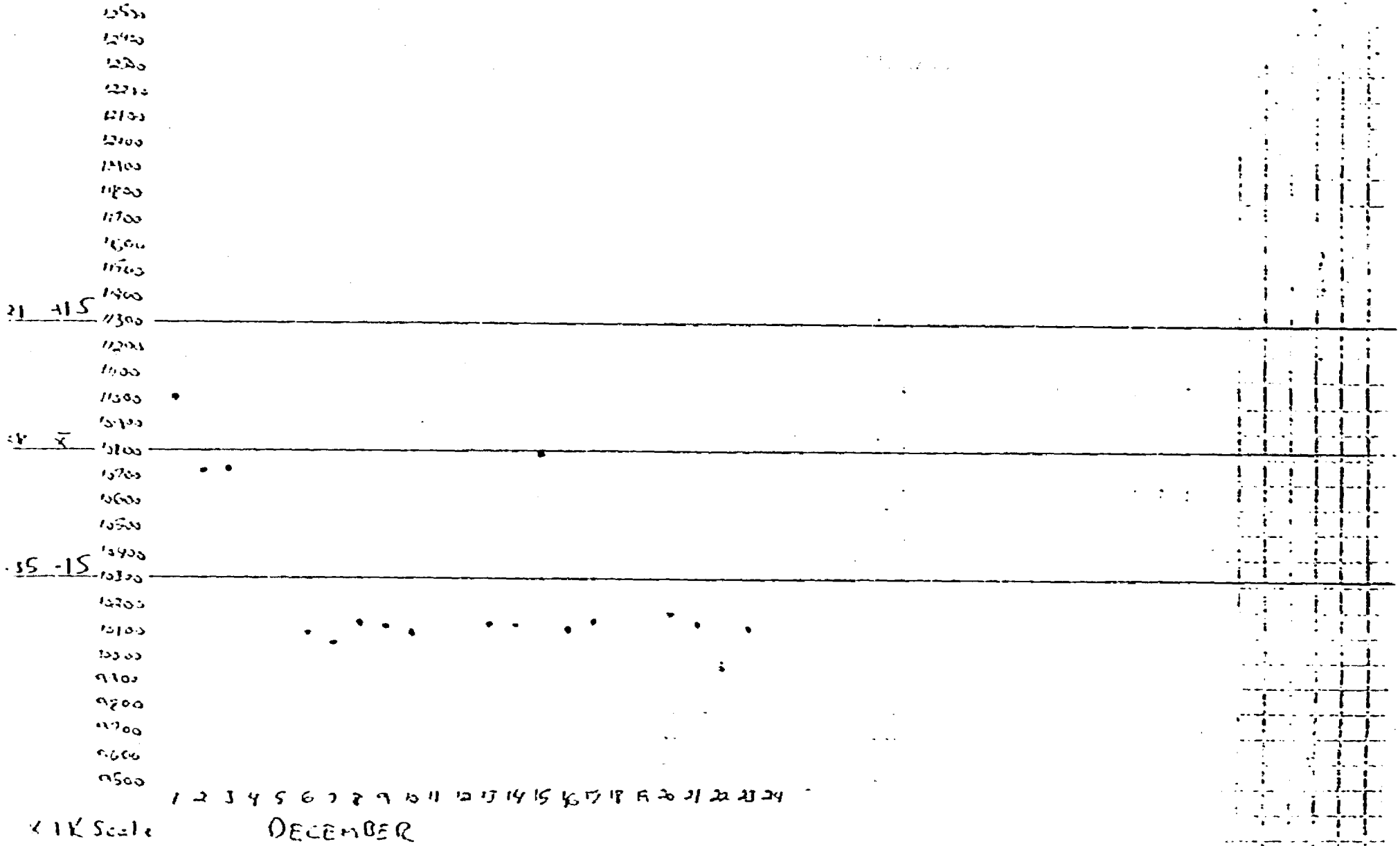
S/N: 105934
Using Calibrum Probe 44-9
S/N: PR087463



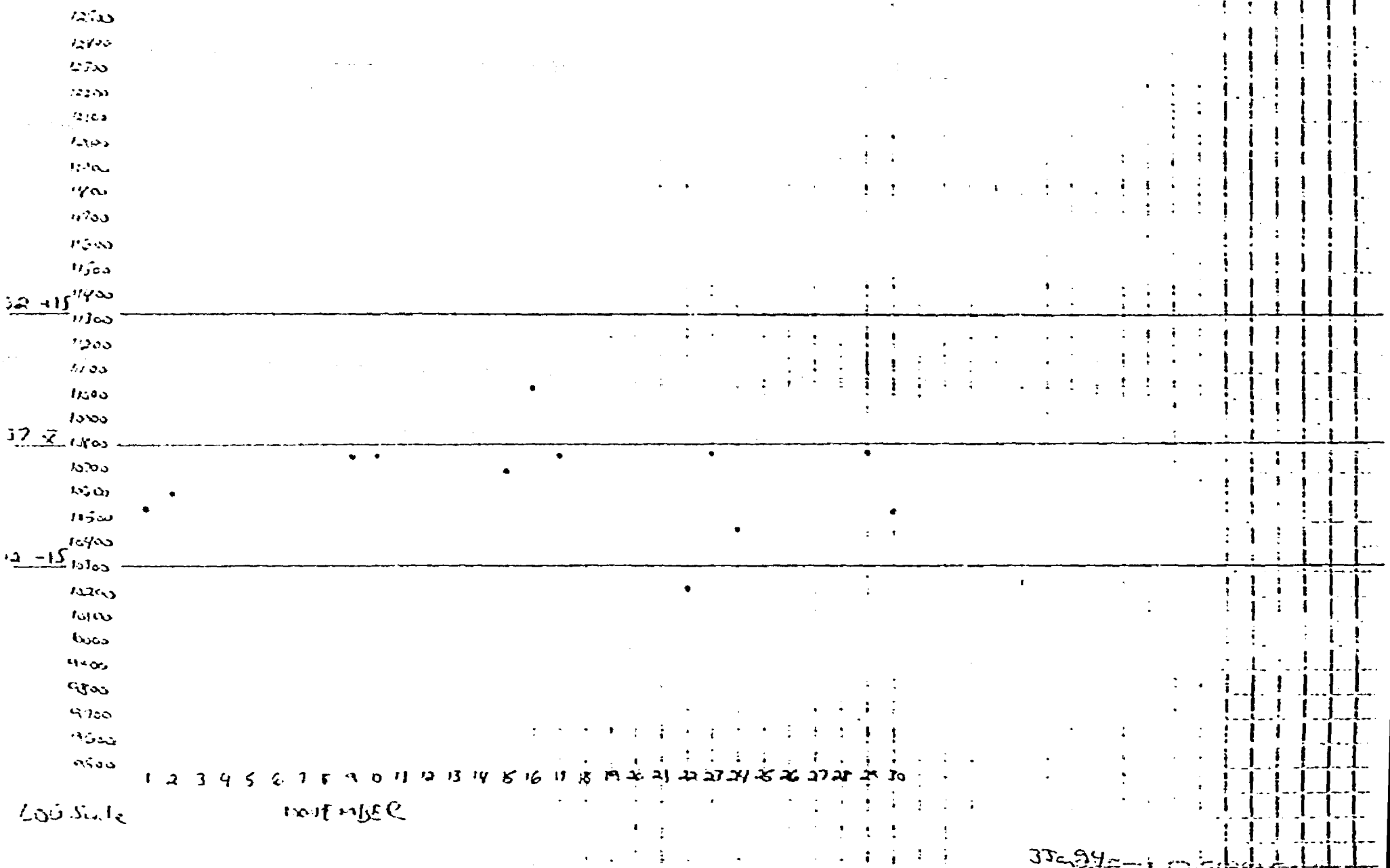
SN: 105934
Vaisala Probe 44-9
SN: R0874G3



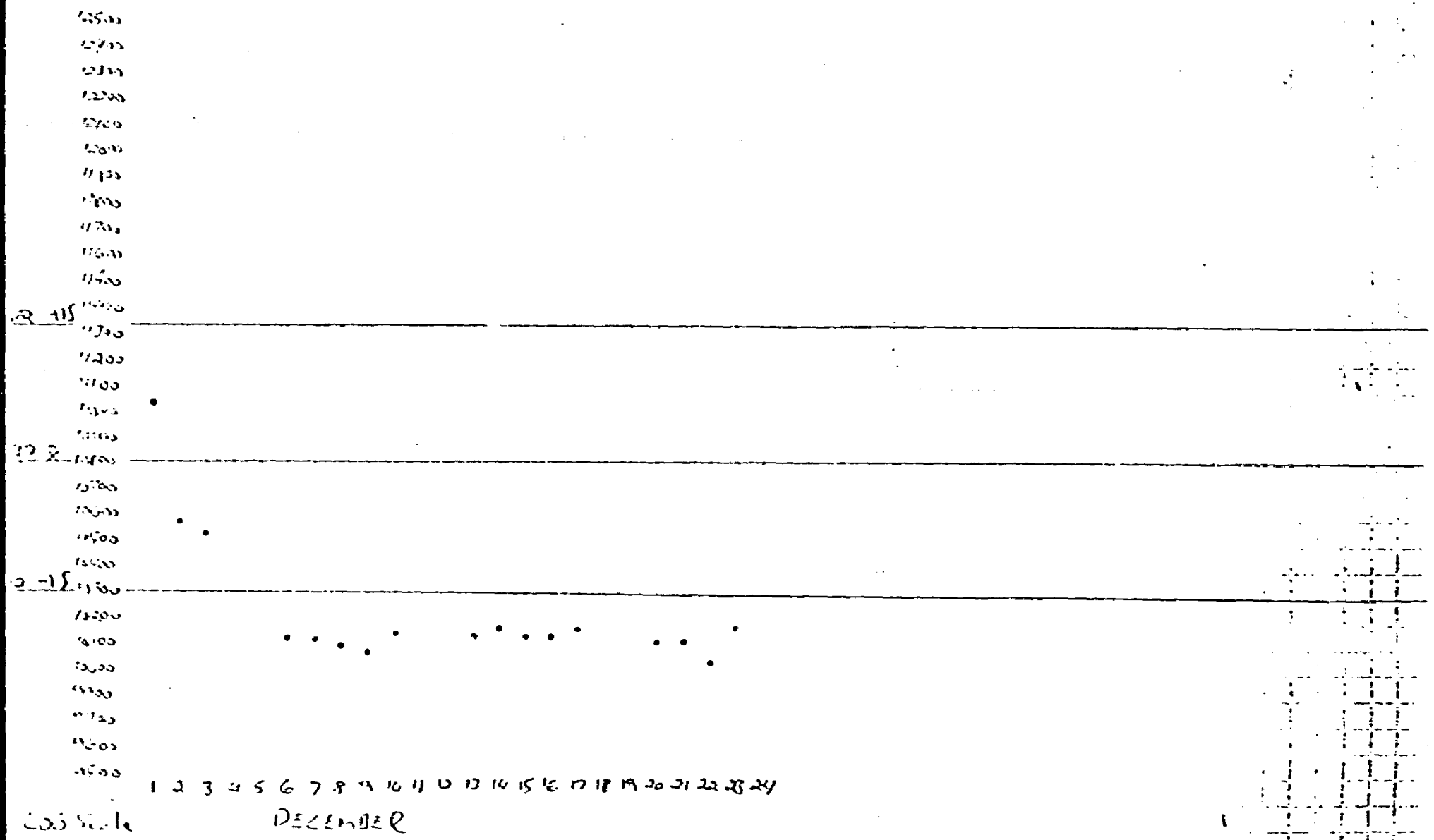
S/N: 105939
Using Cubism Probe 44-9
S/N: M087463



SN: 105934
Using Lobluc Probe 44-9
SN: PR087463



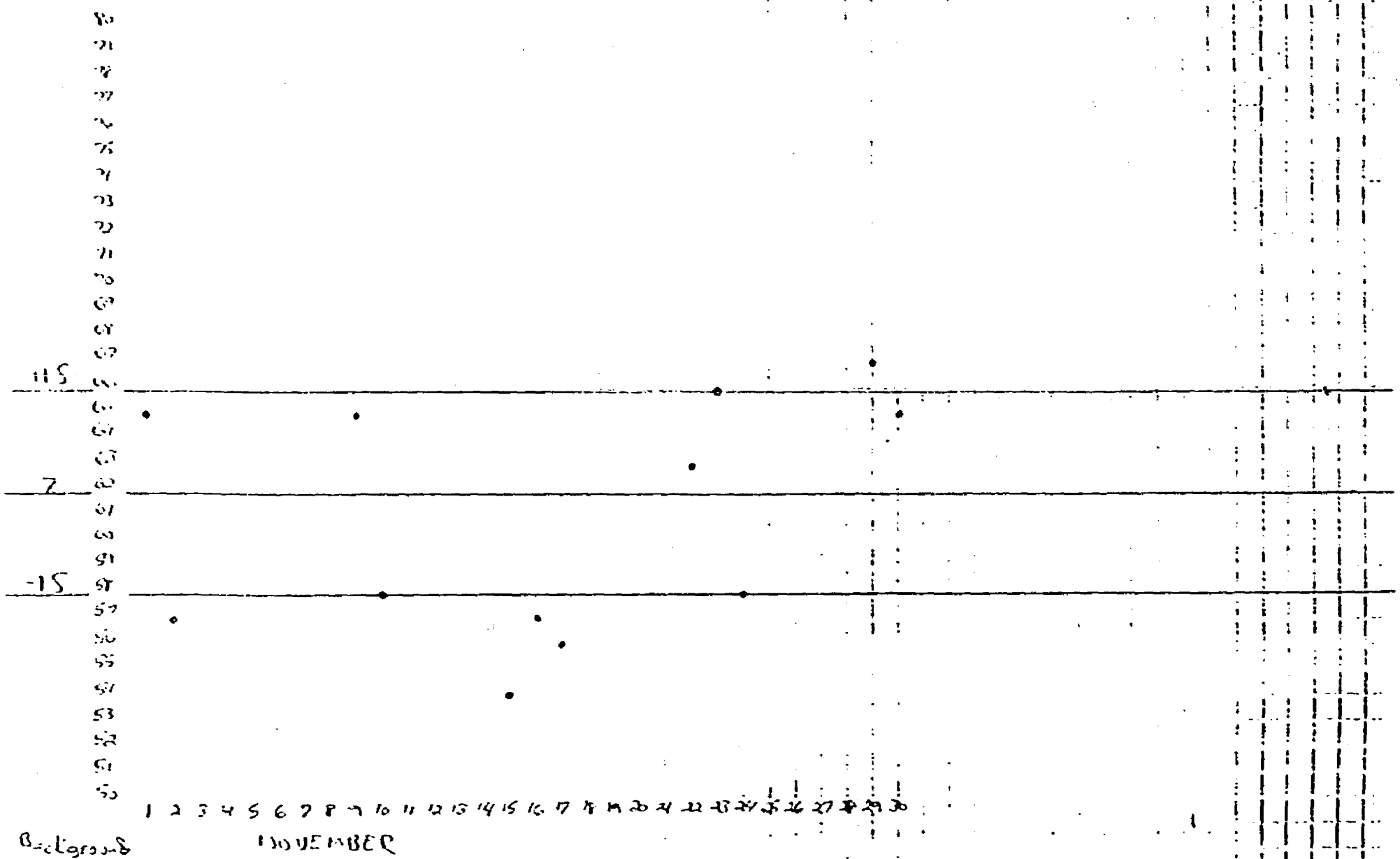
S.. .05 in Y
Using CS Sum Probe 44-9
S.S: PR08X63



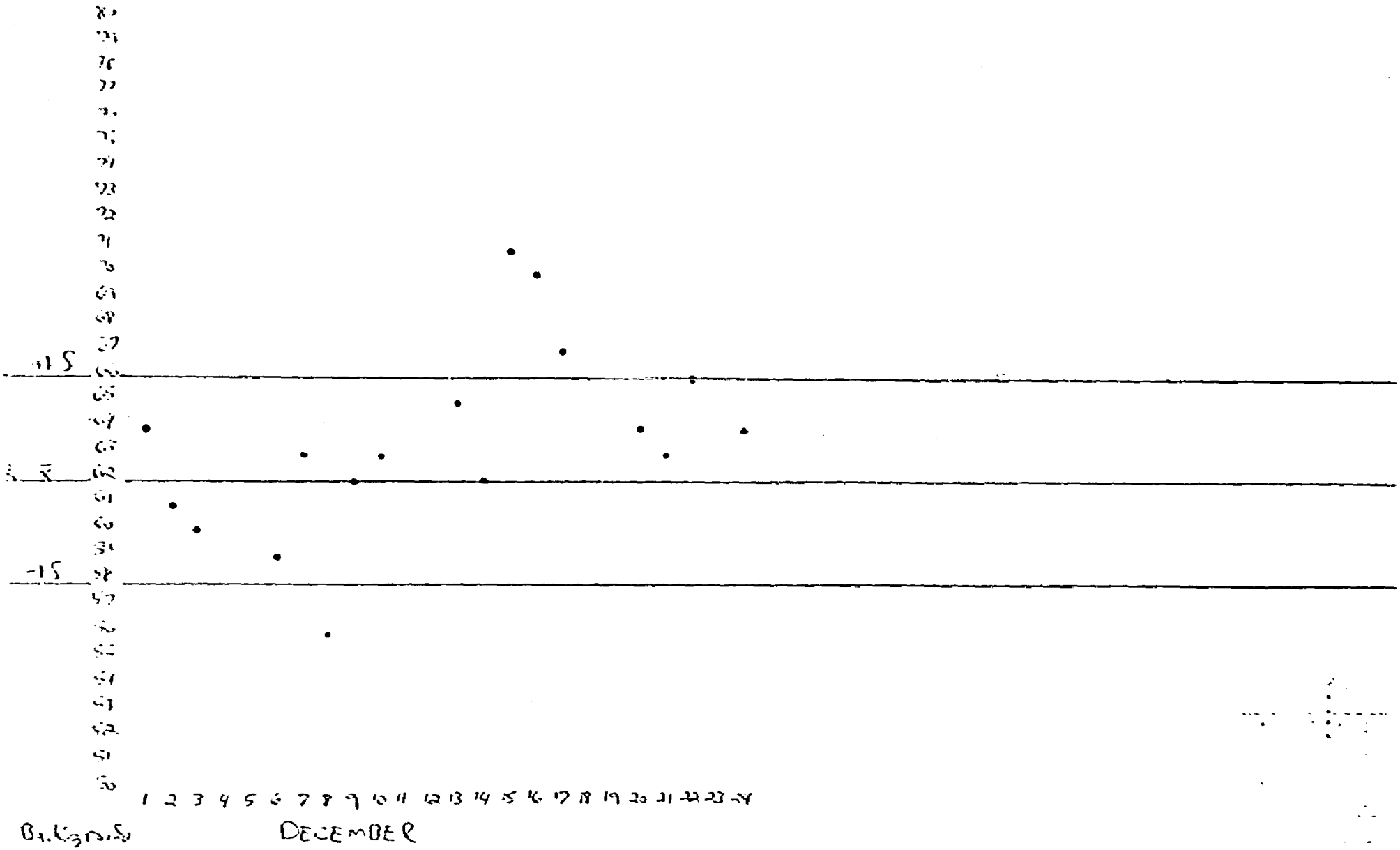
CS Scale

Sep 94

SN: 105934
Using Ludlum Probe 44-9
SN: PR087463



SN: 105934
Using Lodian Probe 44-9
SN: PR087463



Bulgaria

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 26300
Make: Bicron Model: Ludlum SN: 000156

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
11-23-93	0930	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: Am-241 μCi	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	77069	X1 SCALE	
X10 SCALE	76849	X10 SCALE	
X100 SCALE	76952	X100 SCALE	
X1K SCALE	77134	X1K SCALE	
LOG SCALE	77031	LOG SCALE	
Background 1 minute count: 1997, 2003, 1964, 2055, 1929		Background 1 minute count: ____	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% of the acceptable reading

[redacted]

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 86306

Make: Bicron Model: Fidler SN: 000156

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: Am-241 1μCi	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	76941	X1 SCALE	
X10 SCALE	77095	X10 SCALE	
X100 SCALE	76669	X100 SCALE	
X1K SCALE	77730	X1K SCALE	
LOG SCALE	77044	LOG SCALE	
Background 1 minute count: 1943, 2039, 1988, 2018 1956.		Background 1 minute count: ____	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

[redacted]

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235

Make: Bicron Model: Eidlen SN: 000154

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
11-30-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: Am-241 1μCi	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	78621	X1 SCALE	
X10 SCALE	79018	X10 SCALE	
X100 SCALE	79832	X100 SCALE	
X1K SCALE	79492	X1K SCALE	
LOG SCALE	79414	LOG SCALE	
Background 1 minute count: 1760, 1692, 1644, 1658, 1619.		Background 1 minute count: ____	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

Date: 12-1-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235
Make: Bicron Model: Fidler SN: 000154

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-1-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 1 µCi Am-241 SOURCE:	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	81909	X1 SCALE	
X10 SCALE	81746	X10 SCALE	
X100 SCALE	81721	X100 SCALE	
X1K SCALE	81640	X1K SCALE	
LOG SCALE	82011	LOG SCALE	
Background 1 minute count: 1364, 1461, 1362, 1517 1448		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% [illegible] acceptable reading

ENVIRONMENTAL DIMENSIONS, INC.

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235

Make: Bicron Model: Fidler SN: 000156

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-2-93	0730	OK	OK	OK	OK	M Ba[illegible]	

LANL CHECK SOURCE: (Alpha)	SN:	LANL CHECK SOURCE JIG: (Beta)	SN:
	SOURCE: 1μCi Am-241		SOURCE:

INSTRUMENT SCALE	ACTIVITY	INSTRUMENT SCALE	ACTIVITY
X1 SCALE	80226	X1 SCALE	
X10 SCALE	79660	X10 SCALE	
X100 SCALE	80134	X100 SCALE	
X1K SCALE	80213	X1K SCALE	
LOG SCALE	79501	LOG SCALE	
Background 1 minute count: 1545, 1549, 1518, 1504, 1527		Background 1 minute count:	

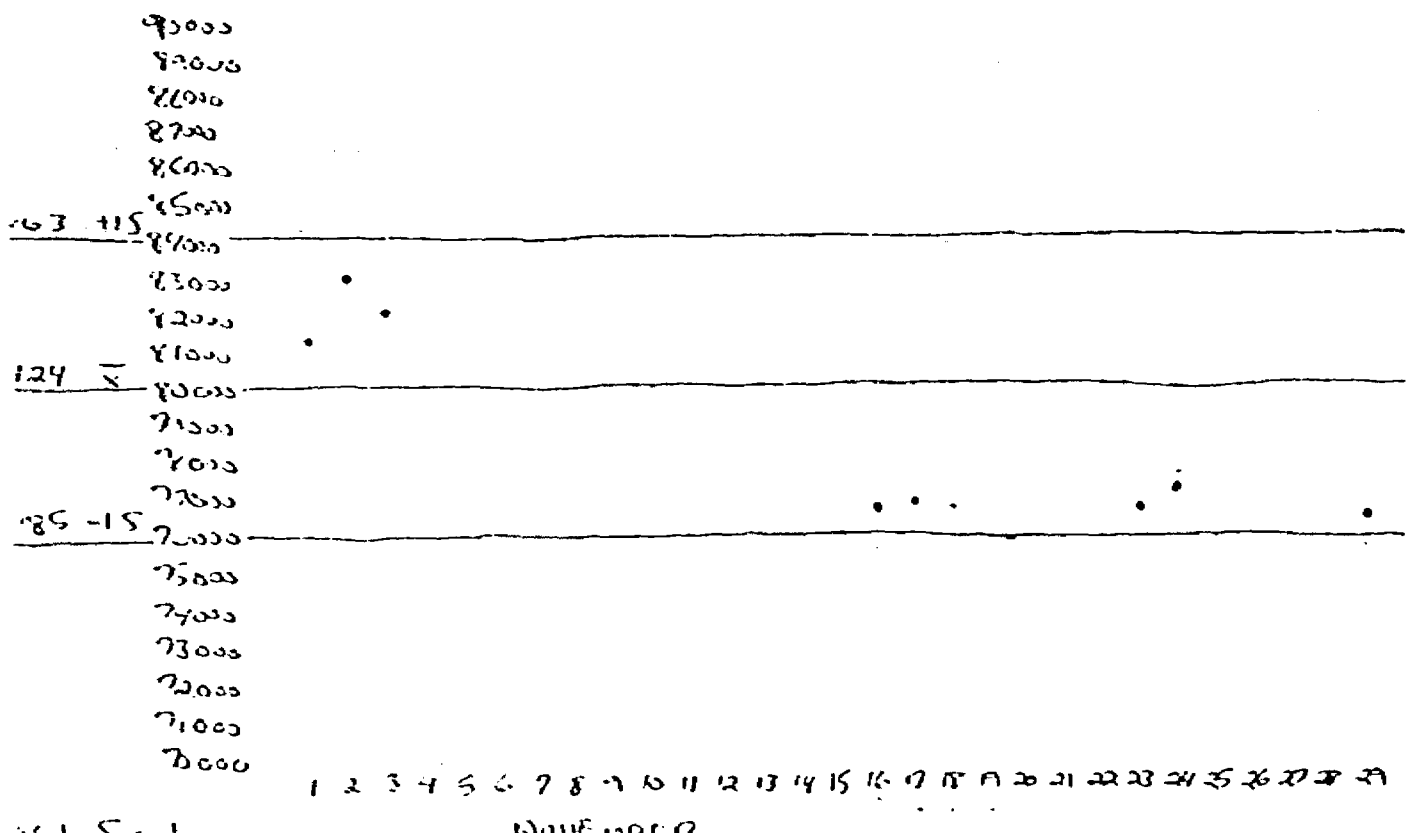
NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

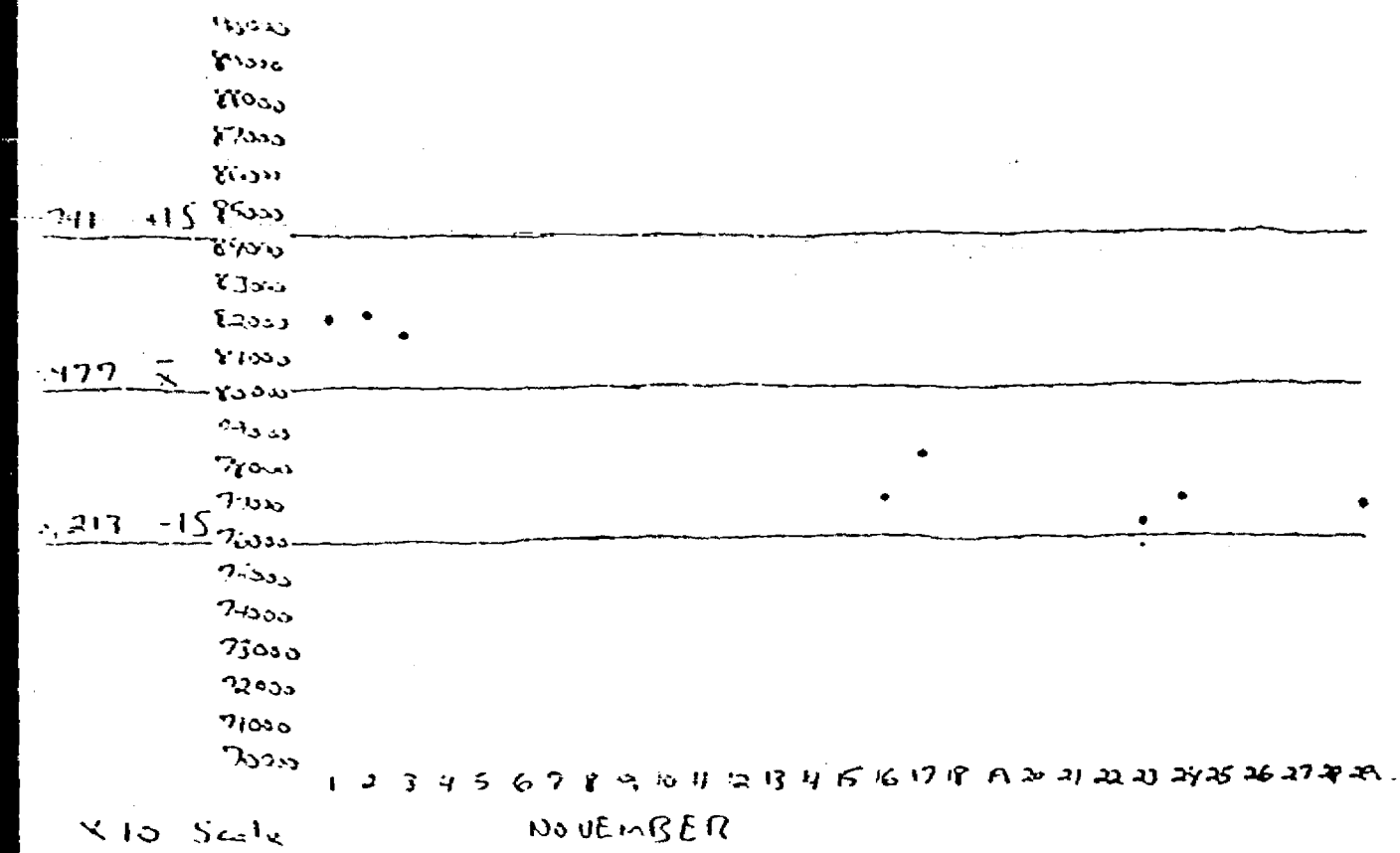
Daily readings must be within 20% of the acceptable reading

FLDEP
SD: 000156
Using LSolum meter 2221
SD: 860306



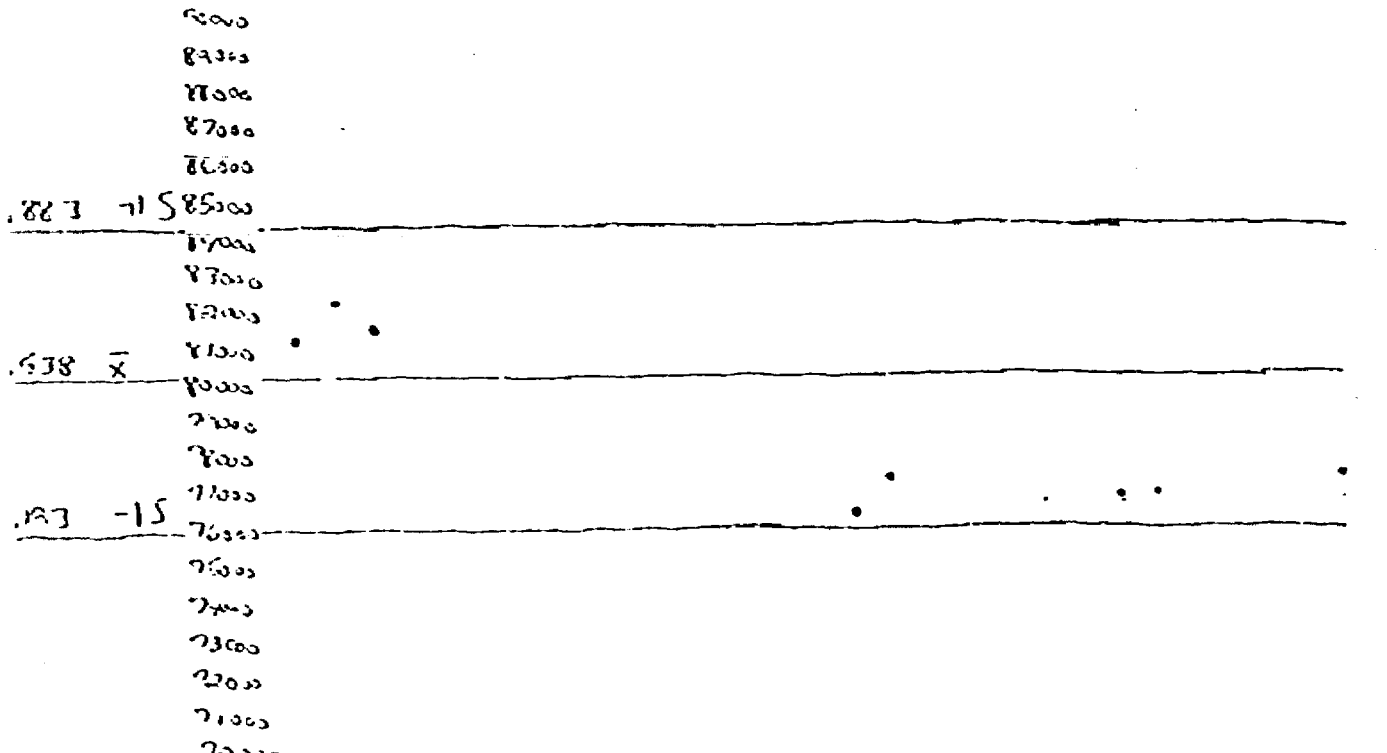
X1 Scale

SOLEC
[illegible]
[illegible] Water 2221
[illegible]86306



2-D693

FEDLER
SN: 000156
Using [illegible] Model 2221
SN: 86306



×100 Scale

3Tq 94

FIDLER
SN: 000156
Using Lyslon Meter 2221
SN: 86306

		90000
		89000
		88000
		87000
		86000
243	+15	85000
		84000
		83000
		82000
		81000
147	$\bar{x}$	80000
		79000
		78000
		77000
101	-15	76000
		75000
		74000
		73000
		72000
		71000
		70000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

X 1K Scale

NOVEMBER

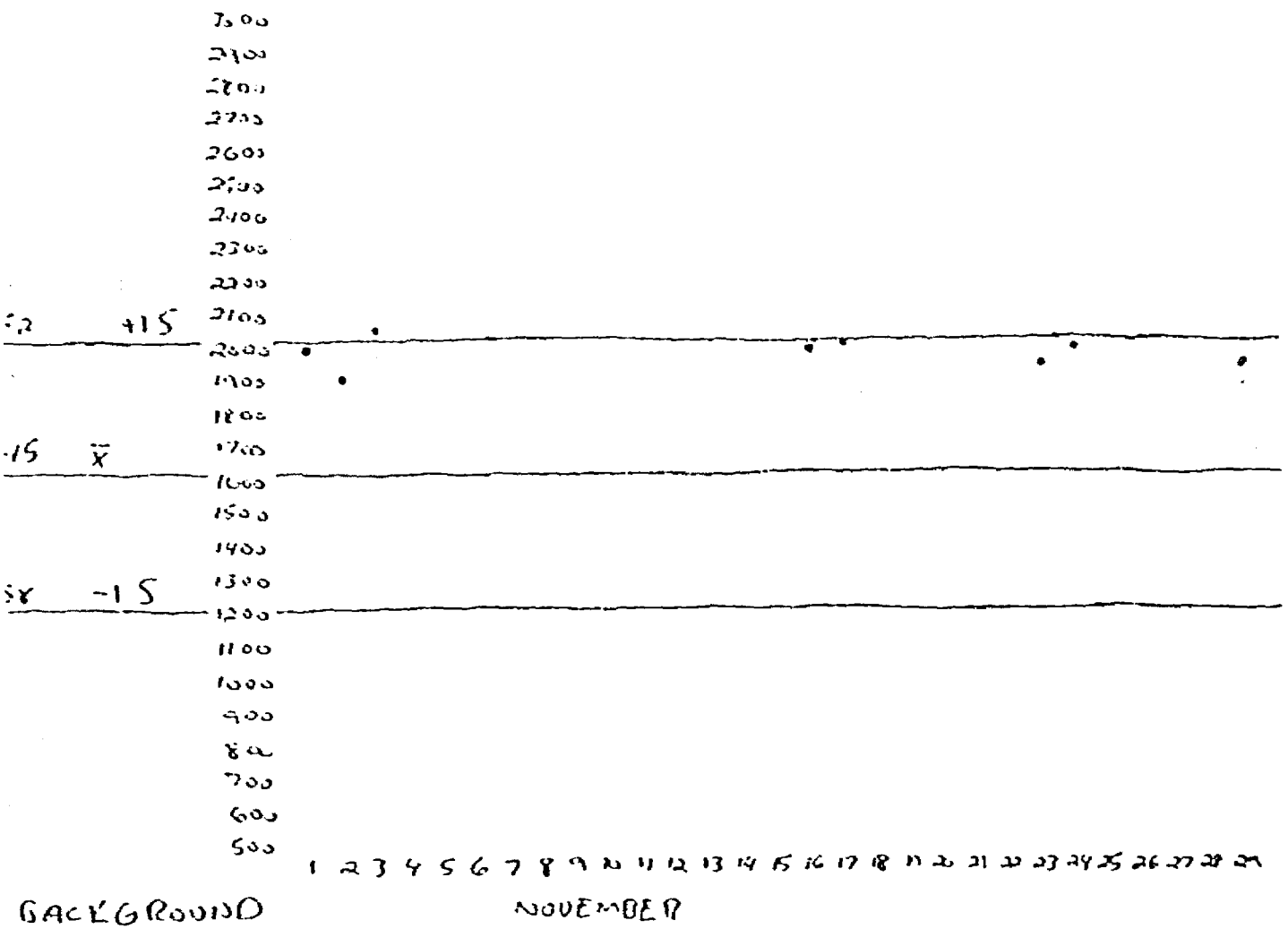
FIDLER
SN: 000156
Using LaBlum Meter 2221
SN: 86306

		90000
		89000
		88000
		87000
		86000
168	+1.5	85000
		84000
		83000
		82000
147	0	81000
		80000
		79000
		78000
		77000
126	-1.5	76000
		75000
		74000
		73000
		72000
		71000
		70000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

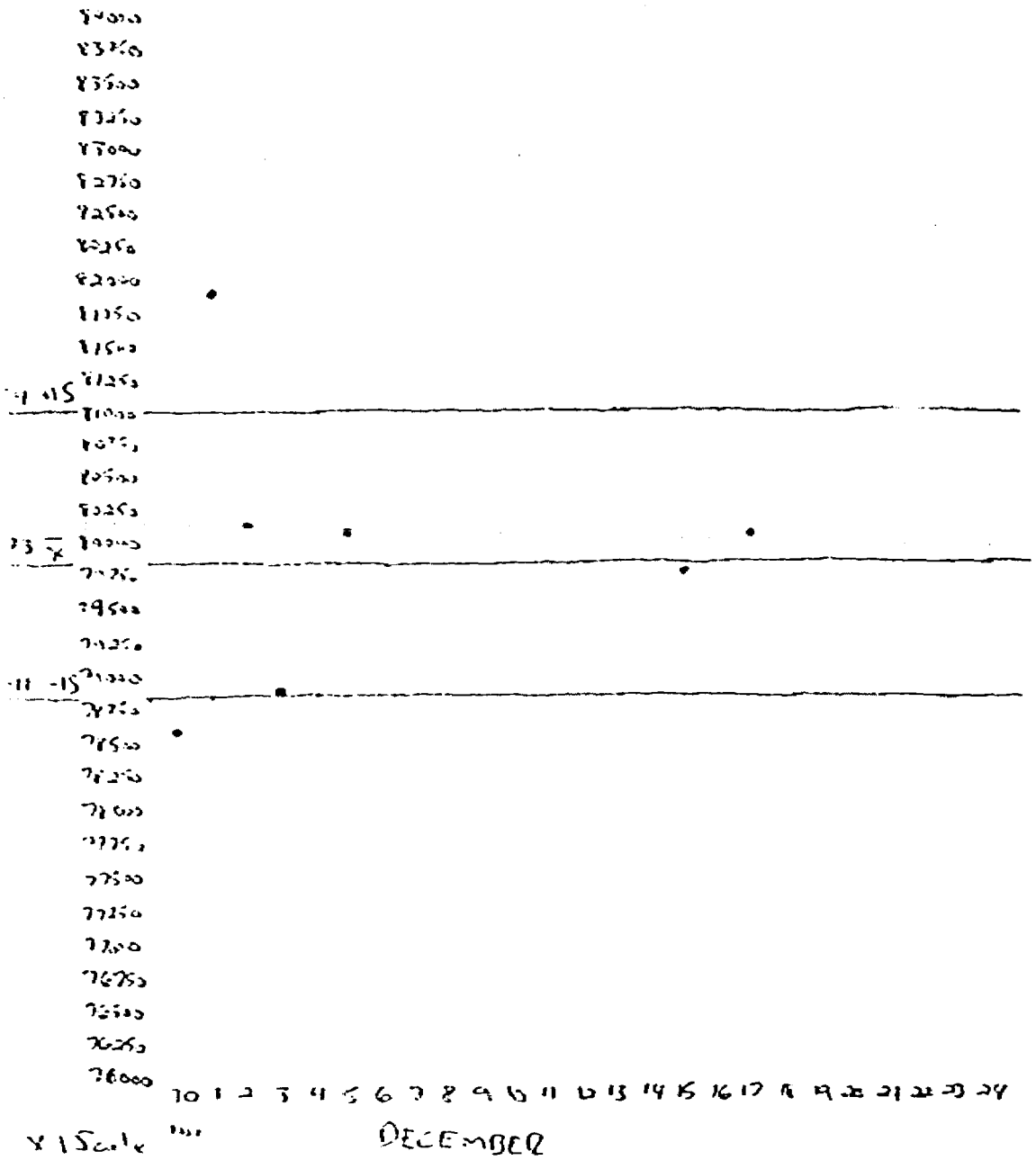
LOG Scale NOVEMBER

FIDLER
SID: 000156
Using Lodlum Meter 2221
SID: 86306

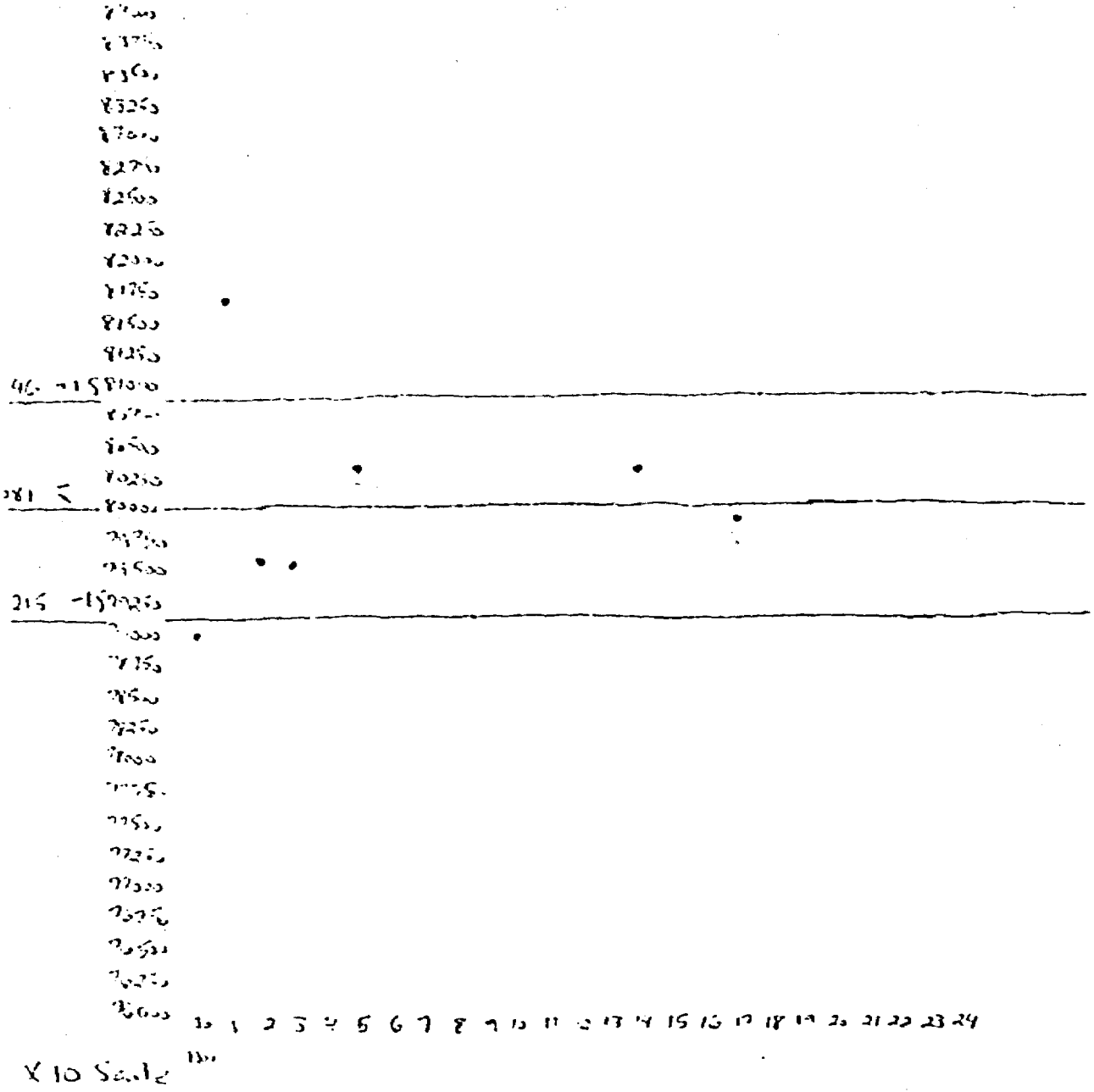


FLOLER
SN:000156

SN:91235



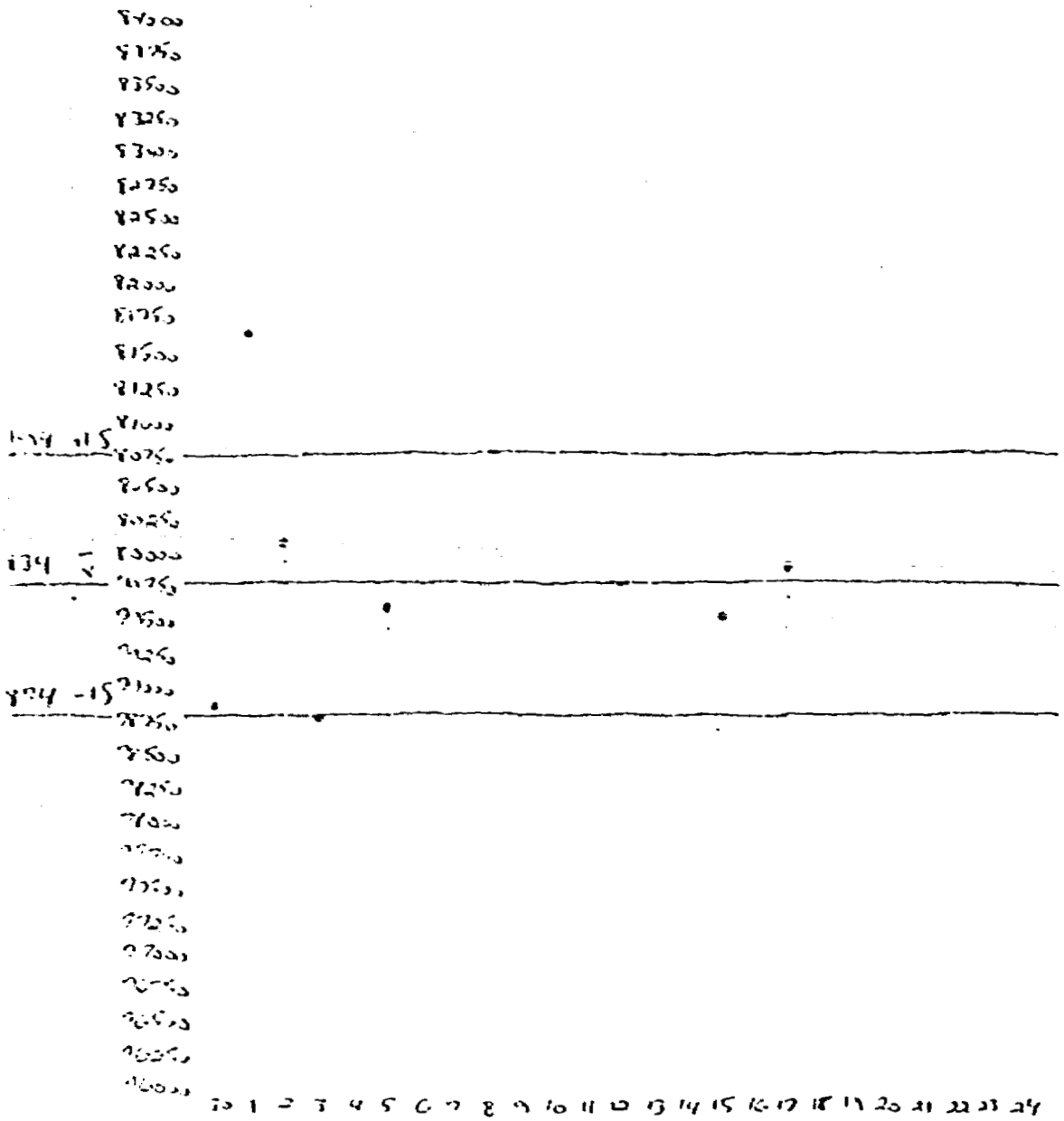
30 Dec 93



X 10 Scale

30 Dec 93

SN 000156 SN: 91235

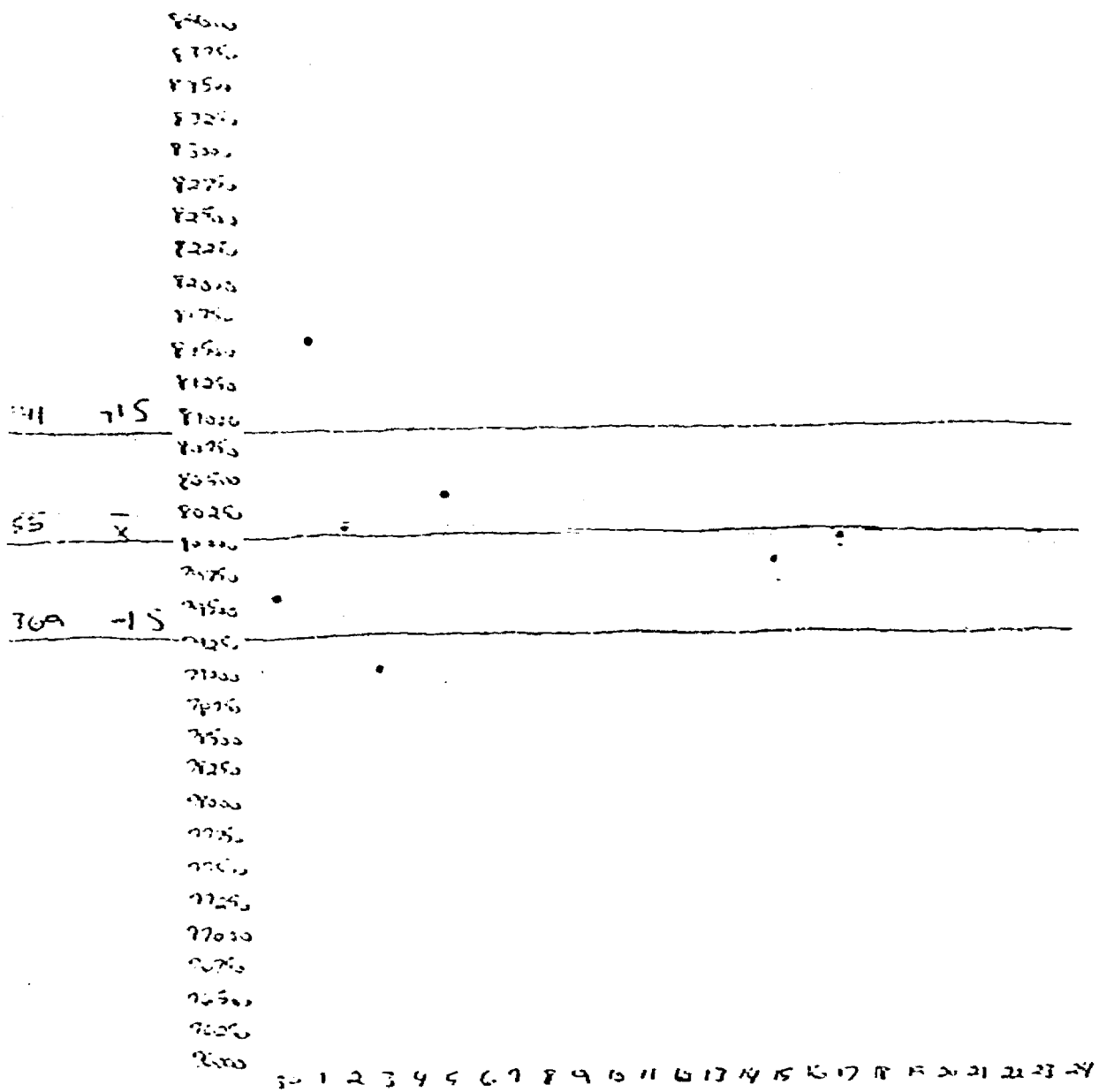


100 Scale

30 Dec 93

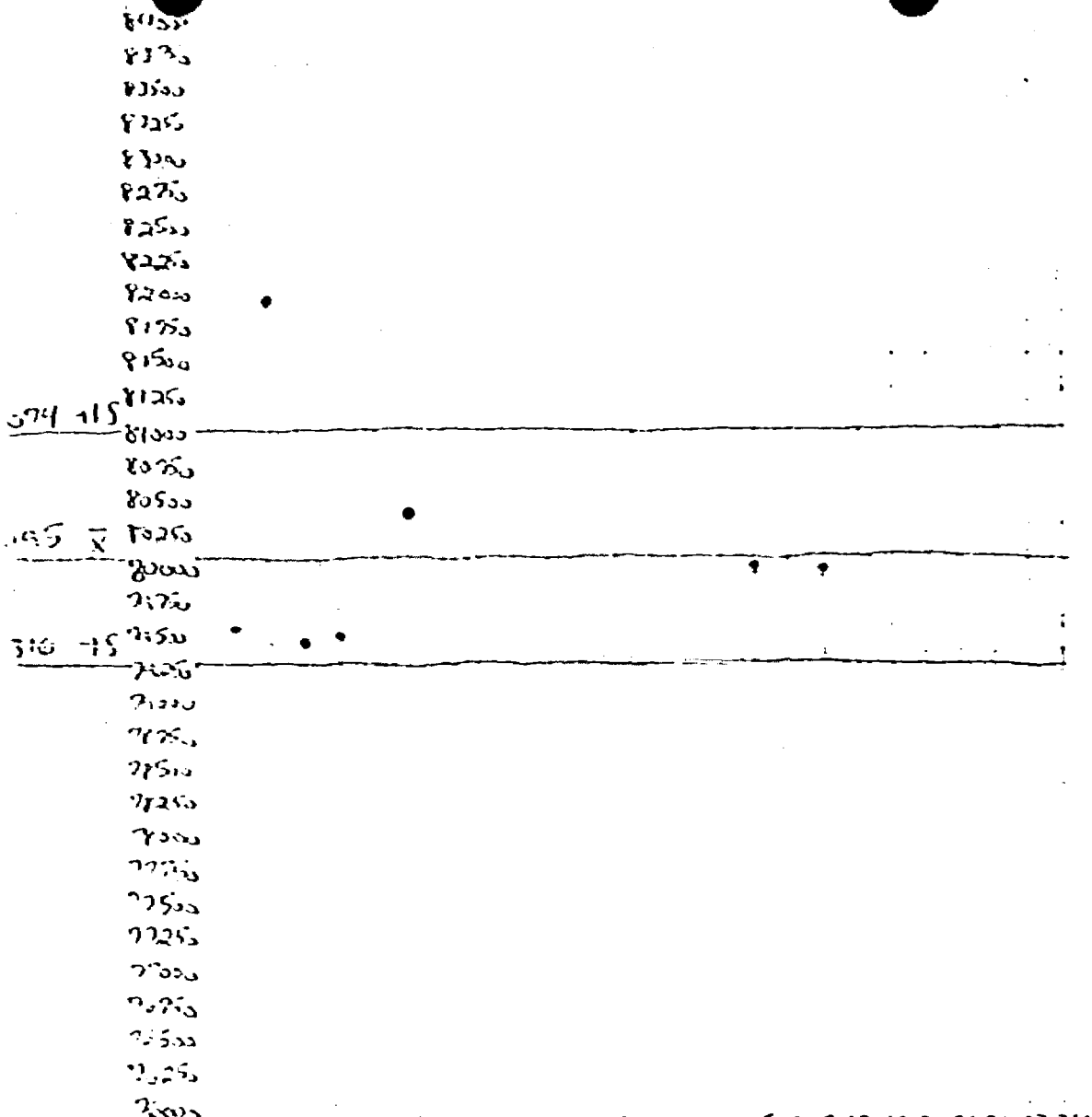
FIXLER
SN: 000156

SN: 71235

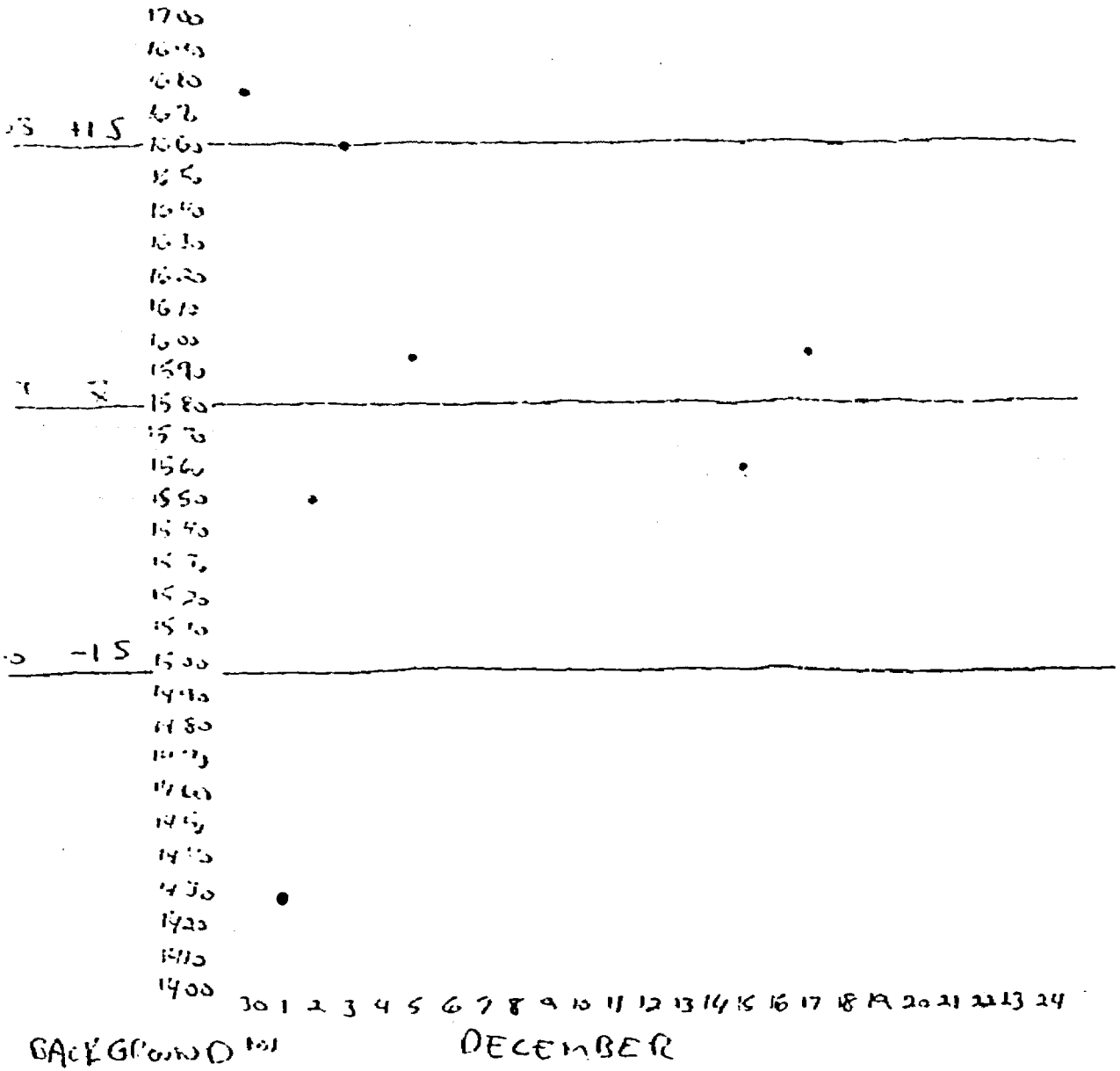


X, 1K Scale

30 Dec 93


574 ±15
.195 $\bar{x}$
316 ±15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
DECEMBER

30 Dec 93



BACKGROUND 101

30 Dec 93

ATTACHMENT 2

EAST SITE SURVEY DOCUMENTS

EAST SITE RAD SURVEY SHEET

(12-3-93, 12-17-93)

EAST SITE AREA SURVEY SHEET

(12-15-93)

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, FIDLER PROBE

(12-3-93, 12-17-93)

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221, 44-9

((12-3-93, 12-17-93)

Ludlum 2221 - 71235
Fidlen - 000156

Ludlum 2221 - 105934
Ludlum 44-9 - PR03 7463

Rad Survey TA-33 East Site 12-3-93 / 12-17-93

Grid Stake #	Fidlen	44-9	Grid Stake #	Fidlen	44-9
12-3-93					
5300	3268	107	5333	3543	100
5301	3232	108	5334	3520	101
5302	3403	99	5335	3553	102
5303	3400	96	5336	2567	85
5304	3178	109	5337	3392	92
5305	2874	98	5338	2486	92
5306	3235	97	5339	3169	103
5307	3267	106	5340	3706	102
5308	3375	100	5341	3328	105
5309	3391	97	5342	3743	110
5310	3520	105	5343	3790	101
5311	2923	83	5344	3902	148
5312	2942	103	5345	3674	94
5313	3679	128	5346	3822	124
5314	4949	123	5347	3745	118
5315	3836	116	5348	3916	108
5316	4045	87	5349	4061	111
5317	3476	85	5350	3905	119
5318	3593	103	5351	3393	102
5319	4007	105	5352	3406	108
5320	4040	106	5353	3440	103
5321	3694	99	5354	3736	121
5322	3903	93	5355	3846	96
5323	5322	98	5356	3811	105
5324	3146	102	5357	3064	84
5325	3345	122	5358	4192	103
5326	3927	126	5359	3660	101
5327	3836	95	5360	3728	108
12-17-93					
5328	3769	125	5361	3349	118
5329	3925	96	5362	3942	109
5330	3508	98	5363	3946	116
5331	3885	92	5364	3680	120
5332	3991	88	5365	3450	101

Stake#	Fidlen	44-9
5366	3900	116
5367	4384	104
5368	3620	113
5369	3411	94
5370	3740	112
5371	3354	70
5372	3269	111
5373	3776	128
5374	3645	122
5375	3758	120
5376	3895	93
5377	2918	116
5378	2452	92
5379	3817	117
5380	3407	108
5381	3764	132
5382	4470	113
5383	3722	129
5384	3265	106
5385	3118	94
5386	3772	98
5387	3791	108
5388	3564	113
5389	3900	128
5390	3776	84
5391	3504	129
5392	3921	104
5393	3846	132
5394	4344	140
5395	4513	115
5396	3456	87
5397	3817	89
5398	3646	109
5399	3710	97

12-17-93 TA-33 East Site

Grid Stake#	Fidlen	44-9
5400	3450	83
5401	3518	93
5402	3749	87
5403	4158	173
5404	4264	88
5405	4906	129
5406	4530	127
5407	4389	94
5408	3414	114

Fidlen · 000154
Ludlum 2221 · 71235
Ludlum 2221 - 105934
Ludlum 44-9 · PR087463

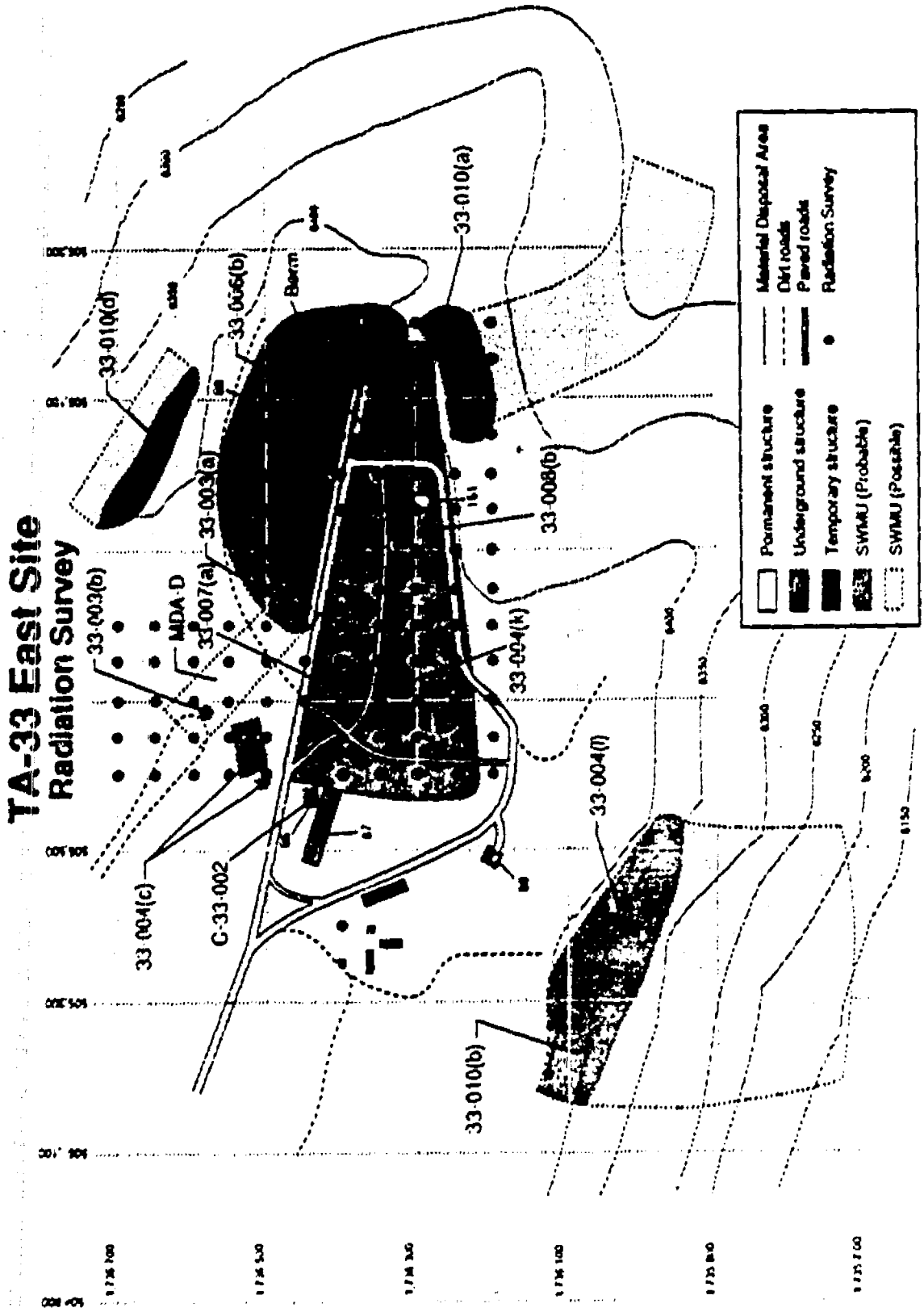


Fig. 4-17. Radiation survey at East Site.

E 505300.00
N 1736700.00
N 1736500.00
N 1736300.00
N 1736100.00

Job Number: [illegible]-93

AREA SURVEY SHEET

Site: TA-33 1122 East site Contrail Channel
Date: 12-15-93
Time: 1400
Technician: [illegible]

Operable Unit: 1122
Area Size:
RWP or Work Plan:
Grid Size: Easy 50'
Purpose of Survey: Survey of central water way.
Instrument: Ludlum 3221 Ludlum 3221
Serial Number: 31255 / 155431
Detector: Eberline
Serial Number: 00056 PROBE
Background: 500/70
Response Check: Should read: 10125 / 10107 ± 5%
Did read: 10112 / 10105

Count Rate (CPM)

Coordinates North	Coordinates East				
RS-1	1012 - 95				
RS-2	3168 - 105				
RS-3	3692 - 105				
RS-4	3773 - 117				
RS-5	3930 - 111				
RS-6	3663 - 90				
RS-7	3391 - 99				
RS-8	3391 - 110				
RS-9	3411 - 112				
RS-10	3751 - 125				
RS-11	1091 - 132				
RS-12	7162 - 133				
910A-4	1622 - 138				

Remarks: Survey was made every 50' along the main water drain TA-33 East site. Also all TCE Raised Channel points were surveyed. Eight - [illegible]

Signature: [illegible]
Reviewed by:

Job Number: _____

AREA SURVEY SHEET

Site: TA-33 / 033 East Site
Date: 12-15-93
Time: 1400
Technician: M. Powell

Operable Unit: 1122
Area Size: _____
RWP or Work Plan: _____
Grid Size: Every 50'
Purpose of Survey: Survey of central water line
Instrument: Ludlum 2221 / Ludlum 2221
Serial Number: 212 35 / 105931
Detector: Fidler 2443
Serial Number: 00016 / PR057463
Background: 100 2/20
Response Check: Should read: 3295 / 10307 +-20%
Did read: 3217 / 10103

Count Rate (CPM)

Coordinates North	Coordinates East				
010A-3	1345-1117				
010A-1	1205-1500				
4K4	3745-110				

Remarks: Survey was made every 50' along the main water line from TA-33 East site. Also all TCE Cluster Sample points were surveyed. (4.0 to - 41.0)

Signature: M Powell
Reviewed by: _____

Date: 12-3-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235
Make: Bicron Model: Fidler SN: 0001564

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-3-93	0730	OK	OK	OK	OK	M Pa[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: 1μCi Am-241	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	78952	X1 SCALE	
X10 SCALE	79615	X10 SCALE	
X100 SCALE	78842	X100 SCALE	
X1K SCALE	79091	X1K SCALE	
LOG SCALE	79557	LOG SCALE	
Background 1 minute count: 1651, 1640, 1708, 1688, 1619		**Background 1 minute count:** ____	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235

Make: Bicron Model: Fidler SN: ~~[illegible]~~ 009156

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-15-93	0730	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: / SOURCE: LaCl Am-241	LANL CHECK SOURCE JIG: (Beta)	SN: / SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	79826	X1 SCALE	
X10 SCALE	30301	X10 SCALE	
X100 SCALE	7614	X100 SCALE	
X1K SCALE	79892	X1K SCALE	
LOG SCALE	30117	LOG SCALE	
Background 1 minute count: 1597, 1607, 1574, 1511, 1591.		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: [illegible]

Make: Bicron Model: F-Jr SN: 221560

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-17	0730	OK	OK	OK	OK	MBH	

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: μC. Am-241	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	80160	X1 SCALE	
X10 SCALE	79843	X10 SCALE	
X100 SCALE	79912	X100 SCALE	
X1K SCALE	70114	X1K SCALE	
LOG SCALE	80069	LOG SCALE	
Background 1 minute count: 1590, 1612, 1604, 1523 1580.		Background 1 minute count: ____	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

HEULE'IC
SID: 000156

[illegible]
SID: 71235

8300
8375
8350
8325
8300
8275
8250
8225
8200
8175
8150
8125
96 -15 8100
8075
8050
8025
81 5 8000
7975
7950
21 5 -15 7925
7900
7875
7850
7825
7800
7775
7750
7725
7700
7675
7650
7625
7600

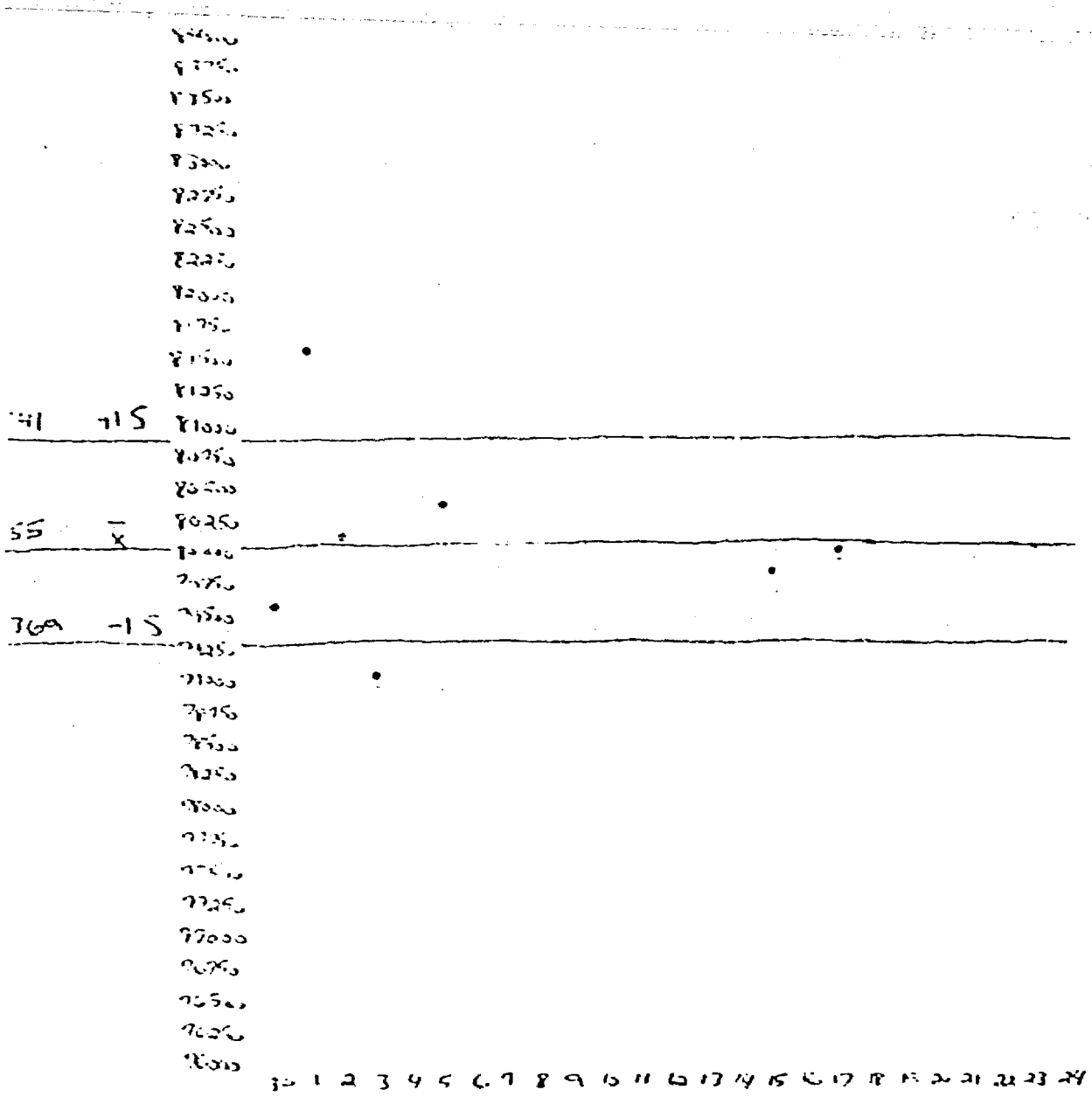
30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

100

X 10 Scale

30 Dec 93
[illegible]

FLIPLEX SN: 000156 Using Custom Instrument SN: 71235



X 1E Scale

30 Dec 93

SN 000150 SN: 71235

134 -15

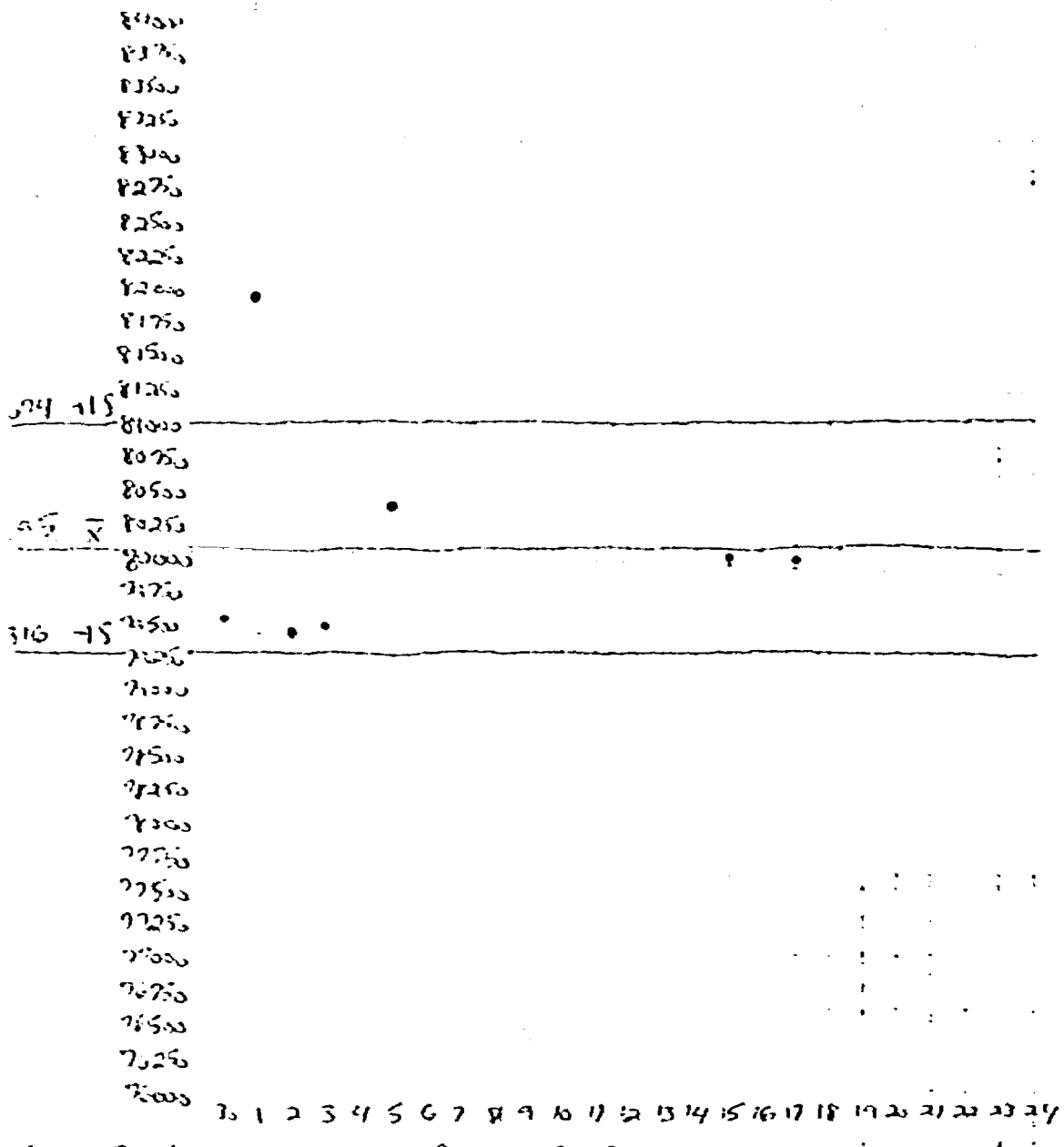
134 -15

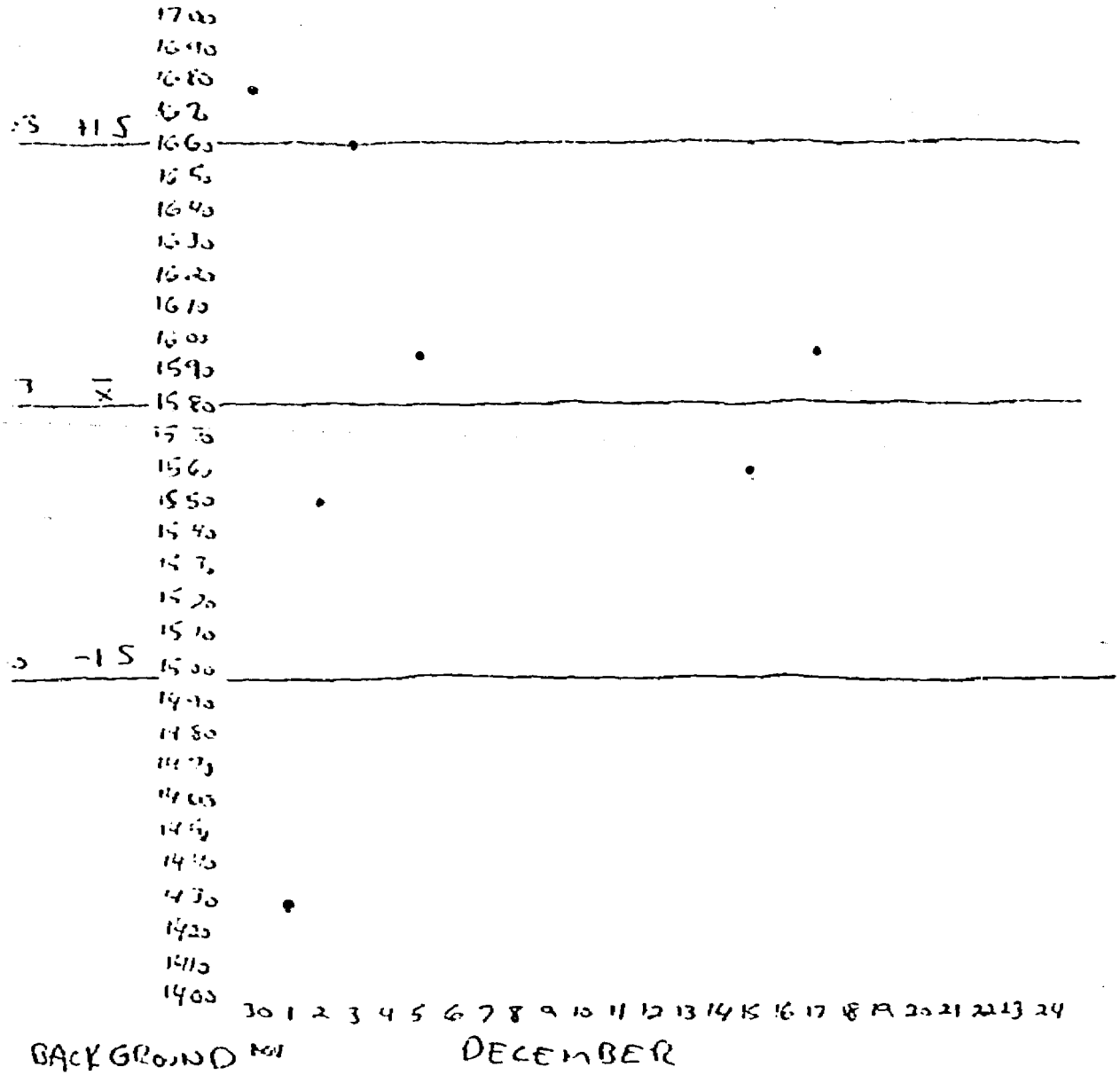
100 Scale

DECEMBER

30 Dec 93

SN: 000156 SN: 71235





BACKGROUND NOI DECEMBER

30 Dec 93

D 12-3-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:
Make: Ludlum Model: 2221 SN: 105934
Make: Ludlum Model: 44-9 SN: PR037963

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-3-93	0730	OK	OK	OK	OK	M Pa[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 4627, 90TH470 SOURCE: TA-230, 96, 3.6 dp (D-3140)	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	ACTIVITY	INSTRUMENT SCALE	ACTIVITY
X1 SCALE	10125	X1 SCALE	
X10 SCALE	10352	X10 SCALE	
X100 SCALE	10640	X100 SCALE	
X1K SCALE	10768	X1K SCALE	
LOG SCALE	10569	LOG SCALE	
Background 1 minute count: 63, 60, 58		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% [illegible] of the acceptable [illegible] reading

[redacted]

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 105931

Make: Ludlum Model: 44-9 SN: P3 07463

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-15	0232	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 90TH470, 4637 SOURCE: 7b 230 9636 8dpm 10-31-	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10103	X1 SCALE	
X10 SCALE	10963	X10 SCALE	
X100 SCALE	10187	X100 SCALE	
X1K SCALE	10810	X1K SCALE	
LOG SCALE	10159	LOG SCALE	
Background 1 minute count: 76, 66, 70		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% ± of the acceptable reading.

OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 125951

Make: Ludlum Model: 44-9 SN: PR03 3453

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-17	0950	OK	OK	OK	OK	[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: 92EH422, 5E22 SOURCE: 76-232 96308 10-31-96	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10161	X1 SCALE	
X10 SCALE	10182	X10 SCALE	
X100 SCALE	10960	X100 SCALE	
X1K SCALE	10152	X1K SCALE	
LOG SCALE	10137	LOG SCALE	
Background 1 minute count: 71, 68, 61		Background 1 minute count:	

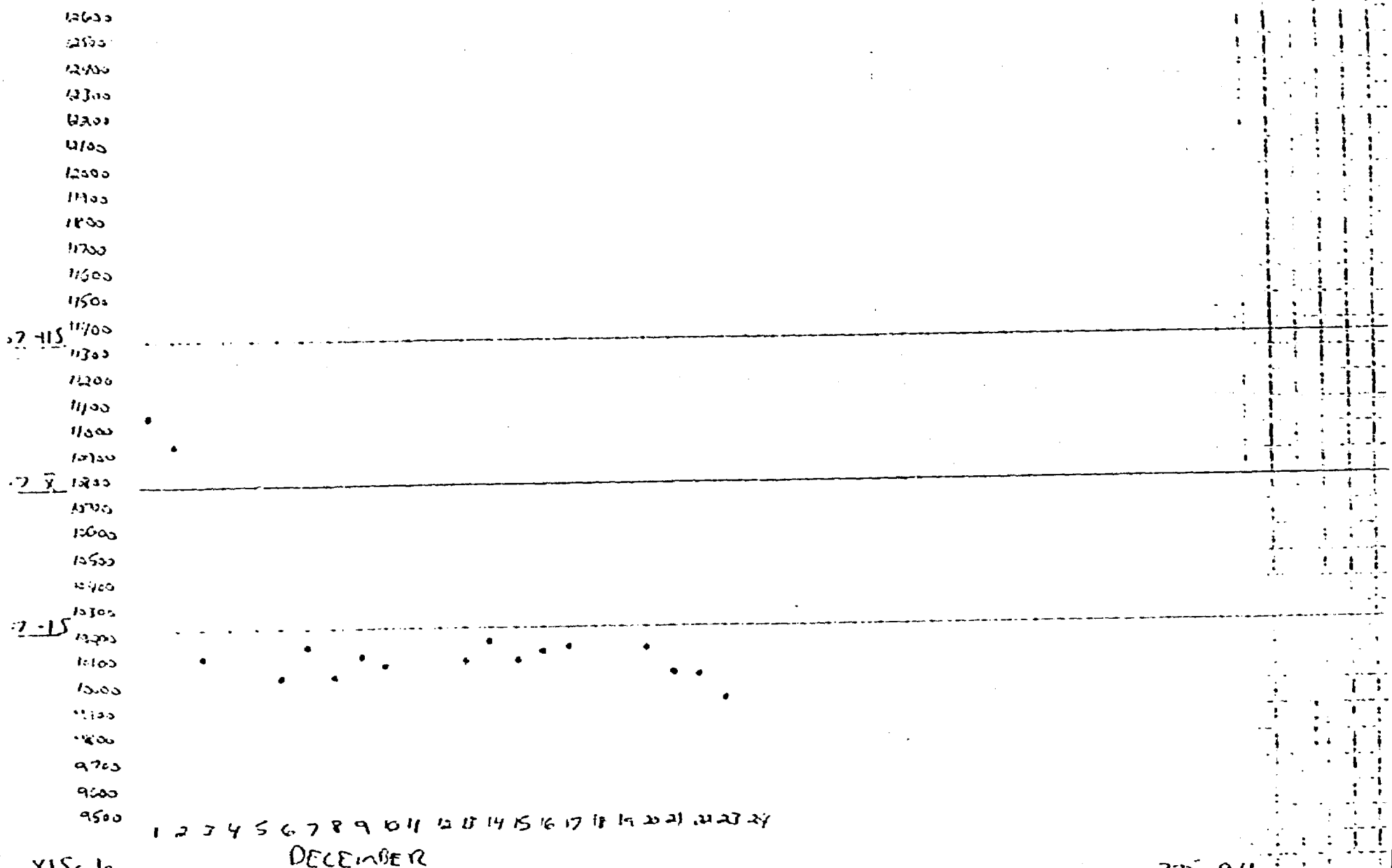
NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

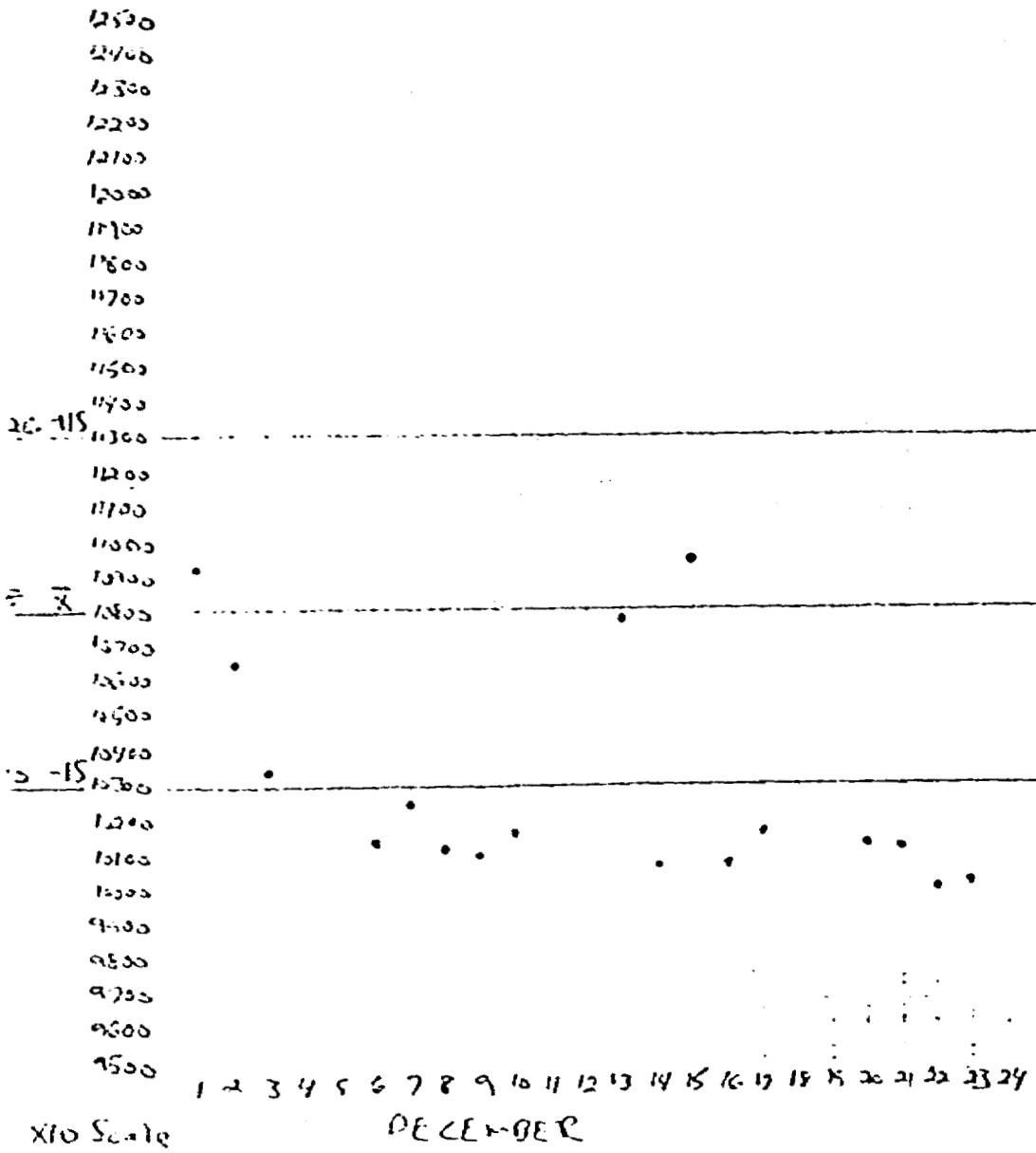
Daily readings must be within 20% ± of the acceptable reading.

LUDLUM 2221
S/N: 105934
Using Ludlum Probe 44-9
S/N: PR387463



X|Scale

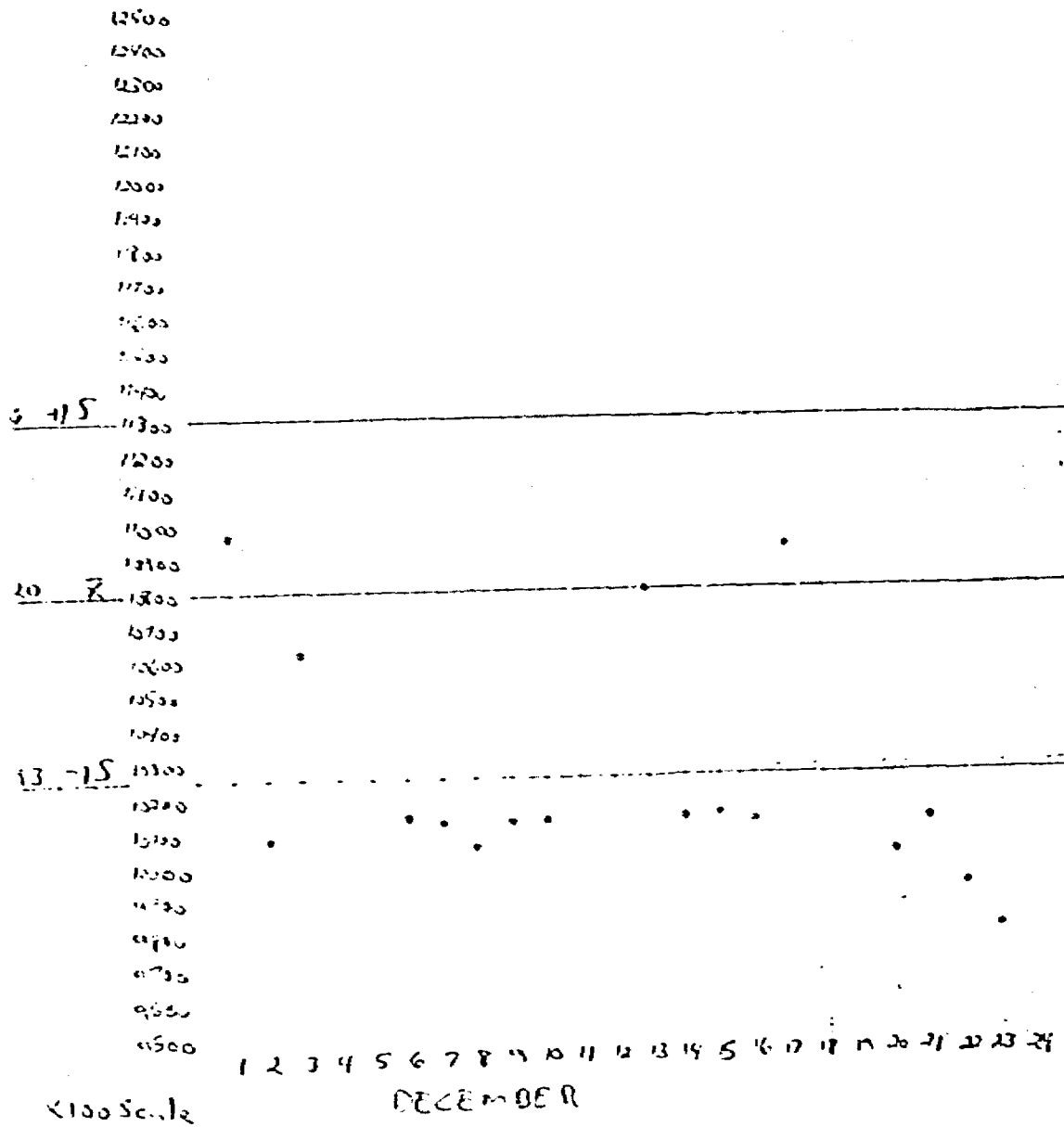
SN: 105934
Using Lubion Probe 44-9
SN: PR087463



X10 Scale

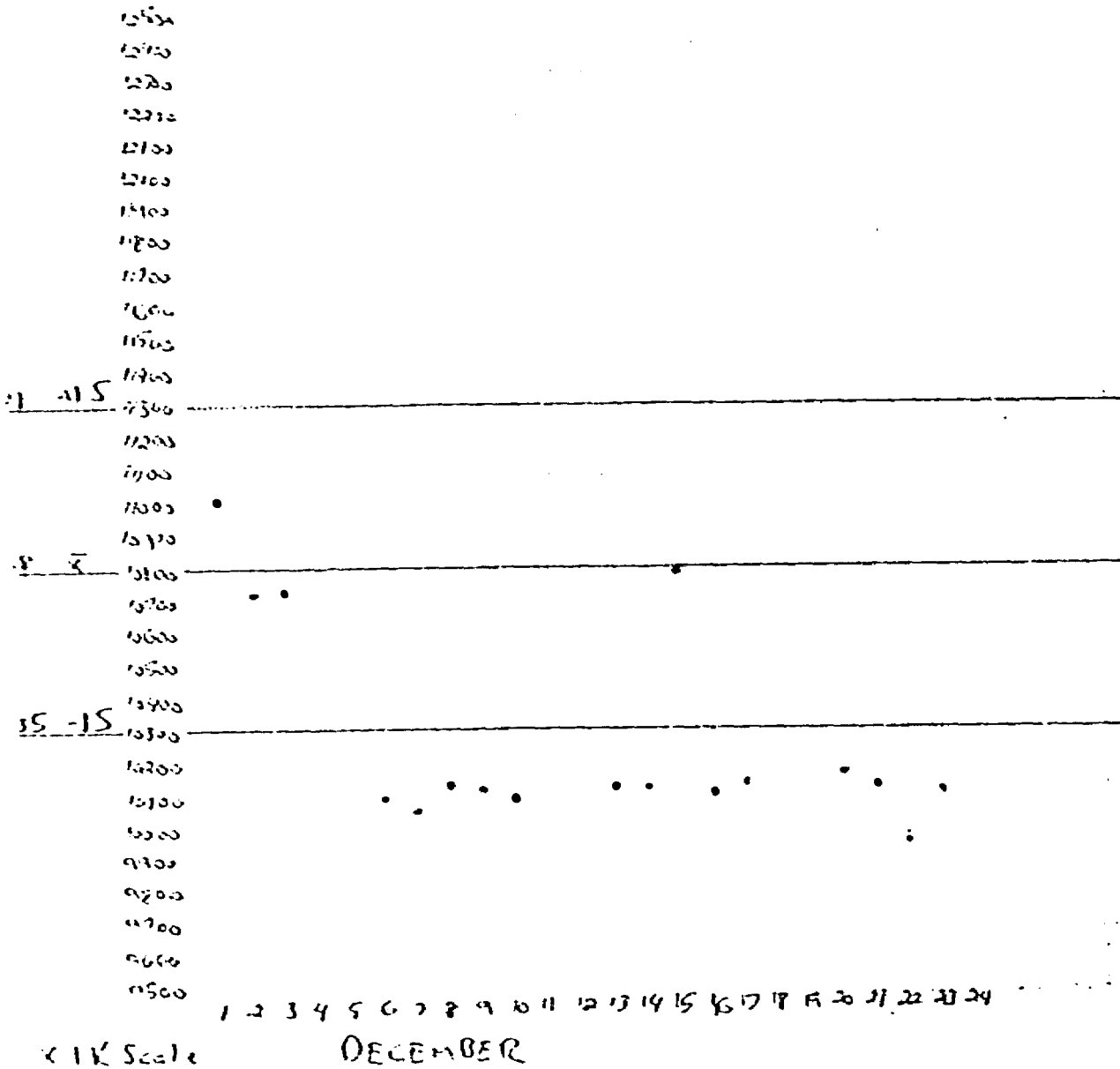
Dia — 33594

S/N: 105934
Using Calum Pole 949
S/N: P2087463



12:00
12:15
12:30
12:45
13:00
13:15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
DECEMBER
X100 Scale
35 94

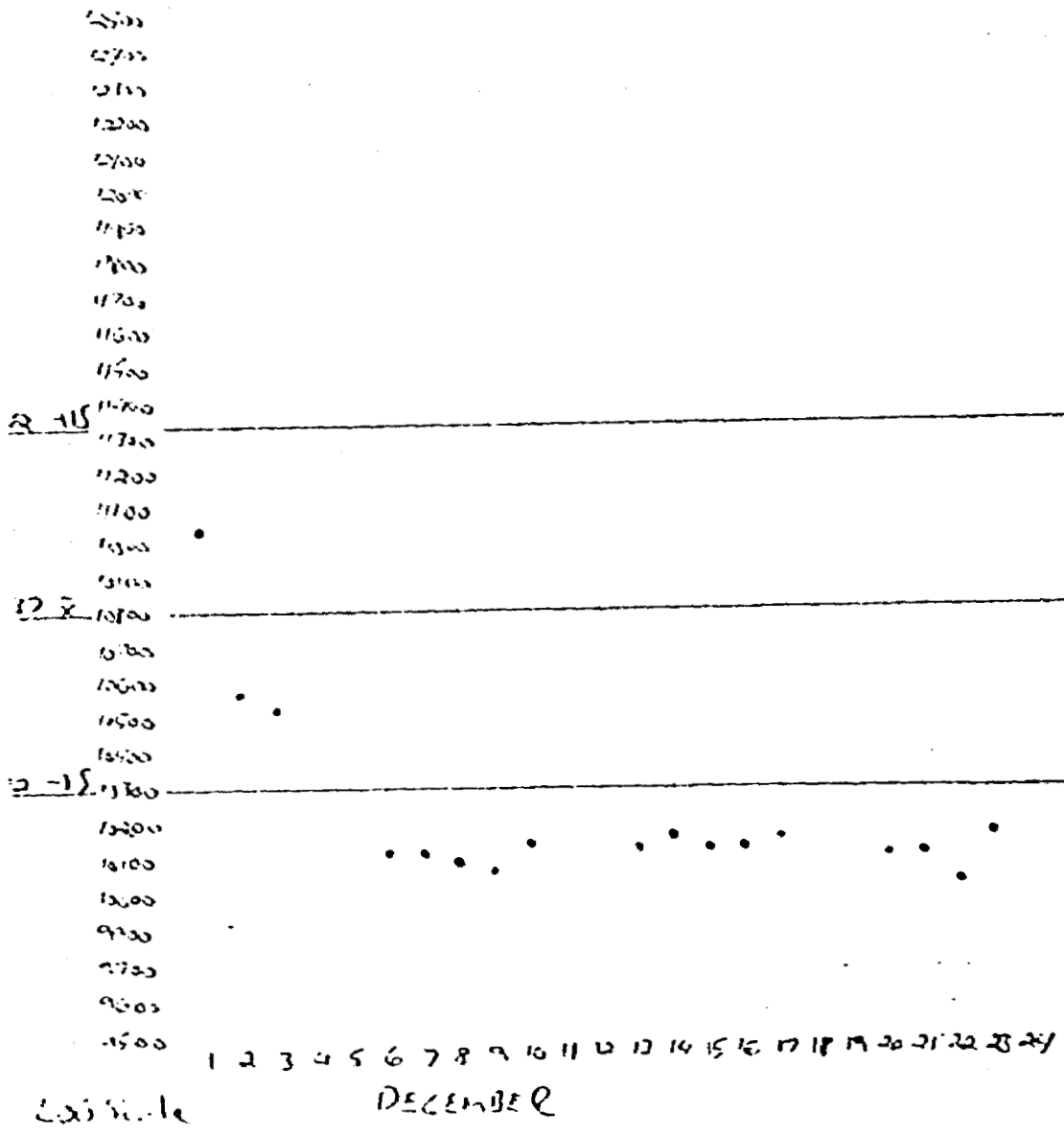
S/N: 105934
Using Cobham Probe 4F-9
S/N: RE087463



<1K Scale

35-94

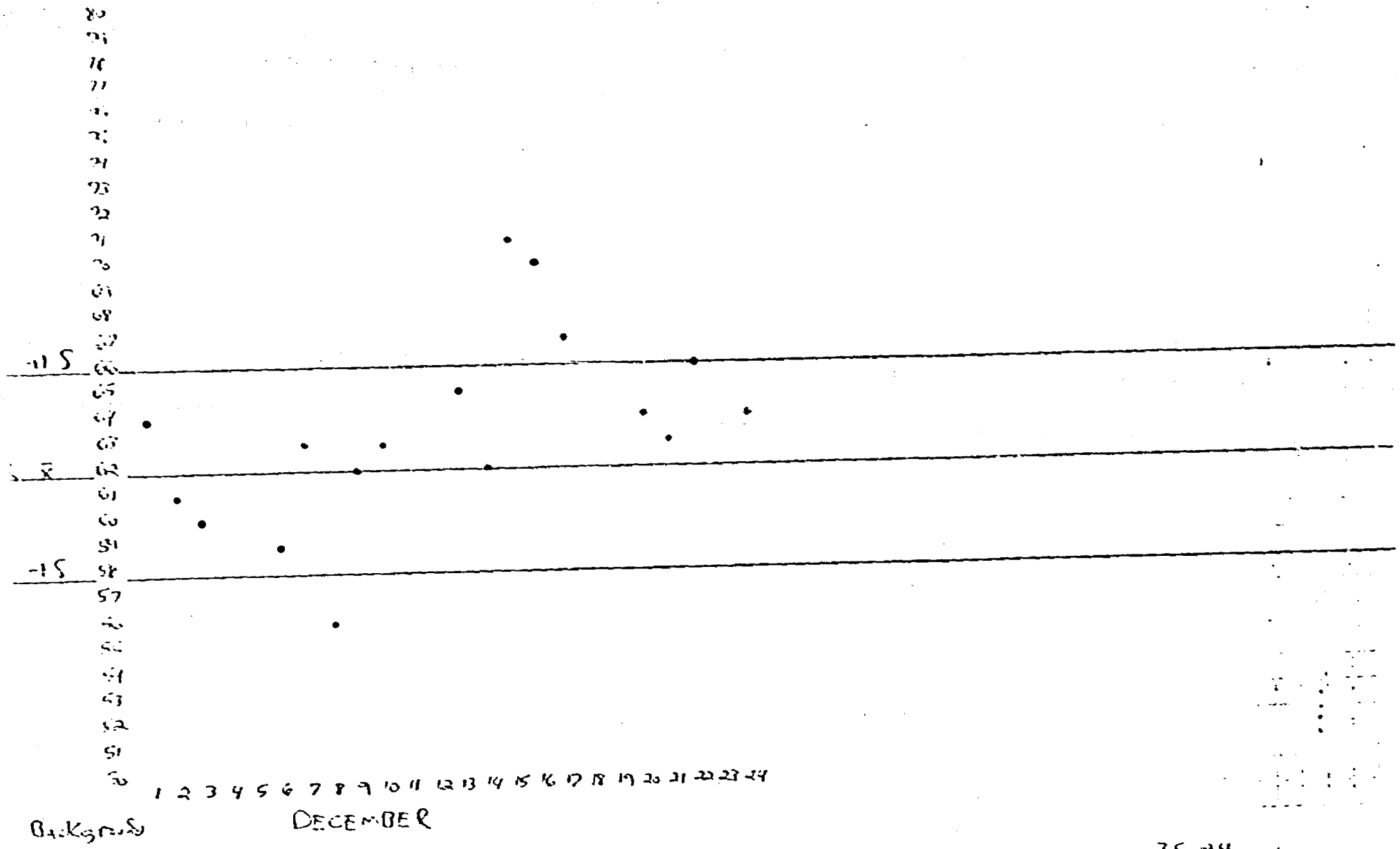
SN: 105934
Using LSI Probe 44-9
S/N: PR08X463



Log Scale

SSC 94

SN: 105939
Using Custom Probe 44-9
SN: PR089463



Background

35-99

ATTACHMENT 3

NRAO SITE RAD SURVEY DOCUMENTS

NRAO SITE RAD SURVEY

(12-2-93)

OPERATIONAL CHECK DATA SHEET FOR

LUDLUM MODEL 2221, FIDLER PROBE

(12-2-93)

OPERATIONAL CHECK DATA SHEET FOR

LUDLUM MODEL 2221, 44-9

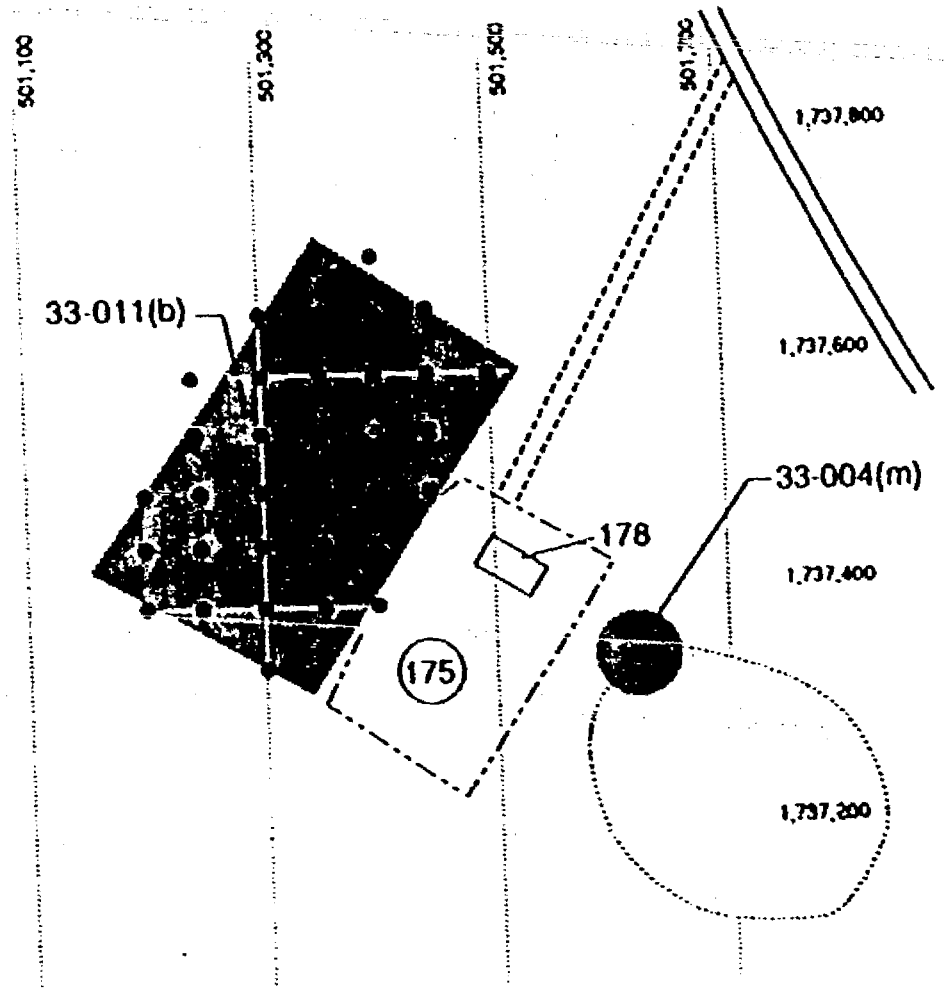
(12-2-93)

Rad Survey TA-33 NRAO 12-2-93

Grid Stake #	Fidler	44-9
5200	4051	139
5201	3920	98
5202	3534	85
5203	3836	114
5204	3661	115
5205	3757	94
5206	3946	106
5207	6040	101
5208	3816	103
5209	3820	97
5210	3732	90
5211	3800	106
5212	3957	101
5213	3913	96
5214	3657	103
5215	3482	110
5216	3615	131
5217	4309	120
5218	3932	119
5219	3763	126
5220	3448	119
5221	3357	87
5222	3935	85
5223	3933	117
5224	3713	119
5225	3640	95
5226	3529	99
5227	3511	108
5228	3956 ~~3990~~	100
5229	3755	110
5230	3821	125
5231	3536	107
5232	3069	110
5233	3468	100

Ludlum 2221 - 71335
Fidler - 000156
Ludlum 2221 - 105934
Ludlum 44-9 . PR057463

TA-33 NRAO Site
Radiation Survey



Radiation Survey
Industrial fence
Dirt roads
Paved roads
Permanent structure
Underground structure
SWMU (Probable)
SWMU (Possible)
Berms

N

0 200
feet

Fig. 4-18. Radiation survey at the NRAO Site.

Date: 12-2-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 71235
Make: Bicron Model: Filter SN: 000156

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-2-93	0730	OK	OK	OK	OK	M Pa[illegible]	

LANL CHECK SOURCE: (Alpha)	SN: ____ SOURCE: 1μCi Am-241	LANL CHECK SOURCE JIG: (Beta)	SN: ____ SOURCE: ____
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	80226	X1 SCALE	
X10 SCALE	79660	X10 SCALE	
X100 SCALE	80134	X100 SCALE	
X1K SCALE	80213	X1K SCALE	
LOG SCALE	79501	LOG SCALE	
Background 1 minute count: 1545, 1549, 1518, 1504, 1537		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag.

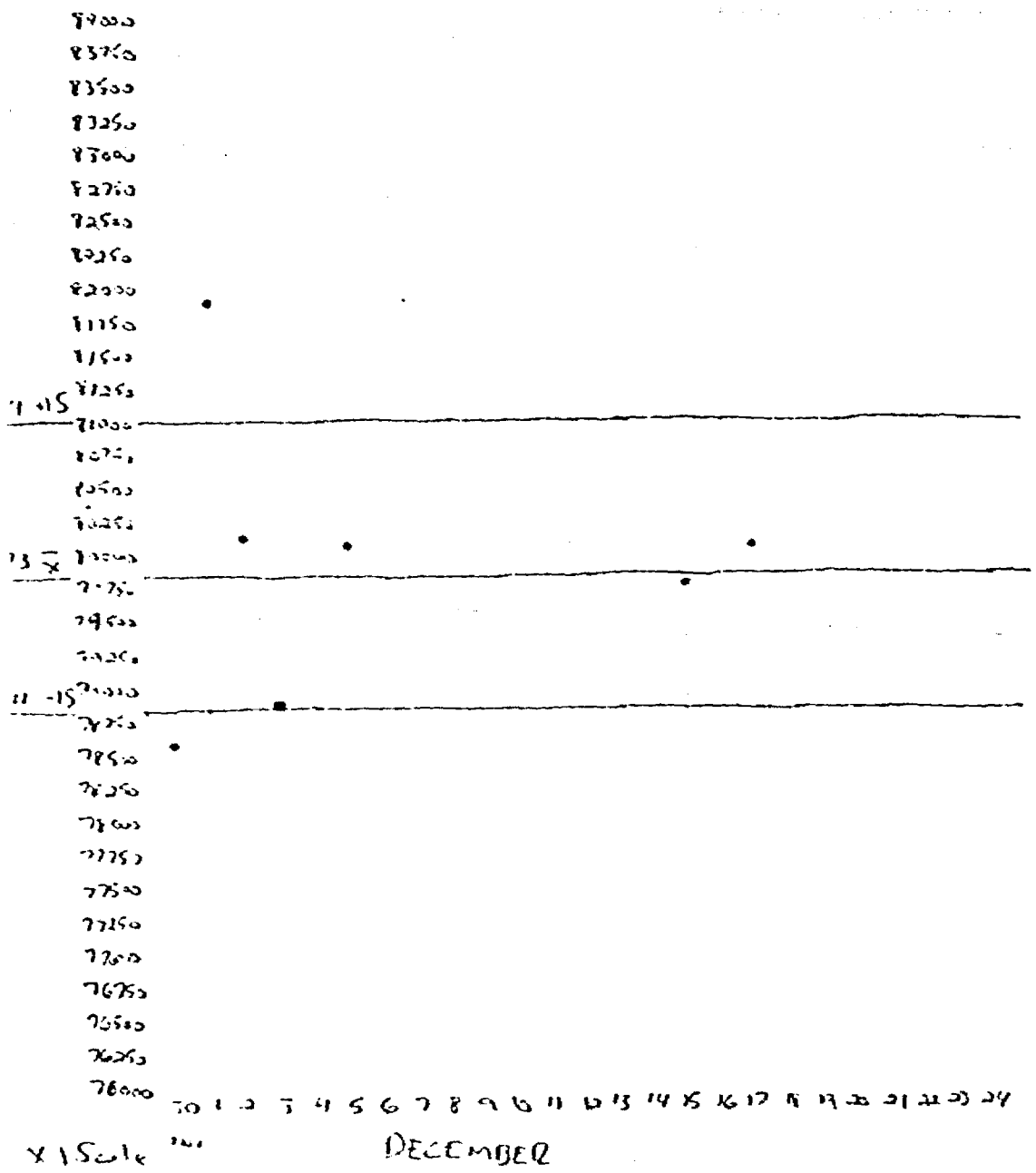
Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable [illegible]
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% [illegible] of the acceptable [illegible]

RE. LER
SN 000156

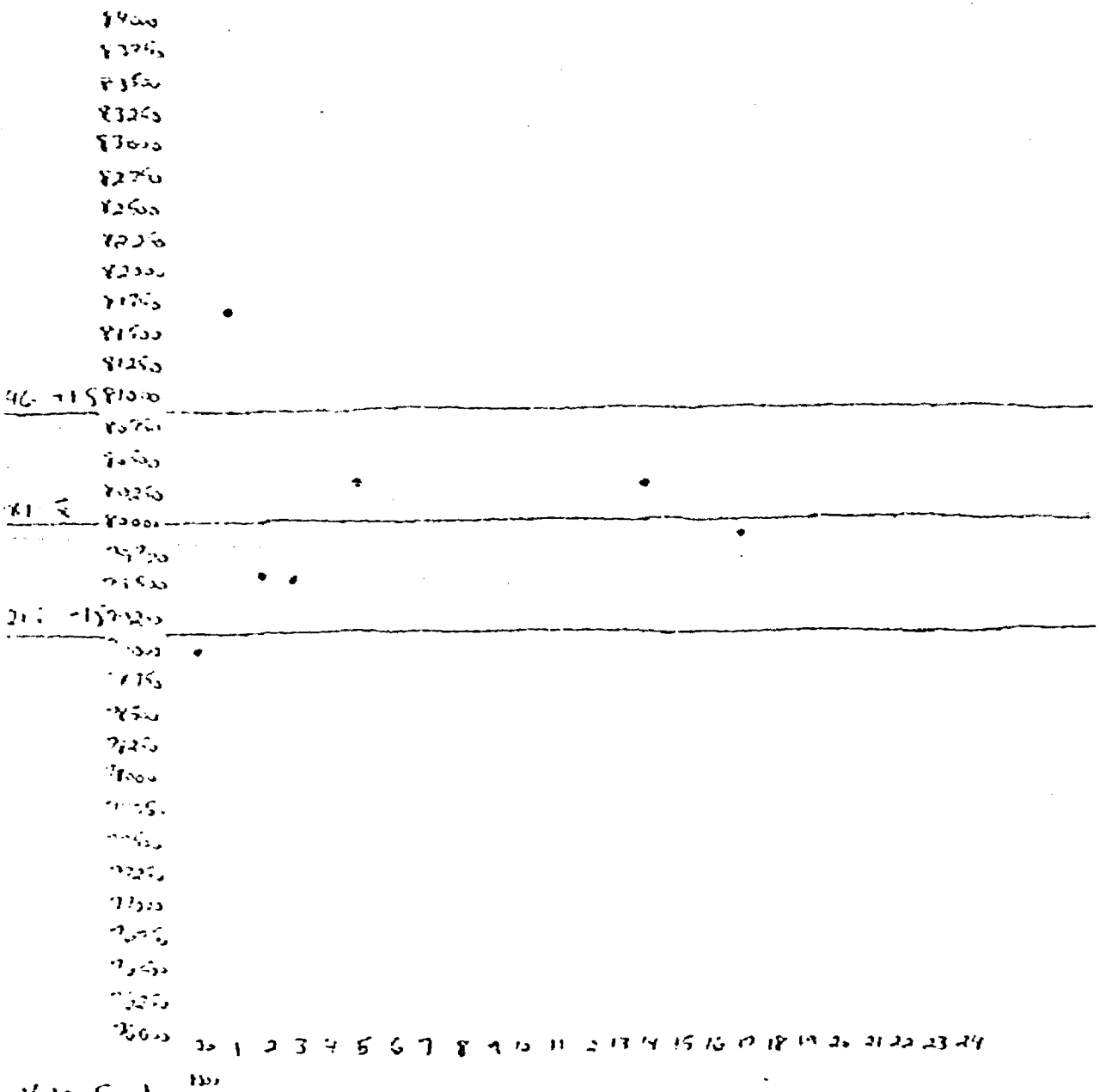
SN: 71235



30 Dec 93

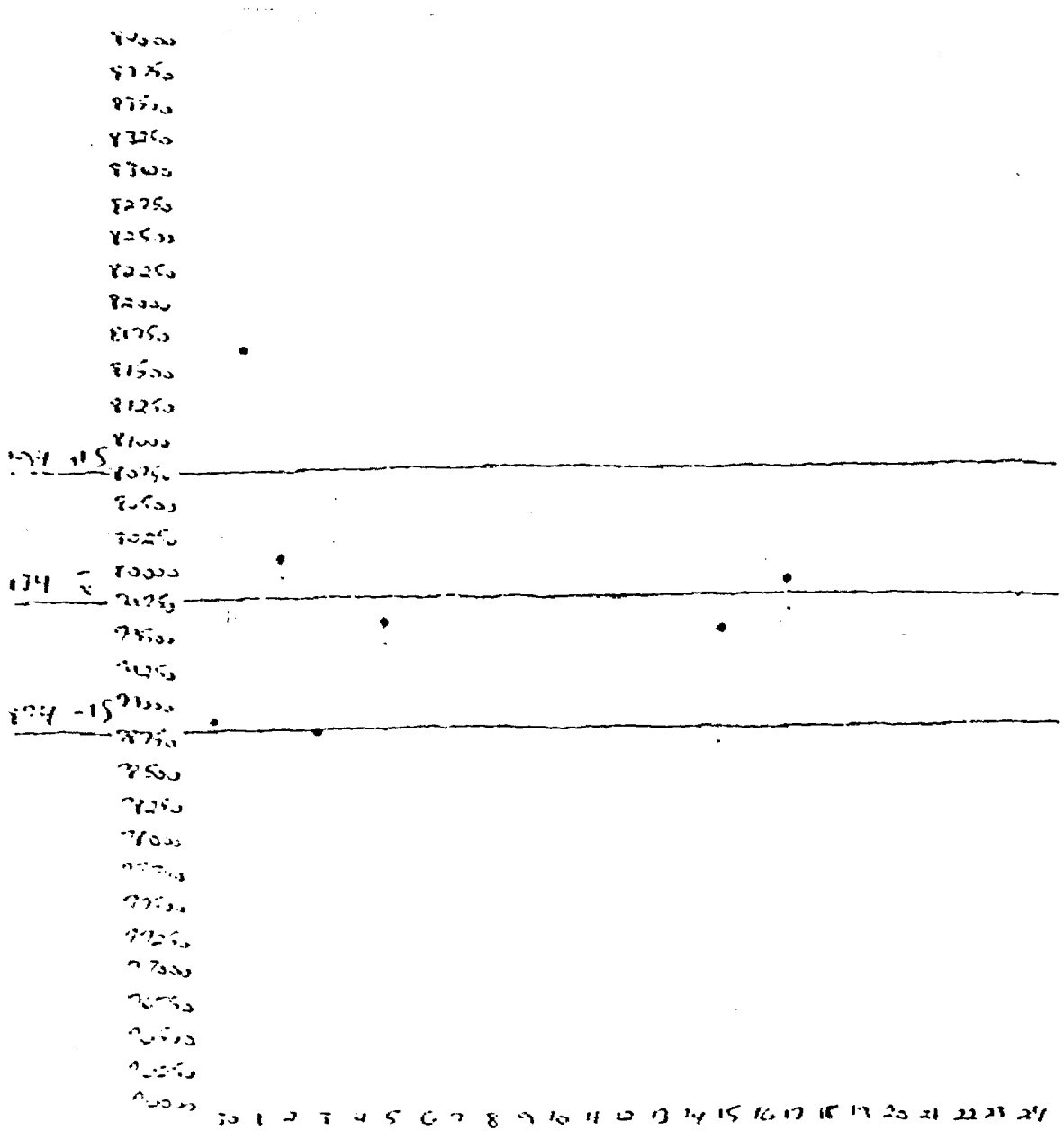
FLOLER
SN: 000156

SN: 71235



30.04.93

FEDLER SN: 000156 USING CONTROLLER SN: 71235



100 Scale

30 Dec 93

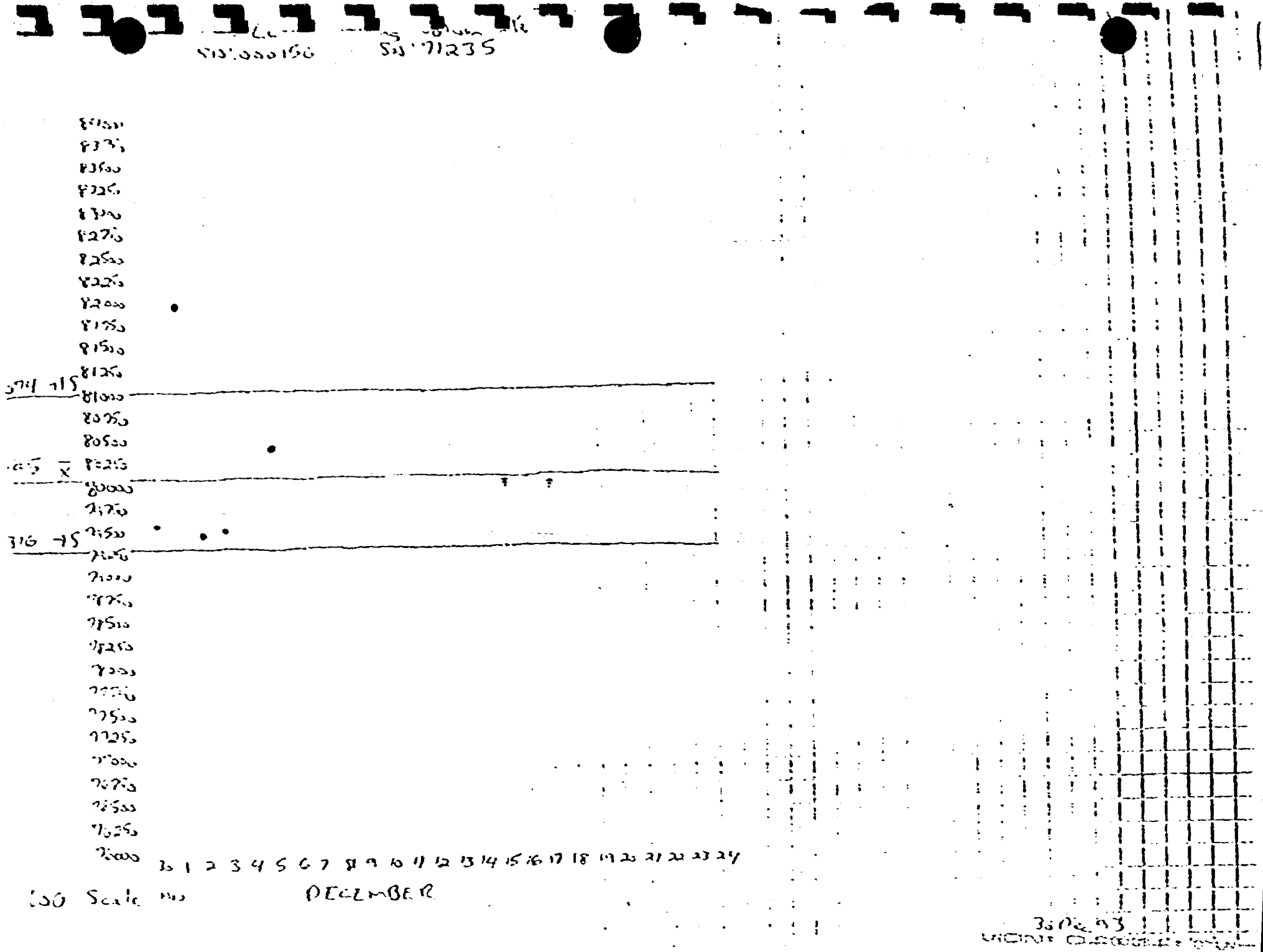
FIDELE Using Custom Paper 2021
S11'000156 S/N: 71235

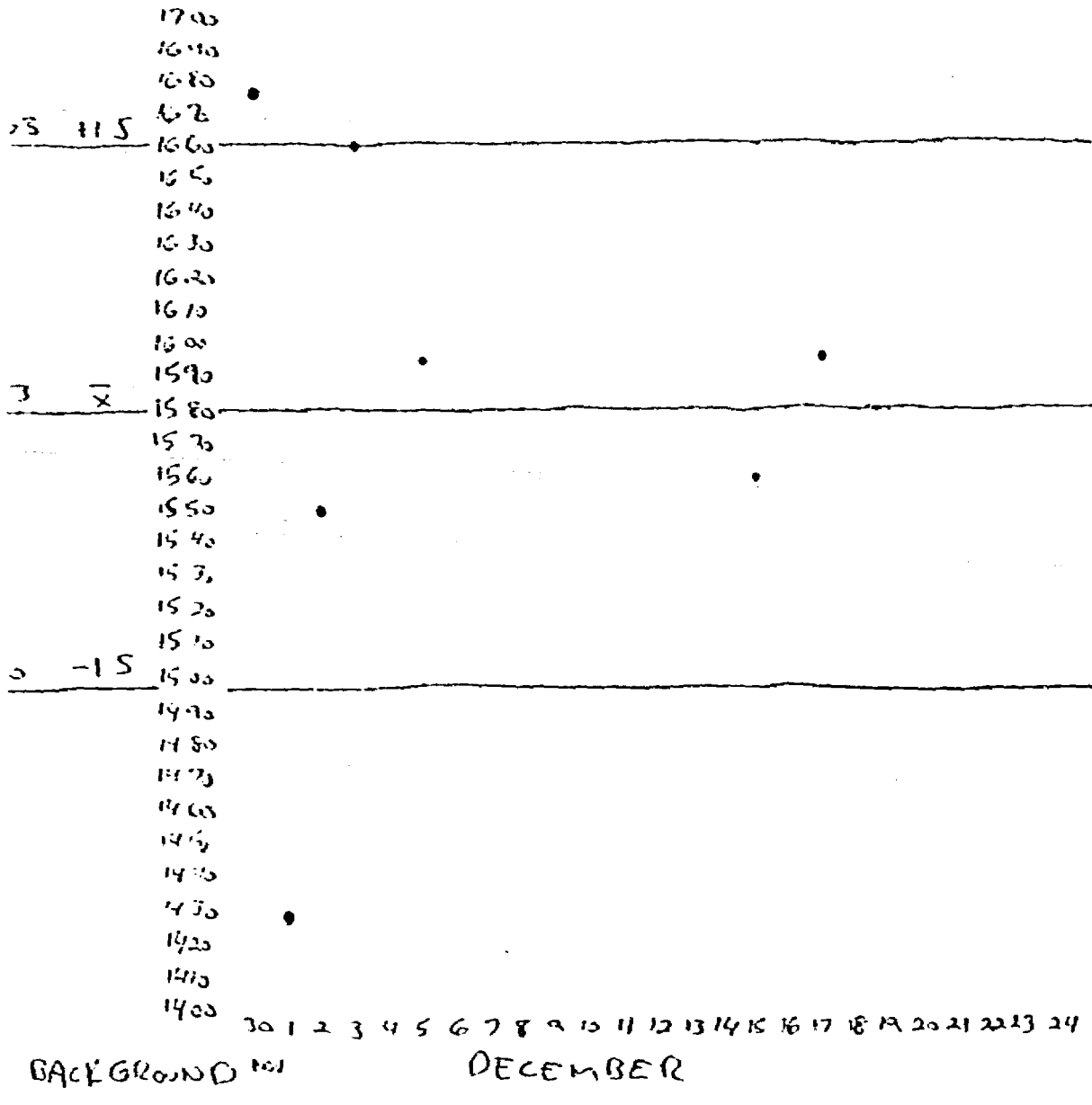
		8400
		8375
		8350
		8325
		8300
		8275
		8250
		8225
		8200
		8175
		8150
		8125
41	+15	8100
		8075
		8050
		8025
55	–	8000
		7975
		7950
369	-15	7925
		7900
		7875
		7850
		7825
		7800
		7775
		7750
		7725
		7700
		7675
		7650
		7625
		7600

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

X 1C Scale 100

Doc# 0423


DECEMBER
36 Dec 93


1700
1690
1680
1670
+3 +1.5
1660
1650
1640
1630
1620
1610
1600
1590
3 $\bar{x}$
1580
1570
1560
1550
1540
1530
1520
1510
0 -1.5
1500
1490
1480
1470
1460
1450
1440
1430
1420
1410
1400
30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
BACKGROUND NO1
DECEMBER

30 Dec 83

Date: 12-2-93

ENVIRONMENTAL DIMENSIONS, INC.
OPERATIONAL CHECK DATA SHEET FOR LUDLUM MODEL 2221

ATTACHMENTS:

Make: Ludlum Model: 2221 SN: 125934
Make: Ludlum Model: 44-9 SN: 2R03 74K-3

DATE	TIME	BATT. OK?	H.V. OK?	AUDIO OK?	OK TO USE?	SIGNATURE	REVIEWED BY
12-2-93	0730	OK	OK	OK	OK	MPaul	

LANL CHECK SOURCE: (Alpha)	SN: 4632, 90TH 470 SOURCE: TL-230 96 30 10-31-93	LANL CHECK SOURCE JIG: (Beta)	SN: SOURCE:
INSTRUMENT SCALE	**ACTIVITY**	**INSTRUMENT SCALE**	**ACTIVITY**
X1 SCALE	10963	X1 SCALE	
X10 SCALE	10686	X10 SCALE	
X100 SCALE	10103	X100 SCALE	
X1K SCALE	10741	X1K SCALE	
LOG SCALE	10593	LOG SCALE	
Background 1 minute count: 43, 57, 64		Background 1 minute count:	

NOTE: If any item on this data sheet is marked "NO", do not use the instrument. Tag it with an "OUT OF SERVICE" tag

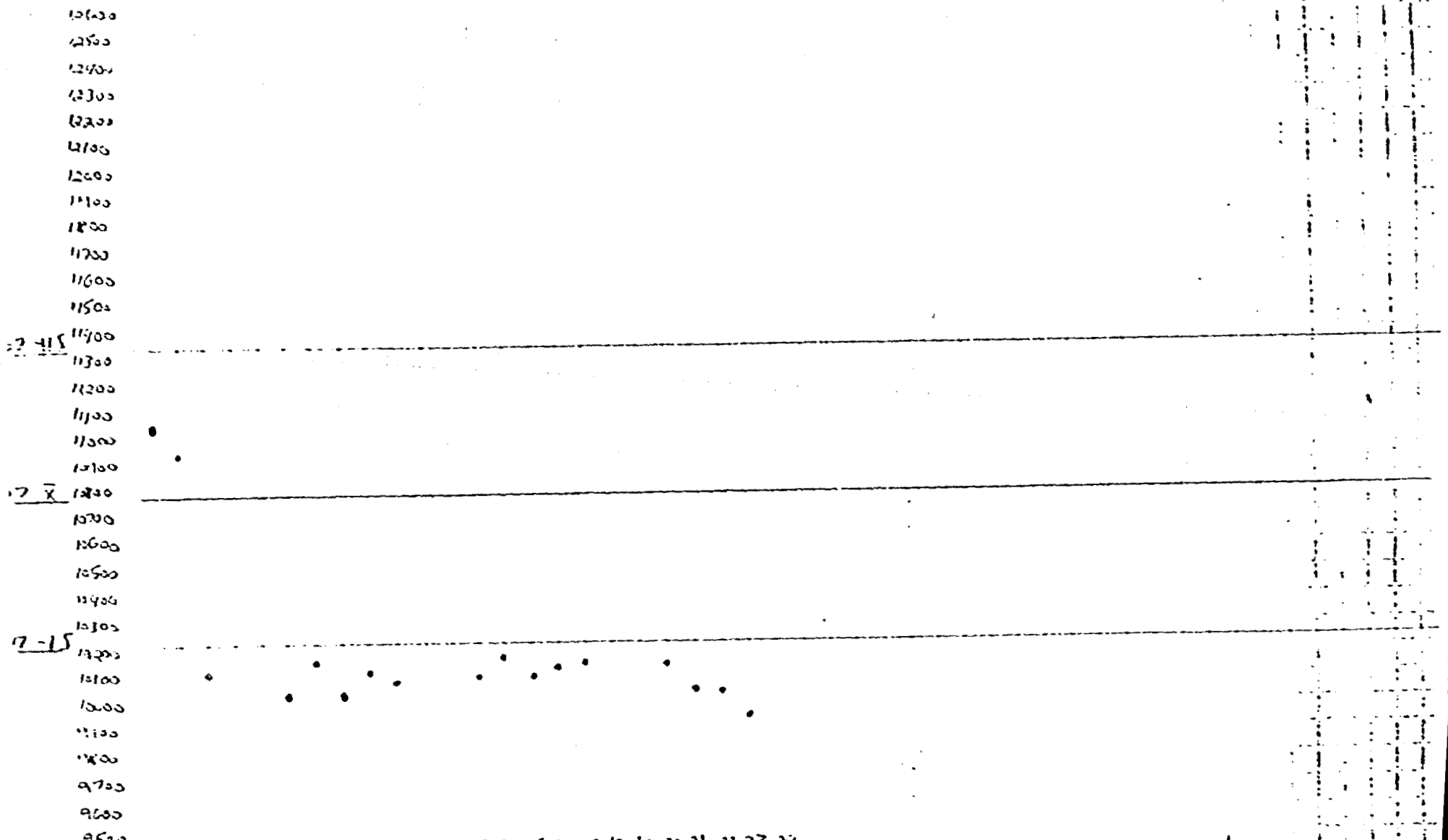
Acceptable Response to LANL Alpha Check Source		
		Acceptable Reading
X1 Scale		
X10 Scale		
X100 Scale		
X1K Scale		
Log Scale		

Acceptable Response Range to LANL Check Source Jig		
	Jig Filter Wheel Setting	Acceptable Reading
5 mR/hr	1/4	
50 mR/hr	3/16	
500 mR/hr	Open	

Daily readings must be within 20% of the acceptable reading

MIONA [illegible]

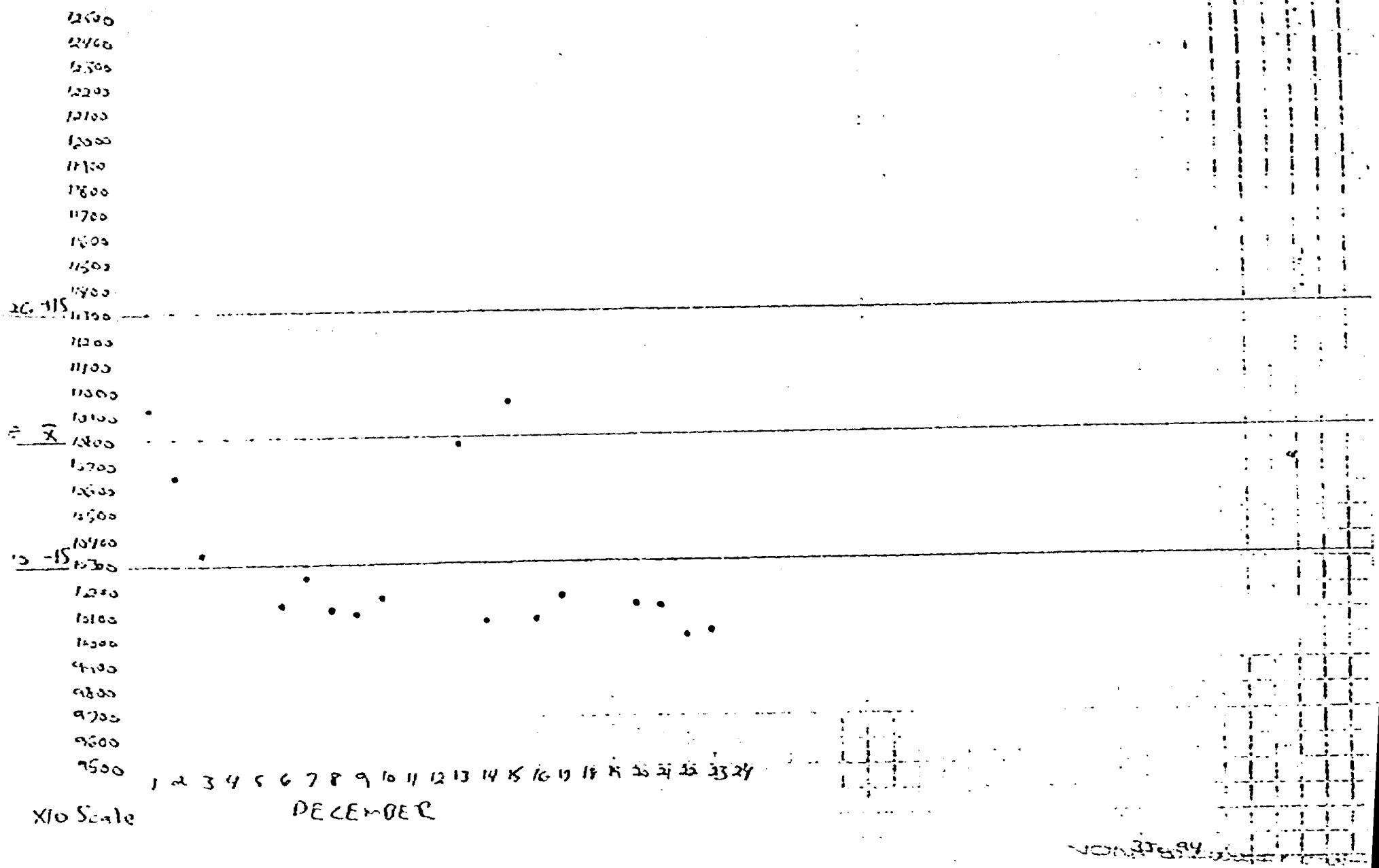
LUDLUM 2221
SN: 105934
Using Probe 44-9
SN: PR087463



X1Scale

3 Jan 94

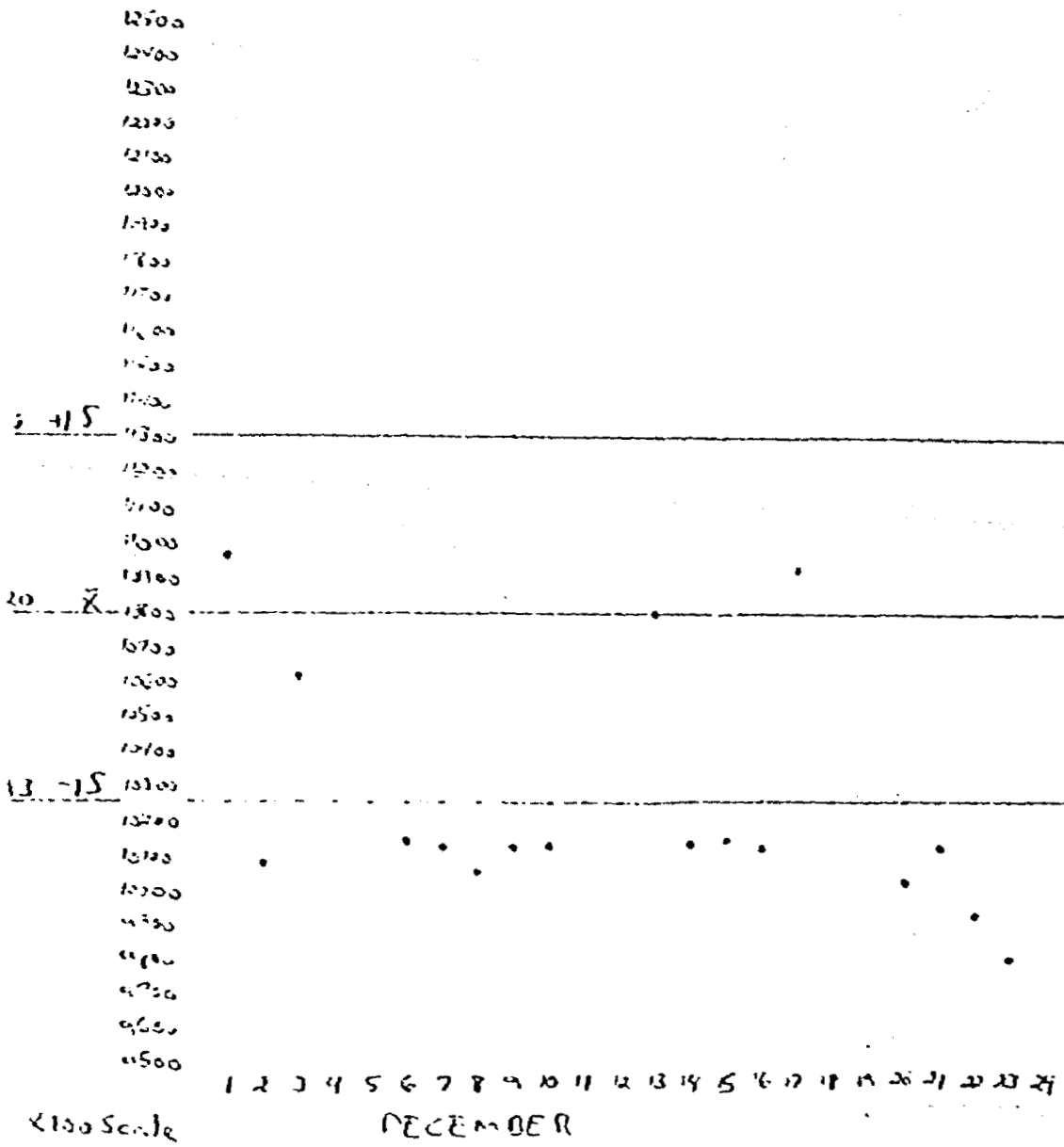
SN: 105934
Using Lotus Pro 449
SN: PR087463



X/O Scale

NOV 3T 94

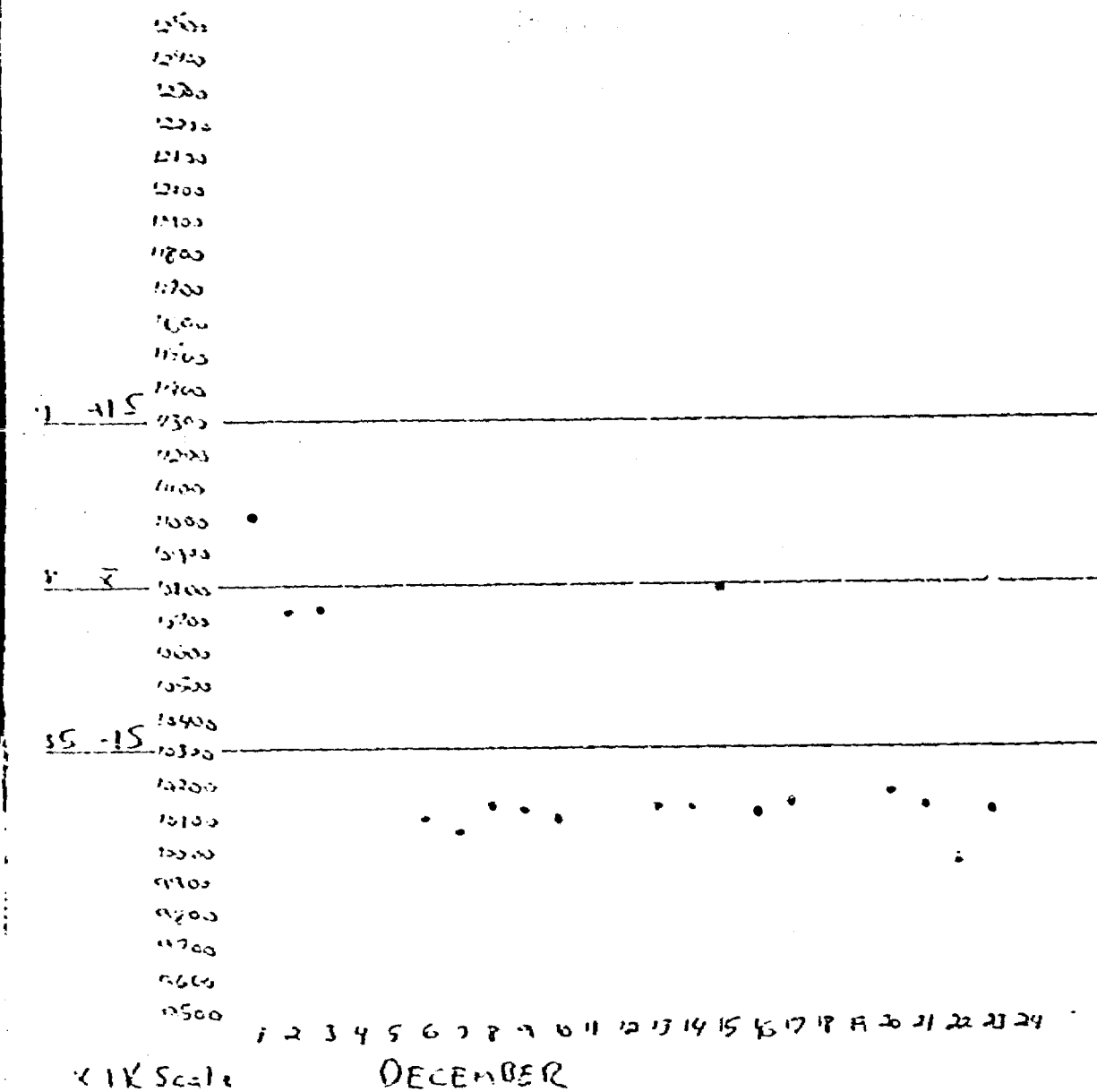
Sta: 105934
Using Colson Pole 44-9
Sta: P0087463



X100 Scale

35694

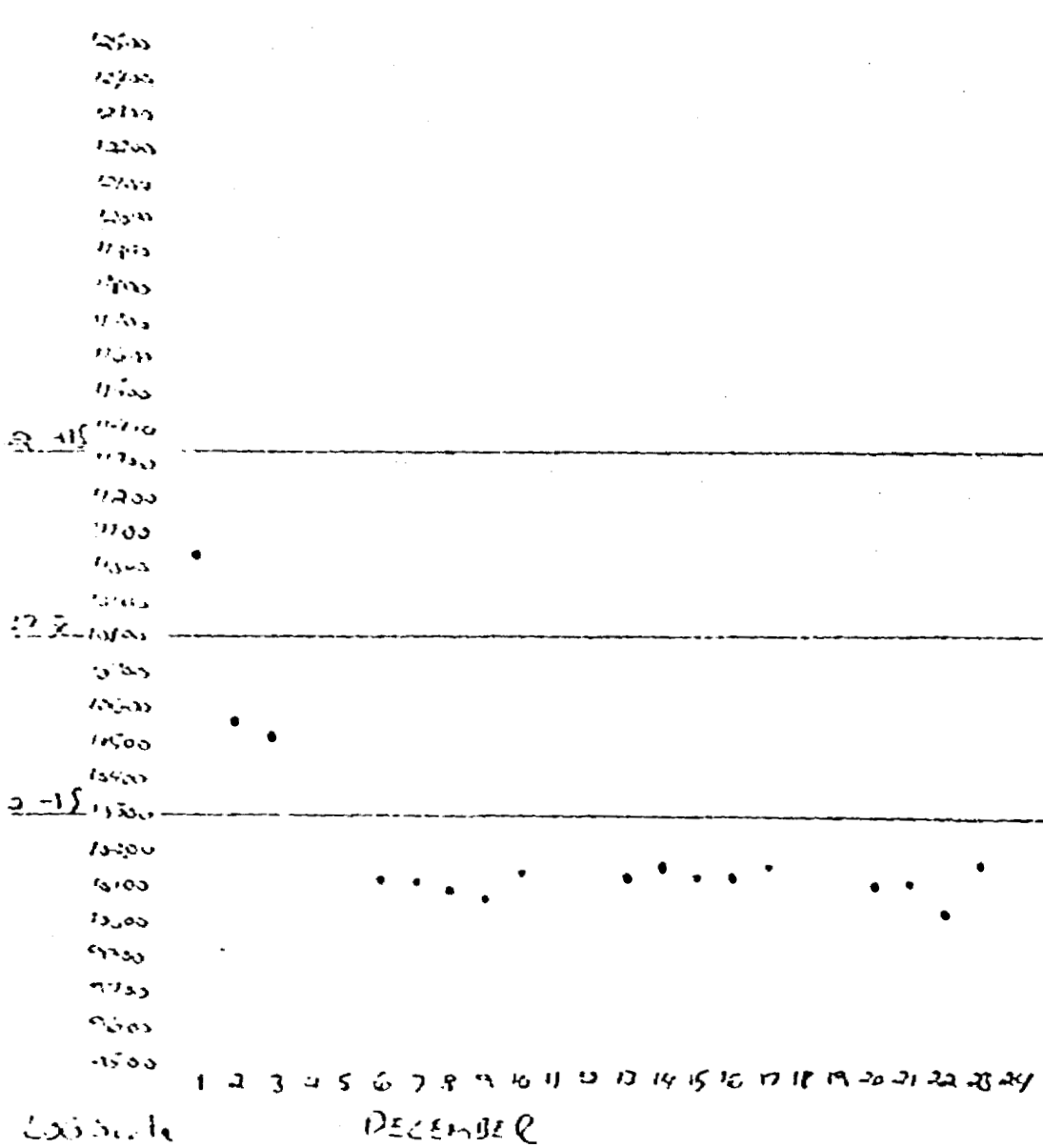
S/N: 105939
Using Lufkin Rule 44-9
S/N: R027963



X 1X Scale

35-94

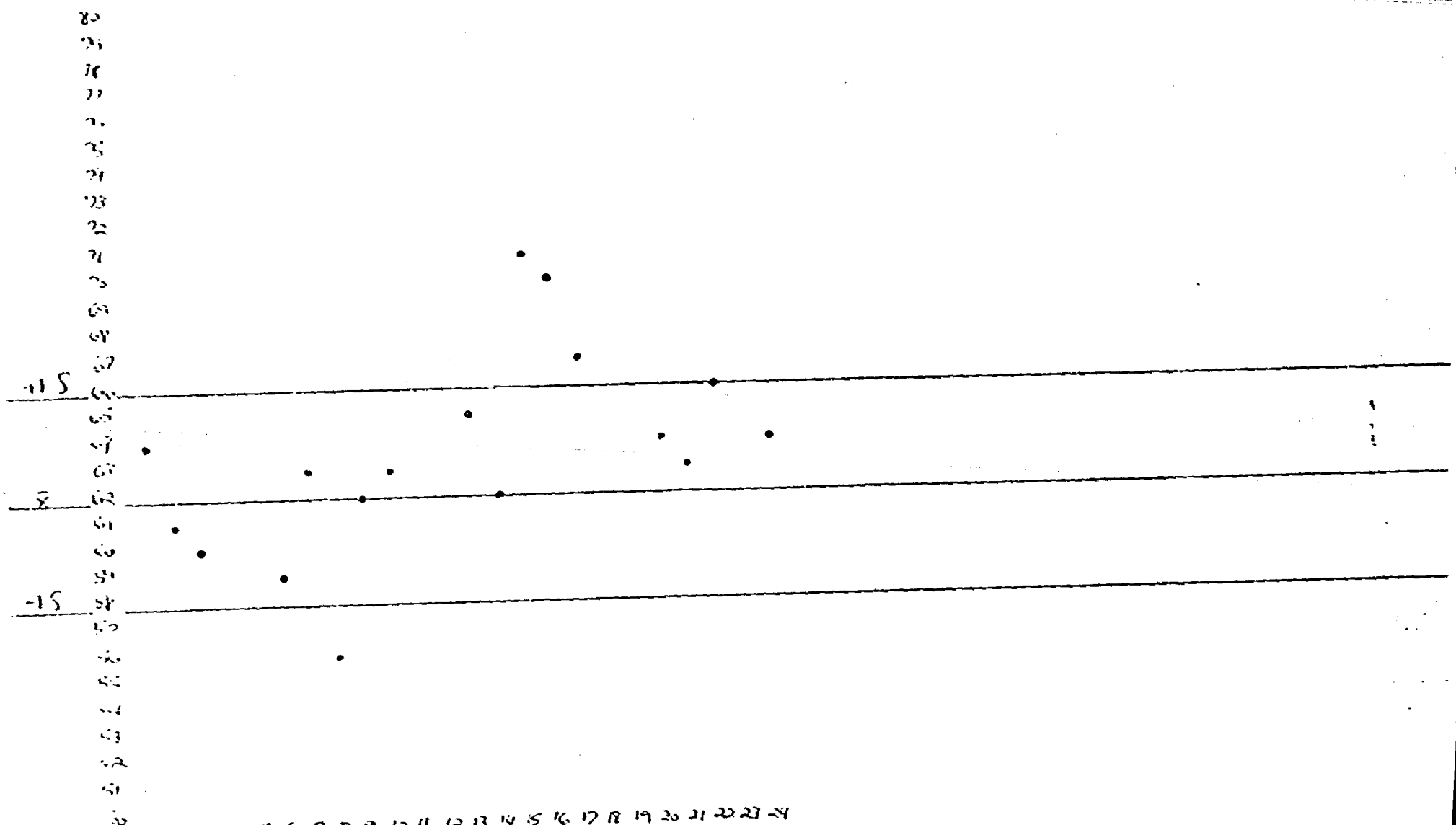
SN 105934
Viking Lander Probe 44-9
SN: PR0P2463



Lab Data

SSG 94

SN: 105934
Using Lotus Probe 44-9
SN: PR089463



Background

35-94

ATTACHMENT 4

FIELD NOTES

(11-9-93, 12-28-93)

11-9-93 052

0730 Arrived at EST Inc., start to set up to do boneyard survey TA-36

0800 Call Rick Harker in regards to SPA-3 set up. He tells me that the win should be set at 100 and the thr set at 40. Then adjust the HV to provide a max response to the Cs-137 source. So win-100 Thr-40, window in, HV set at ~~800~~ 575. 2031-11235, SPA-000155

0900 Arrive at boneyard TA-36. The area will be surveyed as a 10' Grid.

1105 Callup by clearance office and told them to have the area.

1130 leave TA-36

1200-1400 Ate lunch with est of crew at TA-35. MD

Instrument	SN
2031	11235
SPA-3	000155
2221	105134
444-9	PR08

MD

53

11-10-93

0700 Arrive at ICF Kaiser. Source check Test. wait for John Longer.

0715 leave ICF

1011 Arrive at TA-36. leave a 6 a shot that will happen at 1300. return to ICF. Do paperwork.

1245 Arrive back at TA-36, worked until 1600.

1635 Arrive back at ICF.

11-11-93

Worked on job summary TA-33 and paperwork TA-36.

11-12-93

Work at TA-36 continuous with John Longer. Return with the survey continued until 1300, day ended 1630.

11-15-93

Arrive at ICF Kaiser 0700. Source check Test. Go out with the survey TA-36, attempt to get in with no success. Return to ICF Kaiser do paperwork. AP

0541

11-16-93

0700 Arrive at ICF Kaiser source check. Escort John Longer is ~~a~~ arrives. We call TA-36, there will be a shot and we will be unable to go in today. 0735 head to TA-46 to work on sand filters. Performed a survey ~~a survey~~ using the 44-9 & Fidler. The survey was conducted on a 10' grid. Near water treatment plant. Nothing was seen with 44-9 or Fidler above background.

0730 Arrive at 11-17-93
~~will stop~~ ICF Kaiser source check. Was not able to get in to TA-36 today. Went to TA-46 ~~and~~ conducted a survey w/ 44-9 & Fidler. Sand filter near bldg -115, Nothing was detected w 44-9 / Fidler.

11-18-93

0730-1300 Not able to get into TA today, do paperwork on TA-36 & 46 AP

055

11-22-93

Continue with rad survey TA-36.
TA 36 Burn Pits. Fed Heap
Ludlum 2221 - 71235
SPA-3 - 00155
Ludlum 4-19 - PR08
Ludlum 2221 - 105934

11-23-93

Continue with rad survey TA-36 Burn Pits.
Ludlum 2221 - 71235
SPA-3 - 00155
Ludlum 2221 - 105934
Ludlum 4-19 - PR08

11-24-93

Conduct rad survey TA-36 Burn Pits.
Ludlum 2221 - 71235
SPA-3 - 00155
Ludlum 2221 - 105934
Ludlum 4-19 - PR08

MP

056

11-29-93

0730 Arrive at ICF Kaiser, source check is performed, wait for escort. (John Logan

0830 Arrive at TA-36 Beryllium.

1130 Asked to leave, due to a shot.

1300-1400 Conduct survey at TA-33 South Site

1615 Return to ICF Kaiser.

1730 Out for the day.

11-30-93

0700-0715 Bicron Fidler SN-00155 is changed to Ludlum-2221 SN-71235. After speaking to Rick Ha The is set 100, the win is set to 40. As before. Voltage is reset data below, next page

MP

400	7	400	600	750
410	30	520	610	700
430	32	520	640	
440	53	540	680	
450	63	510	700	
460	54	560	730	MP 12-30-93
470	101	570	750	
480	105	600	710	

057

11-30-93

0000-115

HU - CPM	HU - CPM	HU - CPM
400 - 7	540 - 105	680 - 756
420 - 20	560 - 112	700 - 1534
440 - 12	580 - 115	720 - 1944
460 - 51	600 - 93	740 - 3736
480 - 63	620 - 113	760 - 24960
500 - 54	640 - 272	780 - 77692
520 - 101	660 - 420	800 - 50853

RC - CPM		
770 - 66048	Th - 100	Pu C. Am - 241
780 - 30000	Ura - 40 (Th)	
790 - 27534	Cs Am 241 - 11335	
800 - 99158	Fiber - 00156	

0000-1100 Survey is conducted at TA-33 South Site. 400'-800' Survey is completed. Will start 800' survey 12-1-93.

12-1-93

0230 Survey had to be postponed at ECF office.

0800 Start survey south of bunker #25, survey is conducted over 800' and South Site TA-33.

MP

12-1-93 058

1200 Survey work south of bunker #25 is completed. Several areas are found to be elevated above Fiber. Will be back 12-3-93 to mark out.

1250 Move on to survey work at the central channel (Gateway Lane) Find every blue stake and centers between. One spot near is found and marked out.

1530 Move to Gang bridge start survey west of large ant.

1700 Survey west of ant is completed, nothing is detected.

Cs Am 241 - 11335
Fiber 00156
Cs Am 241 - 103731
Cs Am 241 - 7503 MP

0559 12-2-93

0630 Sunrise check, ICF office.

0630-1700 Have at TA-33 cutbone with Gary Enge, closest to the east. Male survey of central channel one elevated reading is detected. A detailed walk over survey is conducted south of bunker #25 locating several elevated areas ten spots were marked out. The highest reading detected with the Fidler and the 4-1-9 was 82070 and 48392 cpm.
Bill Summers at HS-1 was contacted and informed. He said that ICF Kaiser should back off from the area and not perform any work in that area until contacted by HS-1. Move on to NKAO site completing the 90 grid point survey nothing was detected above background.
Fidler on 4-1-9
Not spot survey data south of bunker #25 on next page. AP

12-2-93

Locations are north & East of grid point 3071

	N	E	cpm 4-1-9	cpm Fidler
1	22.5	3.0	2731	12017
2	31.0	6.0	5009	48836
3	33.0	12.0	301	41249
4	37.5	5.0	1156	27091
5	46.0	14.0	48392	70811
6	53.5	23.0	1455	50517
7	45.0	28.0	340	48798
8	51.0	32.0	1847	30033
9	54.5	48.0	33132	23042
10	55.5	50	10625	82070

Ludlum 2221 - 71235
Fidler - 000156
Ludlum 2221 - 105934
Ludlum 4-1-9 - PR05K163 AP

12-3-93

Start survey at East site TA-33. All grid points layed out by Binney and sealed. Work is not completed. R

063

12-17-93

No TA-36 today. Work continues at TA-33 east site. 100 yard survey is completed. MP

12-20-93

Work continues at TA-36 site. Boreyard survey MP

12-21-93

Can't get into TA-36 today. Do paperwork TA-36, TA-33. MP

12-22-93

Work continues at TA-36 site boreyard survey. MP

12-23-93

Work continues at TA-36 site boreyard survey. MP About 80% of the survey has been completed, this will be my last day in LA. I still have 2 or 3 day of paper work to complete the job. MP

12-28-93

Work in Albq EDI office, survey paperwork / control charts. MP

12-29-93

Continue with survey paperwork TA-36 & 33 and control charts along w/ summary. Can't

12-30-93

All survey paperwork for TA-33, 36, is completed. Looks like Bob Bray will still have control charts to work on next MP

12-4-93
Continue with survey work TA-36 Boneyard. MP

12-7-93
Work on paper TA-33 & TA-36, was not able to get out to boneyard today. MP

12-8-93
Continue with survey work TA-36 Boneyard. MP

12-9-93
Continue with survey work TA-36 Boneyard. MP

12-10-93
Continue with survey work TA-36 Boneyard. MP

12-13-93
No escort today, Work on getting approval for Fisher since no SOP Rely covered the way we used it. Go to TA-33 stand by HP while ZEF personnel enter area south of bunker H25 to locate sample points, personnel wear gloves and booties while in area. Also personnel are scanned upon exit time of exit. MP

12-14-93
Work at TA-36 boneyard until noon. Then go to TA-33 East side and make a survey of central channel marking out survey locations. MP

12-15-93
Was not able to get out to TA-36 today. Go over to TA-33 continue with central channel survey. MP

12-16-93
Continue with TA-36 Boneyard survey. Entire day is spent at boneyard. MP

Appendix 4

Department TA-33, AU-122

Subject 1994 Field Sampling

Name [illegible]

Address RFI [illegible] NM

[illegible]

[illegible] 59

Computation Notebook

Dennison Stationery Products Co., Framingham, Mass. 01701

43-64

78 Sheets

7 1/2 x 9

4x4 Q

5/24/94 TA-33 East Site Sampling

930 Set up area for sampling: Support zone (SZ), contamination reduction zone (CRZ) & put tape around exclusion zone (EZ). We put caution tape around access areas and not around the entire zone (the area is very large). We will continue to set up EZ this way throughout course of work if the EZ is large.

10:30 Cornelius Flynn gave the overall Tailgate Safety meeting for ICF Kaiser (ICFKE), LANL, MK & EDI.
All signed the acknowledgment forms in the Health & Safety Plan.

Spent rest of day working on computer & setting up area more.

Field team members at site: Linda Flint, Kenny Hansel, Kristi Aanwodt, Cornelius Fl, Mike Powell, Lynn Eidman, Jim Roberts.

0410 Left site.

Linda Flint LF
Field Team Leader

TA-33 East Site Sampling

7/25/94 Arrived at site: L. Fluk, Cornelius Flynn,
0700 Mike Powell, Kristi Aamodt

0730 Arrived Lynn Kidman
Weather is overcast, cool, drizzling. The ground is wet (damp).

0800 Kenny Hansel at site with coolers

Field Team Members: Linda Fluk Field team Leader
Mike Powell HPT
Cornelius Flynn SSO
Kristi Aamodt Sampler
Kenny Hansel Sampler
Lynn Kidman Field manager
Jim Roberts Field Coordinator

Today we will be sampling SWMUs 33-003b & 33-007A.

20 Training on soil description was given by Lynn Kidman so that the field team will consistently describe soils.

color, texture, consistency, structure

color: may be crude (we won't use a color chart. Describe matrix with also color of pebbles or any other

texture >½" cobble
< ½" gravel
very small pebble > sand grain
note if larger material is tuff or cinder.

descriptions: many, few, abundant, or percent

More texture: of matrix
rub material: if gritty then mat is sandy
very fine mat w/ no cracking: silt
very fine mat w/ cracking: clay

Describe organic material: ex. dark color, soft, lighter with roots (fine)

Describe horizons and what horizons the samples were collected from.

Moisture content:
Moist, wet, sticky, saturated
If squeeze mat. & it sticks together, describe it as moist or slightly moist

Structure: clumps of soil
note the size of clumps.

Describe the general area: ex. sample collected under juniper tree, or area barren with no vegetation, sparse vegetation, dense grass, etc.
Note if material is fill

0845 Tailgate Safety Meeting

SWMU	PCOC
33-003b (Shot Pad)	Be, He
33-007A (Firing Area)	Be, Pb, Cd, Oil, HE, U, H3, CO-60

Will use dust supression
→ It is raining vigorously now

Master area in Support area
Eye wash & first aid are in Ryder truck

All signed off on form

Pouring Rain - not able to sample

0930 I am meeting w/ Gene Velasquez (JCI) to mark utilities
0955 Gene did not come out because of rain
0955 All left site.

LF

5/25/94 We will be collecting samples using Spade & Scoop SOP 6.090

CHANGE IN PROCEDURE FROM SOP → Note that this SOP calls for logging notes using a borehole log form. However this log form is NOT provided in the SOP - there is no form available to use. We will make all comments & descriptions in the Sample collection log forms.

NEVERMIND

NOTE: Interim Change Notice # 004 to LANLER-SOP-06.09 States that page 4, Section 8.0 "Completed Borehole Log (soil) Form" shall be deleted because the form does NOT exist. All information shall be put in Sample collection Form.

UF

This page is Reserved for Sample Locations which have Changed and/or Must be Surveyed:

5/25/94 1. 33-004K-1 was moved from ~~culvert~~ drainage (JF 5-26-94) down from asphalt TO the other side of asphalt culvert South of land fill at rim of Canyon - Will be re-surveyed

2. 33-004K-2 As above

3. 33-007a-8, 12, 14, 17, 20. Locations had to be re-randomized because locations continued to fall on asphalt. Refer to table below.

RE-RANDOMIZATION OF 33-007A GRID POINTS

1. Sample	North	East	Survey #	3. Sample	North	East
33-007a-8	-24.9337484	15.4405422	5346	33-007a-8	-13.7763426	21.320437
33-007a-12	-17.3103	2.13136617	5354 X	33-007a-12	13.1057676	-1.42153595
33-007a-14	6.10096774	-7.28645257	5371	33-007a-14	22.4103409	-0.33822722
33-007a-17	16.550553	0.3156739	5377 X	33-007a-17	20.5131029	-11.163152
33-007a-20	-8.0638556	10.7997659	5356 X	33-007a-20	19.7495931	-22.7492613

2. Sample	North	East		4. Sample	North	East
33-007a-8	-9.92882358	17.1199871	5376	33-007a-8	-14.7418881	-20.1569682
33-007a-12	-0.41000018	-4.04169097	5354	33-007a-12	-19.5165852	-1.01880434
33-007a-14	-16.0454325	17.0335973	5371	33-007a-14	-11.817066	4.88892917
33-007a-17	-21.6263875	-2.86784338	5377	33-007a-17	5.16161236	24.7397318
33-007a-20	17.8145356	-4.52350115	5356	33-007a-20	2.76135594	-20.527632

4. 33-004C-1, 2 Septic tank. The tank must be surveyed

6/3/94 4. 33-004K samples 1 & 2 (by outfall) NOT Sampled because outfall was not located and according to map should be in area of landfill (so most likely no longer exists).

Sampling at East Site

5/26/94
0730 Field Team Members: Linda Fluk, Kriti Aamodt, Kenny Hansel, Mike Powell, Cornelius Flynn.
Jim Kobuta will be at site later.
Lynn Kidman will be at site later.

Weather is rainy, 100% overcast, cool, ground is wet.

0810 Mike Powell called Bill Summers (HESH-1) 5-26-94 LF about training on alpha counter. Bill said that they are not able to provide training yet. He said that we can continue to work & Mike can use the counter in the mean time. Someone from Bill Summer's group will contact Mike at ICFKE to set up the training. The instrument has been calibrated and may be used.

0820 Tailgate Safety Meeting
Cornelius trained us on hazard communication & right to know standards.
All personnel at meeting signed the training records.

Went over MSDSs for PCOCs at SNMVS to be sampled today.

Cornelius trained everyone to use the eyewash station

0840 All signed tailgate safety form
40 Utility personnel came out to site to mark any utilities which may be located where we will trench & hand auger.
LF Lynn Kidman is taking personnel to each site

0845 Jim Roberts at Site

0850 Utilities personnel left site. There may be powerline and telephone lines nearby septic system. They will get back with us.

Jim told us of the tritium release from bldg 86 tonight starting at 6:00 pm. They may release from 30 pci to 1,000 pCi (?). We will leave site well before 6:00 pm.

It is raining vigorously

11:00 Leaving site + can't sample.

Have problems w/ county wet smears. We will purchase a heating lamp for future rainy days.

The freezer was set up in the trailer #158 this will be used to hold samples & blue ice.

Ka

LF

5-26-94

Discussion of SOPs

I. LANL-ER-SOP 1.04 R2 will be used – Sample Control and Field Documentation.
We will be using computer generated forms:
Chain of Custody
Sample labels
Daily Report Form
We will not be using the master collection log – this is an optional form
We ~~will~~ using obtained Sample Collection Logs from RPF
We obtained custody seal from SCF

NOTE: Change in Procedure from SOP

Section 6.1.2, par. 3, item 9 states that the "printed name & initials of collector" will be put on sample label. There will be times when the collector will not be the person who signs or initials the label – We may need to get paperwork done expeditiously and if the collector is in the EZ or CRZ, it would be inefficient to wait for this person to complete paper work.

∴ Therefore we will make a change:
"printed name & initials or signiture of a field team member" will be put on the sample label.

II. S LANL-ER-SOP 01.02 R0 Sample Containers & Preservation
We will follow the DRAFT version.

The draft version has made changes as follows. Or the following are deviations from LANL ER-SOP R0

LANL-ER-SOP 01.02 Rev 0
Deviations:

NOTE: Changes in Procedure from SOP

+ Sec. 6.1, par C refers to Attachments A & B for specific information on Water sample containers, and Attachment C for info. on aqueous waste sample containers. These Attachments

NOT. chan Proce from

have been removed from LANL-ER-SOP-1.02 R1
The proper sample containers will be supplied by CST-9 who will supply us w/ containers which meet EPA & DOT requirements.

We will take note of sample container & volume requirements in LANL-ER-SOP-1.02 R0 & assure CST-9 provides us with the minimum size recommended & the proper physical property of container (io, glass, poly...

* Section 6.2 par B. states to "avoid freezing sample by wrapping it in bubble pack".
The draft SOP does not state this. We will put wrapp around glass bottles w/ water in them if they are in direct contact with blue ice and there is danger of freezing the sample - Otherwise we will not do this. The majority of our samples are soil & there is no danger of freezing these samples

III. LANL-ER-SOP-01.03 R1 will be followed Handling, Packaging & Shipping of samples

IV. LANL-ER-SOP-01.05 R0 Field Quality Control Samples.

NOTE: changes in Procedure from SOP

Note our Site Specific Quality Assurance/Quality Control Plan (5/23/94) will supersede conflicting guidance in the above SOP. This has been stated in the site specific plans and has been signed off.
The Quality Control Sample summaries in this SOP were derived from the Generic QAPjP and are NOT applicable.

Generic QAPjP will be followed EXCEPT where it is superceded by the Site Specific QA/QC Plan. The 2 plans will be used in conjunction, - As is stated in the Site specific plan. The summary for QC samples may be in the QAPjP may not be applicable - Refer to the Site Specific Plan.

We will be following more SOPs. Any other deviations from SOPs will be discussed in this notebook.

5/27/94 Sampling at East Site

0700 Field Team Members: L. Fluk, C. Flynn, M. Powell, K. Aumodt, K. Hansel, L. Kidman
Jim Roberts will be at site later

Weather Sunny, cool, ground is wet from rainy night

0735 Tailgate Safety Meeting
All signed off form

0800 Field Samplers into the exclusion zone
Sampler: Kenny Hansel
Documenter: Kristi Aumodt
HPT: Mike Powell
SSO: Cornelius Flynn

In the SZ:
Linda Fluk FTL
Lynn Kidman FTM

0830 L. Kidman left site

0905 Sampling team bringing 1st batch of Samples back.

AA7609	003B1	0802 5-27-94	timer read off
9609	003B2	0830	
9610	003B3	0840	
9611	003B4	0850	

Team member put samples in cooler which is located in CRZ. Put COC tape over cooler to maintain traceability.

~1030 Roy Michelotti at site

1044 Sampling Team back from EZ, going into CRZ
Finished collecting days samples.
We took our time & worked out the procedures in the decon line

1230 Last person out of the CRZ
Cornelius Flynn left site

1245 Jim Roberts arrived at site

1300 Roy Michelotti left site

We will work out written waste list & refine our step by step decon procedure

JR

1500 K Hanel left site to take care of waste. M. Powell left to EHS-1
Did paperwork for sample bottles. Brought
1530 to the rad van
Rad van personnel did not have time to analyze all our samples, so they analyzed the samples which had to be analyzed for semi-VOCs (because of the shorter holding time). We stored the rest of the samples in freezer, secured by COC tape in a locked trailer.

1610 K. Hawort left site

Downloaded information on smears into the data base. We had 18 smears for all releasable equipment including sample bottles, boots, gloves & spoons/bowls.
Decon & swipe procedure were according to the field implementation plan & waste management plan.
Waste was taken from CRZ to the Settlement Storage area.

1745 C. Fluh left site

SWMU	Sample	Time	Comments
003B-1	AAA9608	0802	No Nitrite, OVOCs, bkg Rad α β γ
003B-2	AAA9609	0930	
003B-3	AAA9610	0840	
003B-4	AAA9611	0850	
003B-5	AAA9612	0924	
003B-5C	AAA9613	0944	
007A-1	AAA9618	1007	
007A-2	AAA9619	1017	
007A-3	AAA9620	1025	

Sampling at East Site

5/31/94 Field Team: L. Fluk, K. Hansel, K. Aamodt,
0700 M. Powell, C. Flynn, J. Roberts.

At site setting up for todays sampling
Weather is partly sunny (mostly sunny), getting warm already, not much breeze now.

~0750 At site: Clovis Martinez, Tim Ficker
signed in visitors log & TA-33 orientation

0800 Tailgate Safety Meeting
All present signed off

0820 Sampling team into CRZ
K. Aamodt Journeyman
K. Hansel Sampler
M. Powell HPT

The SSO will not go into the EZ - there is no hazardous constituent monitoring
He will stay in SZ

0830 Clovis Martinez, Tim Ficker, Linda Fluk, & Jim Roberts are observing the sampling team from the other side of the EZ
Clovis & Tim will be auditing us today.

0935 Sampling team back from collecting samples at SWMU 010D
Back to the CRZ.

We deconned equipment & personnel according to the Site Specific H&S Plan and Waste Management Plan.

Waste is segregated according to the Waste Management Plan. The types of waste and their destination are shown on page 14 of this notebook. This is a preliminary list and may be updated and changed. Any changes will be updated & documented in this notebook

LF

WASTE SEGREGATION

WASTE	Disposal
samplers outer gloves	- potential mixed non hazardous/non rad - potential hazardous
Documenters gloves HPT gloves SSO gloves	- non hazardous/non rad (KOP)
plastic bags	- ~~pot. rad~~ non hazardous/non rad
Kimwipes	- non hazardous/non rad (KOP)
Swipes	- non hazardous/non rad (KOP) - ~~pot.~~ rad - pot. hazardous - pot. mixed
Samplers tivek	- non hazardous/non rad (KOP) - ~~pot.~~ rad - pot. hazardous - pot. mixed
Documenters tivek HPT tivek SSO tivek	- non hazardous/non rad (KOP)

Did paperwork & documentation for the sample containers.

Clovis & Tim made suggestion that we include the rad van baggies on a chain of custody form. We are now generating COC Forms which just have the rad van samples. These forms will be relinquished to the rad van. We get the white copy - and the samples will be relinquished back from the rad van to us - We will dispose of the soil back at the sample point on the given SWMU. The rad van baggies get COC seal on them as well

:05 Clovis Martinez & Tim Ficker left site

the audit went well - We were given some good information - And there must be some changes made to the SOPs.

1350 Sampling team into CRZ
Same sampling team as this morning w/ addition Cornelius Flynn (SSO) in zone

1455 Sampling team back
Collected samples from 33-007A

Smear info downloaded
Samples were labeled & packaged
Daily summary & field report submitted

Samples collected today

Sample	Sample	TIME	Comments
33-010D-1	AAA9852	0900	no rad
33-010D-2	AAA9853	0845	
33-010D-3	AAA9854	0853	
33-010D-4	AAA9855	0835	
33-010D-5	AAA9856	0910	
33-010D-6	AAA9857	0919	
33-007A-7	AAA9625	1405	No rad, VOC, HE
33-007A-9	AAA9627	1420	
33-007A-8	AAA9628	1430	
33-007A-10C	AAA9629	1440	
PE Blank	AAA9859	1415	# CRM-020-050

1700 Left Site

cf / Linda Fleb

Sampling at East Site

6/1/94

0730 At site: Field Team Members: L. Fluk, M. Powell, C. Flynn, K. Namodt, K. Hanal, J. Roberts

Weather: warm, sunny, still

0745 Mike Powell hit his head on the Ryder truck and cut his head. - lacerations on top of his head was < 1/4" deep & ~ 1" long. C. Fluk attended to M. Powell. - Area was bleeding. Put gauze on head - applied pressure. Put Betadine (spelling?) solution on head to clean - Put clean gauze on head.

Jim Roberts took Mike to HS-2.

We following CANL-CIL-SOR-02.12 Guidance on Bloodborne Pathogens and AR 1-1 Accident & Occurrence Reporting.

Cornelius Flynn called HS-5 to report accident & filled out form EHS 1-1 B (2pts).

0835 JCI personnel at site to look for utilities. They provided a map of the septic tank area showing the tank 2 manhole and drainfield. They pointed out the electric line.

0845 They left site

Setting up for dup sample

1020 Michael Carlson from USWest at site. Marking lines for utilities - phone. They are located adjacent to the electric lines. We will not be hand augering or trenching where these lines are located.

~ 1025 Mike Powell called - He got stitches

in his head and he is not to return to work for a few days - doctors orders.

Manley Lee (EDI) will be trained by Mike Powell & he will work as the HPT at TA-33 until Mike can return to work here.

We are in contact w/ Industrial Hygienist at ICFKE about the accident & are filling out the appropriate paperwork

We disposed of biohazard waste by putting it in Ziplock bag labeled "biohazard". Ivan Wachler contacted Susan Alexander (HS-5) what to do with this waste. For now we will put this aside till we get further guidance

1100 Mike Powell, Jim Roberts, Manley Lee (EDI) at site
~~1230~~ Tailgate Safety Meeting
1130 All signed off

Samples we will collect today:
066B 1-4
007A 1)

Susan Alexander informed Ivan Wachler who informed me call CST-7 about disposal of biohazard
call 665-WAST

1210 Sampling team into the CRZ - into EZ to sample.
Sampler Ken Haguel
Documenter Krish Kennedy
SSO Cornelius Flynn
HPT - Manley Lee

VF

Jim Roberts talked to Lou Hoch about the tritium release. Jim was informed yesterday that they would be releasing tritium (yesterday) from bldg 86.

Confirmation call - There was a release last night between 1930 and 2030 - release ~ 200 pCi tritium.

1235 I called about disposal of biohazard waste CST-7
Al Stutimeyer or Julie Minton/Hughes will call me back.

1320 Samples back from collecting samples

Times	Samples	SDMUs
1215	AAA 9614	33-006B-1
1230	AAA 9615	33-006B-2
1255	AAA 9616	33-006B-3
1305	AAA 9617	33-006B-4
1245	AAA 9630	33-007A-11

9 of 6/1/94

1530 Left site

6/2/94 Sampling at East Site

0730 At site Field Team members: L. Fluk, C. Flynn, L. Kidman, K. Agmodt, K. Hansel, M. Lee

Note. J. Roberts will be at site a little later

Weather is warm, sunny, still

Discussing waste segregation - Will come up with a new plan

0800 Tailgate Safety meeting. This includes the waste discussion.

Today Kerry Hansel will wear a personal air pump - for Pb & Be & cd

All signed off 1122-612 Filter Pumpon 0850

0840 L. Kidman left site

0845 Into CRZ, Sampling team.

K. Hansel - Samples
K. Agmodt - documenter
C. Flynn - SSO
M. Lee - HPT

0855 Sampling team up to collect samples.

0852 First one sampler went into CRZ and removed the dried soil from the decon tubs back on to the SWMU in the EZ. This soil came from the dry decon tub and the wet decon tub. Note the wet decon tub has just enough water in it to decon boots - At end of day this tub of water is dry (i.e., the water has evaporated.)

We will do this on a daily basis and return soil to the SWMU which has been investigated

LF

0910 Jim Roberts at site

1020 Samplers back - put samples in cooler in CRZ - Got drinks

SWMU Sample	Time	Sample ID
007A-1	1003	AAA9629
007A-8	855	AAA 9626
007A-12	916	AAA 9631
007A-13	928	AAA 9632
007A-5	942	AAA 9622
007A-5C	952	AAA ~~9627~~ 9623

1028 Samplers back out to collect more samples

1130 Samplers are back to CRZ from Decorning sample bottles shoes, gloves

1225 All out of CRZ

1315 Sampling team into exclusion zone to collect the rest of 33-007A samples.

SWMU Sample #	Time	Sample ID
007A-19	1120	AAA 9638
007A-14	1029	9633
007A-15	1040	9634
007A-16	1050	9635
007A-17	1102	9636
007A-18	1110	9637
0		

1450 Sampling team back w/ rest of samples

SWMU Sample	Time	AAA #
007A-20	1327	9639
007A-21	1338	9640
007A-22	1347	9641
007A-23	1356	9642
007A-24	1408	9643
007A-25	1419	9644
007A-26	1427	9645

~1550 Dropped off cooler to rad van (w/ 9 samples)
We will store the rest of the samples
in our cooler & deliver this the rad
van tomorrow morning

Finished labelling bottles & paperwork

1700 Left site

22

Sampling at East Site

6/3/94

0730 Field team members at site:
Cindy Fluh, Kristi Aamodt, Manly Lee,
Cornelius Flynn, Ken Hassel

Weather is warm, sunny, still

0835 Sampling team in CRZ
sampler: Ken Hassel
documenter: Kristi Aamodt
SSO: Cornelius Flynn
HPT: Manly Lee

C. Fluh in SZ

0340 Jim Stanfan (CST-7) called about Biohazard waste. Need to fill out:
1. waste profile form
2. Chem. waste disposal request

need: waste generator
waste management coordinator

Jim will send me copy of the 2 paperworks

OS-2 may be able to store the waste - Temporary Storage

0925 Mike Powell returned to site. He had returns visit to the doctor & can now resume full duties at work.

0930 Samplers returned w/ 004K Samples

SWMU Sample	Time	AA #
004K-3	0857	9656
004K-4	0910	9657
004K-5	0917	9658
004K-5C	0922	9659

1E

0935 Team back out to collect samples at 33-010A & 33-010B

Cornelius Flynn (SSO) returned to the SZ - No organic hazards at these 2 SWMUs.

0955 L. Fluh relinquished samples to Shawn at road van

1015 JIM Stanton called me back about biohazard waste. (667-5838)

I should contact Tim Reese (Waste Management) (667-7579) & he will come out to site & re-package our bio-hazard waste. (Larry Sherman may come out).

Then CST-7 will pick up our waste in approx 2 or 3 weeks. We must fill out paper work ASAP. Jim will send paperwork to ICFKE Office

1100 Samplers back from collecting samples

	SWMU Samples	Time	MAA #
010B 6-3946	010B-2	1045	9652
	~~004E-3~~		
017	010A-3	1005	9648
	010A-2	0937	9647
	010A-1	0946	9646
	010A-4	0950	9649
	010A-4C	0958	9650
010B	010B-3	1025	9653
	010B-1	1035	9651

We are finished surface sampling at East Site. We are cleaning everything and moving from East Site to South Site, where we will do surface and subsurface sampling.

LF

Everything in the CRZ will be swiped. The decon buckets & tubs will be bagged and put in the Ryder truck. The water in the decon tub (very little amount) will be placed in the Satellite storage area & will be open & the water will be allowed to evaporate. (The storage area is covered with tarp).

We have accumulated 2 types of waste during our sampling at East Site

1. potential hazardous waste
   * visibly dirty pieces of tyvek
   * swipes
2. Hazardous waste
   * HE spot test kit waste

These wastes will be stored in drums in the satellite storage area.

We also generated 2 kinds of non hazardous/non rad waste from the CRZ

1. tyvek (KOP clean - never touched soil, samples etc). This waste can not go to the landfill & will be stored separately
2. gloves, bags, tim wipes - This waste is KOP clean & will eventually go to the landfill.

JR

Note Samples 004K-1 & 004K-2 were NOT sampled. These samples were to be located at outfall pipe. The outfall pipe could not be located. And according to existing construction maps, this outfall pipe is located in the area where the land fill was put. Therefore it is believed that the pipe was destroyed when the land fill was put in & the outfall pipe no longer exists (at least on surface). So we will not collect these 2 samples.

The site has been cleaned up. Team will meet here Monday AM & we will then move over to South site

1500 left site

JF Judy Fish

6/3/94
1600 Phone Conversation
I called Rebecca Eaton (CST9-) to confirm a few points

① For Semivoc & Herb
or " & PCB
or " & Pesticides } 125 ml bottle submitted.

For 3 analyses } 500 ml bottle submitted.

This is correct.
The lab only uses ~ 30 grams for analyses - this should give more than enough material.

② On our COC forms we have a note that method of anal. will be accord to memo from Dorothy Hood to John Miglar document # ——.
I talked w/ Rebecca to inform her of this note and to stress the importance of getting the info from this memo to the labs which do the analyses. Rebecca will make sure the labs get this information.

1545 I talked with HS-2 Ann (667-7839) about not accompanying Mike Powell for HS-2. I administered first aid to Mike but did not go to HS-2 because

I was wearing gloves while administering first aid & there was not much blood. Ann said because of these 2 points, it is not necessary that I accompany Mike. If I want HS-2 will give me a Hepatitus B tetanus on Monday AM. If so I should call up on Monday AM.

VF Linda Hills

Moving from East Site to South Site

6/6/94 Sampling at South Site
0730

Field Team members: Linda Flint, Cornelius Flynn, Mike Powell, Kristi Aarnodt, Ken Hansel, Jim Roberts

Weather: Warm, sunny, clear & still

Packing up the trailer to move from East Site to South Site

0845 At South Site - Moving trailer into area of northern parking site by trailer #173.

Today we will sample at the septic area (providing that CST-9 gave us the appropriate bottles)

0910 Kristi Aarnodt is off to rad van to relinquish samples (from late friday sampling) to Shawn.

NOTE: All rad baggies (with the excess soil) will be relinquished back from the rad van back to US. We will empty the soil back on given SWMU and dispose of the empty baggies as potential hazardous waste. If we had a rad hit, then this waste will be disposed as potential mixed waste.

0945 Dorothy Hoard at Site
Lisa Plum & D. Hoard discussed sampling plan at 33-008a land fill:
We will not excavate through landfill.
We will collect 3 sample locations (w/ hand auger) at base of 008a to look for run-off from fill.

* 33-010G-4 can be moved from lower area to area higher up - on top of flat - where there is shrapnel.

33-010H - Do we need to excavate? This will be discussed in meeting tomorrow.

* We will add a NEW Sample location ON TOP of Shot pad
Will designate 33-006A-~~37~~ 40 6/8/94

SWMU #010D will be discussed in meeting

* SWMU 33-007A trench by bunker #25
Do we want to do a full characterization now or later.
Should we.
We will take 3 samples in the run-off across road where culvert crosses under road & leading to the canyon.

1030 Dorothy Hoard left site.

1045 I called Rebecca Eaton (CST-9) about sampling needs. We did not have or get any of 40 ml amber glass. Rebecca will

get us 1 box (40) of the 40 ml amber glass

25 500ml amber glass

50 500 ml nalgene

We will pick these up tomorrow morning

1145 Finished setting up
Tailgate Safety Meeting
Will Sample at 33-004;
33-006A-dr

All signed off

1235 Field team into EZ to collect samples
Sampler : Kurt Aamodt
documenter : Kenny Hansen
HPT : Mike Powell

Fisher 5-87142
[illegible] (Lydia)
[illegible] (Richard)

In the SZ:
Luke Fluke (FTL)
Cornelius Flyem (SSO)
Jim Roberts (Field Coordinator)

1320 Samplers are at 33-006A-2. This location was noted during the initial rad survey to be elevated radiation. Samplers noted that there were 1 or 2 chunks of uranium. The samplers left behind these large chunks of uranium. And sampled the homogeneous soil underlying & adjacent to chunks. The soil showed elevated rad readings. Note was taken of this fact in the sample collection log

1325 Sampling team from OU 1130 here to visit and observe site operations. All signed in visitors log and TR-33 orientation. SSO (Cornelius

Flynn gave a safety briefing to visitors
1105. Sampling Team back from EZ w/ Samples:

SWMU Sample #	Time	AAH #
55-CC6A dr-1	1247	9741
CC6A dr-2	1300	9742
CC6A dr-3	1320	9743
CC4J-1	1337	9752
CC4J-2	1350	9753

1115 Phone conversersation w/ John Miglio about PE Samples from Idaho National Lab (GeoTech Mat.)
50 gr should be sufficient If we just analyze for rad & metals.
Ask for the rad which we are looking for
Bring in a short note with chain of custody requesting NOT to send the rad portion PE sample to Geotech (since they are the lab that provided the PE samples in the 1st place.
Visitors left site
All paper work complete

1115 Left Site

6/7/94
0730 Field team members: L. Fluk, C. Flynn, M. Fowel
K. Aamodt, K. Hansel

Weather: warm, sunny, clear, still

Today we will finish sampling at SWMU 33-006A drainage
and 33-014 ~~blue~~ UF 6/7/94 burn area

0800 Bill Spurgin out at site - He works here at South Site - There is no work going on here now - Should take place the middle of next month. The towers here are receiving & not transmitting.

0900 Sampling Team into EZ to collect samples
sampler: K. Aamodt
documenter: K. Hansel
HPT: Mike Fowell

C. Flynn (SSO) & L. Fluk (FTL) in SZ

1015 Samples back w/ samples

SWMU #	TIME	AAA #
33-014-1	0928	9757
33-014-2	0938	9758
014-3	0910	9759
014-4	0950	9760

Samples relaxed in shade, rehydrated

1025 Team back out to collect more samples

Photographs Bill Spurgin photo #22

1030 CRZ at South Site. View to north. Taken by K. Hansel

Photo #23

1022 CRZ at South Site. View to east. Taken by L. Fluk

View north, CRZ at South Site. Taken by C. Fluck.

View north, support zone at South Site. Taken by C. Fluck.

1135 Tim Reese called (CST-7) He will come out to TA-33 main gate at 1300. Someone on team will meet him with the biohazard waste - will bring him out to South Site where the Biohazard waste is - And Tim will re-package the waste for us.

1205 Sampling team back from collecting samples put samples in cooler immediately (as always) swiped bottom of shoes - Sampling team will come out of EZ & CRZ for rest

Sample #	Time	GAA #
33-006A-dr-4	1040	9744
006A-dr-6	1148	9747
006A-dr-8	1140	9749
006A-dr-7	1125	9748
006A-dr-9	1115	9750
006A-dr-5	1200	9746
006A-dr-11	1055	9745
006A-dr-10	1105	9751

1300 Met with Tim Reese (CST-7). He containerized the biohazard waste. and gave me forms to fill out.
Completed forms should be sent ASAP to Tim either at MS J593 or brought to office at TA-54 (by Lauren Waters thru)
This waste will be picked up for disposal on 6/23/94.

Ellen McGee (ESH-8) (665-1722) called me about archeologic

areas where archeological digs may be [illegible]
at South Site & NEAO.

Two samples had elevated rad readings:
33-014-3 → 160 cpm Bγ in bowl
750 cpm Bγ on surface
33-014-4 → 140 cpm Bγ in bowl
<140 cpm Bγ on surface

These readings were below reporting action levels. - Will report this to ER program and ESH-1
Mike Powell is in touch with John Elliot (EHS-1).

Note: Yesterday the sample 33-006A-2 read 220 cpm in bowl & 2500 cpm on surface.
Mike Powell is in touch w/ ESH-1 about these readings. We left the large chunk of uranium on the ground at location

1600 left site

VF

Sampling at South Site

0[illegible] Field Team Members: Linda Fluk, Ken Hansel, Kevin Dumoit, Cornelius Flynn, Mike Powell, Jim Roberts.

Weather: Warm, Sunny, Clear, Still

Placed new sample location 33-006A-~~37~~ 40 (6/8/94) - located on top of implosion pad.

[illegible] Ellen McGee (Archeologist) at site to look at sample location.

0450 Tailgate Safety Meeting
SWMU sampled 33-0046 Septic area
All signed off on form.

[illegible] Rattle Snake under support zone trailer
Taken by L. Fluk, looking north

The sampling team will bring out colowash and a long extended scoop - for the septic tank sampling - (incase the septic tank is dry).

[illegible] I walked w/ Ellen McGee over South Site & showed her where we will be sampling near the areas of concern. Ellen showed me the archeological ruin of concern.
∴ We will not be sampling at any locations where there are archol. ruins.

6/8/94 1. New Sample 33-006A-~~39~~ 40 6/8/97. Located on top of implosion pad. Must be surveyed

2. Change location. Sample 33-010G-4 was moved to location up higher on the mesa where the chamisa grows thick. Must re-survey

3. Normalized Samples were randomized

Sample	North	East
006A-8N	-19	+6
006A-17N	-13	+1
006A-29N	-3	-10
006A-35N	-17	+4

These must be submitted to FIMAD

3. 33-004B-1 (fluid) will not be collected because there is no fluid in tank

4. 33-004B-2 (sludge): Sludge will not be collected because there is no sludge. However this sample ID will be used for a sediment/soil inside tank.

6/9/94 5. AAA 9777, 006A-8, 33-1358 Sample was moved 3ft to west because original location was on rock. Must give new coordinates to FIMAD

6. AAA9773, 006A-4C, 13-1354 was moved 1' south of 006A-4 instead of 1' north because of rock. Must give new coordinates to FIMAD

6/10/94 7. NEW Sample: 006A-40: AAA 9891, 33-1473: MUST survey - Get info to FIMAD

6/13/94 8. We will not trench through 33-008A landfill. Instead we will take 3 surface samples at base of landfill

008A-1	AAA 9703	33- ~~1472~~ 6/13/94 1474	Must be re-surveyed
008A-2	AAA 9704	33- ~~1473~~ 6/13/94 1475	
008A-3	AAA 9704	33- ~~1474~~ 1476	

1010 We went to NKAO & walked over sampling area & Ellen located archeological ruins - Again - we will not be sampling where the ruins are.

Ellen said we do NOT need a monitor on-site when we do our sampling because we are sampling away from any archeological areas of concern.

1110 Ellen left site.

~1145 Samplers into EZ to collect samples

~1130 Samplers back out because the PID is not working. (It was working this morning). Cornelius is off to MK & ICF&E office to find another organic sniffer.

1150 Lynn Kitman at Site

Lynn brought CASIO FX-850P to randomize for normalized samples.

Calc
int : 20 (RVL)
exe will give ± . Do this for X & Y

Lynn talking w/us about possible actions & changes to sampling plan - resulting from the 1122 meeting yesterday.

1. We will sample 33-011 blivit area samples. & analyze for tritium

2. Berm by bunker 25. We will trench through berm & take randomized samples

soil samples.
We will also take 3 samples in the drainage - based on:
- sediment trap
- hot spot (biased).

1 drainage sample near the berm
2 on other side of road, post culvert

We will separate out projectiles from the soil - but we will not take samples of the projectiles.

Total # soil samples
6 subsurface trench (random)
3 surface (random)
3 drainage (biased).

1250 Samples back into EZ to collect samples

1300 Lynn Kidwell left site

1305 Samples are NOT able to collect sample from septic tank for 2 reasons:
1. There is a dead mouse in bottom of tank. SSO said we must call ESH-S about health hazards of collecting a sample here.
2. The depth to bottom of tank is >12' - we need extensions which go deeper than this - We

do not have that now.
Samples will also wait to sample at location 33-004B 3,4,5 till we have extensions which allow us to auger deeper than the depth of the bottom of the tank - we will come back another time.

1430 Samples back from sampling

SWMU #	TIME	AAA #
004B-6	1316	9738
004B-7	1325	9739
004B-8	1345	9740
011C-1	1422	9754
011C-2	1405	9755
011C-2C	1415	9756

1530 Finished labeling samples
Took samples up to rad van

1630 left site

6/9/94

0730 Field Team Members: L. Flint, K. Hansel, M. Powell, K. Aamodt, C. Flynn

Jim Roberts will be at site later

Weather: warm, still, clear, sunny.

Today we will sample the grid locations at 33-006A.

Extra PE Sample will be collected (Rad/metals) AAA 9890. ~50 grams will be put into 2 12 cml jars to be analyzed for rad & metals.

0840 Tailgate Safety Meeting
All signed off

0915 Sampling Team into EZ to collect Samples

Team:
Sampler: K. Aamodt
documenter: K. Hansel
HPT: M. Powell
SSO: C. Flynn

L Flint (FTL) in SZ

1000 I Spoke w/ Gabrial Roybell (RPF) - 6658434 about unique identifyer # for the Field Logg books. He said that notebooks supplied by the RPF have unique identifyers #'s assigned to them. He did not know whether notebooks NOT assigned by RPF need these #'s. I will speak w/ Rene Archuleta later today to come to closure on this matter.

JF

Collected PE Soil blank sample AAA 9890 (1122-0024)

Samplers back w/ 1st batch of samples

SUMM #	TIME	AAA #	
006A-1	0925	9769	1122-0027
006A-2	0935	9770	
006A-3	1005	9771	
006A-4	0945	9772	
006A-4C	0950	9773	1122-0025
006A-5	1015	9774	

Samplers back w/ 2nd batch of samples

SUMM #	TIME	AAA #	
006A-8	1045	9777	1122-0025
006M-8N	1055	9778	
006A-9	1035	9779	1122-0026

Mike Powell spoke w/ John Elliot (ESH-1) about the rad hot spot found at 006A-drainage. John said it was no problem to have proceeded the way we did in the field on 6/6/94 (refer to page 30 of notebook). It was fine to leave the big chunk of uranium at location. And there is no problem with collecting a sample w/ β γ reading <800cpm. John will come out to site tomorrow to check out our operations and the location at bunker 25.

Sampling team back w/ rest of samples

Jim Roberts at site

SUMM #	time	AAA #	
006A-6	1145	9775	1122-0026
006A-7	1135	9776	

47

006A-13 1218 9783
006A-14 1230 978Y

Jim Roberts & I filled out the waste profile form & chemical waste form. Jim will bring forms to Ray Michelotti to sign (as the waste generator) Jim signed as the waste coordinator.

1430 Left Site

Judy Flaherty

Sampling at South Site

6/10/94

0730 Sampling field team members: Linda Hall, Ken Hanel, Mike Powell, Cornelius Flynn, Kristi Aymodt

Weather: Warm, sunny, clear, slight breeze

Sampling today 33-006A grid samples

Designated new Sample: 006A-40
AAA 9891
33-1473

0825 Tailgate Safety meeting

Cornelius Flynn will wear personal air pump. Will measure for Pb, Cd, Be, total dust

Mike said the action level for release of material is ~200 cpm β γ using direct reading instrument

0845 Took samples to rad van (from yesterday sampling activities - samples stayed in freezer overnight).

0920 Sampling team into EZ
sampler: K. Aymodt
documenter: K. Hanel
SSO: C. Flynn
HPT: M. Powell

1030 Collected PE sample in the SZ
AAA 9877 Sample from Inorganic Ventures
CRM-021-100 Metals on Soil #3
Put soil into 125 ml glass jar with a stainless steel spoon.

mailstop & sent off today to CST-7 T.
J 593.

1135 I spoke with Rene Archuleta (RPF) 66
about the field log notebooks we are
in the field. Rene said the way
the unique identifyer # for our note
would be to use the # off of
notebooks supplied by the RPF.
Rene will send 3 notebooks to us
when we receive these notebooks
will take the unique identifyer #s
these books and designate the #s
the books we are using in the field

1155 Samples back w/ samples

SWMU #	Time	AAA #	
006A-15	1138	9785	0028
006A-16	1128	9786	
006A-17	1105	9787	
006A-17N	1119	9788	
006A-18	1017	9789	0029
006A-18C	1025	9790	
006A-19	1006	9791	
006A-20	0957	9792	
006A-21	0945	9793	0030
006A-23	1036	9795	
006A-40	1045	9891	
PE Blank	1030	9877	

Note. Sample 006A-40 (on top of implosion pad) showed rad $\beta\gamma$ reading 550-600 cpm

Sample 006A-18C was located 1 ft. West of 006A-18 (instead of 1 ft. north) because large rock was to the north & south

· Sample 006A-17N rad $\beta\gamma$ reading = 150-170 cpm

Dropped samples off

1445 left site

Leah Hl

Sampling at South Site

6/13/94
0730 Sampling - Field Team Members: L. Fluk, K. Hansel, C. Flynn, M. Powell, K. Aumodt

Weather: Warm, sunny, clear, still

Sampling today at 006A Shot area.

0805 Tailgate Safety meeting
All signed off

0855 Jim Roberts at Site.

0900 Sampling team into EZ:
Sampler: K. Hansel
documenter: K. Aumodt
HPT: M. Powell

In SZ:
FTL: L. Fluk
SSO: C. Flynn
Field Coordinator: Jim Roberts

0920 L. Fluk checked on satellite Storage area at East Site:
The storage area looked good.
The 2nd day Containment was in place
The tarp was over the 2 bins. The bins (55 gallon drum) were secured.
2 bin - 55 gallon drums at East Site
Satellite Storage area:
Drum # 2 Potentially Hazardous Waste
Drum # 1 Hazardous Waste
The Satellite Storage Area Sign blew down

1130 Jim Roberts & I picked up 10 55-gallon drums which had been dropped off at Main Site in the security area loading dock. We will store 7 drums at area 6 (w/ the rest of the drums). We will take 3 drums to the Satellite Storage area at South Site.

1170 Sampling Team back w/ 3

1120 John Elliot (ESN-1) at site. John & Mike Powell talking together about sampling activities and that hot spots found so far during sampling

1145 John Elliot left site.
He will come out to site again (and/or Clarita Trujillo. He said everything looked good out here, as far as rad. concerns. He will get us back up to date radiation caution/notice signs for our site.

Samples collected this morning

SWMU #	Time	AAA #	
006A-32	1053	9805 ✓	0031
006A-30	0913	AAA 9803 ✓	
006A-31	0943	9804 ✓	
006A-35	1000	9808	0032
006A-35N	1015	9809	
006A-34	1030	9807	
006A-33	1040	9806 ✓	0031

1330 Sampling team back w/ 2nd batch of samples

SWMU #	Time	AAA #s
006A-25	1323	9797
006A-22	1155	9794
006A-27	1203	9796
006A-28	1215	9800
006A-29	1222	9801
006A-29N	1227	9802
006A-24	1245	9799
006A-26	1255	9798

1415 Composite

Sampling at South Site

6/14/94
0730

Field Team Members: L. Fluk, M. Powell, K. Hansel, K. Aamodt, ~~K. Atz~~ K. Gilfillan, C. Flynn

Weather: Warm, sunny, clear, still

Will sample today -33-006A shot area and the septic tank hand auger sample (location ~5' from tank)

0830 Tail gate Safety meeting

We will not sample the sediments in the septic tank - We are waiting for direction from EHS-5 due to the potential hazard of Hanta virus.

All signed off

0850 Samplers into EZ-off to sample Lower Canyon.

0915 Virginia Smith called about the samples in the septic tank. She spoke with CST-9 about whether there were labs to analyze these samples (which could potentially contain Hanta Virus. CST-9 thought this was a H & S issue. Virginia will draft a memo (for Susan Alexander) regarding this issue. We should hold off sample till we hear further information & obtain further guidance.

The baggies & sampling cups will be disposed of as either pot. hazardous - or pot. mixed (depending on if the sample was radioactive).

This is done on approximately daily basis & will not be mentioned from here on.

1115 Virginia Smith came out to site. She dropped off new radiation/caution signs - and she brought an alpha probe for Mike Powell. These were given to Virginia to give to us by John Elliott.

We talked about if Sally Esser

1 We will not get an answer for direction from ESH-5 and/or CST-9 on the septic tank issue for a little while.

1130 Virginia Smith left site

1145 Sampling team is out at [redacted] tank collecting the samples adjacent to tank.

Location 1 (original location) The location was 5' away from tank & they hit the soil/tuff interface at 5' - they collected a sample at this depth [redacted]

1150 They will move try again to get to a deeper depth. The tank bottom is ~ 12' - We are looking to collect a sample below this depth [redacted]

Location 2 This location is 2.5' from the [redacted]

NRAO

Reserved for Changes to Sample Locations - South Site

6/14/94 9: Sample 006A-35N needs a new Site ID #: 33-147-
MUST get info to FIMAD

6/14/94 10. Sample 004B-5 was moved to new location:
Must survey & get info to FIMAD.

6/20/94 11. The septic tank at NRAO Must be survey. Info must be given to FIMAD.

12. Location 004M-~~3~~ 6 6/20/94 was collected - But we will move drainfield location - so a surface sample will be collected at another location.

13. More location of 004M-~~4 5~~ 6/20/94 7, 8
More location of 004M 9, 10, 11
Must be resurveyed - Get info to FIMAD

14. Berm 43 location of trench must be re-survey

15. 33-010H-1 (hole # 1) Must be surveyed - I. to FIMAD

16. 33-010H-2 (hole #2) Must be surveyed - I. to FIMAD

17. Re-located samples at 33-010C. Must survey & Info to FIMAD

18. Located New surface Samples at 007B berm - must su. & get info to FIMAD

19. Must survey the corners of of the trench

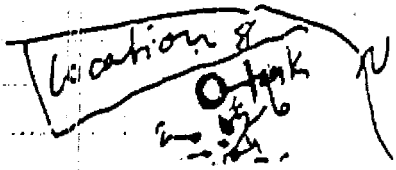
Sample 33-004B-5
This location, they hit refusal at ~ 2.5' depth. — Hit concrete

1155 Moved location again
Location 3 Between location 1 & 2 (Approx 4' from tank. - We are hoping to get just adjacent to the cement. Hit refusal ~ 4' — Into tuff

1203 Location is also ~ 5' away from tank in the NE direction from original location. Hit tuff at ~ 25'
Location 4

1207 New location is ~2.5' from tank (again NE of original location)
Location 5 This will be our last attempt and we will collect a sample at the interface of soil (tuff or soil) / concrete
Hit tuff at 2½'
Will NOT collect sample
One more try

1213 We located outfall pipe And chose a new location which is in line between the tank and the outfall pipe. We will collect a sample at this location. This is ~ 6' from tank. Hit tuff at ~ 4'
Sample collected at 3½' - 4' depth.
Location 6
Location 7
Mound because refusal at ~ 8"



0 Samplers are back with samples.

SWMU #	Time	AAA #
010G-4	0910	9817
010G-3	0925	9816
006A-36	0946	9810
010G-2	1004	9815
006A-39	1010	9813
010G-1	1023	9814
006A-38	1045	9812
006A-37	1102	9811
004B-3	1125	9735
004B-4	1140	9736
004B-5	1200	9737

1330 Samplers & HPT are deconing

Sampling team today
Sampler: K. Hansel
documenter: K. Aarnodt
HPT: M. Powell
L Fluh (FTL) & C. Flynn (SSO) in SZ

Sampling at the Septic System 004B.
We feel w/ sampled around the tank & in the vicinity in a manner that we should have been able to get to depth if possible. The soil/tuff interface is probably around 2½' in the general area. Two sample locations (1 and 8) we augered deeper than 2½'. This could be in an area

the tank, we may have hit the concrete slab. We augered along the line and on either side of the "expected line" where the pipe was laid down.

It could be that a small area was excavated into the tuff - small enough to slip the tank into. It may not be possible to auger or drill to a depth deeper than the septic tank without hitting the tuff.

Note we moved location 33-0048-S - this location must be surveyed in.

Setting up satellite storage area at South Site. Put 3 barrels on top of pallets w/ secondary containment.

South Site Area
- barrel (drum) # 3 : hazardous
- " # 4 : poka[illegible] hazardous
- " # 5 : poka[illegible] mixed

1530 Dropped samples off to rad van

1545 Left site

Sampling at South Site

6/15/94 Field team members: L. Fluk, C. Flynn, M. Powell, K. Aamodt, K. Hansel

0730

Weather: Clear, sunny, hot, still

Sampling team:

Sampler: K. Hansel
documenter: K. Aamodt
SSO: C. Flynn
HIT: M. Powell
} in the EZ

FTL: L. Fluk } in SZ

0815 Tailgate Safety Meeting
All signed off

0900 Samplers into EZ
Collecting samples at 007B & 008A

1005 Samplers back w/ 1st batch of samples

Sample #	Time	AAA #	
007B-9	910	9767	0040
		9766	
007B-8	923	9765	0039
007B-7	930		
008A-1	940	9703	0041
008A-2	950	9704	
008A-3 6/15/94	953	9705	

0945 Collected PE soil blank sample (supplied by Idaho National Laboratory). Collected sample in the SZ w/ a stainless steel spoon. Soil was placed in containers after homogenizing.

1045 Sampling team back w/ 2nd batch of samples

SWMU #	time	AAA #	
0076-10	1040	9768	0038
0073-1	1008	9761	
0075-3	1020	9762	
0076-4	1029	9763	0039
0076-4C	1034	9764	

1115 Deconning bottles, spoons, bowls, etc.

1200 I talked to Lynn Kidman on phone about sampling at 33-010C. It was decided in a meeting that we would take 2 handauger samples in the berm where it slopes down into the canyon (~ 3/4 way down). We will take 2 subsurface samples per location

We will collect 6 surface samples along the bottom of the berm near the drainage. We will take a total of 10 samples of soil. All locations will be biased. Will hand auger to the tuff interface

Setting up CRZ at NKAO

1400 Drop off samples at Red Van

1430 Left site

Sampling at South Site

6/16/94 0730: Field team Members: L. Fluk, M. Powell, K. Hansel, C. Flynn, K. Aamodt

Weather: hot, clear, sunny, still.

L. Fluk & K. Hansel set locations along the 33-010C berm where we will sample according to the decisions made at the meeting (held at TA-35) and discussed on page 56 of this notebook.

The team will attempt to hand auger at 2 locations. If they are not successful (due to problems of refusal), we will abandon this location and re-think our sampling strategy

0845 Tailgate Safety meeting
All signed off

Note: Mike Powell (HPT) is now using an alpha probe during sampling activ in addition to the β/γ probe. John Elliott requested this be performed a he provided Mike with the probe.

0845 Sampling team into EZ
sampler: K. Hansel
documenter: K. Aamodt
HPT: M. Powell
SSO: C. Flynn

0900 L. Fluk (FTML) in SZ

activities of rad using the B/S detector. Activities of pieces of shrapnel were as high as 3,000 cpm. The soil in general location was ~ 400cpm. The samplers left area - We will not sample in this area now.

~0940 Mike Powell spoke w/ Gilbert Garcia on the phone and told him of these activities & findings - Gilbert will speak w/ John Elliott. Also Mike tried to call John Elliott, but not able to reach him.

We will hold off from sampling in this area until we get guidance from ESH-1.

~0945 Rebecca Eaton (CST-9) called C. Fink & informed that a sample bottle broke (AAA9816 for metal analysis). The soil remained in a zip lock bag & CST-9 personnel was able to see the sample. I confirmed that it was fine to re-containerize the soil in the bag.

1000 Sampling team is off to AA6 to collect the grid samples. There is a CRZ set up there and the team will decon personnel

to decon. A charge order form, written by C. Flynn & approved by Virginia Smith allows us to do this.

1230 Field team back from NRAO
Sampler collected

SWMU #	Time	RAA #
011B-1	1130	9830
011B-2	1140	9831
011B-3	1120	9832
011B-4	1150	9833
011B-4	1157	9834
011B-5	1110	9835
011B-6	1050	9836
011B-7	1205	9837
011B-8	1100	9838
011B-9	1040	9839

1515 Took Samples to Rad Van
Clean up
Set up for next day Sampling
1545 Left site

6/20/94 Sampling at NRAO

0730 We are stationed at South Site and will sample the septic system.

Field sampling team: L. Fluk, M. Powell, C. Flynn, K. Hansel, K. Aamodt, J. Roberts

Later today the backhoe & trenching equipment will be brought out to the site.
Ambrose Corie will be operating the backhoe.

Weather: Partly sunny, warm, still

0845 Tailgate Safety meeting
All signed off
0930 Ambrose Corie at site - waiting for backhoe
1000 AT NRAO
Set up semi-support zone.

Sampling Team into EZ:
sampler: K Aamodt
documenter: K. Hansel
HPT: M. Powell
SSO: C. Flynn

L. FLUK is at NRAO
J. Roberts is at Support zone

1005 Sampling team opened the tank lid closest to the permit sign
ST Reg No SF 89032R TA-33-179
The tank closest to sign is open for ~1½' and has a square concrete

away from sign (north)
Upon opening lid, a little bit the PID and rad monitors are used. Then open the lid completely the monitoring instruments are used again
The 2nd tank has the same setup w/ square concrete lid.

Will sample the southern tank

1035 Collecting fluid from the tank. The fluid is to the top of the tank. Using mud sucker to put fluid directly into the bottles.
No VOA or rad readings above background.
The septic system is active. There is some sludge in tank. Which appear to be a combination of human waste & sediment
1100 Collected sample sticking to side of tank
Bottom of tank is ~5' deep.

Collected 1 surface sample from drain field — Worked w/ hand auger to collect subsurface samples. Could not auger through the hill. Will have to return w/ a drill rig.

Swipe 318 4 pr. boots = 2 cpm
70 direct B/G

swipe 317 Samples gloves = 0
65 direct B/G

1195 Cornelius Flynn Out 61 cpm
1147 K. Armodt " 52 cpm
1149 K. Hansel " 65 cpm
~~1151~~ M. Powell "

Cleaning decon area

	direct BG	Smear	Reading
HDPE tarp	74 cpm	SM 319	0
	78 cpm	320	3
	70 "	321	2
	71 "	322	0
2 black tubs	72	323	0
2 black tubs	73	324	1

Tubs

Everything was put into plastic bags & stored in Rider truck. The HDPE was left out after swiping. The afternoon thunder showers will wash it off. We will put away ~~tomorrow~~ 6/20/09 tomorrow

Samples Collected Today

SWMU #	time	AAA #
004M-1	1045	9818
004M-2	1100	9819
004M-7	1115	9823
rinsate	1300	9889

1400 Lynn Kidman, K. Hansel, M. Powell, C. Flynn went to the drainfield area to locate

at a later date

~1330 C. Flynn went over the H & Safety Plan with Ambrose Loring - Ambrose signed the acknowledgement page after briefing

Set up a zone (CRZ) for the decontam of the backhoe bucket. This is in an area which can be easily accessed from trenchy at 3 locations. this will be a designated zone.

1440 → Left Site

6/21/94
0730

Sampling at South Site Trenching

Field team members: C. Fluk, M. Powell, J. Roberts, K. Hansel, K. Aamodt, C. Flynn, A. Coriz

weather: overcast, ground wet, cool

Setting up for trenching at Catchbar

0830 John Elliot & Clarita Trujillo at site

0835 Tailgate Safety meetings
While trenching, we will wear hard hats. If trenching more than 4 hours/day, we will wear ear plugs
Safety hazards while work w/ backhoe equipment.

0850 C. Fluk, M. Powell, J. Elliott, & C. Trujillo visited 33-010C & the berm by bunker 25. We discussed the sampling plans, locations of sampling, processes and readings & activities & possibilities for future activities.
John may bring out an ion chamber to determine dose rates for some areas.
John does not think we will need to work with respirators - as long as the dust suppression system is adequate.
The RWP for the 2 areas should be signed off by thursday. Clarke and/or

0920 Claudia & John left site.

1050 Sampling team into EZ
FTL : Linda Flick
Sampler : Kurt Aamodt
documenter : Ken Hassel
HPT : Mike Gorrell
SSO : Cornelius Flynn
Backhoe operator : Ambrose Coriz

In SZ : Lynn Kidman
Jim Roberts

We will trench into the catcher box. I will collect ≥ 5 samples of soil at locations where there are projectiles. Will use a high pressure sprayer to keep the dust down while backhoeing.

One bucket at a time will be placed in pile. Will monitor for rad & dust with each bucket. Will not document every reading if the reading ≤ background.

1120 Watering down the catcher box with water

SSO will do constant monitoring for dust using MIE miniram

Will not write down every reading if below action level.

Every bucket of soil which is placed on pile will go over with a metal detector to detect any pieces of metal. If metal is detected we will remove metal &

The metal pieces will be collected in a 1 gallon ziplock bag and saved.
The metal pieces will be weighed on a balance in the support zone.
The volume of the excavated soil will be estimated by measuring the area of the excavation within the trench.
We will excavate 1 bucket width from the trenches

1125 Started excavating
1st bucket 1. HPT meas. rad.
Each bucket SSO meas dust & volatiles
Samples bags for metal w/ detector
CFG find, use stand

buckets: ++++ ++++

1135 View north before removed bucket of soil - Monitored for rad & VOC, Taken by L. Flak
Photo 2 of 2 12/2/99

Material in trench is brown soil with large pieces of of tuff as large as 2' diameter, much vegetation - organic roots Soil is sandy loam.

Photo 8 Looking north Dust control of soil on

Photo 29 1141 Dust control in trench with backhoe bucket digging.
View north

1142 Will sample next from bucket #6
We have found no elevated readings & no projectiles. Location is ~ 3' into the catcher box.

1145 View north of catcher box - trench location at northern firing site. Backhoe in place for excavation.
Photo 31

1150 View north. Metal detector used on pile to detect metal
Photo 32

1157 Sample collected at ~ 5' in
bucket #10

1210 Sample bucket 14 ~ 10' in
Sample 0076-CB-3

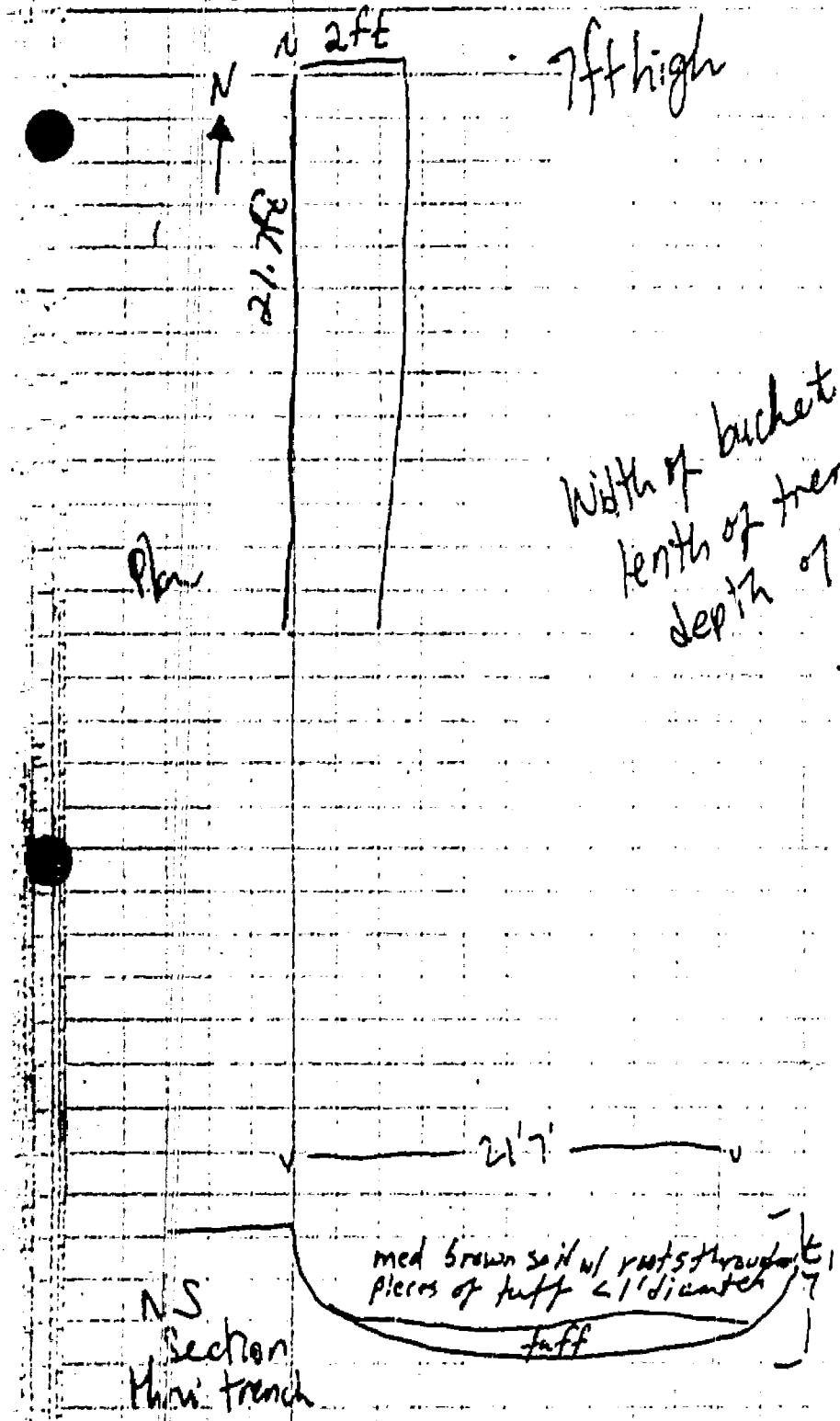
buckets continued
10 * ~~HH~~ ~~HH~~ ~~HH~~ 1

1235 bucket #20 Will sample ~ 15' in
Sample 0076 CB-4

1240 Dorothy Hoard at site.

68

Catcher BOX
Trench



Width of bucket = 1.6'
length of trench = 21.7'
depth of trench = 7'
volume of trench = 243.9 ft

no projectiles found
no high rad
no VOCs
Dust average = 0.04

Samples Collected from catcher box trench

SWMU #	time	AAA #	Comments
007B-CB-1	1142	9693	~3' IN
007B-CB-2	1200	9694	~5' IN
007B-CB-3	1210	9695	~10' IN
007B-CB-4	1237	9696	~15' IN
007B-CB-5	1300	9697	~20' IN

Deconned the backhoe buckets and the wheels. The buckets were deconned by washing - scrubbing the buckets with a brush and using a high pressure sprayer. All water is captured in a aluminum tube which is approx 4 ft diameter.
The wheels are deconned by spraying them while they are lifted off the ground. All water is captured in a plastic tub approx 3 ft in diameter.

Note: The the buckets were sprayed lightly with the high pressure sprayer in the EZ at the trench location. This was done to get the obvious soil off prior to driving the backhoe to the CRZ.
Remember we have been using small amounts of water to keep dust down while trenching.

The CRZ for deconning the backhoe is

smaller equipment.

Note that the decon procedure for the backhoe will be the same for the duration of sampling/trenching & therefore will not be mentioned again unless procedures have changed.

1645 Left Site

Cont Thu

6/22/94 Sampling at South Site
Trenching through Berm B43

0730 Field team members: L. Fluk, M. Powell, A. Coriz, J. Roberts, K. Hansel, K. Aamodt, C. Flynn, L. Kidman.

Weather: Partly cloudy, warm, still

0745 Paula Watt arrived at site.
She will be collecting soil samples here at South Site. Paula is a student at Univ. of N.
Her samples will be collected under tasks different than those specified in the H&S Pla
Paula will work under our plan - She will work according to the plan where applicab
but she is not working in the EE Program.
It is up to Paula to follow plan - It is not up to us to assure Paula follows the plan.

0830 Lynn Kidman talked with Virginia Smith about this H&S issue. Virginia said that it is up to Paula to follow the plan. Paula need not sign the H&S Plan.

0900 Sampling team into EZ
Sampler: K. Aamodt
documenter: K. Hansel
HPT: M. Powell
SSO: C. Flynn
backhoe operator: A. Coriz

generated while using the backhoe.

Sampling team left the EZ, until we can take the appropriate measures to suppress dust.

J. Roberts went to purchase adaptors to fit a hose to our high capacity pump.

K. Hansel & K. Raimodt went to purchase extension cords so we can hook pump or high pressure sprayer to the nearby electrical outlet.

~0910 Arrived at site: Roy Michelotti, Dorothy Hoard

~0930 Arrived at site: Virginia Smith, John Elliste

0945 Arrived at site: Bonnie Kock, David Hunter (DOE contractors).

Bonnie & David will audit our field activites

1050 C. Flynn gave H&S briefing to visitors. All signed off

1110 Bonnie Koch & David Hunter left site

1116 Discussing sampling concerns for Paula Watt (R. Michelotti, D. Hoard, V. Smith, L. Kidran, P. Watt, L. Flynn)

Paula needs: buddy, needs to be fitted out.

Roy will provide 2 way radios (for emergency)

Cornelius will meet/work w/ Paula so she can use the rad-ras to determine dust problems.

Mike Powell will look at areas [illegible] starting work. Paula will be

We will provide HE spot test at surface locations prior to taking subsurface sample.

1140 John Elliott left site

1215 Talking w/ Roy, Dorothy, Lynn, Linda. We have to have a way of defining locations where we collect our samples from the berm.

Y (depth, height)

x how far into berm

x can be defined by placing stakes at 5 or 10 ft intervals in the x direction.

Y can be defined by using a tape measure if the height of the berm is not great or if the height is consistent (For example the catcher box which was consistently ~7' from top to bottom) & one bucket collects a sample from the entire height).

If the berm is much higher and the bucket will not collect 1 bucket from the entire height then the backhoe operator must estimate the height that the sample was

1240 Phone conversation w/ Jaime Torres
Last friday, conducted flight over TA-33 for (5:30Am) Thermal IR (looking moisture)
He will be by site tomorrow to look at areas where anomalies were found.

1245 Discussing sampling activities at 33-010H
(R. Michelotti, D. Hood, C. Kidman, C. Fluty)

of Berm 43. We will scrape the entire area & if we find anything - we will take this ~~entire~~ 6 bldg location and dig down ~ 4' depth.

We decided to take 2 locations along the transect.

1310 We are now discussing sampling activity at 33-010C (Same decision making team as mentioned above.)

Environmental Problem took ~ 6 samples (surface) along face of berm. Results showed high uranium. Question are barely higher than SPLs and would this indicate that baseline risk assessment is appropriate. Should we do Phase 1 (or does prior info provide this info) or do we have enough info to lead us to CMS or CA. Dorothy will speak w/ Kirby. If there is enough info to do CA, we will do nothing here this year. If there is not enough info, we need to sample here.

We are sampling because an NFA (based on risk assessment) may be possible.

[illegible] D.. & M.H. Pitsitis

Roy Said we should purchase a gas operated generator. We will try to purchase one this evening.

1410 Pouring Rain!
All in the support zone (in the support trailer)

Setting up for tomorrows activities

1515 Mike Powell & Kristi Aamodt checked on the Satellite Storage area at East Site. Will make note of results tomorrow.

Note: Mike Powell filled waste into 3 barrels at the South Site. The Satelite storage area was in good shape: Tarp over the barrels, 2nday containment, Signs secured. Barrels labeled.

1615 Left Site

[illegible]

Trenching at South Site

6/23/94
0730 Field Team Members: L. Fluk, M. Powell, K. Han
K. Aamodt, L. Kidman, C. Flynn, J. Rob
A. Coriz

Weather: Sunny, clear, warm, still

We purchased a gasoline run high pressure power washer - will try it out today.

We will trench at berm 43

0835 Sampling team into EZ
sampler: K. Aamodt
documenter: K. Hansel
HPT: M. Powell
~~SSO: C. Flynn~~ as 6/23/94
backhoe operator: A. Coriz
FTL: L. Fluk

In SZ:
L. Kidman, J. Roberts, C. Flynn

0848 Started trenching B43
Wetting down area w/ sprayer (works well.

0945 Looking south into berm 43
photo 2 Taken by L. Fluk

We are using same procedures as discussed on page 65 of this notebook.
Constant radmeter w/ each bucket
metal detector & shovel used w/ each

Buckets
1st ###

0910 Sample bucket #6 y

B43-1 ground surface 3' 3' x

Sample collected ~ 3' IN (x direction) & 0-3' in y direction (0 represents ground surface. If samples taken below ground surface will indicate negative values.

This berm is located south of gun mount. The trench is excavated through the center of the berm - in line with the gun mount. We will trench all the way through the berm and as deep as soil/tuff interface.

0925 photo 4 View to west backhoe excavating into berm. Taken by C. Fish

SSO brought noise monitor to area. HP gave it to M Powell to move around the backhoe & where people are standing. Check SSO notebook for results.

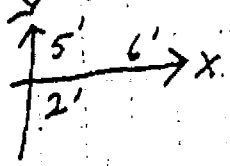
0930 Sample #12 bucket

photo 5 Sample Y direction 0-1' above ground surface 0-2' below ground surface (ground surface is the landfill surface

X direction 5 feet

estimated to get to tuff is ~ 10' to 15'
it does not make sense to backhoe
this far down into the landfill.

1015 Sample bucket # ~~18~~ 19 of 6/23/94
B43-3



bucket #

We are not finding anything in the trench except 1 piece of wooden block ~ 2" diam x 2" diam by 4" long.

NOTE We will now excavate 3 buckets at a time and then sift through material. This will speed operation a little. We will only do this as long as we are not finding anything.

NOTE We will dig down a minimum of 10' below the ground surface - Based prob to tuff interface

1105 Sample B43-4
Sample at to ~~5~~ 5' - 7' above surface 6/23/94

Found metal shard ~ 2" long, 1" wide

ran out of water. Will stop operation
Fill up water tank. Continue after
lunch.

1120 Leaving EZ. Off to get water & lunch

1305 Back into EZ (same team)

We will continue taking 2 buckets at a time,
and then we will screen this material.

Net down area for ~ 10 minutes

buckets
33 + 1135
35 +
IIII

Note: the location of this beam must be
re-surveyed because the trench is located
approx. a few feet away from the stake.

1355 Sample B43-5 bucket #39
Located in trench 20 feet in (x direction
& 5'-0' in x direction

We will continue excavating to ~ 10 or 12'
below the surface of the landfill.

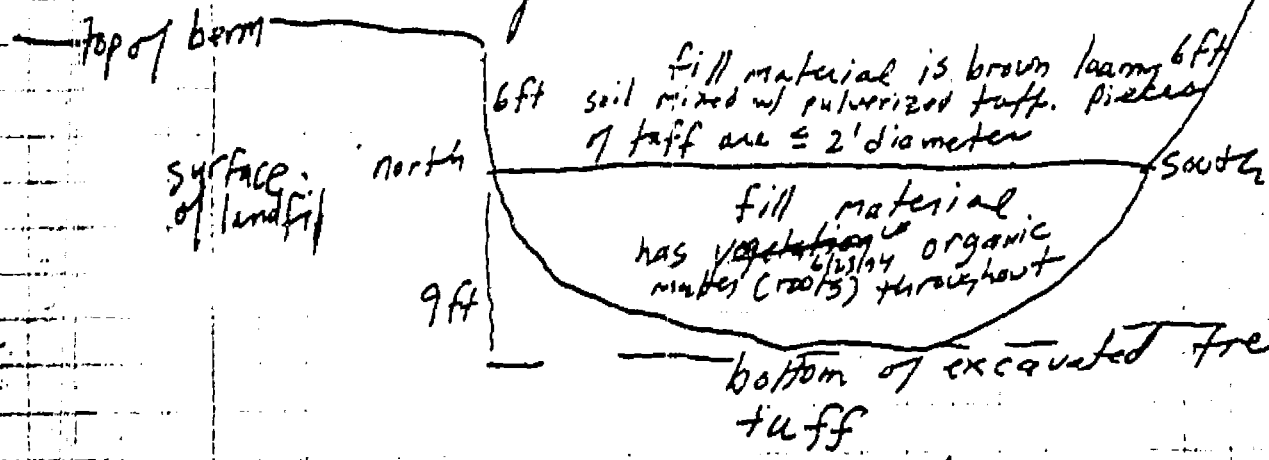
1420 Starting to dig up fine tuff - tephra material
Photo 10 which is what is found on the surface level
We think we hit near bottom

Photo of tefra from the very bottom of trench

We took dimensions of trench

y
6ft

1435 Filling up the hole.
Took measurements again after excavating more



dimensions of trench:

20 ft north/south into berm
2 ft wide
15 ft deep

Found a large metal mat (dimensions ~ 6' long & 4' wide) when returning fill back into hole. This mat was dug up from side of berm where the fill material was placed. (IE it was not excavated from the trench) It was brought up from beneath the surface of the berm adjacent to excavated trench. The mat showed background counts of rad using the βγ direct reading instrument.

photo 13

returning fill material to the excavated trench.

1500 Collected a sample of soil from adjacent & surrounding the metallic mat
B43-6 - photo 14

Filled in trench
Decoupled backhoe

1700 Left site

South Site Berm 43

6/24/94

0800 Field Team Member: Lynn Kidman
Reviewed field notes trying to reconstruct finding of metal mat at trenching site yesterday. Interviewed field team members Linda and Kenny Hinsel last night. Linda said that when the mat was first uncovered with shovel it looked like a manhole cover (only a small portion was visible in hole). The visible surface was flat and was oriented parallel with the surface of the landfill (not the sloping surface of the berm). Both Linda and Kenny said that the location where the mat was found was near where the berm and landfill meet and it was not obvious whether the mat was in the landfill or on the surface of the berm. However, Kenny felt that the mat was most likely in the landfill material - Linda a
Took Photo 15 to East of mat, Photo 16 to approx. East from SW corner of landf

0900 Took Photo 17 from SW corner of landfill after marking spot where mat was first discovered (Mike Powell arrived and identified location) photo was to the Ea
Mike said that he first uncovered a small section of the mat with a hand shovel. He dug a hole through the excavated material about a foot in diameter and 3½ feet deep. He thinks the mat was barely below the original surface. The portion of the mat that he uncovered was flat and laying level.
Took Photo 18 from the SE corner post of the landfill towards the NE corner post of the landfill.

0930 Taking film into LA for development, Mike is remaining at site to swipe backhoe.

Trenching at South Site

6/26/94 Field team members: L. Fluk, M. Powell, C. Flynn,
0730 K. Aamodt, A. Coriz, Nancy Ness

Weather: HOT, sunny, clear, still

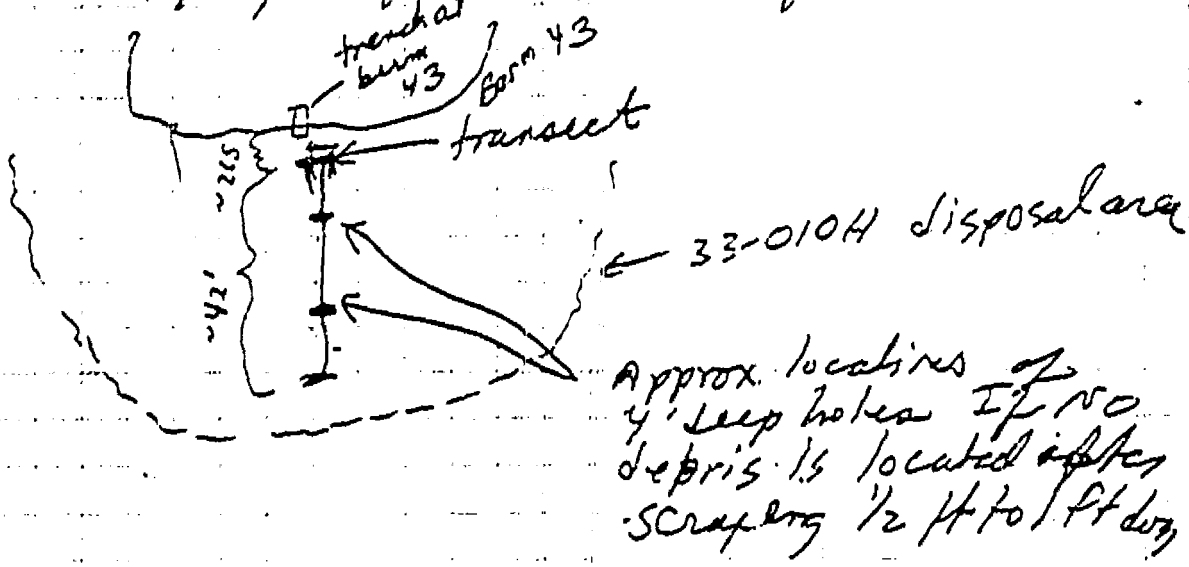
We will trench at 33-010 H today
Filling up water
Setting up bottles, paperwork

0830 Tailgate Safety Meeting
All signed.
Eric Koenig will work with Paula Watt

Sampling team in EZ
0945 sampler: N. Ness
0950 documenter: K. Aamodt
HPT: M. Powell
backhoe operator: A. Coriz

The generator will not start
must have flooded it
Got generator started
Start trenching at 33-010 H.
Ambrose is using front end of backhoe
scrape 1/2 to 1 ft. from entire transect.
This transect was located the other day
(refer to pg 73 of field notebook). If any
debris or material is found in scraping
we will dig a 4 foot deep trench at this
location. If no debris is found then we

Two locations will be located ~ 1/4 & 3/4 way along transect.



1130 Note: Our dust suppression system is not sufficient enough to keep dust down during the scrape activities. The backhoe operator was able to scrape down 3 to 4 inches down along transect. The HPT was dissatisfied with dust suppression so we will not continue to scrape deeper. The team observed & walked the transected/scraped area. - No debris was noted. We will excavate at the above noted area.

The entire transect is approx. 42 feet in N-S direction. This transect extends starting ~ 26.5' south of

1515 Bill Baird Alan Martin visiting with
hand held optical spectrometer
excitation source is mercury lamp
excite w/ UV & look at optical signal

2 ft long cord for collector &
excitation source held to eyes

Can detect: 480-570 nm - should detect Ur
would be detecting surface soil
photo diode array detection
10^{-7} M U in solution
unknown detection limits in soil
resolution down to .2 nmeters
253 nm is source wavelength

Will continue trenching tomorrow
left site
1800

Trenching at South Site

6/9/94 Field Team Members: L. Fitzk, M. Powell
730 C. Flynn, K. Aamodt, A. Corizé, K. Hansel,
L. Kidman, J. Roberts

Weather: Warm, sunny, clear

There was a meeting yesterday afternoon betw. L. Kidman, K. Michelotti, K. Campbell, J. Turen. Discussed sampling scheme for the berm by trench 25. We will be collecting more samples:

We will take 4 extra samples in the trench & 5 extra surface samples on the berm. These will all be randomized.

825 Tailgate Safety Meeting

These trench locations will be surve
in at a later date. The documenta
will document approximate locations
in sample collection log books.
We will excavate 3 buckets at a tim
and team will sift through excava
soil (as was done in berm 43).

1145 3 buckets removed - material was
checked out - no debris - No elev
rad readings
We are scanning every bucket (instea
every third bucket.
Seventh bucket - Depth = 4 feet
Will sample at 4 foot depth

1200 Sample 010H-1
No HE, no elevated rad

1205 Filling up hole with the excavated soil.
When finished filling the hole the back
bucket is sprayed clean with the hig
pressure sprayer. This is part of ou
dust suppression. It is sprayed clean
right on top of the excavation loca

Note: Excavated soil is placed upwind from the
backhoe activity. And samplers stand up

1220 Starting to excavate at 010H-2

1300 Sampling team finished trenching & sampling
Filling up water tank
decontaminating sample bottles

~1400 Roy Bohn at site
Dave Bradbury at site
1415 Roy & Dave left site
1430 I talked w/ Rebecca Eaton (CST-9)
She said we could put C137 in 500 ml pl w/ HNO_3 and total Uranium in a 500ml P. bottle w/ HNO_3.

1490 Part of sampling team off to NRAO to collect samples.
SSO: C. Flynn
Sampler: N. Ness
documenter: K Ramodt

Note: Rad is not a PCOC so the HPT will not go out with team. However Mike (the HPT) was out to sample locations & monitored for rad earlier - No rad detected.

Randomized Sample locations for 007B on top of Berm. (Starting from SW corner - dimensions 68 N/S & 90 E/W

007B-6	45N, 51E	
007B 7	14N, 7E	
007B 8	34N, 63E	

NORTH

NORTH

Samples collected today

SWMU	Time	AA #
010H-1	1200	
010H-2	1230	
004M-3	1540	9820
004M-4 VF 6/21/94	1550	9821
004M-~~5~~ 5	1558	9822
004M-7	1520	9824
004M-8	1530	9825

Change to samples taken at berm by berthe, 007B. (Spoke w/ Lynn Kidwan) Ignore info page 86.

2 biased sample by DU

re-random

007B-6 9689 0-1" } Same location
007B-7 9690 1-6" }

007B-8 9691 0-6" } random w/in 8' of cut. 14 from start of trench, 1.
007B-9 9692 0-6" } random " 7 ", 2

007B-10 9693 drainage

007B-11 9694 drainage

007B-12 9695 drainage

Stratified random samples

randomized

	Depth	Height
007B-1	4 ft	5 ft
007B-2	7 ft	4 ft
007B-3	11 ft	4 ft
007B-4	17 ft	6 ft.

Set up area for sampling berm
We are wetting down the berm area
w/ a sprinkler system (wet slowly)
a few hours.

1800 Left site

Trenching at South Site

6/22/94 Field team members: L. Fox, C. Flynn, M. Powell, K. Hansel, N. Neck, A. Coriz, L. Kidman

0730 Weather: HOT, sunny, still, clear

0800 Claudia Trujillo & Pat Lafratte at site

0900 Clarita Trujillo & Pat Lafratte left site

getting more water

We have been wetting down the berm area w/ sprinkler system since 0745 this morning

0905 Tailgate Safety Meeting for 007B trenching

personal air sampler worn by:
backhoe operator
dust suppressor

miniram worn by sampler

personal air pump filters will be analyzed for Be, Pb, Cr

We have a signed RWP for this work at this berm (as well as for work at 33-010C).

We will be running air sampler (Giraffe mon (provided by ESH-1)

We will take regular drink breaks.
Every person must wear 2 pairs of
Vinel gloves. Decontamer should
then wear cotton gloves over
vinel gloves
All signed off

1040 Roto 1-4 Start

1040 Sampling team in EZ
Sampler N. Ness
dust supressor: K. Hanoch
HPT: M. Powel
backhoe operator: A. Carey

C. Phish will be decontamed in the EZ
Samples are placed directly in
a big plastic bag in the cooler
This is done by HPT.

1130 Finished collecting surface samples.
Team will take a re-hydration break
HOT DAY!

1150 Team out of EZ.
The motor on the high pres. sprayer

Sample	Time	AAA #
007B-B6	1050	9689
007B-B-7	1058	9690
007B-B8	1120	9691
007B-B-9	1128	9692

1305 Sampling team back in the EZ.
We are going to try the electric rec
high pres. spray (New motor).

Note: The camara was adjusted now with the correct time and date. All photos prior to today have the incorrect date & time.

1320 John Elliott & Larry Pacheco (ESH-1) arrived at site
We are wetting down the area w/ the high pressure sprayer.

1325 Starting to trench.

1355 John Elliott & Larry Pacheco left site. John will be by tomorrow with forms and tags for the radioactive samples. We will put a note on IOC about elevated readings.

piece of DU aside. (Came out of 2nd bucket)

* photo 16 → piece of DU excavated from the trench,
photo 78 w/ display → Another piece of DU noted ~ 8" down side of trench. ~ 3' more in from 007B-3 sample location

Found a piece of Shrapnel } From bucket
Rad reading = 500 cpm/BG } ~ 11 feet, 4 feet

We are excavating 2 buckets at a time then the team is sifting through the material (as per the other trenches)

1456 1.4 Roto turned off

Samples collected this afternoon.

	SWMU	time	AA#
0052	007B-B-1	1340	9685
	007B-B-2	1350	9686
	007B-B-3	1407	9687
	007B-B-4	1450	9688
0054	007B-10	1500	9893

Samples to be collected today

To fill out later

SWMU	AAAF	ID	Comments	time	
~~007B-10~~	~~9893~~	~~33-1490~~	~~drainage~~ UF 6/29/94	already collected	
007B-11	9894	33-1491	drainage	(0854) (0905)	
007B-12	9895	33-1492	"	IN	Above
007B-13	9896	33-1493	trench	6ft IN	4ft (935)
007B-14	9897	33-1494		12ft	5ft (100)
007B-15	9898	33-1495		17ft	5ft (1015)
007B-16	9899	33-1496		24ft	7ft (1100)
007B-17	9900	33-1497	surface	7ft East of centerline	UF 6/29/94 10 ft IN
007B-18	9901	33-1498		20ft East	45ft IN
007B-19	9902	33-1499		17ft East	30ft IN
007B-20	9903	33-1500		11ft West	40ft IN
007B-21	9904	33-1501		16ft West	28ft IN
007B-22	9905	33-1502		27ft IN	5ft above

Sampling team in EZ to collect samples
Sampler: K. Hamel
documenter: K. Aamodt
HPT: M. Powell
backhoe operator: A. Coriz

1920 Rob 1.4 = 2 afm (grafe sampler). start time!
924 I spoke with Stephanie levato about unique #s for notebooks from RPF
59: Field Sampling Notebook
60: H&S Notebook
61: Rad Notebook

Bill Baird & J. L. (Alan) Martin are here today to use the optical spectrometer.

Derek is in the EZ using the instrument Bill is in the SZ. They will take readings of each sample in the sample bowl.

The HPT found DU & put it in a bowl to be measured using this instrument.

Note: L. Pluh has been documenting on the Sample Collection log forms. Info is given to me by K. Hansel who is in the EZ. (I am in the SZ doing)

Note: We are taking note of DU IN the trench & will start bagging DU found in trench.

1015 Orlando Archuleta & Larry Sherman (CST-7) picked up bio hazard waste.

1015 John Elliott at site.
John gave us tape "Caution radioactive material" to put on the bags which have rad samples.

1035 Piece of DU removed from w/in trench is ~ 1" diam in size. Taken from approx location in trench 20-24 feet IN and 5-7 ft above surface. Reading ~ 100,000 cpm

John Elliott is looking at this piece of DU w/ Eberline instrument. Ion chamber R03C

β dose rate = 4½ mR/hr. on contact } through
γ dose rate = 0.3 mR/hr on contact } ziplok bag

This DU was bagged in a ziplok bag

1105 Finished collecting samples. Will continue trenching to characterize. that 24 ft IN, ~8 ft high

1115 Samplers leaving E.T. for break (very HOT) lunch, & will continue characterizing excavated material after lunch.

630 Leaving Site

John Elliott

Trenching at South Site

6/30/94
0730 Field team Members: C. Fluk, M. Powell, C. Flynn, K. Hamodt, A. Coing, K. Hansel, T. Robert, Lynn Kidman.

Weather: warm, sunny, clear

Note: Yesterday we checked on both Satellite Storage areas: At east site and at South Site. All was in good shape.

We set sampling stakes for 33-010 C. Six samples were randomized - we will collect surface samples - we will not trench.

Note: Re-randomized sample 007B-20 because its first location was on the north side of the berm and the DQOs state it should be located on the backside of the berm.
Re-randomized: 11 ft. west 51 ft In front of berm

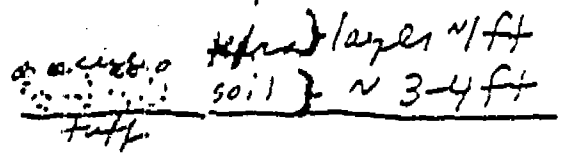
0830 We have 2 teams sampling & trenching this m
Team 1: Trenching at South Site
Characterizer: K. Hansel
HPT: M. Powell
Backhoe operator: A. Coing
Spectrometer operator: Derek Marlen

Team 2 Sampler: K. Aamodt } Sampling
SSO: C. Flynn } NKAO
FTM documenter: L. Kidman

0845 Sample team 1 in EZ
0860 Roto on
0850 Bill Baird at site.
0852 Dorothy Hood at site.
~0915 Team #2 completed sampling at NRA
0920 The backhoe operator is not able to dig any deeper IN than 28 feet because it can not move the backhoe up any further & can not extend the bucket any further.

We will stop at 28 ft IN

Hitting a little above the ground surface of parking lot



1800 K. Aamodt & C. Flynn finished sampling at NK went into EZ by bunker 25. and are collecting surface samples on the berm. The AOT is screening everything is with samplers. During sampling, the backhoe is not operating & K. Hassel is walking from area.

SWMU #	time	AAA #	Site ID
007B-21	1050 6/30/94	9904	33-15
007B-20	1105	9903	33-15
007B-18	1115	9901	33-15
~~007B-22~~	~~1450~~	~~9905~~	~~3373~~
~~007B-23~~		~~WF 6/30/94~~	
004M-6 (new location)	0830	9906	
004M-9	0850	9826	
004M-9C	0910	9827	
004M-11	0900	9829	
004M-10	0845	9828	
007B-17	1140	9900	33-
007B-19	1115	9902	33-

0058

Found some material in the trench

WF 6/30/94 1 piece of wood ~ 28 ft IN ~ 58

1 " ~ 17 ft IN ~ 5

1 " ~ 11 ft IN ~

charred wood (ash-charcoal) ~ 11 ft IN

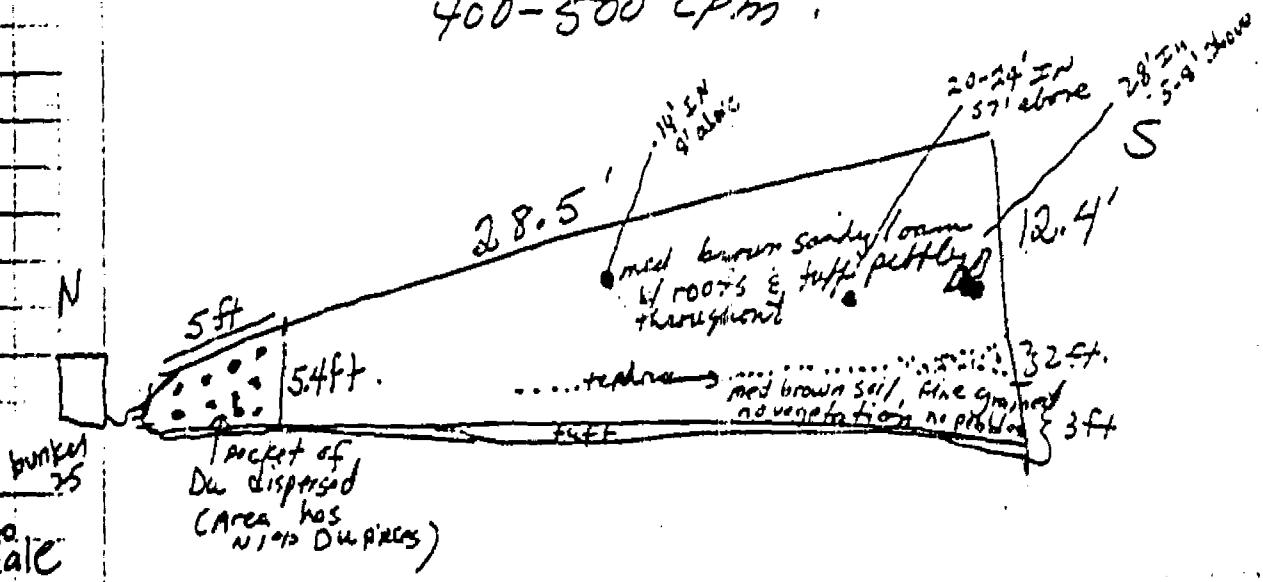
1345 Tailgate Safety Meeting
All signed off

1355 Going back in the EE to complete the trenching excavation

1320 [illegible] E2

1500 Removed from trench - A lot of DU!
0-3 ft IN, 1 ft above tuff surface
uncovered a lot of DU
15,000 cpm
Another count = 80,000 cpm
1 bucket 1.6' x ~2' w/ DU ~ 1%
in the soil matrix.

Removed 3 more bucket At very toe of berm
counts in soil averaged 200-300
DU is diluted in the soil. There are
pieces of DU throughout, some re
400-500 cpm.



1600 Out of EZ
We are out of film - so we can not take any
pictures w/ polaroid. The 35 mm camera battery
is dead so we can't take pictures.
We will fill in trench & document with
pictures tomorrow.
Dimensions of trench is 28.5' N/S

we bagged up the pieces of wood and charcoal and we bagged up the big pieces of DU. Then when we hit the pocket of DU, we did not try to sep this material. We could roughly estimate ~ 4 buckets of material contained up to 3/4" diameter & made up roughly 1% of the material.

5.4
5

1730 Left Site

[illegible]

Trenching & Sampling at South Site

0730 Field team members: L. Fluk, L Kidman, M. P
K. Aamodt, C. Flynn, K. Hansel, A. Coriz, J. R

Weather: Warm, sunny, clear

Today we will finish filling in trench - Irst fa
pictures.
We will also sample at 33-010C

We will not fill in trench until Ray Michelotti
gets to the site to check out the open trenc

we are setting up CRZ at east site.

0755 Tailgate Safety Meeting

When we are backfill

1045 Collected samples off from 33-010C
Sampler: K. Aamodt
Documenter: L. Fluk
HPT: M. Powell
collected all sample

1125 Out of EZ. Finished sampling

1160 At site: Ray Michelotti, Dorothy Hoard, Virginia Smith,
Jake Turen, K. Campbell. Met w/ Lynn Widman to
discuss plan of action for trenching - at
berm by bunker 25.
They decided to do some more investiga
& eventually more trenching. The reaso

1130 L Fleh, M. Powell got to area E joined in discussion. I expressed my concern that we may not want to (or be able to UFR) this berm. If this is the case, then we do not need to investigate any further.

All agreed: We will take 2 more samples (biased) from the pocket of contam. Material. Will analyze for Cs137, metals, explosives, and 1 sample will be analyzed for total uranium, the other sample analyzed for isotopic uranium.

1500 Finished collecting 2 samples from the contaminated area within the trench.

1502 Filling in the trench

Photos ~1400 #s 4,5,6,7 Photos of trench at bunker 25 looking south. trench is 28.5'/ozy & 12.4' deep at deepest. Taken by L. Fleh.

~1500 Photos 15-18 trench from the South. Taken by K. Hanse

Note: AAA 9690 was ~~relinquished~~ 7/1/97 given back to Kristi Aemodt by Shawn at Rad Van. This sample contained 1,437.24 pCi/g beta - This action exceeds the building limit for CST-9 & therefore they can not take the sample inside their bldg

1600 I spoke w/ Kyle at CST-9 who told me there 2 options:

1. We drop the sample off to CST-9 - to loading dock. Then CST-9 delivers sample to TA-50 (which has a higher building limit for rad).
2. We drop the sample off to CST-9 loading and CST-9 packages the sample & stores it LOCKED & secured OUTSIDE. Then CST-9 will send sample off to an off site for analysis.

Either way we must call someone at CST-9 ahead of time, to set up a time meet. In the mean time, this sample is secured & locked up at TA-33

1630 The trench was backfilled
cleaning up site

1530 left site

7/5/94 Field Team Members: L. Kidman, K. Aamodt, K. Hansel, C
07:30 and M. Powell and A. Corie
Weather - hot dry - moderate wind - no clouds
Getting equipt. ready - screening out of Bld. 25 Berm ac

08:30 Tailgate Safety Meeting
We are going to try and locate the East Site Drainfield while it is still relatively cool, then finish deconing and scanning rest of equipt., CRZ, garbage, etc. out of South Site later. Mike, Kenny, Kristie, and Cornelius are going to East Site Drainfield while Lynn and Ambrose move support zone to East Site.

10:30 Trailer and Ryder truck set up at East Site, crew has dug 3 short trenches trying to locate drainfield. Decided to dig shallow trench across expected location to look for signs of back indicating the location of the drainline excavation. In setting up wa for dust suppression, it was found that the water supply at East Si is insufficient to supply pressure washer. We will truck water from M as we did at South Site.

Jeff Gray from the RALLI project came over to the support to see what we were doing. He was interested if we would be wo at night with lights. All of their operations will be at night and th

the need.

11:30 Brought the backhoe over from South Site. Will take rinsate sample from bucket before using again. Going to get set-up and take samples from septic tank after lunch. Called Dorothy Hear. about the backhoe approach. She talked to Roy who approved the approach if we take

1:00 In taking septic tank samples, no sludge was found — only small amount of gravel but not enough for a sample.

2:00 Dug 2-3' deep trench across drainfield area approx. 60' in length. Did not find old excavated trench as expected. Instead found approx. 25' of fill material in the trench indicating that the drainfield was probably excavated with a dozer, laid out, and then backfilled. Tried to contact Roy and Dorothy ~~with no luck~~ RLK 7/5/94 but could not reach them. Decided to take the drainfield samples in the excavated fill section of the trench with one in the middle and the other two halfway between the center and the end of the fill.

4:00 Finished taking samples from drainfield — trench backfilled

Plan for tomorrow's samples at Berm 007a —

take randomized samples at ~~7'~~ RLK 7/5/94 intervals — Going back to 7' I. as only 3 samples for berm material two are for project

	Distance To	Elevation	
007a-1	~~1'~~ RLK 7/5/94	~~3~~ RLK 7/5/94	proj.
007a-2	~~5'~~ RLK 7/5/94	~~6'~~ RLK 7/5/94	proj.
007a-3	5' ~~12'~~ RLK 7/5/94	3'	
007a-4	9' ~~19'~~ RLK 7/5/94	4'	berm
007a-5	10' RLK		berm

7/6/94 Field Team: Lynn Kidman, Kristie Ramodt, Cornelius Flynn, Ambrose Corie, and Kenny Hansel, and Mike Powell

0700 Lynn and Mike went to South Site to scan out equipt. needed for trenching today.

0800 Laid out sampling locations and prepared sample bottles and paperwork for sampling. Filled water tanks, positioned equipt and hoses for dust suppression

1000 Gerry Kelly came out to observe operations.

11:30 Ray Michelotti, Jake Turin, Brad Martin, Don Hickmont, Jorge Jansen, came out to observe operations. They observed trenching, scanning, decon, and chain of custody. Went to South Site at 1:00 to see Berm 25 contamination and lift TH-33 at ~1:30.

Collected 3 random samples from 007a as no signs of contamination were found (debris, metal, stains, etc.) to base biased samples. No elevated rad or organics observed.

0400 Samples (containers & paperwork) for tomorrow prepared and crew leaving site

0500 Filled water tank in Green truck. Ray called requesting that we buy another metal detector.

0530 Leaving Site to Radio Shack.

4/12/94

0700 Field Team: Lynn Kidman, Cornelius Flynn, Kenny Hansel, Mike Powell, Ambrose Lorenzo

Plan for today is to dig trench at 0066. Randomized sample

	In	Elev.
0066-7	6'	7'
0066-8	7'	6'
0066-9	15'	7'

0800 H&S Briefing

0830 Team entering E2

0930 Starting to dig trench. Found 2 broken backhoe teeth - no rad readings.

1015 Found piece of projectile - took sample. Having much difficulty digging due to large rocks in berm. Will widen trench in an attempt to go deeper.

Clovis Martinez called to say the audit report is finished. He will fax a copy to the field trailer.

1120 Found 2nd projectile piece in berm - took sample & photos

1230 Found 3rd + 4th projectiles - took sample & photos

1245 Broke for lunch

1640 Cleaning up site - preparing documentation for tomorrow

3 random samples for east side of double berm:

	In	Elev.
0066-18	5'	7'
0066-19	8'	2'
0066-20	20'	8'

1630 Left Site

7-7-94

9:15 - started trenching at top

9:16 - at 18 ft in the ~~the~~ trench ~~at~~ at 12 ft elevation a metal object was found. It is presumed to be a old. backhoe tooth.
Photo # 1

9:24 - ~~at~~ from the pile 16 ft in the trench ~~at~~ at 12 ft elevation, another backhoe tooth was found by the metal ~~detector~~ detector at ~~[illegible]~~ 1.5 ft under the pile
Photo # 2

~~9:59~~ 7-7-94 ** #006B-5

10:08 - found a metal object, looks like a piece of projectile, no radiation levels, bucket came ~~80-120~~ from 10 ft in at 7 ft elevation within the trench
Sample was taken from the soil. Sample # 006B-5
- Time 10:18 - Batch, gross pre sample reading 80-1[illegible] cpm
post sample reading 80-1[illegible] cpm
- HETEST neg
- soil description - tuff pebbles, gravel or cobbles (gray) up to 2 inch diam. (15%), fine roots, sandy loam, light brown, dry

photo # 5 facing to the North (sample location from bucket)
photo # 6 projectile
photo # 7 trench (where bucket came from)

7-7-94

[redacted]

11:40 a metal object was found from the bucket 006B-5
8 ft in 7 ft elevation of trench
no rad levels.
soil sample was collected # 006B-~~16~~ 16 7-7-94 KH
11:45 sand/loam / light pebbles (30%), a little organic material (roots), light brown, dry
- post sample screening 80-100 Beta gamma cpm
pre - " " 80-100 "

HE TEST - neg
photo # 8; facing North (sample location on pile)
photo # 9; trench where bucket came from, facing to the South
photo # 10; object

12:15 - a metal object was found from the bucket
6 ft in 4 ft elevation of trench
no rad levels
12:18 - soil sample was collected # 006B-~~16~~ 17 7-7-94 KH
sand/loam gray light pebbles (30%) a little organic material (roots), light brown, dry
pre sample screening - 80-100 cpm beta gamma
Post " " 80-100 cpm " "

HE TEST - neg
photo # 16 facing to the North (sample location on pile
" " 17 " West trench
" " 18 object

12:25 7-7-99 ~~[illegible]~~ a metal object was found in the same general location as the early one at 12:15 so the soil sample 001 will be used for this object no rad level were detected

photo # 19 object

---

photo #20 trench facing to the south

21 " " north

12:50 finished training

7/8/94 Field Team: Lynn Kedman, Ambrose Corie, Kenny Hansel, Mike Powell, and Cornelius Flynn

0700 Weather: Few clouds, sunny, cooler than previous days but windy

Setting up on East section of berm at East Site. Same as yesterday.

0800 Tailgate safety meeting

0830 Team entering EZ

1100 Finished digging trench and collecting samples. No debris or project

Found today - collected 3 randomized samples 06B-18, 06B-19, and 06

1330 Filling in trench and marking sample locations

1430 Submitted samples to Red Van. Filled up water tank

Was notified that next week we could not get access inside secure area to turn on & off water hose.

1630 Leaving site

10/7/94

0700 Field Team: Lynn Kidman, Mike Powell, Kristie Damoth, Ambrose C.

Prepared gatorade cooler for walkover at OU1140

Has been very windy over weekend - tarp is on roof of bldg. and shade legs are broken.

Decontaminated and tore down CRZ from South Site

Cleaned up South Site, filled water trucks, did maintenance on backhoe, got diesel to fill backhoe, prepared Area 6 samples deconned backhoe and set up for anomalie digging tomorrow.

Did post work surveys at South Site in preparation to close out RWPs.

- Did not sample today as Kenny Hansel is sick and L. Kidman is at TH-46 walkover.

1430 Left Site

7/10/94 Field Team: Lynn Kidman, Corneline Flynn, Kristie Hamodt, Mike Powell, Manly Lee, and Ambrose Corie

0700 Preparing for sampling anomalies at West end of East Site dallas berm. Added two samples to database. Will also take samples at 004.

0800 Tailgate Safety Meeting

0830 Team entered EZ to collect the hand auger samples next to the septic tank.

0915 Team went to anomalie location and dug an 18' long by 8' wide by 8' deep hole centered on anomalie #3 stake. Each bucket was screened for rad and metal detector and visually. The hole was also scanned with the metal detector. Nothing was found.

1000 Moved to other anomalie and dug a 20' long by 10' wide by 15' deep hole. Used procedures and got the results described above.

10:30 Dorothy Hoard came out to observe. I called her earlier to discuss criteria for stopping if nothing was found. At that time it was decided to continue digging to tuff. Both holes were dug to tuff.

1130 Preparing to move to Area 6, - decanning equipt., waste management, packing, etc.

Sampling at Area 6

30 Moving from East Site to Area 6

Field Team Members: Luke Fluke, Mike Powell, Manly Lee, Kristi Aumodt, Ken Hansel, Ambrose Coriz, Cornelius Flynn

Weather is Warm, sunny, clear, still

Randomized locations for catcher Box samples

Catcher Box #1 (left box) (east ~~west~~ of 7-1999 box)

IN	Elevation	AAA #	Site ID
5	8	9913	33-1512
10	6	9914	33-1513
19	7	9915	33-1514

Catcher Box #2 (west ~~East~~ of 1999 box)

IN	Elevation	AAA #	Site ID
3	2	9916	33-1515
7	6	9917	33-1516
18	6	9918	33-1517

We will also collect 3 soil samples from each Catcher box.

Setting up Area 6 for trench work

045 Tailgate Safety meeting

We will be removing All of the mat
from the catcher boxes. The soil will be
placed on a tarp. Wood from the
catcher box will be placed on a
separate tarp. When finished
The material will be stored on the tarp
and will be covered with tarp when
finished.

We will separate out pieces of det
projectiles, etc & collect biased sample
from locations around the projectiles and
debris.

1115 Sampling team into EZ
Sampler : K. Arnodt
HPT : M. Powell
backhoe operator : A. Coring
SSO : C. Flynn
Soaker, dust control : M. Lee

1145 removed wooden catcher box structure -
put wood on tarp
Material is monitored &
1st sample 0073-16 (~3ft IN 2ft AG
collected sample. Metalic object found!

1135 Found 4 metal rods inside berm at catcher box #2. Sizes range from ~3/4 ft to 3 ft. Found in 2 separate locations close together in the berm. Took photos of the locations. The rods are Not radioactive.
Sampled next to each of the 2 locations
Bagged up the rods when finished.

Location 1
3 pieces of (cylinder) tube ~ 3/4 ft long, 2" diameter
1 cap to the cylinder

Location 2
1 piece of cylinder ~ 1.25 ft long, 2" diameter

The Sampler made a map of the pieces & their locations in the catching box

1210 Continue to excavate.
Found DU: 1 piece ~ 1" diameter & smaller pieces
Approx. location 3-5 ft FN, 0-2 ft above ground sur

We will stop excavating.
The HPT will contact ESH-1
Will cover up piles of dirt & continue
labs.
[illegible] stop activities for

Mike Powell called ESH-1 Claude Trujillo
Pat Lefrafe. Found 13,000 cpm covering
1 square ft area of extracted material.
Found 1300 in another area 1,920 in a
area covering a few square inches.
Mike will need to write an RWP to
continue work in this area. We will n
continue working till the RWP is signe
off by ESH-1.
Mike wrote the RWP and ~~bro~~ brought
over to ESH-1. We hope to continue work
tomorrow with the signed permit.
L. Pluk talked w/ Dorothy Hoard about ou
findings. Dorothy called Roy Michelotti. Ro
& Dorothy decided it would be best to
fill in the excavated area from the ~~cash~~ wash
cat
trench. First thing we will collect a
soil sample from the 1 sq. ft. area where
DU was found. This sample will be pu
aside - to be possibly analyzed at a la
date. We will then attend to working
a corrective measures for the catcher box

7890153

51449
Smith
JCF

w/ excavation at the western catchers box.
We will use the same strategy at this catchers box. If we find pieces of debris, projectile, DU, etc. where we believe there to be a problem, we will abandon the excavation procedures.

Left Site

Reserved for Future Work - Changes to

1. East site Septic system samples must be su
   and info given to FIMAD
2. The new trench locations (front to back) w
   dimensions for all 3. East Site berms
   be Surveyed & info given to FIMAD
3.

Excavation at Area 6

Field Team members: Linda Fluk, Mike Powell, Manly Lee, Cornelius Flynn, Kristi Aamodt, Ken Harrel, Ambrose Coriz

0730 At site.
Weather is sunny, clear, still

0800 Claudia Trujillo at site. We have a signed off RWP to continue excavation work at catcher boxes

0835 Tailgate Safety Meeting
Today we will wear tyvek, double gloves & tape up to work in EZ. Will run an air sampler.

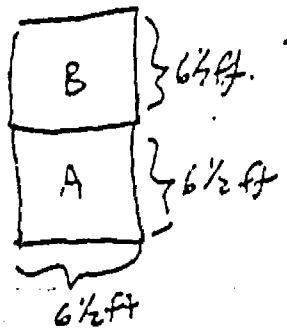
We will leave catcher box #2 open today & will start working on catcher box #1.

NOTE Cylinders from yesterday catcher box 2 located approx 7 feet IN, 4 ft above surface
3 pieces found west, 1 piece found east
N 2 ft apart

0900 Team into EZ
Sampler: K. Aamodt
HPT: M. Powell
dust suppresser: M. Lee
backhoe operator: A. Coriz
SSO: C. Flynn

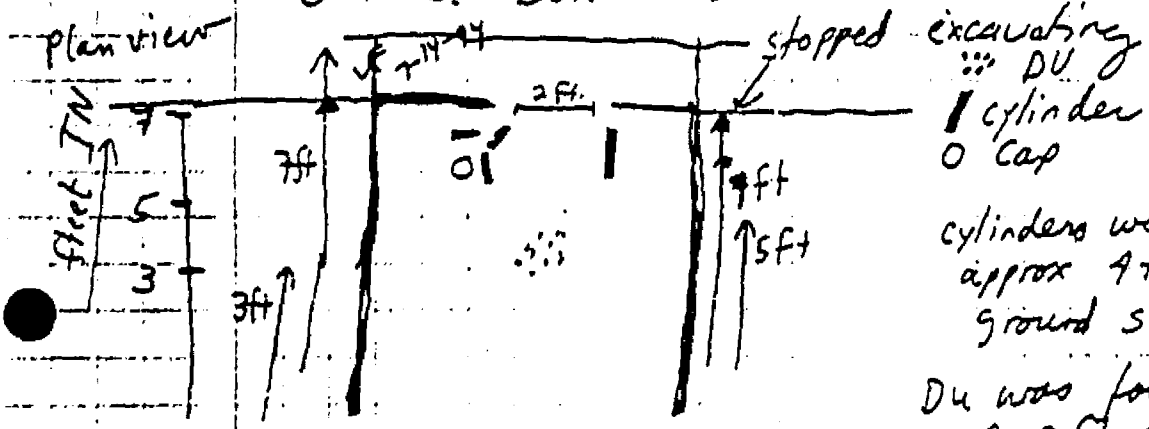
1030 Started knocking down the catcher box structure. While digging through the area the team spotted a rodent nest. The area was not been well. The nest was removed.

Catcher box #1 is a solid wooden structure built in 2 sections with metal supports structures. This is diffi to tear down w/ the backh



5261

Catcher box #2



cylinders were found approx 4ft above ground surface

DU was found approx. 0-2ft above ground surface

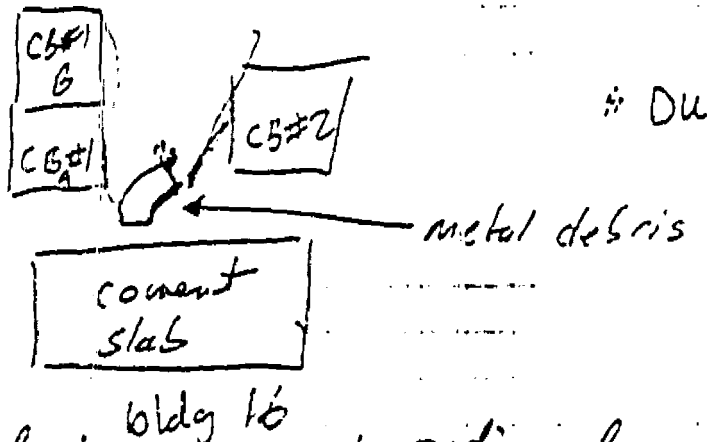
1140 Team out of E½. Finished taking appart Catcher Box #1, section A (CB#1A

1230 Larry Souza, Tim Ickes, Cloves Martinez visiting site. They will drive out to East and/or South Site to inspect the Satellite storage areas. Reported back that the satellite Storage area looked O-K

1330 Left site

1335 Found a large part of a cylindrical

the 2 catcher boxes.



* DU = 140,000 cpm

The metal piece was not radioactive. Collected a soil sample adjacent to where metal piece was found.

1345 Take Turin off site

1405

1410 Rebecca Eaton called w/ problem of not being able to process samples. If CST-9 misses holding time, should CST-9 send off to lab for analyses. Rebecca said quality of data has not gone down when exceeding holding time.

1412 OFF the phone because of injury incident —

1415 Cornelius Flynn stepped on a rusty metal file the tip of file went through his boot and into his foot.

1415 The HPT quickly took off Cornelius's overboots & screened him out.

[illegible] 1st aid [illegible]

MKJ 7300

Now filling out paperwork.

1435 I called Ivan Uhchley & Virginia Smith about injury. Virginia will contact Cathy Creed (HS-5).

Cornelius had been walking on flat area & got a metal file stuck in his outer bootsy. When he put his foot on the ground the metal tip of the file penetrated through his sole of th shoe & through his foot.

1400 Photos taken #26,27

Facing to south. Large metal object found Soil between 2 catcher boxes. Taken by Ken Harsel

1750 Left Site

Area 6 Sampling

7:94 - Field team members: Cal Fluke, Kish Arnold, Ken Harvel, Cornelius Flynn, Mike Powell, Ambrose Cowan, Manly Lee.

7:40 Cornelius Flynn is back to work today

Weather is warm, sunny, clear, still

Dorothy Hoard & Roy Michelotti at site. We discussed plan of action for the catcher boxes. We will not excavate further since we know that there is contamination in the areas which exceeds action levels. We will wait to do corrective measure actions. So we will backfill the areas and put tarps over the piles. We will leave the wood piled where it is and cover it with tarps. Roy will talk with someone at Program Office or CST-8 to determine what to do with the excavated material from catcher box #2 which was contaminated

1-9:15 I spoke with Rebecca Eaton (CST-9) about the samples of ours which had exceeded the holding periods. She said the only samples of ours which have exceeded the holding period are AAA9713-9718, AAA9907-9908. These are soil samples to be analyzed for HE at DX-16. The holding period was up yesterday (the samples were collected 7/1/94). Rebecca

1 day. Rebecca also said that HE soil s
which are frozen (like our samples) can s
in freezer & have a holding time of ~ 8 weeks.
I spoke w/ Roy. He said to get the
samples processed today.
Rebecca said she would process samples f
And if any other of our samples exceed
holding time, she will let us know.

~0945 I spoke w/ Roy on the phone. He had
spoken with someone at the program office a
puting contaminated soil back in catche
Roy was told that we could return th
contaminated soil into the catcher box.
We agreed that we would separate the
contaminated soil & put it on a tarp
cover it w/ tarp and then pile the clean
on top of this. This way the contaminat
soil would be segregated.

Team into EZ to put material
back into catcher box.
Starting with catcher box #2 (West)
A tarp was put on bottom of the
excavated area. The known contaminated
~~[illegible]~~ soil was put inside this tarp.

500-1310

photos 9,10

Looking South at catcher box #2
Putting soil back into excavated area.
Taken by L. Flute

NOTE: While the team was putting material back in catcher box #2 area, they noted there was scattered Du throughout soil. It is obvious that we have not separated out the contaminated soil from the non-contaminated soil. So the material that is piled on top of the tarp with known contaminated soil, also has some contaminated soil. This material will have to be carefully screened during remediation.

500 Cornelius Flynn talked w/ Paula Whitehead (ESH-5) about filling out an incident/injury report for his accident yesterday. He was told that we do Not need to fill out the Supplemental Injury/Illness report FIS Form 1-13 because ESH-2 report will be submitted to ESH-5 ∴ We did not fill out this form.

1515 photos 11,12,13,14

Looking South Badge filling Catcher box #1
taken by L. Flute

2 to 5 [illegible]

to free release
1700 Leaff Site

Clean-up at TA-33

800 At Site: Linda Fluh, Ken Hensel, Kristi Armoldt, Mike Powell, Manly Lee
Also Roy Michelotti & Jim Roberts at site

Clean up the CRZ at Area 6
Talked w/ Virginia Smith about barricading the area around catcher boxes. We will keep barrier tape around catcher boxes.
Put signs up around area.
"Radiation Contamination. Contact Roy Michelotti (665-7444) before entry".
We will contact ESH-1 about making up these signs.

Roy & I talked about what to do with the pieces of projectiles & debris found. We will set up chain of custody for all pieces & leave material in the shed at Area 6 (locked up)

I spoke w/ Jim Roberts about the capacitor at Area 6. Jim said the capacitor belongs to EK - (to Roy). Jim has been working with Rebecca Webster (7-0814) CST-8 (in ESH-8).

Roy said to put this drum in a Satellite

1030 John from Santa Fe Rentals came to p up the backhoe.

Roy said we should set up a new Satellite storage area at Area 6 for all waste generated while in Area 6 for the drum containing PCB & capac

7-18-94 ~~1040~~ 1140 Setting up COC for debris samples
.0079 : D-1-East, D-2-East, D-3-East, D-4-Ea projectiles
0080 : D-5-Area 6 through D-9-Area 6
0081 : D-10-South

Tom Fernandez 7-18-91

1155 Roy contacted Tony Griggs about the Satellite storage at Area 6. Tony said we should set up a Satellite Stora area at Area 6 Now & we can start the paperwork now also. We will set up the area today.

1645 Left site

8/1/94 Ken Hansel & Mike Powell went out to TA-33 to assure waste areas are secure.

They will contact CST-9 to set up an appointment to transport 'hot' samples from TA-33 to TA-59 for analyses (as per CST-9's request).

They will set up to collect a rinsate sample of all the stainless steel spoons & bowls.

Procedure is as follows: Pour the total amount of dionized/distilled water into a clean bucket. Put all spoons & bowls (a few at a time) into the bucket w/ water - move around. When finished with all spoons & bowls, pour water into the designated sample containers (with the appropriate preservation). Bring samples to CST-9 for analyses. If the water samples are clean, then we will re-use the spoons & bowls.

/

MP

TA-33 East Site Sampling

5/24/94
930 Set up area for sampling: Support zone (SZ), Contamination reduction zone (CRZ) & put tape around exclusion zone (EZ). We put caution tape around access areas and not around the entire zone (the area is very large). We will continue to set up EZ this way throughout course of work if the EZ is large.

10:30 Cornelius Flynn gave the overall Tailgate Safety meeting for ICF Kaiser (ICFKE) LANL, MK & EDI
All signed the acknowledgment form in the Health & Safety Plan.

Spent rest of day working on computer & setting up area more.

Field team members at site: Linda Fleck, Kenny Hansel, Kristi Hamrodt, Cornelius Flynn, Mike Powell, Lynn Kidwan, Tim Roberts.

0410 Left site

5/25/94 Arrived at site: L. Fluk, Cornelius Flynn,
0700 Mike Powell, Kristi Aamodt

0730 Arrived Lynn Kidman
Weather is overcast, cool, drizzling. The ground is wet (damp).

0800 Kenny Hansel at site with coolers

Field Team Members: Linda Fluk Field team leader
Mike Powell HPT
Cornelius Flynn SSO
Kristi Aamodt Sampler
Kenny Hansel Sampler
Lynn Kidman Field manager
Jim Roberts Field Coordinator

Today we will be sampling SWMUS 33-003b & 33-007A

0820 Training on soil description was given by Lynn Kidman so that the field team will consistently describe soils.

color, texture, consistency, structure

color: may be crude (we won't use a color chart. Describe matrix with also color of pebbles or any other

texture >½" cobble
< ½" gravel
very small pebble > sand grain
note if larger material is tuff or cinder.

descriptors: many, few, abundant, or percent

More texture: of matrix
rub material: if gritty then mat is sandy
very fine mat w/ no cracking: silt
very fine mat w/ cracking: clay

Describe organic material: ex. dark color, soft, light color, roots (fine)

Describe horizons, and what horizon the samples were collected from.

Moisture content:
moist, wet, sticky, saturated
If squeeze mat. & it sticks together, describe it as moist or slightly moist.

Structure: clumps of soil
note the size of clumps.

Describe the general area: ex. sample collected under juniper tree, or area barren with no vegetation, sparse vegetation, dense grass, etc.
Note if material is fill

1845 Tailgate Safety Meeting

SWMU	PCOC
33-003b (Shot Pad)	Be, Pb
33-007A (Firing Area)	Be, Pb, Cd, Oil, HE, U, H3, Co-60

Will use dust supression

→ It is raining vigorously now.

Master area in Support area
Eye wash & first aid are in Ryder truck.

All signed off on form

Pouring Rain - not able to sample

0930 I am meeting w/ Gene Vobsaver (JCT)

5/25/94 We will be collecting samples using Spade & Scoop SOP 6.09.

CHANGE IN PROCEDURE FROM SOP

→ Note that this SOP calls for logging notes using a borehole log form - However this log form is NOT provided in the SOP - there is no form available to use.
We will make all comments & descriptions in the sample collection log forms.

NEVERMIND

NOTE: Interim Change Notice #004 to LANL-ER-SOP-06.09 states that page 4, Section 8.0 "Completed Borehole Log (soil) Form" shall be deleted because the form does NOT exist. All information shall be put in sample collection Form.

This page is Reserved for Sample Locations which have Changed and/or must be Surveyed.

1. 33-004K-1 was moved from ~~culvert~~ drainage down from asphalt TO the other side of asphalt culvert south of land fill at rim of canyon - will be re-surveyed (F 5-26-97)
2. 33-004K-2 As above
3. 33-007a-8, 12, 14, 17, 20. Locations had to be re-randomized because locations continued to fall on asphalt. Refer to table below.

RE-RANDOMIZATION OF 33-007A GRID POINTS

1. Sample	North	East	Survey #	3. Sample	North	East
33-007a-8	-24.9337484	15.4405422	5376	33-007a-8	-13.7763426	21.320437
33-007a-12	-17.3103	2.13136617	5354 X	33-007a-12	13.1057676	-1.42153595
33-007a-14	6.10996774	-7.28645257	5371	33-007a-14	22.[illegible]	-0.33822722
33-007a-17	16.559553	0.3156739	5377 X	33-007a-17	20.5131029	-11.163152
33-007a-20	-8.0638556	10.7997658	5356 X	33-007a-20	19.7495931	-22.7492613

2. Sample	North	East		4. Sample	North	East
33-007a-8	-9.92882358	17.119987	5376	33-007a-8	-14.7418881	-20.1569662
33-007a-12	-0.41000018	-4.0416997	5354	33-007a-12	-19.5165852	-1.01880434
33-007a-14	-16.0454325	17.0335573	5371	33-007a-14	-11.817066	4.88892917
33-007a-17	-21.6263875	-2.86784338	5377	33-007a-17	5.16161236	24.7397318
33-007a-20	17.8145356	-4.5235015	5356	33-007a-20	2.76135594	-20.527632

4. 33-004C-1, 2 Septic tank. The tank must be surveyed

4. 33-004K samples 1 & 2 (by outfall) NOT Sampled because outfall was not located and according to map should be in area of landfill (so most likely no longer exists).

5/26/94

0730 Field Team Members: Linda Fluk, Kriti Aamodt, Kenny Hansel, Mike Powell, Cornelius Flynn.
Jim Roberts will be at site later.
Lynn Kidman will be at site later.

Weather is rainy, 100% overcast, cool, ground is wet.

0810 Mike Powell called Bill Summers (Supervisor of HESH-1) about training on alpha counter. Bill said that they are not able to provide training yet. He said that we can continue to work & mike can use the counter in the mean time. Someone from Bill Summer's group will contact mike at ICFKE to set up the training. The instrument has been calibrated and may be used.

0830 Tailgate Safety Meeting
Cornelius trained us on hazard communication & right to know standards
All personnel at meeting signed the training records
Went over MSDSs for PCOCs at SWMUs to be sampled today.
Cornelius trained everyone to use the eye wash station
0840 All signed tailgate safety form
0840 Utility personnel came out to site to mark any utilities which may be located where we will trench & hand auger
Lynn Kidman is taking personnel to each site

LF

Jim Roberts at Site

All personnel left site. They may be power line and telephone lines ready septic system. They will get back with us

Jim told us of the tritium release from bldg 86 tonight starting at 6:00 pm. They may release from 30 pCi to 1,000 pCi (?). We will leave site well before 6:00 pm.

It is raining vigorously

11:00 Leaving site + can't sample.

Have problems w/ counting wet smears. We will purchase a heating lamp for future rainy days.

the freezer was set up in the trailer #158 this will be used to hold samples & blue ice.

Ku

5-26-94

Discussion of SOPs

I. LANL-ER-SOP 1.04 R2 will be used – Sample Control and Field Documentation.

We will be using computer generated forms:
Chain of Custody
Sample labels
Daily Report Form

We will not be using the master collection log – this is an optional form

We ~~will~~ obtained Sample Collection log from RPF
We obtained custody seal from SCF

NOTE: Change in Procedure from SOP

Section 6.1.2, par. 3, item 9 states that "the printed name & initials of collector" will be put on sample label. There will be times when the collector will not be the person who signs or initials the label – We may need to get paperwork done expeditiously and if the collector is in the EZ or CRZ, it would be inefficient to wait for this person to complete paper work.

∴ Therefore we will make a change: "printed name & initials or signiture of a field team member" will be put on the sample label.

II. S LANL-ER-SOP 01.02 RO Sample Containers & Preservation
We will follow the DRAFT version.

The draft version has made changes as follows. or the following are deviations from LANL ER-SOP RO

LANL-ER-SOP 01.02 Rev 0
Deviations:

NOTE: Changes in procedure from SOP

* Sec. 6.1, par C refers to Attachments A & B for specific information on water sample containers, and Attachment C for info. on aqueous waste sample containers. These Attachments

have been removed from LANL-ER-SOP-1.02 R1
The proper sample containers will be supplied by CST-9 who will supply us w/ containers which meet EPA & DOT requirements.

We will take note of sample container & volume requirements in LANL-ER-SOP-1.02 R0 & assume CST-9 provides us with the minimum size recommended. & the proper physical property of container (io, glass, poly...)

* Section 6.2 par B. states to "avoid freezing sample by wrapping it in bubble pack".
The draft SOP does not state this. We will put wrap around glass bottles w/ water in them if they are in direct contact with blue ice and there is danger of freezing the sample - Otherwise we will not do this. The majority of our samples are soil & there is no danger of freezing these samples

III. LANL-ER-SOP-01.03 R1 will be followed Handling, Packaging & Shipping of samples

IV. LANL-ER-SOP-01.05 R0 Field Quality Control Samples.

NOTE: [illegible] procedure from SOP

Note our Site Specific Quality Assurance/Quality Control Plan (5/23/94) will supersede conflicting guidance in the above SOP. This has been stated in the site specific plan, and has been signed off.
The Quality Control Sample summaries in

Generic QAPjP will be followed EXCEPT where it is superceded by the Site Specific QA/QC Plan. The 2 plans will be used in conjunction. As is stated in the Site specific plan. The summary for QC samples may be okay in the QAPjP may not be applicable - Refer to the Site Specific Plan.

We will be following more SOPs. Any other deviations from SOPs will be discussed in this notebook.

TR

Sampling at East Site

5/9/94

0700 Field Team Members: L. Fluk, C. Flynn, M. Powell, K. Aumodt, K. Hansel, L. Kidman
Jim Roberts will be at site later

Weather Sunny, cool, ground is wet from rainy night

0735 Tailgate Safety Meeting
All signed off form

0800 Field Samplers into the exclusion zone
Sampler: Kenny Hansel
Documenter: Kristi Aumodt
HPT: Mike Powell
SSO: Cornelius Flynn

In the SZ:
Linda Fluk FTL
Lynn Kidman FTM

0820 L. Kidman left site
0825 Sampling team bringing 1st batch of Samples back.

AA7608	003B1	0802	
7609	003B2	0830	} times read off
7610	003B3	0840	
7611	003B4	0850	

Team member put samples in cooler which is located in CRZ. Put COC tape over cooler to maintain traceability.

1038 Roy Michelotti at site
1044 Sampling Team back from EZ, going into CRZ
Finished collecting days samples.
We took our time & worked out the procedures in the decon line
1130 Last person out of the CRZ
Cornelius Flynn left site
1345 Jim Roberts arrived at site
1500 Roy Michelotti left site

Did paperwork for sample bottles. Brought
1530 to the rad van
Rad van personell did not have time to analyze all our samples, so they analyzed the samples which had to be analyzed for semi-VOCs (because of the shorter holding time). We stored the rest of the samples in freezer, secured by COC tape in a locked trailer.

1610 K. Hamwalt left site

Downloaded information on smears into the data base. We had 12 smears for all reusable equipment including sample bottles, boots, gloves & spoons/bowls.
Decon & swipe procedure were according to the field implementation plan & waste management plan.
Waste was taken from CRZ to the Satellite Storage area.

1745 C. Fluh left site

Sample	Sample	Time	Comments
003B-1	AAA9605	0802	NO3/NH2, OVOCs, Reg Rad & S &
003B-2	AAA9609	0930	
003B-3	AAA9610	0840	
003B-4	AAA9611	0850	
003B-5	AAA9612	0934	
003B-5C	AAA9613	0944	
007A-1	AAA9618	1007	
007A-2	AAA9619	1017	
007A-3	AAA9620	1025	
UF 007A-4	AAA9621	~~0955~~	

Sampling at East Site

0700 Team: C. Fluk, K. Hansel, K. Hamedt, M. Powell, C. Flynn, J. Roberts

At site setting up for today's sampling
weather is partly sunny (mostly sunny), getting warm already, not much breeze now

0700 At site. Clovis Martinez, Tim Ickes
signed in visitors log & TA-33 orientation

0700 Tailgate Safety Meeting
All present signed off

0820 Sampling team into CRZ
K. Hamedt Journeyman
K. Hansel Sampler
M. Powell HPT

The SSO will not go into the EZ - there is no hazardous constituent monitoring
He will stay in SZ

0830 Clovis Martinez, Tim Ickes, Linda Fluk, & Jim Roberts are observing the sampling team from the other side of the EZ
Clovis & Tim will be auditing us today

0835 Sampling team back from collecting samples at SWMU 010D
Back to the CRZ

We decomned equipment & personnel according to the Site Specific H&S Plan and Waste Management Plan.

Waste is segregated according to the Waste Management Plan. The types of waste and their destination are shown on page 14 of this notebook. This is a preliminary list and may be updated and changed. Any changes will be updated

WASTE SEGREGATION

WASTE	Disposal
samplers outer gloves	- potential mixed non hazardous/non rad - potential hazardous
Documenters gloves HPT gloves SSO gloves	- non hazardous/non rad (KOP)
plastic bags	- ~~pot. rad~~ non haz/non rad
Kimwipes	- non hazardous/non rad (KOP)
Swipes	- non hazardous/non rad (KOP) - ~~pot.~~ rad - pot. hazardous - pot. mixed
Sampler's tivek	- non hazardous/non rad (KOP) - ~~pot.~~ rad - pot. hazardous - pot. mixed
Documenters tivek HPT tivek SSO tivek	- non hazardous/non rad (KOP)

Did paperwork & documentation for the sample containers.

Clovis & Tim made suggestion that we include the rad van baggies on a chain of custody form.

We are now generating COC Forms which just have the rad van samples. These forms will be relinquished to the rad van

We get the white copy - And the samples will be relinquished back from the rad van to us - We will dispose of the soil back at the sample point on the given SWMU. The rad van bags get COC seal on them as well

1305 Clovis & Tim Icker left site
LF

The audit went well - We were given some good information - And there must be some changes made to the SOPs

1350 Sampling team into CRZ
Sand Sampling team as this morning
+ additional Cornelius Flynn (SSO) in zone.

1455 Sampling team back
Collected samples from 33-007A

Smear info downloaded
Samples were labeled & packaged
Daily summary & field report
submitted

Samples collected today

Sample	Sample	TIME	Comments
33-010D-1	AAA9852	0900	no rad
33-010D-2	AAA9853	0845	↓
33-010D-3	AAA9854	0853	↓
33-010D-4	AAA9855	0835	↓
33-010D-5	AAA9856	0910	↓
33-010D-6	AAA9857	0919	↓
33-007A-7	AAA9625	1405	No rad, VOC, HE
33-007A-9	AAA9627	1420	↓
33-007A-8	AAA9628	1430	↓
33-007A-10C	AAA9629	1440	↓
PE Blank	AAA9859	1415	# CRM-020-050

1700 Left Site

6/1/94

0730 At site: Field Team Members: L. Fluk M. Powell C. Flynn, K. Aamodt, K. Hanel, J. Roberts

Weather: warm, sunny, still

0745 Mike Powell hit his head on the Ryder truck and cut his head. - lacerations on top of his head was <1/4" deep & 1" long. L. Fluk attended to M. Powell. - Head was bleeding. Put gauze on head - applied pressure. Put Betadine (Spelling?) solution on head to clean - Put clean gauze on head.

Jim Roberts took Mike to HS-2.

We following CANL-GR-SOR-02.12 Guidance on Blood borne Pathogens and AR 1-1 Accident & Occurrence Reporting.

Cornelius Flynn called HS-5 to report accident & filled out form AHS 1-1 B (2/

0835 JCI personnel at site to look for utilities. They provided a map of the septic tank area showing the tank & manhole and drainfield. They pointed out the electric line.

0845 They left site

1020 Setting up for day sampling - Michael Carlson from USWST at site. Marking lines for utilities - for phone. They are located adjacent to the electric lines. We will not be hand digging or trenching where these lines are located.

~1035 Mike Powell called - He got stitches

in his head and he is not to return
to work for a few days - doctors orders.
Planning Lee (EDE) will be trained by Mike Powell
& he will work as the HPT at TA-33
until Mike can return to work here.

We are in contact w/ Industrial Hygienist at
ICFKE about the accident & are filling
out the appropriate paperwork

We disposed of biohazard waste by putting
it in Ziplock bag labeled "biohazard"
Ivan Wachler contacted Susan Alexander
(HS-5) what to do with this waste. For
now we will put this aside till we get
further guidance

1100 Mike Powell, Jim Roberts, Manley Lockhart at site
Tailgate Safety Meeting.
All signed off

Samples we will collect today:
006B 1-4
007A 11

Susan Alexander informed Ivan Wachler who informed me
call CST-7 about disposal of biohazard
call 665-WAST

1210 Sampling team into the CRZ - into EZ
to sample.

Jim Roberts talked to Lou Horah about the tritium release. Jim was informed yesterday that they would be releasing tritium (yesterday) from bldg 86.

Confirmation call - There was a release last night between 1930 and 2030 - release ~ 200 pCi tritium.

1235 I called about disposal of biohazardous waste CST-7
Al Statimeyer or Julie Minton/Hughes will call me back.

1320 Samples back from collecting samples

Times	Samples	SUMUs
1215	AAA 9614	33-006B-1
1230	AAA 9615	33-006B-2
1255	AAA 9616	33-006B-3
1305	AAA 9617	33-006B-4
1245	AAA 9630	33-007A-11

9 of 61194

1530 Left site

Sampling at East Site

at site Field Team members: C. Fluk, C. Flynn, L. Kidman, K. Agnodt, K. Hansel, M. Lee

i.e. J. Roberts will be at site a little later

Weather is warm, sunny, still

Discussing waste segregation - Will come up with a new plan

0800 Tailgate Safety meeting. This includes the waste discussion.

Today Kenny Hansel will wear a personal air pump - for Pb & Be & cd

All signed off 1122-612 Filter Pump on 0850

0810 L. Kidman left site

0815 Into CRZ Sampling team.

K. Hansel - Sampler
K. Agnodt - documenter
C. Flynn - SSO
M. Lee - HPT

0835 Sampling team up to collect samples.

0852 First The sampler went into CRZ and removed the dried soil from the decon tubs back on to the SWMU in the EZ This soil came from the dry decon tub and the wet decon tub. Note the wet decon tub has just enough water in it to decon boots - At end of day this tub of water is dry (i.e., the water has evaporated.)

We will do this on a daily basis and return soil to the [illegible] which [illegible]

0910 Jim Roberts at site

1020 Samplers back - put samples in cooler in CRZ - Got drinks

SWMU Sample	Time	Sample ID
007A-1	1003	AAA9624
007A-8	855	AAA 9626
007A-12	916	AAA 9631
007A-13	928	AAA 9632
007A-5	942	AAA 9622
007A-5C	952	AAA ~~2627~~ 9623

1028 Samplers back out to collect more samples

1130 Samplers are back to CRZ from Decorning sample bottles shoes, gloves

1225 All out of CRZ

1315 Sampling team into exclusion zone to collect the rest of 33-007A samples.

SWMU Sample #	Time	Sample ID
007A-19	1120	AAA 9638
007A-14	1029	9633
007A-15	1040	9634
007A-16	1050	9635
007A-17	1102	9636
007A-18	1110	9637
0		

1450 Sampling team back w/ rest of samples

SWMU Sample	Time	AAA #
007A-20	1327	9639
007A-21	1338	9640
007A-22	1347	9641
007A-23	1356	9642
007A-24	1408	9643
007A-25	1419	9644
007A-26	1427	9645

:: Dropped off cooler to rad van (w/ 9 samples)
[illegible] the rest of the samples
[illegible] cooler & delivery this the rad
lab tomorrow morning
Finished labelling bottles & paperwork
:: left site

6/3/94
0730 Field team members at site:
Lindy Fluh, Kristi Aamodt, Manly Lee,
Cornelius Flynn, Ken Hassel

Weather is warm, sunny, still

0835 Sampling team in CRZ
sampler: Ken Hassel
documenter: Kristi Aamodt
SSO : Cornelius Flynn
HPT : Manly Lee

L. Fluh in SZ

0840 Jim Stanfan (CST-7) called about Biohazard waste. Need to fill out:
1. waste profile form
2. Chem. waste disposal request

need: waste generator
waste management coordinator

Jim will send me copy of the 2 paperworks

OS-2 may be able to store the waste - Temporary Storage

0925 Mike Pinnell returned to site. He had return visit to the doctor & can now resume full duties at work.

0930 Samplers returned w/ 004K Samples

SW846 Sample	Time	AA #
004K-3	0857	9656
004K-4	0910	9657
004K-5	0917	9658
004K-5C	0922	9659

VF

Team back out to collect Samples at 33-010A & 33-010B

Cornelius Flynn (SSO) returned to the SZ - No organic hazards at these 2 SWMUs.

C. Fish relinquished Samples to Shawn at road van

Jim Stanton called me back about biohazard waste.
(667-5838)
I should contact Tim Reese (Waste Management) (667-7579) & he will come out to site & re-package the biohazard waste. (Larry Sherman may come out)
Then CST-7 will pick up our waste in approx 2 or 3 weeks. We must fill out paper work ASAP. Jim will send paperwork to ICFKE Office.

1100 Samples back from collecting Samples

	SWMU Samples	Time	MAA #
010	010B-2	1045	9652
6-pack	~~010B-3~~		
010	010A-3	1005	9648
	010A-2	0937	9647
	010A-1	0946	9646
	010A-4	0950	9649
	010A-4C	0956	9650
010B	010B-3	1025	9653
	010B-1	1035	9651

We are finished surface sampling at East Site. We are cleaning everything and moving from East Site to South Site where we will do surface and

Everything in the CRZ will be swiped. The decon buckets & tubs will be bagged and put in the Ryder truck. The water in the decon tub (very little amount) will be placed in the Satellite storage area & will be open & the water will be allowed to evaporate. (The storage area is covered with tarp)

We have accumulated 2 types of waste during our sampling at East Site

1. potential hazardous waste
   (* visably dirty pieces of tyvek
   * swipes

2. Hazardous waste
   * HE spot test kit waste

These wastes will be stored in drums in the satellite storge area.

We also generated 2 kinds of non hazardous/non rad waste from the CRZ

1. tyvek (KOP clean - never touched soil, samples etc). This waste can not go to the landfill & will be stored separately

2. gloves, bags, Kimwipes - This waste is KOP clean & will eventually go to the landfill

JR

Samples 004K-1 & 004K-2 were NOT sampled.
These samples were to be located at outfall
pipe. The outfall pipe could not be located.
And according to existing construction
maps, this outfall pipe is located in the
area where the landfill was put. Therefore
it is believed that the pipe was destroyed
when the landfill was put in & the outfall
pipe no longer exists (at least on surface).
So we will not collect these 2 samples.

The site has been cleaned up. Team will
meet here Monday AM & we will then
move over to South site

1:30 left site

6/3/94
1600

Phone Conversation

I called Rebecca Eaton (CST9-) to confirm a few points

① For Semivol & Herb
or " & PCB
or " & Pesticides } 125 ml bottle submitted.

For 3 analyses } 500 ml bottle submitted.

- This is correct.
The lab only uses ~ 30 grams for analyses - This should give more than enough material.

② On our COC forms we have a note that method of anal. will be according to memo from Dorothy Hood to John Miglio document # ——.
I talked w/ Rebecca to inform her of this note and to stress the importance of getting the info from this memo to the labs which do the analyses. Rebecca will make sure the labs get this information.

1545 I talked with HS-2 Ann (667-7839) about not accompanying Mike Powell for HS-2. I administered first aid to Mike but did not go to HS-2 Access

I was wearing gloves while administering first aid & there was not much blood. Ann said because of these 2 points, it is not necessary that I accompany Mike. If I want HS-2 will give me a Hepatitis B tetanus on Monday AM. If so I should call up on Monday AM.

5 1 H

6/6/94
0730

Sampling at South Site

Field Team members: Linda Fluk, Cornelius Flynn, Mike Powell, Kristi Aamodt, Ken Hansel, Jim Roberts

Weather: Warm, sunny, clear & still

Packing up the trailer to move from East Site to South Site

0845 At South Site - Moving trailer into area of northern facility site by trailer #173.

Today we will sample at the septic area (providing that CST-9 gave us the appropriate bottles).

0910 Kristi Aamodt is off to rad van to relinquish samples (from late friday sampling) to Shaun.

NOTE: All rad baggies (with the excess soil) will be relinquished back from the rad van back to US. We will empty the soil back on green SUMU and dispose of the empty baggies as potential hazardous waste. If we had a rad hit, then this waste will be disposed as potential mixed waste.

KF

[illegible] Hand at Site
[illegible] Flint & D Hand discussed sampling plan
[illegible] landfill:
We will not excavate through landfill.
We will collect 3 sample locations (w/ hand auger) at base of bank to look for run-off from fill.

★ 33-010G-4 can be moved from lower area to area higher up - on top of flat - where there is shrapnel.

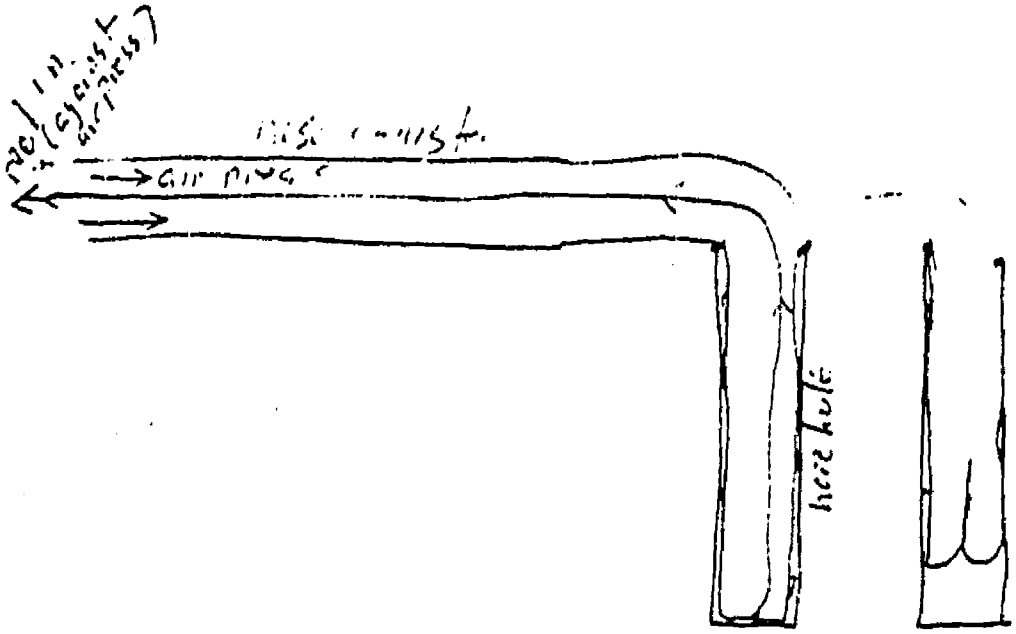
33-010H - Do we need to excavate? This will be discussed in meeting tomorrow.

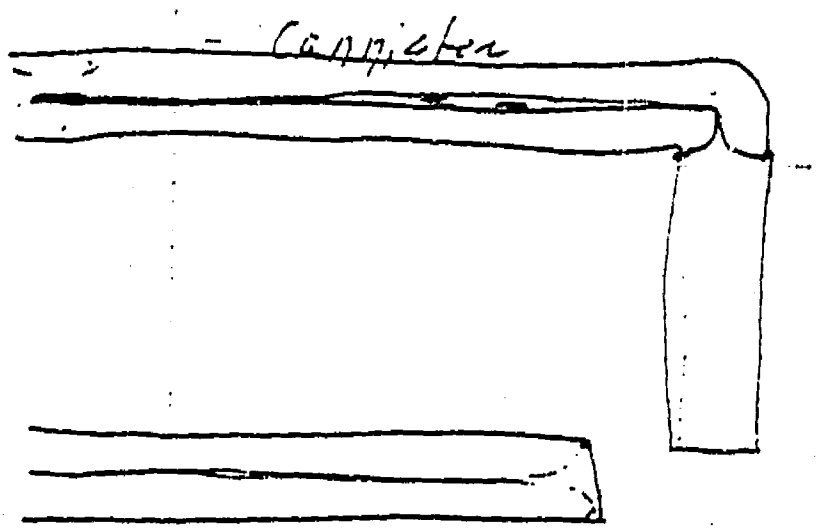
We will add a NEW Sample location ON TOP of Shot pad
Will designate 33-006A-~~37~~ 40 6/8/94

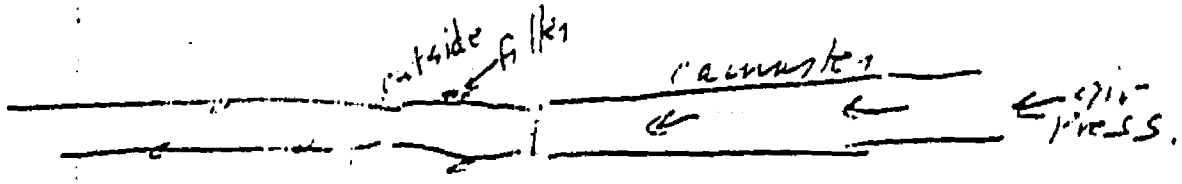
[illegible] 010D will be discussed in meeting

★ [illegible] 33-007A trench by bunker #25
Do we want to do a full characterization now or later.
Should be.
We will take 3 samples in the run-off across road where culvert crosses under road & leads to the Canyon.

[illegible] Dorothy Hand left site.
[illegible]


air flow
hose hole


Canister


outside filter
exhaust

T-1-33 Sea Mist Sampling

0730 Field team: Marlee, Mark Fluk, Kenny Hassel, Cornelius Flynn, Rich Baker

0500 Eastman Chemical Environmental Joel Theiss, Troy Peabody, & Bob Baller and Jake Turin

Weather: Cold - close to freezing, clear

Setting up at the support zone

0545 At bore hole #2

Attaching elbow and blue canister hose to the well head attachment

photos 1&2 blue hose attached to well head attachment looking north. Taken by C. Fluk

3&4, 5, 6 300' away from bore hole setting up cable attachment to reel membrane out

Air blower used to pressurize the blue tubing & membrane. Air press. is use to hold membrane out so that the membrane can be easily turned inside out

photos 7&8 Photo Reeling the membrane out of bore hole and into the blue tube canister. Looking north Taken by C. Fluk

The bottom part of the membrane is reeled out first

0930 Reached the end of the line

Photo 10, 11, 12 core hole of borehole looking north. Taken by L. Fleck

Photo 13 Wires at end are for taking resistivity measurements

0945 Take hold the top end of membrane (clean side) as the membrane is inside out

Photos 14, 15 Looking north. Taking by L. Fleck

0948 Roy Michelotti at site

nylon base
urethane coated
bombine

0950 Taping top end of membrane to canister

Photo 16, 17 Looking north. Taken by L. Fleck

Clamping top end of membrane so when blow membrane out (outside in) the membrane stays attached to canister.

1000 Folded the canister up & piled it into the back of truck.

10:30 Brad Martin at site

1045 Tailgate Safety Meeting

1050 Start decon

Photo 21

Sample #	depth	time	Comments Rad reading
AAB 1133	10'	1101	ND
Photo # 23		1055	RCT gathering swipe results
# 27		1057	membrane extruded
AAB1134	15	~~1103~~	ND
AAB 1135	20	1105	ND
AAB1136	25'	1106	
AAB 1137	30	1106	
1138	35	1107	
1139	40	1108	
1140	45	1109	
1141	50	1110	
1142	55	1111	
1143	60	1112	
1144	65	1112	
1145	70	1113	
1146	75	1113	change gloves, take swipe
1147	80	1115	
1148	85'	1116	
1149	90'	1117	
1150	95	1118	dry
1151	100'	1119	dry
1152	105	1120	dry
1153	110'	1121	slightly moist
1154	115'	1122	dry

sample	depth	time	Comments
AAS 1155	120	1124	dry - change gloves
AHB 1156	125	1125	dry
1157	130	1126	
1158	135	1127	
1159	140	1127	
1160	145	1128	
1161	150	1128	
1162	155	1129	
1163	160	1129	
1164	165	1130	
1165	170	1131	moist
1166	175	1131	moist
1167	180	1132	dry
1168	185	1133	moist
1169	190	1133	moist (filter was folded over) *
1170	195	1134	slightly moist, moldy filter
1171	200	1134	
1172	205	1135	dry
1173	210	1136	"
1174	215	1136	filter crumpled, slightly moist
1175	220	1137	filter folded, molded
1176	225	1137	saturated, moldy
1177	230	1138	torn molded moist
1178	235	1138	" " swipe #4

* others in post hole also bentonite

0084

0085

0086

Sample	Depth	time	Comments
1179	240	1139	moist, mold
1180	245	1139	"
1181	250	1140	folded, ½ filter is dirty, moist
1182	255	1148	moist
1183	260	1142	moist, moldy. very wet ~~saturated~~
1184	265	1142	" "
1185	270	1142	" "
1186	275	1143	" "
1187	280'	1143	moist, dirty, very wet
1188	285'	1144	folded, moldy, dirty, moist
1189	290'	1144	clean, dry, no dirt
1190	295 ~~300~~	1145	" " "
1191	300 ~~305~~	1145	" "
1192	305	1146	

1150 FINISHED

Here not exposed to the bore hole

1350 I called Maxine at CST-3 to let her know we will be bringing ~60 filter samples to SCF. I confirmed with her that these filters were not sent through the rad van 1st. I had set this up with Rebecca Easton & gave her the tritium soil results from borehole 2. Because the soil results presented no problem for building access, the filters certainly will not present

a problem of exceed health limits. This was fine with Maxine.

1200 Rich Baker took swipe samples to the Rad Van at TA-21. Don Dale (699-1651) will do analyses. He said results should be ready ~ 1430. - We will call for results.

1400 Rich Baker is taking more swipes of the membrane just in case the 1st batch of swipes show contamination

1530 Still no results of tritium from the rad van. We had to assume the Sea Mist membrane was contaminated. We carefully rolled the membrane on the wooden spool (because we did not want to leave the membrane out overnight. We will wait for the results. When we find the membrane to be clean, we will brush it off (get rid of excess dirt) & turn membrane inside out.

1630 Finished rolling up membrane. Still no rad results.

Kenny Hansel is being monitored for tritium via bioassay

1630 Left Site

VF

Sampling at Drainfield

11/30/94 · Field Team Members: Lindy Flak, Rich Baker, Jim Hassell, Cornelius Flynn. Drawne Wilde will
0745 come out to site later as team member

Weather: Very cold, below freezing, clear.

0800 Rich Baker spoke w/ Don Dale (Rad Van) about tritium results of swipes from membrane

ex. 1 filter had ~ 2,000 pCi/filter
1 " " 104 pCi/filter

zone. other.

Cost Center 6E20

3 smears had values < uncertainty

These are in wrong units
we need DPM / 100 cm².

MA46 Program code

4 samples were submitted

Rich is speaking with John Mann.

The 4 samples ~~Subm~~ were collected from 4 locations

Approx 2 hrs later 4 more smear/swipes were collected from ~same location on the membrane.

∴ The 2nd batch of 4 samples (collected from membrane at same location as 1st batch of 4). came out clean (close or lower than uncertainty.

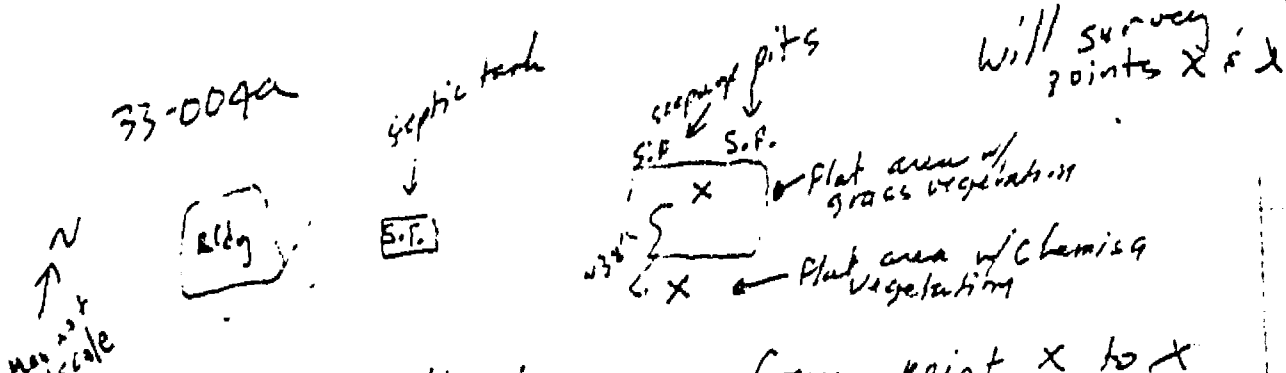
Rich Baker is cleaning the membrane & PPE.

0945 Tailgate Meeting

0950 Dwight Bragle on site to help with the sampling & augering
33-004a

Strategy: Looking for a drainfield line we are hand augering along a line at the location where we believe the drainfield is located — Based on maps & topography & vegetation. This is a flat area located off the septic tank & seepage pits — no large vegetation — treeline.

33-004a



Hand augered from point X to X every 1 foot. If there is a pipe or line in place, we will encounter it on this tight grid

1015 Found an area where gravel was hit with hand auger. Will investigate this area with shovel since hit resistance.

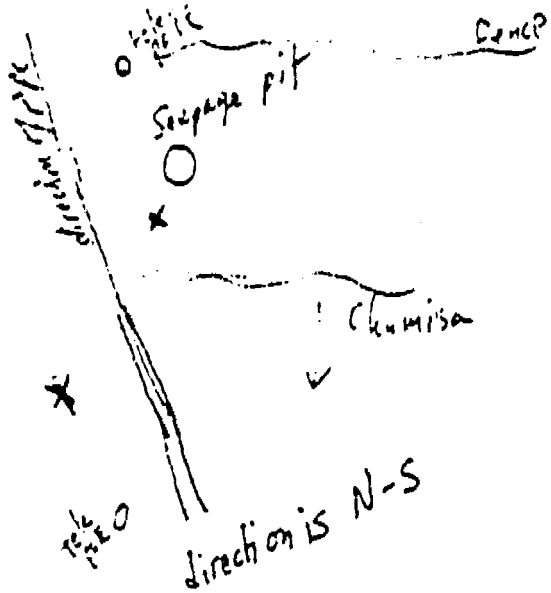
- Along all other points, hitting tuff at approx. 1 to 1½' depth. No rad or VOC hits.

Hand augered 38 locations @ 1 foot

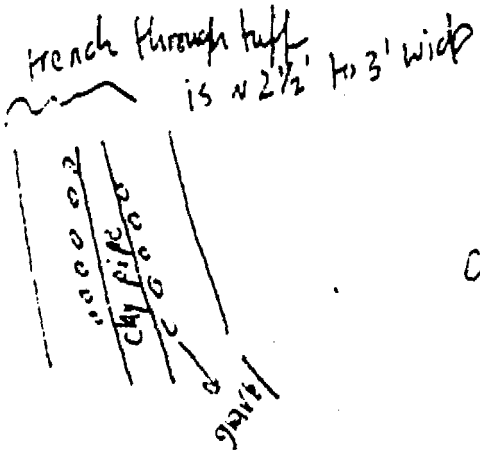
1030 Back to to hole when gravel was found.
Shoveling in the area.
Gravel found in area is rounded up to ~2" diam.
looks like fill ~ 12 pieces of the rounded gravel from surface elevation to ~1 foot below surface.

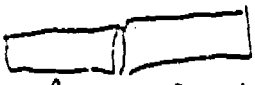
1045 Finding More gravel pockets

1048 Found clay pipe beneath the gravel



ditch is running approx north-south
clay pipe is ~1½' to 2' below ground surface
gravel is found on top of the clay pipe



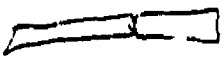
clay pipe is ~6" OD
We found  location where 2 pieces of pipe were placed together.

~1100 Phone conversations with Lynn Kidman and Ray Michelotti & Dorothy Hoard.

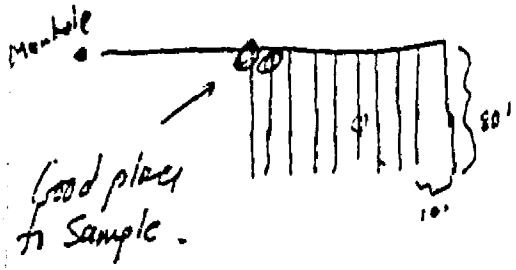
New Plan of action: We will auger perpendicular to the trench line in the East and West direction for ~ 15 feet in both directions.
In order to determine the extend of the drain field

Collected 2 samples from 1st found line AAA 9361, 9362

1150 Hand auger in west direction - found another trench with clay pipe.

This second clay pipe is located 10 feet west of the 1st pipe we located. Both located clay pipes are at seams (ie ) 2 pipes together

1205 Dorothy Hoard at site. She brought map of drain field. Shows the following



10 VC pipes located 10' apart.

All Samples will be

1430 Back to digging - found a 3rd line at its E-W / S-N junction

We will continue digging today and locate the approx. locations we are interested in sampling. We will come back next week & collect all 4 samples at one time. The 2 samples we collected this morning were returned to their exact locations. We will collect all samples at one time.

Locations which we will sample

1. The 1st N/S clay line which feeds off of the E/W feeder line from the manhole
2. The 2nd N/S clay line which feeds off of the E/W feeder line
3. The 1st location found today (however at a different junction that that which was sampled this morning.
4. Location at far east (as in #1 & #2

All samples will be collected from the junction of 2 clay pipes.

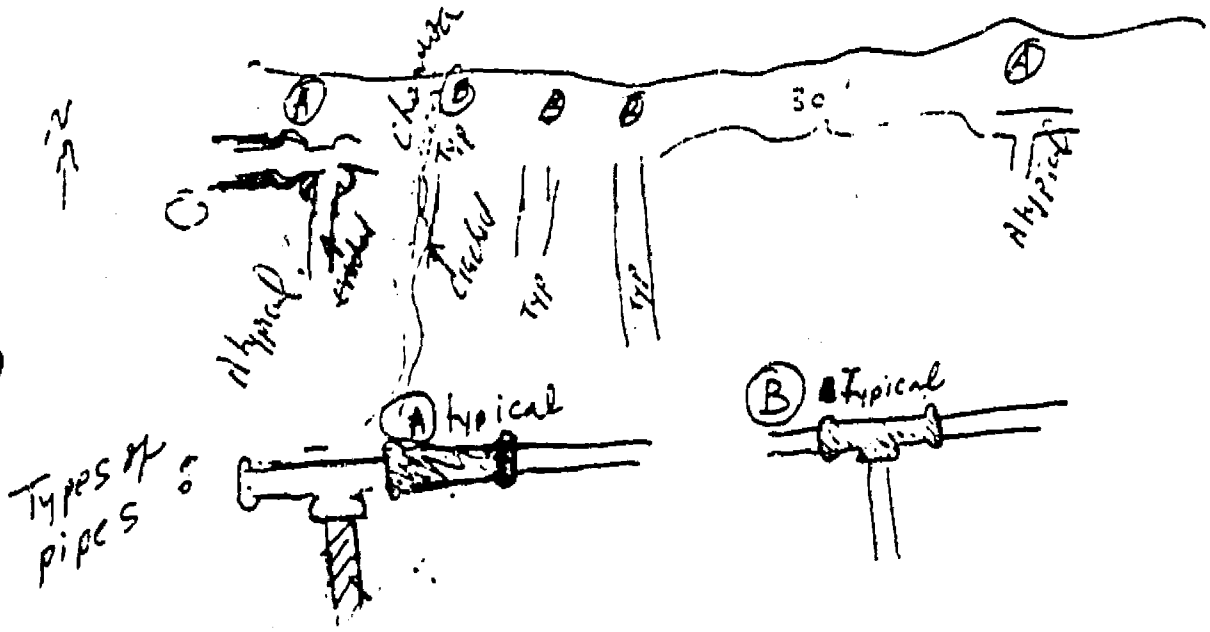
1500 Another pipe found found 10' west. 4th clay pipe at intersection with E/W metal pipe

We are having great difficulty digging further west as the land is sloping up to the west. and we have to dig deep (~ 6-7')

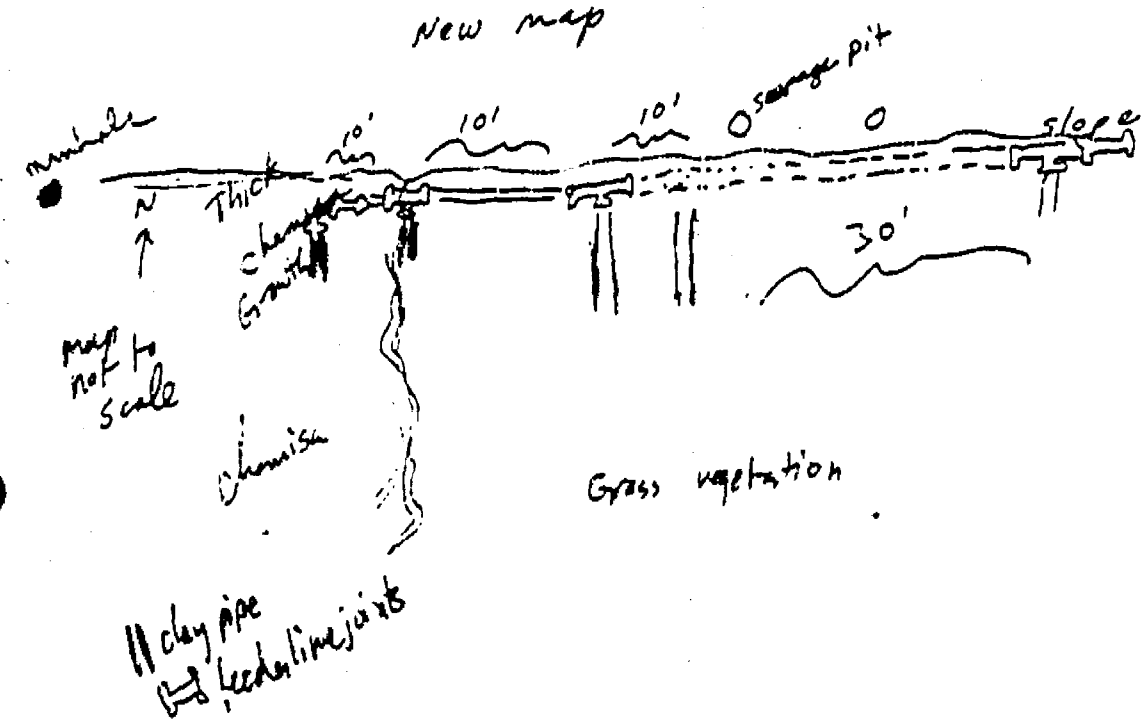
And the channel is very thick.

1510 We are now digging far to the east (30 feet east of our 1st pipe

Found pieces of clay pipe, but no intact pipe. Can not locate intact pipe



New map



1640 Finished excavating. We located 5 clay pipes separated by ~60' (see map on previous page).

We will sample 4 locations next week.

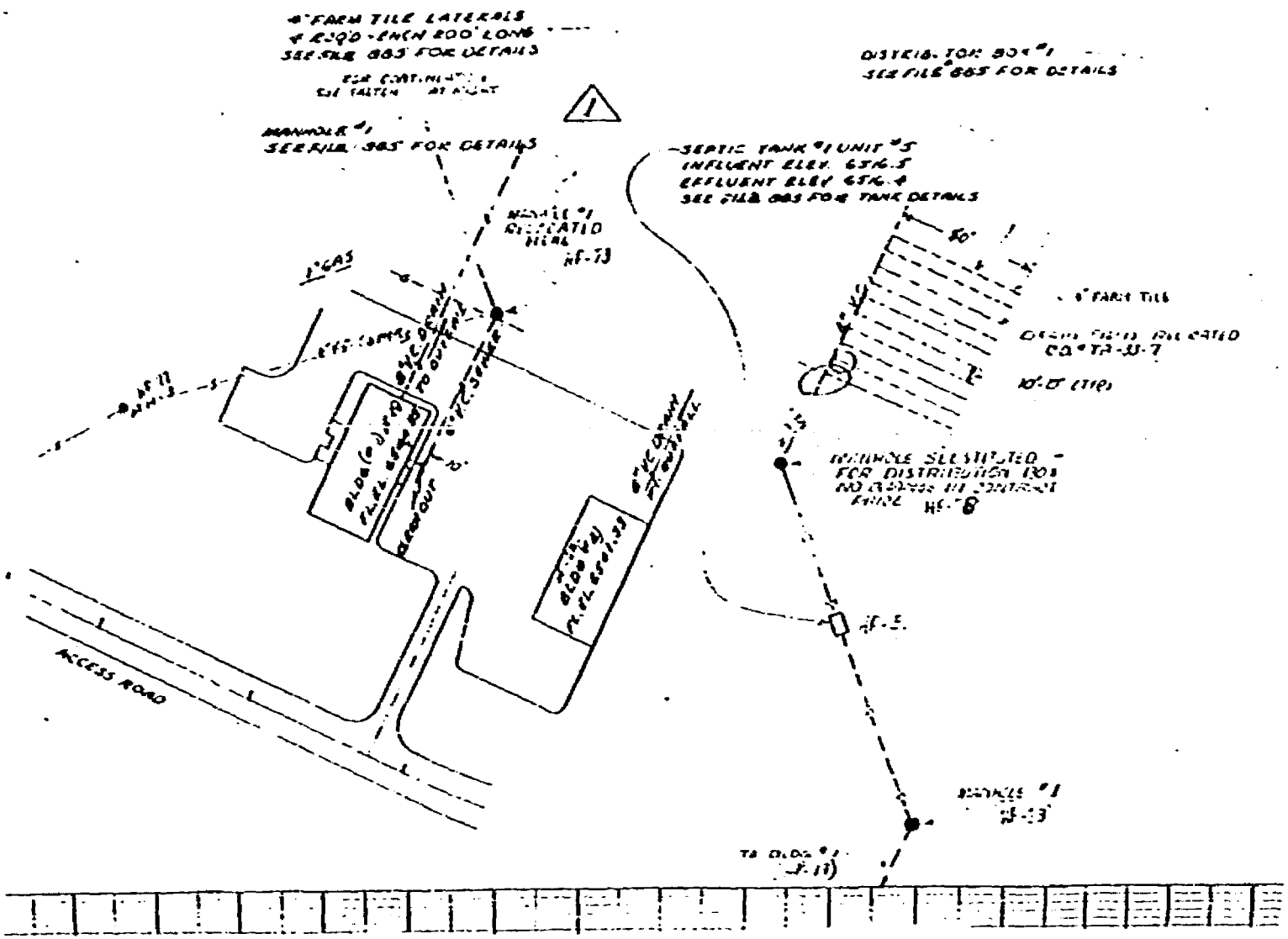
Rational for sample collection based on conversations w/ Roy Michaloff & Lynn Kirkman & Dorothy Hood & myself is as follows:

collect 3 samples near the beginning of the feeder line (west) & 1 sample at the end of the feeder line (east). These samples will be collected from the N/S running clay pipe at a joint. The 4th sample collected from the clay pipe(s) joint ~30' South of the feeder line. This should give a good distribution of the drainlines & also meets objective of reconnaissance sampling (i.e. contamination may be more likely found near the feeder line. We will not collect under the feeder line because this is a solid line. We will sample as close as possible to the feeder line (the 1st joint running off of the line. One sample off of the feeder line will give us an idea if contamination may be carried further down the drainline.

1655 Left site.

Will return next week to sample

/ of [illegible] PTL


4" FARM TILE LATERALS
@ 100'-EACH 200' LONG
SEE FILE 885 FOR DETAILS
DISTRIBUTION BOX #1
SEE FILE 885 FOR DETAILS
MANHOLE #1
SEE FILE 885 FOR DETAILS
SEPTIC TANK #1 UNIT #5
INFLUENT ELEV. 674.5
EFFLUENT ELEV 674.4
SEE FILE 885 FOR TANK DETAILS
1" GAS
4" FARM TILE
ACCESS ROAD

Sampling at Drainfield (33-0099) and trihom outfall (33-0022)

12/6/94
1100

Field team members: Linda Fish, Krista Begwin, Cornelius Flynn, Rich Bailey, Dwight Bagwell, Russell Abel

Weather: Clear, Sunny, cool, dry, still

We set up 2 sampling teams.
Sample surface samples at 33-002d

Team 1: Linda Fish (FTL)
Rich Bailey (RCT)
Russel Abel (Sampler)

Collecting 2 surface samples - which were collected (same locations) in 1993.
33-1032 33-002d-2 (AAA1942) 1993
33-1031 33-002d-1 (AAA1945), 1993

Team 2: Kenny Hansel (sampler)
Dewight Bagwell (sampler)
Krista Begwin (documenter)
Cornelius Flynn (SSO)

Collect samples from locations which were uncovered & located on 11-30-94. 4 locations in drainfield at pipes

When Team 1 is finished Rich Bailey (RCT) will meet Team 1 to check for rad. Note that Rich was out at drainfield 11-30-94 - No rad concerns or hits.

Team 1. Collected sample out outfall pipe
location 33-1031 (33-002d-1)
1150 New sample location # AAA 9345
Ground was frozen
Torsion Sampler (Corhoff PN 4739) shown no trihom readings.

Looked for location 33-1032 - could not find stake in place

for Michaloski at site

The Stake was located near drilling location
7 MDA-K borehole, and was not
likely knocked down during the drilling
activities.

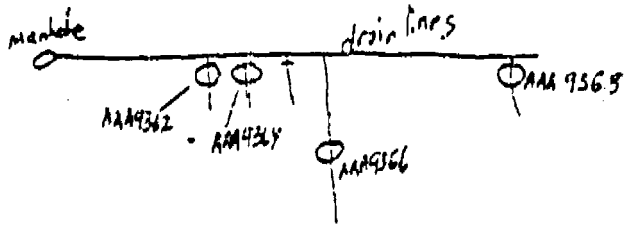
Roy decided we should re-sample location
33-1033 (33-002-d-3). And in addition
we sampled a NEW location which is located
between 33-1031 and 33-1032. This will
be the 1st tritium moisture data at the location.
We may decide to collect new samples from
this same exact location next year to determine
the differences in tritium activity with time

1220 NEW Sample AAA9346
This will be surveyed at a later date
New Site ID designated. Tritium reading = 0

1235 Sample at location 33-1033 (33-002d-3)
AAA9363 Tritium Reading = 0

Went back to Team 2.
Rich Galey checked samples for rad.
Gross γ & β α = 0 readings

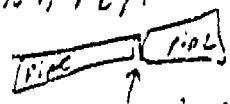
Samples were collected from 4 locations



Map Not to scale

1155 AAA9366
1210 AAA9367
1225 AAA9368
1245 AAA9369

All samples collected from soil at location where 2 clay pipes were laid down next to one another



samples collected from all around junction

1300 Ray Michelotti left site

1330 Left site after decoming & sample prep complete

Judith Ann Fitz

Appendix 5

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9608

Name /Signature [illegible]

Control No. (from Chain of Custody form) 122-0001

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible] Clear Sunny

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Explosives
125ml glass	Metals
Ziplock bag	Rad Screening

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Principle(d) cpm / beta gamma. Explosives spot test showed visible color changes. Photos #1 and #2. Surrounding vegetation is grass, wild daisies, chamisa. There are no trees within a 200 ft. radius. Soil description: Course organic matter, very moist, sandy, gritty, no pieces of gravel or pebbles, dark brown color.

Test sample screening: 90 cpm beta/gamma

Test sample PID [illegible]: 0 ppm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9609

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]
Clear, Sunny

Containers Used	Analysis Requested
500ml glass	[illegible]
125ml glass	[illegible]
125ml glass	[illegible]
Ziplock bag	[illegible]

LANL ER SOP # 06 09 was used to collect this sample.

COMMENTS

Explosives spot test showed no color changes surrounding vegetation - grass, no trees or shrubs in the vicinity. Sagebrush growing nearby pulled. There are large pieces of calcined tuff all the sample locations.

Photo #3

post sample screening: 95 cpm / beta / gamma
PID 0 ppm

Soil description: coarse organic matter, sand, clay, gravel and pebbles, dark brown color, very moist, very sticky texture

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9610

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No [illegible]

Sample Type [illegible]

Sample Location CR33-5

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] Clear/Sunny

Containers Used	Analysis Requested
Scoop/Jar	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziploc bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives spot test showed no changes in color. Post sample screening: 0.5 cpm beta/gamma PID.
Surrounding vegetation: Mountain Mahogany, juniper, grass & composite flowers.
Large pieces of calcified tuff completely covering the surface of ground.
Soil description: sandy clay, 5-10% pebbles, loose organic matter, living moist dark brown soil.
Photo #4

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 5/[illegible]/94 Time 0850

Technical Area 33 Operable Unit 122

AAA9611

Name /Signature [illegible]

Control No. (from Chain of Custody form) 122-0001

Location ID No. 33-1363

Sample Type [illegible]

Sample Location CC33-4

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] 5-23-94
Clear / Sunny

Containers Used	Analysis Requested
500ml plastic	[illegible]
250ml glass	[illegible]
250ml glass	Metals
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS
Explosives spot test showed no visible color
Soil description: tan natural [illegible] covers
surface for about a 30-100 ft radius. Surrounding
with 30% cobbles and gravel, the most dark
brown color. Soil consists natural [illegible]
[illegible] grass, [illegible], [illegible], [illegible]
gravel on soil
Test sample screening: Ex spot / gamma
PID / [illegible]
Photo #5

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 0924

Technical Area 33 Operable Unit 1122

AAA9612

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible] Clear/sunny

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Explosives
[illegible]	Metals
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives spot test showed no visible color change

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Post sample screening 110 cpm beta/gamma

PID 0 ppm

Photo #6

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9613

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible] Clear / Sunny

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Explosives spot test showed no visible color change. Soil tip [illegible] all one [illegible] in contrast [illegible] small large [illegible] not to dark brown. [illegible] [illegible] this organic material, sandy-gritty soil.
Test sample: 85 cpm beta/gamma
PID: 0 ppm
Note #7
Dominant vegetation: grass, alfalfa, [illegible] [illegible] 1.75 feet radius

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 5/18/94 Time 1007

Technical Area 33 Operable Unit 1122

AAA9618

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0003

Location ID No. [illegible]

Sample Type [illegible]

Sample Location CC-18-1

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in)/(ft)

Weather Mostly Cloudy

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
125 ml [illegible]	[illegible]
125 ml [illegible]	[illegible]
125 ml [illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 5.09 was used to collect this sample.

COMMENTS Photo #6 Explosives spot test should be [illegible] below chart.
Soil distinctness: Sandy loam [illegible]
[illegible] pebbles, most fine [illegible] very [illegible]
Surrounding vegetation: [illegible], [illegible], grass, [illegible] [illegible]
Test sample screening: [illegible] cpm beta gamma
PID [illegible] ppm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9619

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122 0003

Location ID No. [illegible]

Sample Type [illegible]

Sample Location CR 34-2

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible] Clear | Sunny

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.04 was used to collect this sample.

COMMENTS Explosives spot test showed no visible color change post sample [illegible] PID [illegible] ppm
[illegible] = about 10% [illegible]
[illegible] Photo # 9, # 10

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 5/2/94 Time 1015

Technical Area 33 Operable Unit 1122

AAA9620

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1393

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear / Sunny

Containers Used	Analysis Requested
Soil glass	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	[illegible]
Ziplock bag	Radiography

LANL ER SOP # 6.6.04 was used to collect this sample.

COMMENTS

Explosives spot test showed no visible signs of stain / crystals.

[illegible] was [illegible] [illegible] & [illegible]

[illegible] [illegible] [illegible] of [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

Photo # 11

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES ___ X ___ NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible] 5 [illegible]-94
Clear / Sunny

Containers Used	Analysis Requested
Serial glass	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-vols
Ziplock bag	Air screening

LANL ER SOP # 6.6.09 was used to collect this sample.

COMMENTS
Explosives Soil Test showed no usable color change. Soil near site contains organic material roots. Site provides cover, rodents, insects, moist. Post sample screening 165 ppm detected using PID. Equipment surrounding vegetation grass [illegible] [illegible] There are large chunks of tuff on the surface of the soil. Sample location is on the top of a berm area. [illegible] on the 125 ml glass bottles [illegible] Sheet #12

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible] AAA9852

AAA9852

Technical Area 33 Operable Unit 1122

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES [illegible] NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

AAA 985-3

AAA9853

Date: [illegible]

Time: [illegible]

Technical Area: 33

Operable Unit: 1122

Name /Signature: [illegible]

Control No. (from Chain of Custody form): 1122-[illegible], [illegible]-A

Location ID No: 33-[illegible]

Sample Type: [illegible]

Sample Location: 010D-2

Composite: NA YES X NO

Composite Type: NA

Depth of Sample: [illegible] (in) (ft)

Weather: [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS: [illegible]

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible] AAA9854

Technical Area 33 Operable Unit 1122

AAA9854

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1424

Sample Type [illegible]

Sample Location 6161-3

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil description: large pieces of [illegible] Gravel particle [illegible] Sandy loam [illegible] specific material: light [illegible] material [illegible] last sample [illegible] 65-75 cm. Total [illegible] Subsurface vegetation [illegible] glass [illegible] large pieces of [illegible] evidence [illegible] sand

DUCT # 15

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible]94 Time 0855 AA9855

Technical Area 33 Operable Unit 1122

AAA9855

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1425

Sample Type [illegible]

Sample Location 33-0100-Y

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil [illegible] vegetative material [illegible] [illegible] sandy loam [illegible]

[illegible] sample [illegible] [illegible]

Surrounding [illegible] grass [illegible] [illegible]

large piece of [illegible] surrounding [illegible] debris [illegible]

Photo # 13

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible] 9856

Technical Area 33 Operable Unit 1122

AAA9856

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No. 33-1426

Sample Type [illegible]

Sample Location C16D-S

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # C1.09 was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9857

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-7427

Sample Type [illegible]

Sample Location 01UD-6

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1405

Technical Area 33 Operable Unit 1122

AAA9625

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1399

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

PID [illegible]

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1420

Technical Area 33 Operable Unit 1122

AAA9627

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite UH YES X NO

Composite Type UH

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 122

AAA9626

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

Photo # 21

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9629

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1954

Sample Type [illegible]

Sample Location CC2A-1C-C

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1415 AA-19859

Technical Area 33 Operable Unit 1122

AAA9859

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 1122-0006

Location ID No. NA

Sample Type SS, PE

Sample Location PE Blank

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Metals

LANL ER SOP # 1.6.C9 was used to collect this sample.

COMMENTS

*CRM-020-050 PE Soil [illegible]

SOIL WAS SCOOPED USING STAINLESS STEEL SPOON FROM CONTAINER [illegible] WHICH THE PE SOIL WAS ALREADY INTO THE 125ml [illegible] THIS WAS DONE IN THE SUPPORT ZONE

SOIL IS YELLOW-BROWN IN COLOR NONCONDUCIVE TEXTURE AND NO ORGANIC MATERIAL CONTAINING SOIL W/ 16 SPOON BUCKETS PLACED IN SAMPLE [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/1/94 Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9614

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9615

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	Metals
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test [illegible]

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1255

Technical Area 33 Operable Unit 1122

AAA9615

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES Y NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/1/94 Time 1305

Technical Area 33 Operable Unit 122

AAA9617

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite UA YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Explosives
[illegible]	Metals
[illegible]	Semi-VOC
2 pint Bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test exceeded the visible color change. Soil description: Coarse grained, [illegible] having 3 [illegible] of soil. Organic material sand was [illegible] [illegible]

Test sample screening: 20-100 cpm beta/gamma
PID 0 ppm

Surroundings: Sample was taken [illegible] Grade 5 [illegible] Lepidium [illegible] Acid [illegible] vegetation consists of [illegible] grass, wild oats and [illegible]. Site also of gravel, [illegible] and asphalt cover. Surface of soil [illegible]

Photo #5

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 122

AAA9630

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

[illegible]

Photo #3

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9622

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives spot test Buttered No visible colorations
Soil description: [illegible]
[illegible] = [illegible]
[illegible] Mag, small amount organic material

Test sample screening 90-100 cpm beta/gamma
BIN 1: [illegible]

Surroundings: Sample location situated on the [illegible]
top of a [illegible] sloping down [illegible]
grass, sagebrush [illegible] grass & tuff [illegible]
Soil

Photo # 9

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/8/94 Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9623

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-C09, C09A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # C6 C9 was used to collect this sample.

COMMENTS

Explosives spot test produced no visible color change.

Soil description: very sandy, clay, light brown color, pebbles - 20%, ice chips [illegible], dry, a small amount of organic material.

Test scan: [illegible] cpm background
[illegible] cpm

Sample [illegible] top of [illegible] circular [illegible] grass chamisa and large pieces of [illegible] on surface of soil

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1003

Technical Area 33 Operable Unit 1122

AAA9624

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0010, 009A

Location ID No. 33-1396

Sample Type Surface Soil

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Clear | hot | no breeze.

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test resulted no visible color changes

Soil described: fine sandy, light brown color
gravel - 10% product - 10%, dry, DTS & organic matter

Post sample sampling 96-124 spot hot/gamma
P.D.: 0 cpm

Photo # 11

Surroundings: On the north side of Jemez Road
10 feet south of a dirt road. Sagebrush, grass
overhang

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9626

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0010 0094

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9631

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives spotted revealed reversible color change.

Sample location very sandy, soil thick with organic material. Bubbles of air - low, [illegible] - low, dark brown color with clay. Air temp. cooler 3-4°.

First sample screening 92-106 cpm beta/gamma
PID 0.0 ppm

Photo # 7

Sinkhole sample location is [illegible] surrounded by [illegible] large sagebrush, [illegible] and mesas also present. A large basin [illegible] the location about 3 yards on [illegible] east and west.

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9632

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0009 009A

Location ID No [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives spot test revealed negative color change. Soil disturbed, crack roots, grass, moist. Light brown brown with grass tuff. Gravel. Very dry, sandy soil.

Post sample screening 95-130 cpm [illegible] BKG [illegible] cpm.

Sampling on west-facing side of berm. Surrounding vegetation: grass, chamisa, large pieces of tuff. 20th Rio Grande Gorge is due east about 100 yards.

Pitch # 8

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1029 9633

Technical Area 33 Operable Unit 1122

AAA9633

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0011, 004A 0013-A

Location ID No. 33-1591

Sample Type [illegible]

Sample Location 33-001A-14

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather Clear [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 01.04 was used to collect this sample.

COMMENTS

Explosives [illegible] detected on visible color [illegible]

Soil description: Sandy loam w/ organic matter [illegible] light brown [illegible] dry soil

Post sample screening: 95-124 cpm [illegible] PID [illegible] ppm

Surroundings: Clear sagebrush, grasses large pieces of tuff 10 ft. East on [illegible] road. A large [illegible] [illegible] soil [illegible]

Photo #12

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: ~~6/1/94~~ 6/2/94 Time 1040

Technical Area 33 Operable Unit 1122

AAA9634

Name/Signature [illegible]

Control No (from Chain of Custody form) 1122-011, ~~[illegible]~~ 6-2-94 CC13H

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location CC7A-15

Composite N/A YES ___ NO X

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear / Hot / Windy

Containers Used	Analysis Requested
500 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
2 liter poly	[illegible]

LANL ER SOP # CC, CG was used to collect this sample.

COMMENTS

Explosives spot test revealed no visible color changes

Soil description: top layer of soil was organic layer, soil is sandy loam with gravel - 25-30% subrounded 20% medium brown color

Post sample sequence: 55-101 CPM beta/gamma
P.O.C.: CPCN

Surroundings: located amongst sagebrush, Ponderosa, Clerks located 2 feet north of paved road

Photo #13

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible]-94 Time 1050

Technical Area 33 Operable Unit 1122

AAA9635

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0011 [illegible] CF 6-2-94 0613-A

Location ID No. 33-13-83

Sample Type [illegible]

Sample Location CC7A-16

Composite CP YES X NO

Composite Type CP

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-vols
Ziplock bag	RPD screen

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Explosives spot test revealed positive color changes

Soil description: Sandy soil, large pieces of quartz, many pebbles small, light brown, organic material

Post sample screening: 90-106 cpm beta/gamma
RID 0 ppm

Surroundings: large sagebrush, [illegible] surroundings, gulch, grass, [illegible] cobbles, road surface, ground covering, [illegible] small channels, [illegible]

Photo #14

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1102

Technical Area 33 Operable Unit 1122

AAA9636

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No. 13-1384

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
2 [illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives spot test produced [illegible] color changes.

Soil disturbance: [illegible] sand fill [illegible] mat of organic [illegible]

Post Sample Screening: 100-132 cpm [illegible]

Surroundings: Sample located on top of [illegible] structure that has been filled with dirt (sand) sagebrush growing on top [illegible] grass.

photo #17

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1116 AAA 9637

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 2, 109A

Location ID No. 33-1325

Sample Type Surface Soil

Sample Location 109A-18

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
50 ml plastic	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-vols
2 plastic bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives Test resulted in visable color changes

Soil description: Sandy clay, pebbles - 20%, gravel, light brown color, traces of organic matter

Post sample screening: 93-119 cpm beta/gamma PID: 0 ppm

Surrounding area: Sagebrush, juniper, chamisa, wildflowers, grass, and large rocks, on surface soil. Start width of 2.5 ft road

Photo # 16

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1120

Technical Area 33 Operable Unit 1122

AAA9638

Name /Signature [illegible]

Control No. (from Chain of Custody form) 122-3012-0090

Location ID No 33-1386

Sample Type Surface Soil

Sample Location 007A-19

Composite [illegible] YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-vols
Zip lock Bag	AAA-[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives spot test revealed no visible color changes

Soil description: Sandy-loam, organic material, [illegible] pebbles-5%, light brown color loose, appears to be part of a [illegible] black dust [illegible] through soil

Post sample description: 95-122 cpm beta/gamma PID: 0 ppm

Surroundings: Sagebrush, grass, chamisa, [illegible] 10 feet [illegible] dirt road. Large [illegible] sits due East 80-30 yards [illegible] surface soil

Photo #17

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1327 AAA9639

Technical Area 33 Operable Unit 1122

AAA9639

Name/Signature Kirsh Lovett / Kirsh Lovett

Control No. (from Chain of Custody form) 1122-0013, 0013-A

Location ID No. 33-1355

Sample Type Soil

Sample Location CCA-20

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0 - 6 (in) (ft)

Weather Hot, clear, breezy

Containers Used	Analysis Requested
500ml jar	Cs-137 Co60 U-nat
125ml jar	[illegible]
125ml jar	[illegible]
125ml jar	[illegible]
Ziplock bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives spot test revealed no visible color changes

Soil description: sandy fill of pebbles, 25% and gravel - 35%, brown color, high of organic matter

Post Sample Screening: 91-138 cpm BKG/gamma
PID: 0 ppm

Surroundings: 1 feet north of asphalt road, about 30 feet south of a berm, lagoon, slope
Mulleins, sagebrush, yucca, surface of ground covered with gravel

Photo # 18

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1338

Technical Area 33 Operable Unit 1122

AAA9640

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0013, 0013-A

Location ID No. 33-1284

Sample Type Surface Soil

Sample Location 1122-21

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear hot breezy

Containers Used	Analysis Requested
Glass jar	Gamma Rad
125ml Gl	[illegible]
125ml Gl	[illegible]
125ml Gl	[illegible]
Ziplock bag	Archive

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives test revealed possible color change. Soil moisture: dark brown, rich with organic material, pinyon needles, twigs, roots, no gravel or pebbles. Very soft, dry, silty soil.

Test sample screening 89-110 cpm beta/gamma, PID 0 ppm

Surface soil sample located under a pinyon tree. Very large blocks of calcified tuff on surface of ground, wildflowers, chamisa, grass.

Photo # 19

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1342

Technical Area 33 Operable Unit 1122

AAA9641

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1133-00/3 0013-A

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Hot [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives spot test needed.
Soil description: [illegible] with organic material
[illegible] of [illegible], sandy-silt, [illegible]

Post-Sample Survey: 30-100 cpm net gamma
PID: 0 ppm
Surroundings: grass, [illegible], [illegible]
[illegible] shrubs [illegible]
[illegible] Sample location [illegible]
a drainage [illegible]

Photo #30

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1356

Technical Area 33 Operable Unit 1122

AAA9642

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location 0671-23

Composite N/A YES ✓ NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.04 was used to collect this sample.

COMMENTS Explosives test kit [illegible] color changes
Soil description: sandy, light brown color
pebbles: [illegible], organic material, dry
[illegible] Sample sieved 16-96 SP [illegible]
PID [illegible] Cap
Surroundings: [illegible] trees, grass
Sagebrush - large chunks of calcified tuff
tuff cone, rubble.
Photo #[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1409 [illegible]

Technical Area 33 Operable Unit 1122

AAA9643

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 0013-A

Location ID No. 33-1592 Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Hot, partly cloudy, windy

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives test included no color changes.

Soil description: Sandy, dry, tan, gibbsite, light buff brown, organic / natural

Test sample screening: [illegible] PID

Photo documentation on site of stage, dead wood debris, sagebrush, oyamel, tumbleweeds, lots of calcified buff and orange substrate

Photo #52

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/2/94 Time 1419 [illegible]

Technical Area 33 Operable Unit 1122 AAA9644

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 1013-A

Location ID No. 33-039 Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES / NO

Composite Type N/A

Depth of Sample 0-6 (in)/(ft)

Weather Hot, hazy, Mostly [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # A6.09 was used to collect this sample.

COMMENTS

Explosives test [illegible] color changes

Soil description [illegible] organic material, pebbles - 20%, a little bit of gravel - 2.5%, dry, sandy

Post sample screening: 63-105 cpm beta/gamma
PID: 0 ppm

Surrounding area: a slope about 40 yards long, blocks & tiff, gravel area, [illegible] scale, many pieces of structure, debris, metals, dead wood, hoses, cables, wire

Photo # 73

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9645

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1344 Sample Type: Surface Soil

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather Hot / Clear / Slightly Breezy

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Explosives test revealed noticable color changes. Soil observation: very sandy, gravel - 2cm, but pebbles - 20%. Light buff, [illegible], very dry organic material.

Post sample screening: 97-127 ppm [illegible]
PID: 0 ppm

Surrounding area: [illegible] drainage, large blocks of tuff, some located directly under tuff building, juniper, grass, pebbles of silicon, debris

Photo # 24

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/3/94 Time 0857

Technical Area 33 Operable Unit 1122

AAA9656

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. CC4K-33-1315

Sample Type Soil

Sample Location CC4K-3

Composite LIA YES X NO

Composite Type LIA

Depth of Sample [illegible] (in)(ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	Rad Screen

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil description: sandy loam, brown color, [illegible] dry, organic material [illegible]

Post sample screening 90-111 cpm beta/gamma
PID 0ppm

Duplicate, sample [illegible] scrubbish, 3 in a [illegible], 7 feet [illegible] on asphalt road, [illegible], grass, alfalfa

Photo #1

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9657

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
2 [illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Soil description Sandy, very little organic material problem of [illegible] soil, specifically [illegible]

First sample screening 90-107 cpm beta/gamma PID [illegible] ppm

Surroundings: Sample location in [illegible] sagebrush, grass, with [illegible] [illegible] is an [illegible] drainage full of sand, large [illegible] [illegible] nearby

Pit #2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible]-94 Time 0917

Technical Area 33 Operable Unit 1122

AAA9658

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1312

Sample Type Surface Soil

Sample Location CCWK-5

Composite DA YES X NO

Composite Type N/A

Depth of Sample 0-6 (in)(ft)

Weather Clear / Warm / Slight breezy

Containers Used	Analysis Requested
125ml glass	Radionuclides
125ml glass	Sorption
Ziplock bag	RPD Sample

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil description: very sandy, tuff gravel - 20% and pebbles etc. light brown. Most organic material.

Test sample screening: 60-131 cpm beta/gamma. DIA: 0 ppm

Surroundings located on a drainage slope just to a large cement block and is near the debris strewn metals, grasses, next to a large juniper tree.

Photo #3

LANL-ER-SOP-01.04, R:

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/3/94 Time 0922

Technical Area 33 Operable Unit 1122

AAA9659

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1156

Sample Type Surface Soil

Sample Location [illegible]

Composite 1A YES X NO

Composite Type 1A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
125ml glass	[illegible]
125ml glass	[illegible]
Ziplock bag	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Soil description: very sandy, tuff gravel [illegible] Powder [illegible], light brown color [illegible] [illegible]

Post sample screening 73-96 cpm beta/gamma PID 0 ppm

Surface cover: hit to large [illegible] blocks dead wood, debris, grass, pinyon, [illegible] tuff boulders

Photo #4

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/94 Time 0937

Technical Area 33 Operable Unit 122

AAA9647

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. ~~33-1414~~ 33-1415

Sample Type [illegible]

Sample Location [illegible] CCA-2

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil described: Very sandy, large gravel - 20%, pebbles - 30%, light brown, organic material, wood debris

Post sample screening 99-116 cpm beta/gamma

Surroundings on slope, 100 ft down, [illegible] kinnikinnick, [illegible], [illegible] glass, [illegible] with a juniper bush, grass, sagebrush, large blocks of tuff

photo #6

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 1/13/94 Time 0946

Technical Area 33 Operable Unit: 1122

AAA9646

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 2, 0017A

Location ID No. 33-1444

Sample Type Surface Soil

Sample Location 010A-1

Composite ~~YES~~ YES X NO

Composite Type 1A

Depth of Sample 0-6 (in) (ft)

Weather Clear / Warm / Windy

Containers Used	Analysis Requested
5 Gal plastic	[illegible]
125 ml glass	Metals
Ziplock Bag	Rad Screen

LANL ER SOP # 01.09 was used to collect this sample.

COMMENTS Soil description: very sandy, pebbles - [illegible] reddish light brown, dry, organic material

Post sample screening: 35.112 cpm beta/gamma

Surroundings: dirt & steep [illegible] amidst brush, [illegible] broken glass, vials, [illegible] wire, cables, thermometer, [illegible], dead wood, a large [illegible] brick, large blocks of tile

Photo #5

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/3/94 Time 0950

Technical Area 33 Operable Unit 122

AAA9649

Name/Signature Kirsh Arnett / Kirsh Arnett

Control No. (from Chain of Custody form) 122-SC-2-0017A

Location ID No. 33-1417

Sample Type Surface Soil

Sample Location 210A-4

Composite 02 YES X NO

Composite Type 1:A

Depth of Sample 0-6 (in)/(ft)

Weather Clear / Warm / breezy

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	Details
Ziplock bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: sandy, gravel-size tuff pebbles, dry, no obvious material, light grayish brown, glass fragments, loose, rubble

test sample screening 90-110 cpm beta/gamma

Miscellaneous: large tuff blocks, grass, glass, broken glass, metal, tire, tarp, [illegible] cribbing, ~~[illegible]~~ 6/3/94, concrete pieces

Photo #6

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 10/3/94 Time 0956

Technical Area 33 Operable Unit 122

AAA9650

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1055

Sample Type Surface Soil

Sample Location OCA-4C

Composite N/A YES X NO

Composite Type N/P

Depth of Sample 0-1 (in) (ft)

Weather clear / warm / breezy

Containers Used	Analysis Requested
500ml glass	Rad Gen [illegible]
250ml glass	Metals
[illegible]	Rad Screen

LANL ER SOP # 01-09 was used to collect this sample.

COMMENTS Soil description: sandy, light gray-brown, [illegible] - 20% gravel - 1" dia, 1 organic [illegible] 10% debris: one concrete, 1 crushed rocks, glass fragments

Test sample screening: 96-162 cpm beta/gamma

Site survey: large tuff blocks, dead wood, grasses, broken glass, grass, wood debris, concrete pieces, wire, metals, tin scraps.

[illegible] 10/3/94

Photo # 7 8

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1005

Technical Area 33 Operable Unit 1122

AAA9648

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type [illegible]

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Metals
Ziplock Bag	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Soil description: [illegible] brown silty [illegible] the [illegible] silt, [illegible] plates, [illegible] brown, [illegible], [illegible], [illegible], [illegible]

Post sampling [illegible] [illegible]

Surrounding [illegible] [illegible] post of a [illegible] [illegible] [illegible] amounts of [illegible] [illegible] [illegible] broken [illegible], [illegible], metal plates, [illegible], concrete blocks, [illegible] [illegible] [illegible] cinders, wire, coil, electrical equipment

Photo #9

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/3/94 Time 1025

Technical Area 33 Operable Unit 1122

AAA9653

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. ~~[illegible]~~ 33-1420

Sample Type [illegible]

Sample Location DOB-3

Composite UP YES X NO

Composite Type UP

Depth of Sample [illegible] (in) (ft)

Weather Hot / Windy / Clear

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
Zip-lock bag	Rad Scan

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS Soil disturbed: sandy-loam, light yellow-brown, gravel ~10%, pebbles ~10%, very dry, slight amount of organic material.

Rad Scan: screening 102-130 cpm beta/gamma

~~[illegible]~~ 6-3-94
Surface: soil at a flat sample location directly beneath a very large pile of rubble-cell filling, large scraps of [illegible] is the dominant sagebrush, [illegible]

Photo #10

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/3/94 Time 1035

Technical Area 33 Operable Unit 1122

AAA9651

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-14R

Sample Type Surface Soil

Sample Location [illegible]

Composite LIA YES X NO

Composite Type LIA

Depth of Sample 0-6 (in)(ft)

Weather Clear / Warm / Breezy

Containers Used	Analysis Requested
500 ml plastic	[illegible]
1000 ml glass	Metals
Ziploc bag	Soil Sample

LANL ER SOP # CK09 was used to collect this sample.

COMMENTS Soil description: metal shavings, sandy-loam, but top 3 inches dark, very dry and very slight smell of organic material

Post Sample Screening: 110-143 cpm beta/gamma

Miscellaneous: Sample situated directly under large pile of metal rollings and other debris located about 30 feet off a little arroyo. Area is full of trees, plants - grass, sagebrush, cacti

Photo # 11

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1045

Technical Area 33 Operable Unit 1122

AAA9652

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33 1419

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
2 [illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil description: metal, tiff pebbles [illegible] - 10% [illegible], [illegible] pits of [illegible], [illegible] organic materials

post sample screening 110 - 130 cpm beta/gamma

Surveying sample location [illegible] large pile of metal [illegible] debris isolated on a ledge about 30 feet down a cliff that is [illegible] asbestos board, [illegible] debris, yucca, sagebrush.

Photo #12

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/6/94 Time 12:47 AAA 9741

Technical Area 33 Operable Unit 1122

AAA9741

Name /Signature [illegible]

Control No (from Chain of Custody form) 1122-[illegible]

Location ID No 33-1360 Sample Type Surface Soil

Sample Location 006A-dc-1

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (m)

Weather Sunny, 15-20 mph wind from the South. Temp - 85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST - neg.

S.I. - sandy, some organic material, dry down to [illegible] slightly moist after 4 h, gritty 10-20% gibbs 30% light brown

Rad sample screening - 140 cpm

Screening - [illegible] chemical [illegible] specific [illegible]

Area #14 Drive South East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/6/94 Time 1300 AAA 9742

AAA9742

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1361

Sample Type [illegible] Soil

Sample Location 006A-dr-2

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny 15-25 [illegible] Dry

Temp 85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST - neg.

Soil - [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

* NOTE - 1.5% [illegible] of yellow material left out of the sample

(AD) [illegible] 2500 cpm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9743
~~AAA 9751~~ FH

AAA9743

Date: 6/6/94 Time 1320

Technical Area 33 Operable Unit 1122

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1363

Sample Type Surface Soil

Sample Location 006A-dr-3

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] 15-20 mph. 15 from the south
Temp 75°

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.03 was used to collect this sample.

COMMENTS
HE TEST - 1169
Soil - Sandy [illegible] cobbles (2-4") [illegible] gravel [illegible] dry, [illegible]
HE sample screening - 100-120 cpm
Surroundings - [illegible] chassis, rocks
Drive E to Tech area EAST

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/6/94 Time 1337 AAA 9752

Technical Area 33 Operable Unit 1122

AAA9752

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1311

Sample Type Surface Soil

Sample Location 0045-1

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny wind 15-20 mph from the south
Temp 85°

Containers Used	Analysis Requested
500 ml plastic	0.137 [illegible]
125 ml glass	Metals
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HETEST - neg

Soil - [illegible] - sand, no organics, few pebbles, no gravel, light brown, dry

Pat sample [illegible] - 100-120 cpm

Screening - colluvial rocks (tuff), chamisa, pinon tree

Pits #17 facing East

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/6/94 Time 1350 AAA 9753

AAA9753

Technical Area 33 Operable Unit 1122

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1312

Sample Type Surface Soil

Sample Location 004J-2

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, wind 15-20 mph from the south
Temp 85°

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Explosives
[illegible]	Metals

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE-TEST - neg

Soil - sand [illegible] probably no special light brown [illegible]

Pot [illegible] - 120-130 cpm

Surveying - [illegible] (4x4) chamis [illegible]

Aspect = 18 Facing East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 9:10

Technical Area 33 Operable Unit 1122

AAA9759

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0027, 0032-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny 15 20 mph wind from the South-West.
Temp 73°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
RAD Bag	RAD [illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS
HE TEST - neg
S1 - Sandy, [illegible] (25%) (35-25%) [illegible] 30% [illegible] [illegible] Dark brown to black in color, dry.

Rat Sample Screening - 160 cps Bel [illegible]
S[illegible] - Rocks, [illegible], [illegible]
Photo #17 facing to the EAST

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 9:50

Technical Area 33 Operable Unit 1122

AAA9760

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 0022-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES ✓ NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny [illegible]
S.W. wind at 15-20 mph
Temp 80°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Red Bag	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS
HE TEST - [illegible]
Soil - [illegible] 15-20% [illegible]
[illegible] at about 2-3 [illegible]
Rat [illegible] 150-150 cpm Beta Gamma
Security - [illegible] black cables to the south
Zone #22 [illegible] EAST

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 9:25

Technical Area 33 Operable Unit 1122

AAA9757

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0022, 1122A

Location ID No [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny, Wind 15-20 mph from the South-West
Temp 20°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Bag	Bed Sediment

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS
HETERT - [illegible]
Soil - Sandy [illegible] hit tuff at 2 in down
[illegible] rocks, pebbles, light brown in color, dry
Bed Sediment - 30-100 cpm Beta, [illegible]
Surface - [illegible], very little change
[illegible] water
[illegible] E 20 [illegible] to the EAST

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 9:38

Technical Area 33 Operable Unit 1122

AAA9758

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0022-0022A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny Wind from the South-West at 15-20 mph Temp 80°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Red Bag	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

HE TEST - neg

Soil - Tuff pebbly, approx 15% dark brown, hot dry at about 1 in. depth, [illegible] Elk droppings, dry

Dust Sample [illegible] 100-130 cpm Beta Gamma

Surroundings - a few chamisa plants, species [illegible] grass

Dust #21 Facing to the EAST

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 10:40 AAA 9744

Technical Area 33 Operable Unit 1122

AAA9744

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-136.4

Sample Type Soil

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in)(ft)

Weather [illegible]
[illegible] 15-20 mph
Temp 80°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Metals
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
HE TEST - [illegible]
[illegible] very light brown
[illegible] 120 cm [illegible]
[illegible] about 3 ft [illegible]
[illegible] North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 10:55 Approved

Technical Area 33 Operable Unit 1122

AAA9745

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No 33-1463

Sample Type [illegible]

Sample Location CCA [illegible]

Composite N A YES ✓ NO

Composite Type N A

Depth of Sample 5-6 (in) (ft)

Weather Sunny, wind from the south at 15-20 mph
Temp 83°

Containers Used	Analysis Requested
[illegible]	[illegible]
25 [illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
HE TEST - no g

Soil: [illegible] organic material, gravels 5% [illegible] light brown, dry, [illegible]

[illegible] 133-140 [illegible]
[illegible] 6-7-94
[illegible] the north

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA9746
STICKER HERE

Date: 6-7-94 Time 1200

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1345 33-1345

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny Windy South
South → 10-15 mph
Temp 85°

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
125 ml glass	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 01.09 was used to collect this sample.

COMMENTS
HE TEST - neg
Soil - Sandy loam, lots of organic material (wood)
Light brown, dry
Rad Sample Screen 90-110 cpm Beta Gamma
Surface - Shrubs, dead sticks, dead grass
& HE roots, small amount of grass
Site # 8 Facing the North
* NOTE: This sample was accidentally given to Radiological Technician and picked up for a Metals & HE test having the effect of sample bottles being to be analyzed twice because the bottle was inadvertently placed in the sample bag.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 11:48 AAA 9747

Technical Area 33 Operable Unit 1122

AAA9747

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1266

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES Y NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny Wind from the South at 15-20 mph Temp 85°

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
[illegible]	[illegible]
125 ml [illegible]	[illegible]
Ziplock Bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST - neg

Soil - [illegible] light brown [illegible]

Split sample screen - 120-130 [illegible]

Screening: rocks that [illegible] on the ground, a shrub to the east.

Photo #7 facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 11:25 AAA 9748

Technical Area 33 Operable Unit 1122

AAA9748

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. ~~[illegible]~~ 33-1367

Sample Type Surface Soil

Sample Location CC6 A - [illegible] 87

Composite NA YES Y NO

Composite Type NA

Depth of Sample 0 - 6 (in) (ft)

Weather Sunny Wind E [illegible] 10-15 mph Temp 85°

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziploc Bag	Rad Screen
~~[illegible]~~	~~[illegible]~~

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST - Neg

Soil - Sandy no organics gravel 20%, pebbles 15%, Light brown, dry

Rad Sample Scaning - 100-120 cpm Beta, Gamma

Surroundings - Rocky landfill to the east, trees, brush on the east

Photo # 5 facing North

* Note, An additional 500ml plastic bottle was inadvertently placed in this bag. This 500ml bottle will be analyzed for Explosives and pesticides. CC6-A-5 was originally going to be analyzed for these constituents within [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA9749

Date: 6-7-94 Time 1140

Technical Area 33 Operable Unit 122

Name /Signature [illegible]

Control No (from Chain of Custody form) [illegible]

Location ID No 33-1368

Sample Type [illegible]

Sample Location [illegible]

Composite N A YES X NO

Composite Type N A

Depth of Sample [illegible] (in) (ft)

Weather Sunny, Wind from the South 10-15 mph
Temp 85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Red Bag	Red screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
HE TEST - neg
Soil - Sandy (Tan) [illegible] pebbles [illegible] gravel, light brown, dry
Rad Sample Screening: 120-130 cpm Beta Gamma
Surroundings - Juniper, Oak, rock (tuff) dead trees on the ground
Photo #6 facing Northwest

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-94 Time 11:15 AAA 9750

Technical Area 33 Operable Unit 1122

AAA9750

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1319

Sample Type [illegible]

Sample Location 006A-dr-9

Composite N A YES X NO

Composite Type N A

Depth of Sample 0 - 6 (in) (ft)

Weather Sunny, Wind South South at 10-15 mph Temp 85°

Containers Used	Analysis Requested
[illegible]	[illegible]
125 ml [illegible]	[illegible]
125 ml [illegible]	[illegible]
Ziploc Bag	Rad Scan

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST 109

Soil - Sand, gravel 20%, pebbles 15%, organic matter (grass roots), [illegible] light brown, dry, [illegible] odor

Point Sample Scan - 80-100 cpm Rad Scan

Scan Results - Cat, Fiber, [illegible], cork, [illegible]

Photo # 4 facing North

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 5-7-94 Time 1145 AAA9751

Technical Area 33 Operable Unit 1122

AAA9751

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1361

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Temp 70°

Containers Used	Analysis Requested
500-ml plastic	[illegible]
125-ml plastic	Explosives
[illegible]	[illegible]
125-ml glass	Metals
Ziploc bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

HE TEST - NEW

Soil - Sand, gravel 20% cobbles 10-15% no [illegible]
Light brown, dry

[illegible]

[illegible]

Sample [illegible] Pine [illegible]

Lab E3 [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: Oct. 8 - 94 Time 1316 AAA 9738

Technical Area 33 Operable Unit 1122

AAA9738

Name /Signature Kenny Hanel / [signature]

Control No. (from Chain of Custody form) 1125-0023, 0023A

Location ID No. 33-1306 Sample Type Surface Soil

Sample Location 004B-6

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind from the east at 5-10 mph Temp 85°

Containers Used	Analysis Requested
500-ml plastic	C-137
125-ml glass	Metals (gross)
125-ml glass	Gross Alpha
Red Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - [illegible] soil with lots of pebbles 15-20%, lots of organic material, roots & [illegible] dark brown - reddish

Post Sample Image - 100-120 cm [illegible]

Surroundings - Juniper tree to the west, large [illegible] rocks, dead tree branches all over the ground, broken glass bottles, metal bucket, [illegible] wire. Sample is [illegible] under a dead [illegible] p.m.

Pit #10 facing to the North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-6-94 Time 1325 AAA 9739

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-5023.0033A

Location ID No 33-1807

Sample Type Surface Soil

Sample Location 004B-7

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind from the East at 5-10 mph
Temp 85°

Containers Used	Analysis Requested
500 ml plastic	Cs 137
125 ml glass	Metals, Cyanide
125 ml glass	Semi volatiles
PAD Bag	Rad screening

LANL ER SOP # 06.09 was used to collect this sample

COMMENTS
Soil mostly all organic material, pebbles 10-15%, dark brown in color, dry
Rad sample screening - 100/120 cpm Beta Gamma
Sampling - Sample directly upwind of pinyon tree, late fall dead limbs, rocks, the sample is from north of drain pipe.
Photo #11 facing to the West

6-8-94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9740
~~AAA 9739~~

Date: 6-8-94 Time 1345

Technical Area 33 Operable Unit 1122

AAA9740

Name /Signature Kenny Hansel / [illegible]

Control No. (from Chain of Custody form) 1122-0003, 0023A

Location ID No. 33-1308

Sample Type Surface Soil

Sample Location 004B-8

Composite N/A YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny hot [illegible]
East at 5-10 mph
Temp 85°

Containers Used	Analysis Requested
500 ml plastic	Cs 137
125 ml glass	Metals (cyanide)
125 ml glass	Semi-VOCs
RAD Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Soil - organic material, very little soil, mostly grass, rock, pebbles, dry
Rad Sample survey - 60-80 cpm
Surroundings - rocks, chamisa, dead branches
Photo #12 facing to the South

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/9/94 Time 1422 AAA 9754

Technical Area 33 Operable Unit 1122

AAA9754

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0033, 1033-A

Location ID No ~~33-1443~~ 33-1442 Sample Type Soil

Sample Location 33-011C-1

Composite NA YES / NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, cool, temp ~85°

Containers Used	Analysis Requested
1L plastic	[illegible]
Ziplock bag	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil is loamy with pebbles, 10% low Dieser
Some organic material, light brown
Rise rad reading 90-110 cpm B, G
surrounding area - drainage of grade, sand
shrubs, rubble from 3½" auger hole
Sample location sample collected
from within depression (0 ft)
photo #15 facing west

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-8-~~93~~ 94 KF 6-8-94 Time 1405 0755

Technical Area 33 Operable Unit 1122

AAA9755

Name/Signature Kenny Hassell / [signature]

Control No. (from Chain of Custody form) 1122-0023, 0023-A

Location ID No. 33-1443

Sample Type Surface Soil

Sample Location 011C-2

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny Wind South East at 5-10 mph Temp 85°

Containers Used	Analysis Requested
1L plastic	Cs137 & Sum
zip bag	radiochemistry

LANL EP SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - loam, lots of pebbles, little bit of organic material, light brown, dry.

Pot Sample Scan - 70-90 cpm Beta, Gamma

Surveying - chaparral, rocks running to the south, clumps of grass. Sample taken from depression.

Photo #13 facing to the south

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-8-94 Time 1415 0756

Technical Area 33 Operable Unit 1122

AAA9756

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0023, 0024

Location ID No. 33-1461

Sample Type Surface Soil

Sample Location OU6-2c

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0 - 6 (in) (ft)

Weather Sunny 90's from SE
Fast at 5-10 mph
Temp 85°

Containers Used	Analysis Requested
1L plastic	Cs137 Isotopic
Ziplock bag	rad screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS JO 6-8-94

Soil - ~~sandy~~ loam, lot of rocks & pebbles, 1.7 lb
organic matter, high humus, dry

Post Sample Screening 100 - 120 with humus

Secondary - [illegible] chemicals, [illegible] of grass,
& cobbles coming out the ground in the soil

Site # 14

Collected Sample of OU6-2c

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 9:25 AAA 9769

Technical Area 33 Operable Unit 1122

AAA9769

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0034 0034-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible]
East 0.5 mph
Temp 70°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - with [illegible] 80% [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

HE TEST - NEG

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 9:35 AAA 9770

AAA9770

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33 1322

Sample Type Surface Soil

Sample Location [illegible]-2

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, wind from the East at 5-10 mph

Temp 70°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Silt-mostly fine grained <50% some soil, organic matter present (roots), light brown, dry

Rad Scan Screening 20-100 cpm Background

Photo # [illegible] facing in the south

Surrounding vicinity [illegible] lots of [illegible] on the scene.

HE TEST - NEG

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time: 9:45 AAA 9772

Technical Area 33 Operable Unit 1122

AAA9772

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-135

Sample Type Surface Soil

Sample Location MDA-H

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind South East at 5-10 mph

Temp 70°-75°

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml plastic	[illegible]
125 ml plastic	Metals
Ziploc Bag	Volatiles

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Silt-loam, organic material, lots of roots, gravel 2%, medium brown, semi moist, no pebbles

Spot Sample Screen 80-100 cpm Beta Gamma

Surroundings Large large tuff rock, grass, dead wood on the ground

Photo #19 facing to the west

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 9:50 AAA 9772

Technical Area 33 Operable Unit 1122

AAA9773

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No. 33-1460

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES ___ NO X

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, wind from the East at 5-10 mph
Temp 73°

Containers Used	Analysis Requested
500ml Plastic	[illegible]
125-ml glass	[illegible]
125-ml glass	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - organic mat (roots), loamy, gravel 5%, pebbles or rock resembling parent but rock at 3-4 in, light brown, dry

Post Sample Survey 10:100 Cpm Beta Gamma

Second grab - tuff rock fragments, change of access

Photo # 18 facing to the WEST

HE TEST - Neg

note: This sample was moved one foot south, ~~so the original sample would be to the north~~ instead of one foot north.

Reason: was a large tuff rock to the north of the original location. (see photos)

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/9/94 Time 11 00

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0024

AAA9990

Location ID No NA

Sample Type SOIL / PE

Sample Location NA

Composite NA YES NA NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather hot ~80°F, Sunny, still

Containers Used	Analysis Requested
125ml glass	metals
125ml glass	Total U

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

PE blank from Intermediate Interface
using liquid nitrogen and frozen [illegible]
SOIL is for the other
PE organic material
[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

KH 6-9-94

Date: 6-9-94 Time ~~9~~ 1005 AAA 9771

Technical Area 33 Operable Unit 1122

AAA9771

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0024, 0024-A

Location ID No 33-1943

Sample Type Surface Soil

Sample Location 06-A-3

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind E at 5-10 mph
Temp 70-75°

Containers Used	Analysis Requested
Solvent [illegible]	[illegible]
[illegible]	Explosives
[illegible]	Metals
Zip Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Silt - sandy - loamy gravel, pebbles 30%, some organic material, light brown, dry

Post Sample Screen = 90-110 cpm
KH 6-9-94
Incoming = [illegible] ~~temperature~~ large rocks, small clumps of grass
Photo #20 E, to the South
HE TEST - neg

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 10:15 AHA 9771

Technical Area 33 Operable Unit 1122

AAA9774

Name /Signature Kenny Hanel

Control No. (from Chain of Custody form) 1122-0034 0024A

Location ID No. 33-1355

Sample Type Surface Soil

Sample Location 0-6A-5

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny [illegible] East at 5-10 mph

Temp 70 75°

Containers Used	Analysis Requested
500 ml white	Cs 137 Total U
125 ml clear	Explosives
125 ml clear	Metals
Red Bag	Rad Screen
125 ml white	Inorganics

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - mostly fine, 85%, 15% soil, some organic matter in back soil, light [illegible], semi moist.

Surroundings - [illegible] dead logs, the ground is mostly [illegible]

Photo # 21: [illegible] Facing to WEST

HE TEST - neg

Rad Sample Screening 70: 915 cpm [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time: 1145 AAA 9775

Technical Area: 33 Operable Unit: 1122

AAA9775

Name/Signature: [illegible]

Control No. (from Chain of Custody form): 1122-0026 + 0026-A

Location ID No.: 33-1356

Sample Type: Surface soil

Sample Location: 1356-A-6

Composite: NA YES X NO

Composite Type: NA

Depth of Sample: 0-6 (in) (ft)

Weather: Sunny, Wind from the East at 0-5 mph

Temp 80°

Containers Used	Analysis Requested
500 ml plastic	Gamma Rad U
125-ml glass	Explosives
125-ml glass	Metals
Red Bag	Rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - sandy with silt (10%) & gravel, little clay
[illegible] at 3 in. some organic material (roots) [illegible]
brown, dry

Rad Screen Survey, 90 [illegible] cpm Beta, Gamma

Surroundings - next to a asphalt road with clumps of
[illegible] grass and [illegible]

Photo # 34 facing to the west

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 1135 AAA 9776

Technical Area 33 Operable Unit 1122

AAA9776

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122 - 0026 - 0026-A

Location ID No 33-1357

Sample Type Surface Soil

Sample Location 001 A-7

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind from the East at 0-5 mph

Temp °80

Containers Used	Analysis Requested
500 ml plastic	Gamma Rad U
125 ml glass	Explosives
125 ml glass	Metals
Rad Bag	Rad Screening

LANL ER SCP # 06.09 was used to collect this sample.

COMMENTS KH 6-9-94

Soil - ~~Sandy~~ loam, some gravel on hand. no pebbles or rocks (roots + grass), light brown, dry

Rad Sample Screening 90-110 cpm Beta Gamma

Scattered pine, chunks of grass, Elk droppings

Photo #2 facing to the South

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 10:45 AAA 9777

Technical Area 33 Operable Unit 1122

AAA9777

Name /Signature Kevin Hanel

Control No. (from Chain of Custody form) 1122-0025.0024-A

Location ID No 33-17CT

Sample Type Surface Soil

Sample Location 06A-T

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind is from the East at 0 mph
Temp 75°

Containers Used	Analysis Requested
500 ml white	(CLP TAL)
125 ml glass	Explosives
125 ml glass	Metals
Ziploc Bag	Rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Soil - sandy, lots of pebbles 20%, some gravel 5%, some large rocks (cobbles) light brown, dry

Wet Sample Weather - 90-110 since last rain

Surroundings - Juniper trees, large tuff rocks, one clump of bunch grass

Photo # 24 facing to the South

HE TEST - Neg

*Note Sample location fell upon a large tuff rock so the sample location was moved 3 ft ~~east~~ to the west

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 1055 AAA 9777

Technical Area 33 Operable Unit 1122

AAA9778

Name /Signature Kenny Hansel

Control No. (from Chain of Custody form) 1133-1126-0004-A

Location ID No 33-1464

Sample Type Surface soil

Sample Location MDA-AN

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny hot South East at 0-5 mph Temp 75-80

Containers Used	Analysis Requested
500 ml plastic	Gross Alpha
125 ml glass	Explosives
125 ml glass	Metals
Red Bag	Rad Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - mostly tuff pebbles, very little soil, some organics, moderate, light brown, dry 70°F

Rad Sample Screening 100-120 cpm Beta. Gamma

Sample was spread out, mostly tuff pebbles, a few

Photo 5-23 Facing the NORTH

HE TEST - Neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 10:35 4AA 9779

Technical Area 33 Operable Unit 1122

AAA9779

Name/Signature Kevin Hansel

Control No. (from Chain of Custody form) 1133-0026 + 0026-A

Location ID No 33-1359

Sample Type Surface Soil

Sample Location 2067-9

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny, wind is South East at 0 mph. Temp 70° 75°

Containers Used	Analysis Requested
500 ml plastic	Gamma Tl (1)
125 ml glass	Explosives
125 ml glass	Metals
Red Bag	Rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Soil - sandy loam with 10% organic materials (mostly pitch pine needles)

Pit Sample Location - 100-120 cm. Data [illegible]
Surrounding pits of equal chemical [illegible] to a tree
Pit is 15' facing to the NORTH
HE TEST - No

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 1150 Anal. [illegible]

Technical Area 33 Operable Unit 1122

AAA0780

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible] 1122-00[illegible] 0026-A

Location ID No. 33-1322 Sample Type [illegible] Soil

Sample Location 001A-[illegible]

Composite N/A YES ___ NO X

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather Sunny, Wind from the East at 5-10 mph

Temp 80°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil - sandy silt, 10% organic material (roots) gravel 2%
tuff fragments, light brown, dry

Test Sample Scoop - 91-110 cm [illegible]
Vegetation - Juniper, [illegible] tree, [illegible] cacti, [illegible]
[illegible] rocks, [illegible]
Site #3 Facing to the South
SE TEST - Neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 1200 AAA 9781

Technical Area 33 Operable Unit 1122

AAA9781

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0027 & 0026-A

Location ID No. 33-1223 Sample Type [illegible] Soil

Sample Location 00A-11

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind from the south at 5-10 mph

Temp 85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Soil - loam, lots of organic material (roots), silt 10% or greater, light brown, dry

Post Sample screening - 0.0 / 1.0 cpm Rita [illegible]

Screening - grass, pieces of wood, tuff pebbles

Plots # 5 [illegible] the west

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 1015 AAA 9782

Technical Area 33 Operable Unit 1122

AAA9782

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0027 & 0026-A

Location ID No. 33 1234

Sample Type [illegible] Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0 - 6 (in) ft

Weather Sunny, Wind from the South at 5-10 mph

Temp 80-85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - Loam which is [illegible] organics and roots, [illegible], [illegible] 25%, [illegible], dry

Rad Sample Screening - 90-110 cpm Beta [illegible]

Screening - [illegible] of 1 liter water [illegible] change of [illegible] E/E drainage

Hole #6 [illegible] to the East

HF TEST - Neg

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time 12:15

AAA 9783

Technical Area 33 Operable Unit 112

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1125-0027 + 0026-A

Location ID No: 33-1325 Sample Type Surface Soil

Sample Location 0014-13

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny Wind from the South at 5-10 mph

Containers Used	Analysis Requested
500ml plastic	Gamma Spec
125ml glass	Explosives
125ml glass	Metals
Red Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

S/L - consisting some [illegible] 10% of a fine [illegible] properly, being [illegible] little organic material, light brown, [illegible] very dry

Test Sample Survey 100-120 cpm Beta [illegible]

Surroundings - chamisa, clumps of grass, large tuff [illegible]

Photo # 7 facing to the East

HE TEST - [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-9-94 Time ~~12:25~~ 12:30 AAA 9784

Technical Area 33 Operable Unit 1122

AAA9784

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0027 + 0026-A

Location ID No. 33-1026

Sample Type Surface Soil

Sample Location 026A-14

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny Wind from the South at 5-10 mph

Temp 80-85°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - sandy-loam some tuff pebbles (10%) no gravel, some organic material (roots), light brown dry

Post Sample Survey - 70-100 cpm Beta Gamma

Surrounding vicinity of area has juniper plants, sticks, [illegible] next to a fence, lagoon [illegible] with [illegible].

Photo 8 [illegible] to the East

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/6/94 Time 10:45 AAA9891

Technical Area 33 Operable Unit 1122

AAA9891

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0030.0028-A

Location ID No. 33-1473

Sample Type Surface Soil

Sample Location CC6A-40

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Sunny N & South East at 5-10 mph

Temp 70

Containers Used	Analysis Requested
500ml plastic	Cs137 Tritium
125ml g/l	explosives
125ml g/l	metals
Ziploc bag	radiography

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil is sandy with lots of pebbles and gravel very little organic material, light brown to grayish black

AM 6-10-94

PCB screen 5 x screen 550 600 cpm

Note that the surface BX reading ~ 300 cpm

Surrounding area — gas cylinders, burnt large steel pipe, way to the south, [illegible] were all over the ground

Lots of small cubes the ground, some sticks

Photo # 16 looking to the North

4 = 25-1.54" - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/10/94 Time 10:36 AAA9795

Technical Area 33 Operable Unit 1122

AAA9795

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0030-0038-A

Location ID No [illegible]

Sample Type [illegible]

Sample Location 06A-23

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather Sunny 11 [illegible] South East at 5-10 mph

Temp 70°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

[illegible] - [illegible] material (Sk [illegible]) [illegible]

[illegible] 120-145 [illegible]

[illegible] - large [illegible], [illegible], [illegible] to the south

[illegible] 14 [illegible] to the south

HE test [illegible] - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 9:45 AAA 9[illegible]

Technical Area 33 Operable Unit 1122

AAA9793

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0030, 038-A

Location ID No. 33-1334

Sample Type Surface Soil

Sample Location [illegible] - 21

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny Wind South East at 0-5 mph

Temp 65°

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
125 ml [illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - [illegible] (fine grained [illegible]) no pebbles on ground, Mea Dirty, dry

[illegible] 90-110 cpm

surrounding area - dead trees, [illegible], [illegible] grass, roots

[illegible] 9 [illegible] to the west

HE test results - neg

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/[illegible] Time 10:0[illegible]

Technical Area 33 Operable Unit 1122

AAA7791

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0029-0025-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny W. to from the East at 0-5 mph

Temp 70°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

loamy

[illegible] 16%-15%

[illegible]

PID [illegible] - 90-110 ppm

[illegible]

photo #11 looking to the west

HE [illegible] neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9790

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0024 0029A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny, Wind from the East at 5-10 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
	✓
✓	

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil - sand, tuff gravel, some clay, light brown in color, dry

post sample is approx 100-120 cm

Cutting area - same as 006A-15

pit is 513 feet to the north

HE test results - neg

Note: sample location was relocated one foot to the west

Bunsen Lunge tuff rock is to the north & the south

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1017

Technical Area 33 Operable Unit 1122

AAA9789

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0029 0028-A

Location ID No [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny, Wind South East at 5-10 mph

Temp 70°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil - Sandy soil from [illegible], a few sticks, [illegible] burn, dry

pit sample 2 x [illegible] - 100-120 [illegible]

Surrounding area - [illegible] a point at the [illegible] [illegible] drainage [illegible] all [illegible] [illegible] some on the weeds.

plant # 12 [illegible] to the north

HV test results - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 11:10

Technical Area 33 Operable Unit 122

AAA9788

Name/Signature [illegible]

Control No. (from Chain of Custody form) 122-0028, 0028-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in):(ft)

Weather Sunny Wind South East at 5-10 mph

Temp 75°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

3/2/95

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil - [illegible] some organic [illegible] hit clay at about 4 in, light brown [illegible] dry

per [illegible] BX [illegible] 158-170 [illegible]

surrounding area - exposed tuff, large tuff [illegible] chunks of [illegible]

photo #78 facing to the south

HE test results - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 11:05

Technical Area 33 Operable Unit 1122

AAA9787

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny w. ½ Sun th. Fall at 5-10 mph

Temp 75°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil – loam with organic material, a few pebbles (roots) light brown, dry

[illegible] 30-100 cpm

[illegible] – slope of [illegible], Elk droppings, [illegible] (to N)

[illegible] to the South

HE Spot [illegible] – Neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1128

Technical Area 33 Operable Unit 1122

AAA9786

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0028, 0028-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather Sunny, [illegible] from the East at 5-10 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

[illegible]

Photo Sample [illegible] 60-70 [illegible]

[illegible] - [illegible], lumps, clumps of grass. Sample is located on the south side of an open grass area. Lots of litter around sample.

Photo # 19 [illegible]

HP TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-10-94 Time 1138

Technical Area 33 Operable Unit 1122

AAA9785

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0028 [illegible] 0028-A

Location ID No. [illegible]

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible] East at 5-10 mph

Temp 80°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Soil - sandy loam, [illegible] metals (red, [illegible]), some pebbles and brown, [illegible]

[illegible] 80-100 [illegible]

[illegible] the sample, [illegible]

[illegible] # 20 [illegible] the North

HE TEST - [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA9792

Date: 6/2/89 Time 9:57

Technical Area 33 Operable Unit 1122

Name/Signature Kenny Howard

Control No. (from Chain of Custody form) 1122-89-029-0034-A

Location ID No. 33-1334, 33-1333

Sample Type Surface Soil

Sample Location [illegible] -20

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind South East at 0.5 mph

Temp 68°

Containers Used	Analysis Requested
500 ml plastic	137 Table 1
125 ml glass	Explosives
125 ml plastic	Metals
2 oz jar	Radiochem
125 ml glass	Herbicides

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil - tit tail at 2m, some organic matter (roots), sandy, 125 angel, [illegible], pieces of cinders, glass, metal, [illegible]

[illegible] sample [illegible] 130-135 cpm

[illegible] - small shards of glass, [illegible]

[illegible] 10 [illegible] to the limit

HE [illegible] results - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1130 AAA9877

Technical Area 33 Operable Unit 1122

Name /Signature Linda Elliot [illegible]

Control No. (from Chain of Custody form) 1122-0036

Location ID No. NA

Sample Type Soil / PE

Sample Location NA

Composite NA YES / NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather Sunny, Warm, clear ~78°F

Containers Used	Analysis Requested
125ml/gl	metals

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

PE Blank

CRM-6-100
METALS on SOILS
Encounter Pumps - Pre-Sort Reference
MILBRIDE

Soil is tan in color - very homogeneous
fine grained loamy silt
dry, no organic matter

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9794

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0033, 0033-A

Location ID No. 55-1335

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

[illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/96 Time 1203 [illegible]

Technical Area 33 Operable Unit 1122

AAA9796

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0033-0033-A

Location ID No. 33-1337

Sample Type Surface Soil

Sample Location [illegible]

Composite N/A YES ___ X NO

Composite Type N/A

Depth of Sample 0-6 (in) (m)

Weather Mostly Wet -85°F [illegible]
Wind from the South 5-10mph

Containers Used	Analysis Requested
[illegible]	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziplock Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed visible color change

Soil description: Sandy loam but not alluvial with small gravel pebbles and tuff pebbles - 20%
Light brown color, very dry, no organic materials

Post Sample Screening: 150 cpm beta/gamma

Surrounding: Sample location takes the form of black circle with [illegible] rocks & soil
Wildflowers, grass, grasses, lichens
North of a small channel and an asphalt road

Photo #4 facing North

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1323

Technical Area 33 Operable Unit 1122

AAA9797

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-003 2033-A

Location ID No. [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (m)

Weather Partly cloudy 1st 85°F breezy from the Southwest 5-10 mph

Containers Used	Analysis Requested
500ml [illegible]	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziplock bag	RADS screen
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed no color change.

Soil description: Sandy gravel 35-30% [illegible] alluvial, dark brown, organic material, sagebrush, debris [illegible]

Post Sample Screening 60-80 cpm beta/gamma

Surrounding: Sample location [illegible] sagebrush, surrounded by sagebrush, grass, wildflowers, chamisa

Photo #15 facing West

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/94 Time 1255

Technical Area 33 Operable Unit 1122

AAA9798

Name /Signature Kristi Aldridge / Kristi Aldridge

Control No. (from Chain of Custody form) 1122-0033, 0033-A

Location ID No. 33-1339

Sample Type Surface Soil

Sample Location CCGH-26

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (m)

Weather Mostly cloudy Hot 85°F, Winds from the Southwest 5-10mph

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Explosives
125ml glass	Metals
Ziplock bag	RADSCAN

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed positive color changes

Soil description sandy gravel - 15-20% gravel 15% light brown, dry, hot to the touch, 4 inches of organic material - roots

Post sample screening 0:20 cpm beta/gamma

Surrounding terrain gravel pumps, large tree, black embedded in gravel surface, trees, sagebrush

Photo #14 facing the North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/94 Time 1245 AAA9799

Technical Area 33 Operable Unit 1122

AAA9799

Name /Signature Kristi Arnold

Control No. (from Chain of Custody form) 1122-0034, 0033-A

Location ID No. 33-1340

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Mostly cloudy 45-95 F. Winds from the Southwest

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed no visible color changes

Soil description loamy sediment [illegible] organic materials - roots, grasses, leaves [illegible]

Post sample screening [illegible]

Surroundings grass [illegible] wild flowers, oak, silt, bluegrass, [illegible] disappearing, sheepshead

Photo 13 for the south facing site

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/15/94 Time 1215

Technical Area 33 Operable Unit 1122

AAA9800

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0034, 0038-9 3 [illegible]

Location ID No [illegible]

Sample Type Surface Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (m)

Weather Clear hot - 85°F breeze from the Southwest 2-7 mph

Containers Used	Analysis Requested
500ml glass	[illegible]
125ml glass	Explosives
125ml glass	Metals
2 ziplock bag	RADSCAN

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed possible color change

Soil description: Sandy loam, pebbles 1-3", gravel 3/8", medium brown color, very dry, organic material - roots, grass

Post sample screening 100-200 cpm beta/gamma

Surroundings: On the east side of small drainage channel, rocky soil with many pieces of tuff, cliffs, juniper, sagebrush

Photo # 11 facing east

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/94 Time 1222

Technical Area 33 Operable Unit 1122

Name /Signature Keith Aldredt / K. [illegible]

Control No. (from Chain of Custody form) 1127-0034, 0033-A

Location ID No. 33-1342

Sample Type Surface Soil

Sample Location [illegible]-29

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (m)

Weather Clear, partly cloudy, hot 85°F, Winds from the southwest 5-7mph

Containers Used	Analysis Requested
500ml glass	[illegible]
125ml glass	Explosives
125ml glass	Metals
Ziplock bag	RADS

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed noticeable color changes

Soil description: loamy [illegible] roots, [illegible] but access [illegible] rocks

Post Scope Screening: 30-20 cpm beta/gamma

Surrounding location: [illegible] boulders, [illegible] debris, rubber [illegible] tires

Thermal II facility [illegible] 1/3 mile east

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/13/94 Time 1227 AAA9802

Technical Area 33 Operable Unit 1122

AAA9802

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]-1122-0034, 0037

Location ID No 33-1167

Sample Type Surface Soil

Sample Location [illegible]

Composite DA YES Y NO

Composite Type DA

Depth of Sample 0-6 (in) (ft)

Weather Clear, light cloud, Hot - 85°F, Winds South Southeast 10-20 mph

Containers Used	Analysis Requested
500ml plastic	Gross TRU, Total U
125ml glass	Explosives
125ml plastic	Metals
2 plastic bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives spot test showed No visible color changes

Soil description: sandy, light brown color, dry, pebbles - 10-20%, organic materials,

Post Sample Screening: 50-120 cpm beta/gamma

Surroundings: grass clumps, wildflowers, chamisa, tuff ~~[illegible]~~ as 6/13/94 blocks and gravel

Photo # 12 from the South

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9803

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0031, 0031-A

Location ID No. 33 1344

Sample Type [illegible]

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible] 72°F [illegible] the South to the NE

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives Test [illegible] No visible [illegible]

[illegible]

[illegible]

[illegible]

Photo #1 [illegible] = the SW

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 10/31/94 Time 0913

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0031 0031-A

Location ID No. 33-1345

Sample Type Surface Soil

Sample Location [illegible]-31

Composite DP YES X NO

Composite Type DP

Depth of Sample 0-6 (in),(ft)

Weather Sunny, clear 65-70°F
Wind from the West - 5-9 mph

Containers Used	Analysis Requested
500 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	Metals
2 gallon bag	NAA Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Explosives Test Revealed Visible Color Change.
Soil description: Tan light brown silty sand, [illegible]
Roots, [illegible] present. [illegible] also present.
Test Sample Screening 50-120 ppm [illegible]

Surrounding Sample location: [illegible] location.
2 large tilted boxes and unidentifiable [illegible]
plants. [illegible] 2 small [illegible] about
30 yards [illegible] fallen trees.
Photo # 2 facing West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1055

Technical Area 33 Operable Unit 1122

AAA9805

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0031, 0031-A

Location ID No 33-1346

Sample Type [illegible]

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 00-09 was used to collect this sample.

COMMENTS

Explosives Test Revealed no visibly [illegible]

[illegible]

[illegible]

[illegible]

Photo #7 [illegible] 6/13/94 [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1040

Technical Area 33 Operable Unit 1122

AAA9806

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122 0031, 0031-A

Location ID No. 33-1342

Sample Type Surface Soil

Sample Location [illegible] -33

Composite DP YES X NO

Composite Type DP

Depth of Sample 0-6 (in) (ft)

Weather Mon Hot 90°F breeze from the South 5-20 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test Revealed possible color changes

Soil description: Very loamy with organic material - oak leaves, twigs, light brown color, sampling roots

Test sample spanning 20-130 cm [illegible]

Sample located in an oak blind on a large tilt block with a lot of surface soil GRASS deer droppings, leaf litter

Photo # 6 facing South East

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AAA9807

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-00327-0031-A

Location ID No. 33-1346

Sample Type Surface Soil

Sample Location [illegible] CC6A-34

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear 60-80°, winds from the South - 5 20mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # CC 09 was used to collect this sample.

COMMENTS

Explosives Test Revealed invisible color change

Soil description at site: light tan, medium [illegible] [illegible] soil, very dry, little organic material

Test Sample Screening [illegible] cpm [illegible]

Surrounding Sample location soil is in between two large limestone blocks, a dead wood log is just north of the location. Cactus, grass, oak, pinon & juniper

There is a [illegible] to the north

LANL-ER-SOP-01.04.R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1000 AAA9808

Technical Area 33 Operable Unit 1122

AAA9808

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0032, 0031-A

Location ID No. 33-1349

Sample Type Surface Soil

Sample Location CCGH-35

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot 73°F Wind from the South 10 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS.
Explosives Test Revealed No visible Color Change

Soil description: Mostly [illegible] [illegible] [illegible] [illegible] with [illegible] [illegible] [illegible] loamy soil [illegible] [illegible] [illegible] [illegible] very dry [illegible] [illegible] [illegible] [illegible] sample [illegible] [illegible] 90 cpm [illegible]

[illegible] sample [illegible] [illegible] large [illegible] [illegible] [illegible] large [illegible] [illegible] grasses, [illegible] [illegible] [illegible] [illegible] 20 feet [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] the sampling location

Photo #3 Facing the East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1015

Technical Area 33 Operable Unit 1122

AAA9809

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0032, 0031-A

Location ID No. ~~33-1344~~ 33-1475

Sample Type Surface Soil

Sample Location CC6P-3SU

Composite UP YES X NO

Composite Type UP

Depth of Sample 0-6 (in) (ft)

Weather Mid 80s - 75°F Windy from the South 5-4 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # CC-09 was used to collect this sample.

COMMENTS

Explosives Test Revealed visibly colorchanges [illegible] pinkish-red [illegible] light brown in color. Soil description [illegible] and [illegible]

Test Sample [illegible] 90-110 cm [illegible]

Equipment Sample location [illegible] soil [illegible] which surrounds a [illegible] disposal area. The [illegible] is located south of the [illegible] Chaining, [illegible] large [illegible] rocks [illegible] and [illegible]

Photo 4 Facing the North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 0945 AHA981C

Technical Area 33 Operable Unit 1122

AAAS810

Name /Signature Kristi Aamodt / Kristi Aamodt

Control No. (from Chain of Custody form) 1122-0035, 0035-A

Location ID No. 33-1350

Sample Type Surface Soil

Sample Location CCW-36

Composite DP YES X NO

Composite Type DP

Depth of Sample 0-6 (in)(ft)

Weather Hot, cloudy skies, 84-90°F, winds from the SE

Containers Used	Analysis Requested
[illegible]	[illegible]
1 Soil glass	Explosives
1 Soil glass	Metals
Ziplock bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS.
Explosives Test Revealed no visible color changes.

Soil description: Sand with cinders and tuff, a small lot of leaves, soil, roots, organic material. Reddish brown color, very dry.
Post Sample Screening 80-120 ppm, background.

Surface area about 25 square feet, a concrete step immediately located under an oak, in between tuff houses and blocks, rocks, fallen leaves, pinon needles, grasses.

Photo 18 looking West

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 1004 AAA9815

Technical Area 33 Operable Unit 1122

AAA9815

Name /Signature Kristi Aardt / Kristi Aardt

Control No. (from Chain of Custody form) 1122-0036, 0035-A

Location ID No 33-1429

Sample Type Surface Soil

Sample Location FIRG-2

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Partly cloudy, Hot - 81°F, Winds from the SE - 5-10 mph

Containers Used	Analysis Requested
500 ml glass	[illegible] (total)
125 ml glass	[illegible]
125 ml glass	[illegible]
Zipper bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS.
Explosives Test Revealed invisible color changes

Soil description: Mostly crushed tuff, a small amount of loamy soil, tuff - probably - 35% [illegible] black, [illegible] grass, very dry
Test Sample Screening [illegible] ppm

Surrounding: Intermittently [illegible] tuff black, dead tree, [illegible] grass, dry, in a small wash, about 250 yds down slope - [illegible] East.

Photo # 19 facing West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible]/94 Time 1010 AAA9613

AAA9613

Technical Area 33 Operable Unit 1122

Name /Signature Keith Lamont / Keith Lamont

Control No. (from Chain of Custody form) 1122-0035 0035-A

Location ID No 33-1353

Sample Type Surface Soil

Sample Location [illegible]-39

Composite [illegible] YES X NO

Composite Type 1 PA

Depth of Sample 0-6 (in)-(ft)

Weather Partly cloudy, hot 82°F, wind from the South East

Containers Used	Analysis Requested
[illegible]	[illegible]
125ml glass	[illegible]
125ml glass	[illegible]
Zip-lock	RAD Screen

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS.
Explosives Test Revealed visible color change

Soil description: brown, mostly fines, sandy dust, [illegible] quartz, [illegible], light brown color, dust is dark brown
Vert Trench Spacing 80-100 [illegible]

Surface: [illegible] indicated under a [illegible] [illegible] blocks, [illegible] about 150 yards down a [illegible] slope which faces East, grasses, silver sage, wild [illegible]

Photo # 20 facing West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/97 Time 1023

Technical Area 33 Operable Unit 1122

AAA9814

Name /Signature Krish Lowell / Krish Lowell

Control No. (from Chain of Custody form) 1122-0034, 0035-A

Location ID No. 33-1428

Sample Type Surface Soil

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather High Pressure Clouds, Hot 89°F 6/14/97
Wind from SE 5-15 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample.

COMMENTS

Explosives Test Revealed [illegible] color change.

Soil description: [illegible] pebbles [illegible] moist [illegible] very light brown [illegible] dry, [illegible] organic [illegible]
Test sample: [illegible] 50-100 [illegible]

Surrounded on a step slope about 150 feet down a canyon slope which faces east to southeast, across channel dead end dirt road, a large pile of shipping sits just south of sampled location, [illegible] tuff blocks.

Photo # [illegible] facing east
Photo # 22 tuff [illegible] opposite collection

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 1045 AAA9812

Technical Area 33 Operable Unit 1122

AAA9812

Name /Signature Keith Lamont / Keith Lamont

Control No. (from Chain of Custody form) 1122-0035, 0035-A

Location ID No. 33-1352

Sample Type Surface Soil

Sample Location CC6A-38

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather High Cumulus Clouds Hot 85°F, Winds from the SW 10-30 mph RK 6/14/94

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # CC-09 was used to collect this sample.

COMMENTS:
Explosives Test Revealed no color changes

Soil description: loamy basic very high amounts of roots, dead grasses, pebbles - 30%, gravel - 10%, very dry

Test Sample Screening RL - 100 ppm [illegible]

Surroundings: About 150 feet down a steep slope into a canyon with South large tuff boulders, cliff face, grasses, wildflowers, some pines

Photo #23 facing NE

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-11-94 Time 1102 Page 1 of 1

Technical Area 33 Operable Unit 1122

AAA9811

Name /Signature Kirsh Dorsett / Kirsh Dorsett

Control No. (from Chain of Custody form) 1122-0035 0035A

Location ID No. 33 1351

Sample Type Surface Soil

Sample Location CCGP-37

Composite 12 YES X NO

Composite Type 12

Depth of Sample 0-6 (in) (ft)

Weather Hot, cloudy, Hot 85°F, Breeze from the West to Southwest 10-25 mph

Containers Used	Analysis Requested
5 Ziplock	[illegible]
125ml glass	Explosives
125ml Wide glass	Metals
2 Ziplock	RAD Screen
0	

LANL ER SOP # CC 09 was used to collect this sample.

COMMENTS:
Explosives Test Revealed no color changes

Soil description: Fine silty sandy dust, loamy soil, roots, grass, pebbles-small, medium brown color, very dry

Soil Sample Screening 90-120 cpm background

Summary: Many large tuff boulders and blocks, about 200 feet east of southern-facing slope. Vegetation: grass, sagebrush, juniper, cacti, dead wood / debris

Photo # 24 facing North

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 1125

AAA 9735

Technical Area 33 Operable Unit 1122

AAA9735

Name/Signature

Control No. (from Chain of Custody form) 1122-0037, 0035-A

Location ID No 33-1305

Sample Type Surface Soil

Sample Location 004R-3

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Sunny, Wind from the East at 5-10 mph
Temp 82°

Containers Used	Analysis Requested
Scoop plastic	Cs 137
125 ml glass	Metals Cyanide
125 ml glass	Gross Alpha
RAD Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Soil - loamy sandy, lot of pebbles, 25% lot of organic material from cattail from surface down in light brown dry
Scoop - chemical clumps of moist colorless material (?) & fluffy greenish
Photo # 10 facing South
Rad sample screen - 100-120 cpm background

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 1140 AAA 9736

Technical Area 33 Operable Unit 1122

AAA9736

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0037-0354

Location ID No. ~~33-1054~~ 33-1305

Sample Type Sub-Surface Soil

Sample Location CC4B-4

Composite N/A YES X NO

Composite Type N/A

Depth of Sample [illegible] 72 (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
500-ml plastic	Cs 137
125-ml glass	Metals (Cyanide)
125-ml glass	Semi-Volatiles
40-ml Amber w/	VOCs
40-ml Amber w/	VOCs
Rad Bag	Rad Screening

LANL ER SOP # C6.10 was used to collect this sample.

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

AAA 9737

AAA9737

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hancock / [illegible]

Control No. (from Chain of Custody form) 1122-0037-0035-A

Location ID No. 33-13035

Sample Type Sub-Surface Soil

Sample Location 004B-5

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 3'-4' (in) (ft)

Weather [illegible] 61°F, [illegible] 10-20 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137
125 ml glass	Metals Cyanide
125 ml glass	Semi-vol
40 ml [illegible]	VOC
40 ml [illegible]	VOC
[illegible]	[illegible]

LANL ER SOP # CG.10 was used to collect this sample.

COMMENTS

[illegible]

This sample was collected from sample location #5 & must be re-surveyed

Hawk

LANL-ER-SOP-01.04, R2

1st sample

sample location

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 0910

Technical Area 33 Operable Unit 1122

AAA9817

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0036 0035-A

Location ID No. 33 ~~[illegible]~~ 33-1431

Sample Type [illegible]

Sample Location ~~[illegible]~~ 0106-4

Composite DP YES X NO

Composite Type DP

Depth of Sample 0-6 (in),(ft)

Weather Partly cloudy Hot - 75°F, Winds from the SW - 5-15 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

KH 3/2/95

LANL ER SOP # 06-09 was used to collect this sample.

COMMENTS:
Explosives Test Revealed

[illegible]

[illegible]

Photo #16 Facing West

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 0925 AAA9816

Technical Area 33 Operable Unit 1122

AAA9816

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0036.0035-A

Location ID No. ~~[illegible]~~ 33-1456

Sample Type: Surface Soil

Sample Location ~~[illegible]~~ CICC-3

Composite 12 YES X NO

Composite Type 12

Depth of Sample 0-6 (in) (ft)

Weather High Clouds Clear Temp. 78°F
Winds from the SW 5-15 mph

Containers Used	Analysis Requested
5" [illegible]	[illegible]
125ml glass	Pesticides
125ml glass	Herbicides
Ziploc bag	RAD Screen
125 ml glass	Herbicides

LANL ER SOP # 00.03 was used to collect this sample.

COMMENTS:
Explosives Test Revealed Noticeable odor change.

Soil description: light brown, medium odor, very dry, pebbles, rocks, brown grass, roots

Rad Sample Screening @ 120 cpm background

Surface area located east of a brown tilled area, bricks, grass clippings, a large piece of Styrofoam, dead wood

Photo #15 facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/14/94 Time 10:30

Technical Area 33 Operable Unit 1122

AAA9880

Name/Signature Linda Flak

Control No. (from Chain of Custody form) 1122-94-36

Location ID No. NA

Sample Type soil PE

Sample Location NA

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather 80°F, warm, sunny, still

Containers Used	Analysis Requested
1.25 mL glass	metals

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

FE Blank
CRM020-050
metals on soil #2
As other PE soil sampling

LANL-ER-SOP-01.04, R2

Section 4

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/15/94 Time 0945

Technical Area 33 Operable Unit 1122

Name /Signature Linda Clark

Control No. (from Chain of Custody form) 1122-0040

AAA9874

Location ID No. NA

Sample Type Soil PE

Sample Location NA

Composite NA YES NA NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather Hot ~35°F, Still sunny

Containers Used	Analysis Requested
125 ml glass	total U
125 ml glass	metals

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

PE soil blank from Idaho National Lab. IC 5250693-084
fine grained homogeneous soil
~50 grams per bottle
Soil placed in containers in the SZ

LANL-ER-SOP-01.01, R2

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

AAA 9765

AAA9765

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0039, 0038-A

Location ID No. 33-1409

Sample Type Surface Soil

Sample Location 0073-7

Composite N/A YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather [illegible] ~65°F [illegible] [illegible] west 5-15mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color change

Soil description: [illegible]

Post Sample Screening [illegible]

PID [illegible]

Surroundings: [illegible] flat area [illegible] excavated [illegible] [illegible] blocks [illegible]

[illegible] #3 facing East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9768

AAA9768

Date: 6/15/94 Time: [illegible]

Technical Area: 33 Operable Unit: 1122

Name /Signature: [illegible]

Control No. (from Chain of Custody form): 1122-0038, 0038-A

Location ID No.: 33-1403

Sample Type: Surface Soil

Sample Location: 007B-[illegible]10

Composite: N/A YES X NO

Composite Type: N/A

Depth of Sample: 0-6 (in) (ft)

Weather: [illegible] 60°F [illegible] from the South 5-15mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc Bag	RAD Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color changes

Soil description: [illegible] [illegible] [illegible] [illegible] brown [illegible] dry, grasses, [illegible] roots.

Post Sample Screening: [illegible] 100 cpm beta/gamma
Alpha: N/A
PID: 0 ppm

Surroundings: [illegible]

Photo #12 facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/15/94 Time 0940 AAA 9703

Technical Area 33 Operable Unit 1122

AAA9703

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0041, 00.38-A

Location ID No 33-1474

Sample Type Surface Soil

Sample Location COSA-1

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Mon Hot 80°F

winds from the WEST 0-10mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137
125 ml glass	Explosives
125 ml [illegible]	Metals
125 ml glass	Semi-Vocs
Ziploc Bag	RAD Screen

LANL ER SOP # C6 09 was used to collect this sample.

COMMENTS Explosives Test revised on color change

[illegible]

Test Sample screening [illegible] spec. [illegible]/Semi-[illegible]
[illegible]
PID: [illegible]

Sample designation [illegible] [illegible] [illegible]
[illegible] gases [illegible] [illegible] [illegible]
[illegible]
[illegible] [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 0950 AAA 9704

Technical Area 33 Operable Unit 1122

AAA9704

Name/Signature [illegible]

Control No. (from Chain of Custody form) 1122-0041, 0038-A

Location ID No. 33-1475

Sample Type Surface Soil

Sample Location COOA-2

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in)/(ft)

Weather [illegible]

Containers Used	Analysis Requested
500 ml plastic	Cs 137
125 ml [illegible]	Explosives
125 ml [illegible]	Metals
125 ml [illegible]	[illegible]
Ziplock bag	NHO [illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives Test revealed no [illegible] color changes.

Soil description sandy-loam [illegible] [illegible] lay little, roots [illegible]

Test simple screening CO-100cpm beta/gamma
[illegible] PID
Alpha — no detection activity (NDA)

Surroundings: sagebrush grass, [illegible] disturbed area, wood debris, [illegible]
Photo #5 facing East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 0855 AAA9705

Technical Area 33 Operable Unit 1122

AAA9705

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0041, 0035-A

Location ID No. 33-1476

Sample Type Surface Soil

Sample Location CCS74-3

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0 - 6 (in) (ft)

Weather [illegible] 45°F [illegible]

Containers Used	Analysis Requested
500 ml plastic	U 238
125 ml glass	Explosives
125 ml glass	Semivols
125 ml glass	Metals
Ziplock bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS: Explosives Test Revealed: [illegible] color changes

Soil description: Sand, pebbles, [illegible] yellow dry. Roots, [illegible] pieces of wood, pebbles. [illegible] gravel 0-20%

Post Sample Screening: 80-100 cpm beta/gamma
Alpha NDA
RID 6 ppm

Surroundings: [illegible] grasses, sagebrush, blackstiff. Flat vegetated area [illegible] sets just west of location about 10 feet

Photo #6 facing South
#7

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible]

AAA 9761
AAA9761

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0038, 0038-A

Location ID No. 33-1402

Sample Location C07B-1

Sample Type Surface Soil

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] - 85° F

[illegible] South 5-15 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color changes

Soil description: Sand, light brown, [illegible] 25% gravel, 15%, [illegible], [illegible] grass [illegible] dry

Post Sample Screening: [illegible] cpm background
PID: 0 ppm
Alpha: NDI

Surroundings: Location is [illegible] of a [illegible] pit in a flat [illegible] area. [illegible] has [illegible] sagebrush, [illegible], [illegible] grasses & [illegible]. [illegible] [illegible]

Photo #: [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9762
AAA9762

Date: [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0033, 0033-A

Location ID No. 33-1405

Sample Type Surface Soil

Sample Location 007B-3

Composite N/A YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot 85°F Winds North South 5-15 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137, U, Th
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Explosives Test revealed no color changes

Soil description: gravel - 25%, pebbles - 30%, sand, [illegible] roots, [illegible] brown, [illegible] dry, [illegible] of wind

Post Sample Screening: 20/-100 cpm beta/gamma
Pb: 0 cpm
Alpha: N/A

Surroundings: [illegible] sample location, [illegible] 30 feet NE of location, [illegible] black cables, [illegible] spruce, [illegible] plastic
Photo # 9 facing North

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1029 AAA 9763

Technical Area 33 Operable Unit 1122

AAA9763

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0039, 0038-A

Location ID No. 33-1406

Sample Type Surface Soil

Sample Location 007B-4

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] 75°F [illegible]

Wind: [illegible] South 5-10 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color changes

Soil description: [illegible] light brown [illegible] 45-[illegible] gravel - 5% [illegible] Soil [illegible] 2% [illegible] roots, very dry

Post Sample Screening: 70-90 ppm [illegible]
Alpha: N/A
Beta: 0 ppm

Surroundings: On the side of an arroyo in [illegible] consists of tuff blocks and [illegible] sagebrush, [illegible] grasses, wild [illegible] & [illegible] trees, [illegible]

Photo # 10 facing west

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1031

AAA 9764

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0039, 0038-A

Location ID No. 33-1462

Sample Type Surface Soil

Sample Location 007B-4C

Composite N/A YES X NO

Composite Type N A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] from the South 5 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Sem. VOCs
Ziploc Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no visible color changes

Soil description same as 007B-4

Post Sample Screening 70-90 cpm beta/gamma
Alpha NDA
BKG cpm

Surroundings: same as 007B-4
Photo # 11 Facing West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration

SAMPLE COLLECTION LOG

AAA 9767

AAA9767

Date: [illegible] Time: [illegible]

Technical Area: 33 Operable Unit: 1122

Name /Signature: [illegible]

Control No. (from Chain of Custody form): 1122-0040 0038-A

Location ID No: 33-1411 Sample Type: Surface Soil

Sample Location: 007B-9

Composite: N/A YES X NO

Composite Type: NA

Depth of Sample: 0-6 (in)(ft)

Weather: [illegible] - 85°F [illegible] from the South 5 [illegible]mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOC
Ziploc Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color changes

Soil description: [illegible] Roots [illegible] Sandy loam

Post Sample Screening: [illegible] cpm beta/gamma
PID [illegible] ppm
0 cpm Alpha

Surroundings: [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9766

AAA9766

Date: [illegible] Time 1323

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-7040 0038-A

Location ID No. 33-1410

Sample Type Surface Soil

Sample Location 007B-8

Composite N/A YES X NO

Composite Type N A

Depth of Sample 0-6 (in) (ft)

Weather [illegible] 75 [illegible]
[illegible] 5-10 mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137, [illegible]
125 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi VOCs
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test revealed no color changes

Soil description: Sand, crushed tuff, light brown, [illegible] pebbles [illegible] pieces of [illegible] card

Post Sample Screening BKG 90-110 cpm beta/gamma
0 ppm
cpm alpha

Surroundings: Sample location is immediately [illegible] of tuff wall [illegible] [illegible] quiet [illegible] Hanford quiet [illegible] approximately 15 feet high. Vegetation, grass, wild flowers, sagebrush, [illegible] blocks, [illegible]

Photo #2 facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time [illegible] 1130 [illegible]

Technical Area 33 Operable Unit 1122

AAA9830

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-1047-0002A

Location ID No 33 1433

Sample Type Surface Soil

Sample Location [illegible]

Composite [illegible] YES X NO

Composite Type UA

Depth of Sample [illegible] (in) (ft)

Weather [illegible] 63°F, Windsfrom the East 5-15mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Metals
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test kits color changes

Soil description: loamy [illegible] brown [illegible] cubes pumice [illegible] and [illegible] gravel roots, [illegible] the dark [illegible] pebbles. [illegible] varying

Post Sample Screening: 80-100 cpm [illegible]
Alpha: NA

Surroundings: [illegible] was [illegible] gravel area [illegible] debris and pumice [illegible] covers the ground surface [illegible] glasses

Photo # 19 facing West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-1-94 Time 1140 [illegible]

Technical Area 33 Operable Unit 1122

AAA9831

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0042, 0043A

Location ID No 33-1434

Sample Type Surface Soil

Sample Location SUB-2

Composite N/A YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Hot, Hot - 89°F, Cloudy Skies
The East 5-20 mph

Containers Used	Analysis Requested
500ml glass	[illegible]
125ml glass	Metals
Ziplock bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
Explosives Test Aquals no visible color changes

Soil description: Fine grained dark brown soil, moderate bubbling, grass roots, dry

Post Sample Screening: 70-90 cpm total gamma
Alpha: NDA

Surroundings: location completely undisturbed by tank, tank facility stops at [illegible] west debris

Photo #20 facing East - 1145 sample location

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1120 [illegible]

Technical Area 33 Operable Unit 1122

AAA9832

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0042, 0047-A

Location ID No 33-1435

Sample Type Surface Soil

Sample Location 0113-3

Composite NA YES X NO

Composite Type DA

Depth of Sample 0-6 (in) (ft)

Weather Clear 44-57°F, winds from the West 5-15mph

Containers Used	Analysis Requested
Ecol Glass	[illegible]
125ml glass	Metals
Ziplock bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test swipes no color changes

Soil description: Loam with pumice and scoria, with roots, gravel, pebbles, [illegible] dark brown, very dry

Rad Sample Screening: cpm beta/gamma
Alpha:

Surroundings: Cr [illegible] testing facility site with tuff blocks in small arrangement, cactus, juniper, mountain mahogany, wood debris, [illegible]

Photo #18 facing South - Hike & Karen [illegible] soil to South 1127

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1150 HH9833

Technical Area 33 Operable Unit 1122

AAA9833

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0042, 0042-A

Location ID No. 33-1636 Sample Type Surface Soil

Sample Location SWB-4

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Hot, Hot - 90°F, Windy from the last 5 days

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Metals
Ziploc Bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test shows positive changes

Soil description: loam with [illegible] fines, [illegible] dark brown color, very dry, pebbles 10%

Post Sample Sequence: 70-90 cpm background
Photo: UA

Surroundings: Location excavated with a gravel, mound covered with grass, pebbles and [illegible] debris, grass charred, dead [illegible] & grass bush [illegible] sample location clean

Photo #91 (gravel) 92 Kiowa Sampling
Hole with slight depression between [illegible]
1157

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1152

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

AAA9834

Control No. (from Chain of Custody form) 1122-0042, 0042A

Location ID No 33-1471

Sample Type Surface Soil

Sample Location OU3-4c

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot 90°F Wind from the West 5-25 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test reveals no color changes

Soil description: Same as for OU3-4c previously

Last Sample Screening: 80-100 cpm beta/gamma
Alpha: NDA

Surroundings: Same as for OU3-4
Pole at 33 Sample location and

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 1-11-94 Time 1110 [illegible]

Technical Area 33 Operable Unit 1122

AAA9835

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0042, 0042-A

Location ID No. 33-1437

Sample Type Surface Soil

Sample Location 0113-5

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Clear, Hot - 87°F Winds from the West - 5-15mph

Containers Used	Analysis Requested
500ml Plastic	Gross Alpha
125ml glass	Metals
Ziploc Bag	[illegible]
125ml glass	Pesticides

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test reveals no color changes

Soil description: Mostly fine-grained tuff, white-green color, very dry, organics ~ roots, leaf litter, juniper duff, loamy soil

Rad Sample Screening: 30-40 cpm beta/gamma
Alpha: NA

Surroundings: On a west-facing slope of limited tuff, large juniper burned [illegible] tuff blocks

Photo #17 facing South 1120

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1050 AAA9836

Technical Area 33 Operable Unit 1122

AAA9836

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0043, 0042-A

Location ID No. 33-1438

Sample Type Surface Soil

Sample Location C11B-6

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Partly Cloudy - 85°F Windy from West - 5 10mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test Aureals No color changes

Soil description: loam, organics - roots, leaf litter, very dry, predominant basalt, pebbles - 1/4", gravel 1-3"

Post Sample Screening: 80-100 cpm beta/gamma
Alpha: NDA

Surroundings: located in a grass clumps, [illegible] chamisa, a large tuff blocks approximately 5' [illegible] trees. Tied North - due West

Photo # 19 facing North taken at 1056

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time ~~1200~~ 1205 [illegible]

Technical Area 33 Operable Unit 1122

AAA9837

Name /Signature [illegible] / [illegible]

Control No. (from Chain of Custody form) 1122-0043, 1042-A

Location ID No. 33-1439

Sample Type Surface Soil

Sample Location CUB 7

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot 90°F, Winds from the West 5-30mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test Buckets no color changes

Soil description: all natural ~~[illegible]~~ 6/16/94 Brown, Dry, [illegible] loamy-sand, [illegible] light brown clay pebbles - 35% gravel 15%

Test Sample Screening: BG=100 cpm total gamma
Alpha: NDA

Subroundings: Situated next to a concrete dump pile with lots of gravel, [illegible] soil, [illegible] relocation, gravel, wild flowers, [illegible]

Photo # 24 facing North 1205
Rinsing equipment to start

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1100 HPA 9656

Technical Area 33 Operable Unit 1122

AAA9838

Name /Signature Kirsh Lovett / Kirsh Lovett

Control No. (from Chain of Custody form) 1122-0043, 0042-A

Location ID No. 33-1440

Sample Type Surface Soil

Sample Location FL13-E

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot - 85° F, Winds from the West - 5-15 mph

Containers Used	Analysis Requested
Equipment Blank	Gross Alpha
125ml glass	Metals
Ziplock Bag	RADIONUCLIDES

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test Results No color changes

Soil description: Very organic ~ leaf debris, grass, dark brown color, roots, v loamy, very dry

Rad Sample Screening: 70-90 CPM total gamma
Alpha: NDA

Surroundings: Located sits in a large flat block, 3 feet wide & long, surrounded by much pumice dust covers surface of ground. Scattered dead wood debris, pinion tree, wildflowers, grasses, chamisa
Photo #15 facing East at 1105

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/16/94 Time 1040 AAA9839

Technical Area 33 Operable Unit 1122

AAA9839

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0043, 0042-A

Location ID No 33 1441

Sample Type Surface Soil

Sample Location OU13-9

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot - 85°F, Winds North ~~East~~ West - 5-20 mph 6/16/94

Containers Used	Analysis Requested
500ml Plastic	[illegible]
125ml glass	[illegible]
Ziplock bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Explosives Test reveals no color changes

Soil description: sandy-loam, pebbles - 10%, organics, roots, light brown, slight tilt at 2 inches, very dry, ~~[illegible]~~ no visible gravel - 2%

Post Sample Screening: 66-90 cpm background
Alpha: NDA

Surroundings: Location is 30 yards west of the RCRA dish. Located on flat ground with grass clumps, chamisa, wildflowers

Photo #13 facing North at 1050

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/20/94 Time 1045

Technical Area 33 Operable Unit 1122

Name /Signature Kristy Arnold / Kristy Arnold

Control No. (from Chain of Custody form) 1122-0044, ~~0044-A~~ 6/20/94

Location ID No. 33 1409

Sample Type Liquid Sample

Sample Location SCUM-1

Composite UP YES X NO

Composite Type UP

Depth of Sample 1' below top of ~~surface~~ (in) (ft)

Weather Partly Sunny Wind from the southeast at < 5 mph

Temp ~85°F

Containers Used	Analysis Requested
500ml glass	Semi-VOCs
40ml bottle	VOCs
~~Sample bag~~	~~AND frame~~

KH 6-20-94

LANL ER SOP # 06.15 was used to collect this sample.

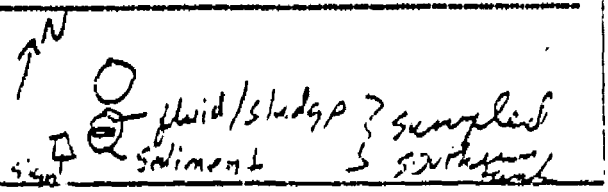
COMMENTS

Sample description: fluid from top of tank. This is the southern tank (near the sign SF8903.A.

Post sample screening background CPM beta/gamma
Alpha background
PID = 0 ppm

Observations: The designated area is made up of big it up hill - light tan tuff. Area looks to be built up w/ fill. The area surrounding the fill area is a mixture of ponderosa trees & natural grasses & cactus & other vegetation.

Photo #25 facing to the south west. Taken by K. Arnold



LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/20/94 Time 1100 AAA 9819

AAA9819

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0044, 0044-A 6/20/94

Location ID No. 33 - 1469

Sample Type Sludge

Sample Location 004M - 2

Composite UP YES X NO

Composite Type UP

Depth of Sample 1½' - 5' (in/ft)

Weather Partly Cloudy, Wind South

Temp. 85°F SW at <5 mph

Containers Used	Analysis Requested
125 ml glass	Sem.-VOC's
2x40 ml glass	VOC's
~~[illegible]~~	~~[illegible]~~

LANL ER SOP # ~~06.10~~ 06.09 was used to collect this sample.

COMMENTS

Sample description: Sludge is dark brown, collected out (Nitrogen waste & sediment - looks new) is adhesive to side of tank. Bottom of tank is ~9' deep

Post sample screening background cpm beta/gamma Alpha PID = 0 ppm

Sampling as 004M-1 Sampling in tank / tube. Description on 004M-1

Photo #25 facing to the west

used spade & spoon method for collecting the sludge sample - the material was somewhat solid

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/20/94 Time 1115 AAA 9823

AAA9823

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hannel / E. U.P.

Control No. (from Chain of Custody form) 1122-0044, 0045

Location ID No. 33-1319

Sample Type Surface Soil

Sample Location 004M-6

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Wind From the

Temp at mph

Containers Used	Analysis Requested
125 ml glass	Sim. VOC's
Ziplock bag	RAD Screen

LANL ER SOP # 6.10 was used to collect this sample.

COMMENTS

Sample description: fill material mostly tuff (tan gray light) w/ some pebbles. Sandy mat, mostly pieces of tuff ranging in size <1 inch to >5 inches. Largest tuff piece from sample.

Post Sample Screening (background cpm)

Alpha NDA Beta/gamma ~70-100 cpm

FID = 0 ppm

Screening: Same as 004M-1

Photo #26 facing to SE

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 1300 9859

Technical Area 33 Operable Unit 1122.

AAA9889

Name/Signature Linda Fly / Linda Fly

Control No. (from Chain of Custody form) 1122-0044

Location ID No. rinsate

Sample Type rinsate water

Sample Location NA

Composite NA YES NA NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather cloudy, cool, breezy

Containers Used	Analysis Requested
1500 ml amber	semivol

LANL ER SOP # ~~QPAP~~ 6/2/94 was used to collect this sample.
QPjP (site specific)

COMMENTS

rinsate sample was collected by running distilled water over and through the decontaminated muck sucker. Water was poured directly into the sample bottle.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-21-94 Time 1200 AAA 4694

Technical Area 33 Operable Unit 1122

AAA9694

Name /Signature Kenny Hamil / [signature]

Control No. (from Chain of Custody form) 1122-0045 0045-A

Location ID No. 33-1404 Sample Type Soil

Sample Location 0078 catcher box berm-2

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample In trench 0-6 (in) (ft)

Weather Wind from the South

Temp 85 at 10 mph

Containers Used	Analysis Requested
500 ml gl	Cs137 Tabel
125 ml gl	metals
ziplok bag	rad
125 ml gl	Explosives

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description 10th bucket 5 ft. inside trench (some bits of organic material (roots) tuff pebbles, light brown, dry

Post Sample screening

Alpha NDP 80-100 cpm Beta/Gamma

Screening - inside the trench there is pieces of crushed tuff

Photo # 33 facing to the EAST

HE TEST - 1 leg

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/21/94 Time 1210 AAA 9695

Technical Area 33 Operable Unit 1122

AAA9695

Name /Signature Terry Hansen / [signature]

Control No. (from Chain of Custody form) 1122-0045 0045-1

Location ID No. 33-1404

Sample Type Sub Surface Soil

Sample Location 0078 catcher box berm -3

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample In trench 0-6 (in)(ft)

Weather Wind from the south

Temp 85 +/10mph

Containers Used	Analysis Requested
500ml pl	Cs137 Total U
125ml gl	metals
Ziplock bag	rad
125ml gl	explosives

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: 14" bucket 10 ft inside the trench mostly tuff with very little organic material, cottonwood cinders, tan + gray in color dry.

Post Sample screening

Alpha NDA X6-100 cpm Beta/Gamma

Surrounding soil + tuff pieces inside the screen

Photo # 34 facing to the NORTH

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-21-94 Time 1237 AAA 9696

Technical Area 33 Operable Unit 1122

AAA9696

Name /Signature Terry Hanel

Control No. (from Chain of Custody form) 1122-0045 0045-A

Location ID No 33-1404

Sample Type Surface Soil

Sample Location 0078 catcher box berm-4

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample In trench 0-6 (in)(m)

Weather Wind from the South

Temp 85° 0-10-15 mph

Containers Used	Analysis Requested
500 ml gl	Cs 137 Total U
125 ml gl	metals
ziplok bag	rad
125 ml gl	explosives

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description, loam + tuff, natural cinders, some crushing bluff material

20th bucket 15 feet in side the trench

Post sample screening

Alpha NDA 30-100 cpm Beta/Gamma

Secondary - shell pieces (KH 6-21-94) in the trench

Photo #35 facing to the North West

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-21-94 Time 1142 AAA 9693

Technical Area 33 Operable Unit 1122

AAA9693

Name /Signature Tony Hamilton

Control No. (from Chain of Custody form) 1122-0075-0074-A

Location ID No 33-1404

Sample Type Sub-Surface Soil

Sample Location 0078 catcher box berm -1

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample In trench 0-6 (in) (ft)

Weather Wind from the South

Temp 85° at 10 mph

Containers Used	Analysis Requested
500 ml pl	Cs137 Total U
125 ml pl	metals
Ziplok bag	rad
125 ml gl	Explosives

LANL ER SOP # 0609 was used to collect this sample.

COMMENTS

Soil description - 6" bucket at 3" into the catcher box
lots of organic debris, loamy, fine pebbles
light brown, dry

Post Sample screening
Alpha - NDA Beta/Gamma 70-90 cpm

Screening: only the catcher box was positive
tuff at about 2 feet

Photo #30 facing to the NORTH

HE TEST - neg

[illegible]
MM 6-21-94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date 6-21-94 Time 1300 AAA 9697

Technical Area 33 Operable Unit 1122

AAA9697

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0046 0045-A

Location ID No. 33-1404

Sample Type Sub Surface Soil

Sample Location 0278 catcher box berm-5

Composite NA YES ✓ NC

Composite Type NA

Depth of Sample In trench 0-6 (in) (ft)

Weather Wind from the South at 10-15 mph

Temp 85

Containers Used	Analysis Requested
500 ml pl	Cs137 Tritium
125 ml gl	metals
ziplok bag	rad
125 ml gl	explosives

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - mostly crushed tuff, some organic material (cactus wood)

bucket #26, 20 ft in

Post Sample screening

Alpha N/A 80-100 cpm Beta/Gamma

Screening - inside the trench

Photo #37 facing to the EAST

pit test - [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-23-94 Time [illegible] AAA 9698

AAA3698

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0041 [illegible]

Location ID No. ~~Berm 43-1~~ 33-1449

Sample Type [illegible] Soil

Sample Location ~~33-1449~~ Berm 43-1

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0-3 (in) (ft)

Weather [illegible] from the North East at 5 mph

Temp

Containers Used	Analysis Requested
500 ml [illegible]	[illegible]
125 ml glass	Metals
Red Bag	[illegible]
125 ml glass	Explosives

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: [illegible] 4ft inside the trench (y-dir.) y-direction 0-3 ft x-dir 3 ft 40% [illegible] unsorted stuff gave up the [illegible] mixed in with brown sandy soil and pulverized tuff. Sampled the fine material [illegible] Best sample [illegible] abundant organic matter [illegible]

Alpha NA [illegible]

Second soil fill material described above. See trash and [illegible] in surrounding area

Photo # 3 facing to the south (bucket [illegible] location)

HE TEST - neg

Sample

y height 0-3'

ground surface → x 3' In to trench

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 0950

AAA 9699
AAA9699

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Harrison / Kenny Harrison / Linda Fink / Linda Fink

Control No. (from Chain of Custody form) 1122-0047, 0047-A

Location ID No. ~~Decon-43-2~~ 33-1449 x 10 6-21-94

Sample Type Sub-surface Soil

Sample Location ~~33-1449~~ Decon-43-2

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-1' above land fill / 0-3' below land fill (in) (ft)

Weather Wind from the NE at mph

Temp 80°F

Containers Used	Analysis Requested
500 ml plastic	Cs 137 Tritium
125 ml glass	Metals
Red Bag	rad screen
125 ml glass	Explosives

LANL ER SOP # 0609 was used to collect this sample.

COMMENTS

Soil description - see AAA 9698

X/y location 5' / direction (see depth)

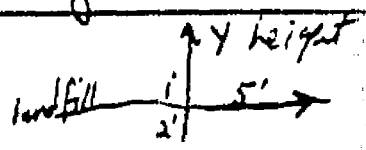
Post Sample Screening

Alpha NA 80-100 cpm Beta Gamma

Screening of see AAA 9699

Photo # 5 facing to the south bucket above location

HE TEST - neg



Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1015 AAA9700

Technical Area 33 Operable Unit 1122

AAA9700

Name /Signature Kenny Hassel / Kenny Hassel & Linda Flint, Linda Flint

Control No. (from Chain of Custody form) 1122-0047, 0047-A

Location ID No. 33-1449

Sample Type Sub surface Soil

Sample Location Bam-43-3

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-5' above surface, 0-2' below (in) (ft)

Weather Wind from the NW

Temp 80°F at mph

Containers Used	Analysis Requested
500 ml plat	Gamma Rad Scan
125 ml glass	Isotopic
125 ml glass	Explosives
Red Bag	Rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: See AAA9698

x direction 6 ft IN
y direction (see depth)

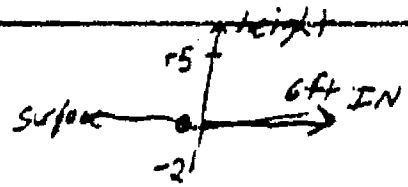
Post Sample screening

Alpha 1/h cpm Beta Gamma 70-90 cpm

Second " " See AAA 9698

Photo # 6 looking to the south

bucket on top of sample



LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1105 AAA 9701

Technical Area 33 Operable Unit 1122 AAA9701

Name /Signature Kenny Harrel / Kenny Harrel / Linda Flint, Linda Flint

Control No. (from Chain of Custody form) 1122-0047, 0047-A

Location ID No 33-1449 Sample Type Sub Surface Soil

Sample Location Beam-43-4

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample ~1'-5' above surface (in) (ft) Top Surface

Weather Wind from the NE

Temp 80°F at mph

Containers Used	Analysis Requested
500 ml plastic	Cs 137, Sr 90
125 ml glass	Metals
125 ml glass	Explosives
Red Bag	Dust sample

LANL ER SOP # 06.07 was used to collect this sample.

COMMENTS

Soil description: See AAA 9698

X = 20-18'

* Found piece of metal ~ 2" long, 1" wide

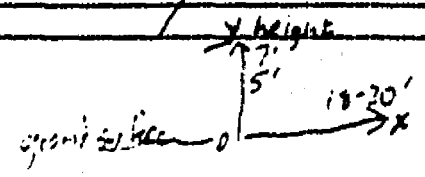
metal 160-180 cpm

Dust Sample screening

Alpha NA 90-100 cpm Beta Gamma

Screening: See AAA 9698

Dust #7 facing to the South bucket on top of location



Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/97 Time 1355 AAA9702

Technical Area 33 Operable Unit 1122

AAA9702

Name /Signature Kenny Harrod / Kenny Harrod ; Linda Flak / Linda Flak

Control No. (from Chain of Custody form) 1122-0048, 0042 A

Location ID No. 33-1449

Sample Type Sub surface Soil

Sample Location Rem 43-5

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-5' above land fill (in)/(ft)

Weather Wind from the N

Temp ~ 85°F at 5 mph

Containers Used	Analysis Requested
500 ml plast	Cs 137 Tot U
125 ml glass	Metals
125 ml glass	Explosives
Ziploc Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

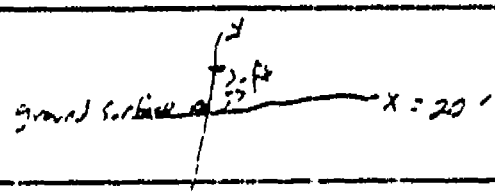
Soil description. As AAA9698 is closer
X direction = 20 ft in

Dist Sample screening

NA Alpha 100-130 cpm Beta Gamma

Screening: As AAA9698

Dist # 9 Screening is the South bucket on top of location



LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date _____ Time _____

AAA 0158

Technical Area 33 Operable Unit 1122

AFFIX BAR CODE STICKER HERE

Name Signature _____

Control No. (from Chain of Custody form) _____

Location ID No. _____

Sample Type DE Blank

Sample Location _____

Composite _____ YES _____ NO

Composite Type _____

Depth of Sample _____ (in) (ft)

Weather _____

Containers Used	Analysis Requested

LANL ER SOP # _____ was used to collect this sample.

COMMENTS

LANL-ER-SOP-01.34, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 1/22/94 Time 1230 1364

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0049

Location ID No N/A

Sample Location N/A

Composite N/A YES N/A NO

Composite Type N/A

Depth of Sample N/A (in) (ft)

Weather 45°F Clear sunny
wind < 5mph from south

Sample Type Soil PE blank 3/2/95

Containers Used	Analysis Requested
1 soil jar	metals

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS
PE soil blank
metals on soil #3
[illegible] CRMS3L-100

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1500 9992

Technical Area 33 Operable Unit 122

AAA9892

Name /Signature Linda Fluk [illegible]

Control No. (from Chain of Custody form) 1122-0045, 0047-A

Location ID No. 33-1449

Sample Type Soil

Sample Location 33-2-6

Composite NA YES NA NO

Composite Type NA

Depth of Sample Unknown (in) (ft)

Weather 55°F, wind from N/ <5mph

Containers Used	Analysis Requested
500ml gl	Cs137 Total U
125ml gl	metals
125ml bl	explosive
2 plastic bag	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description is like AAA9892

Soil was collected from adjacent to a metallic shrapnel set. This piece found in the berm adjacent to the excavated trench. (This was NOT dug from the excavated trench.)

All samples were background

Photo #14 looking south

The soil was collected from just east of a small foot trench. The trash found was because it was found in the pile where excavated soil was dumped.

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1200 AAA9723

Technical Area 33 Operable Unit 1122

AAA9723

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0049, 0049-A

Location ID No 33-1480 Sample Type Sub surface Soil

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 4 (in)/(ft)

Weather Clear/Hot - 95°F Winds from the Northeast 5-10 mph

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-VOC
2 [illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: loamy [illegible] light brown in color, but [illegible] gravel - 10%, [illegible] - 20%, [illegible] roots.

Rad Sample Screening 80-100 cpm beta/gamma

[illegible] 6/22/94

[illegible] 6/22/94

HE Test negative

Surrounding area is a [illegible] area. The surface soil has been built up approximately 5-10 feet from actual surface. [illegible] boulders, [illegible] trees, grasses, wildflowers, [illegible] with [illegible] can be seen on natural surface. [illegible] land [illegible] Photo #1 - looking south - Sample location 3.75 - 4 feet in depth. Photo #2 - looking east

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA9724

Date: [illegible]   Time 1230

Technical Area 33   Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0049 0049-A

Location ID No. [illegible]

Sample Type Sub Surface [illegible]

Sample Location [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 4 (in)(ft)

Weather [illegible] 95°F Winds from the Northwest

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	Explosives
[illegible]	[illegible]
[illegible]	[illegible]
2 [illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

[illegible]

[illegible] Sample [illegible] cpm beta/gamma

[illegible]

Surroundings Same as for [illegible] [illegible]

[illegible]

Suppression, Mike and [illegible], Photo # 6 [illegible] taking samples from 7 m bucket.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/22/94 Time 1540 PAA 9820

Technical Area 33 Operable Unit 1122

AAA9820

Name /Signature Kristi Barnett + [illegible] +

Control No. (from Chain of Custody form) 1122-0051, 0051-A

Location ID No. 33-1315

Sample Type Surface Soil

Sample Location 004H-3

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in)/(ft)

Weather Clear / Hot - 100°F, winds from the South ~~East~~ West 6/22/94 5-10 mph

Containers Used	Analysis Requested
125ml glass	Semi-VOCs
2 gal Ziplock bag	Bulk Sample

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Very sandy, fill material gravel - 30%, pebbles 10%, tuff cobbles 1 inch or less present 15%, very dry

~~[illegible] Sample [illegible] 6/22/94~~

Surroundings: located 3 ft east of septic tank, sagebrush, [illegible] grasses, [illegible] clover, tumbleweeds photo #8 facing south

Site is mostly all material from septic tank fill

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1550 AAA9821

Technical Area 33 Operable Unit 1122

AAA9821

Name /Signature Keith Lamont / K. Lamont

Control No. (from Chain of Custody form) 122-0051-0051-A

Location ID No. 33-131A

Sample Type Hand Auger Subsurface

Sample Location 004H-4

Composite NA YES X NO

Composite Type NA

Depth of Sample 2 (in) (ft)

Weather Clear, Very Hot 102°F
Winds from the SW 6/23/94
South west, 5-10mph

Containers Used	Analysis Requested
125ml plastic	Sem.-VOC
40ml Kurbe glass	VOC
Ziplock bag	Soil Sample

(2

LANL ER SOP # C6.10 was used to collect this sample.

COMMENTS

Sample description: Very sandy, fill material, moist - 30%, [illegible] 2 [illegible] chiseling, [illegible] color

6/23/94 ~~Sample [illegible] - [illegible] 6/23/94~~

Surroundings: Same as for 004H-4

Photo #9 facing east

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1558 AAA9822

Technical Area 33 Operable Unit 1122

AAA9822

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-005, 005I-A

Location ID No. 33-1318

Sample Type [illegible]

Sample Location 004H-5

Composite NA YES X NO

Composite Type NA

Depth of Sample 4 (in)/(ft)

Weather [illegible] - 102°F [illegible] from the Southwest 5-10 mph

Containers Used	Analysis Requested
125ml glass	Semi-VOCs
~~125ml~~ BG	6/23/94
(2) Volatile glass	VOCs
2 plastic bag	RPD Semi-

LANL ER SOP # 0610 was used to collect this sample.

COMMENTS

Sample description: Very sandy soil material
gravel - 30%, pebbles - 20%, cobbles - 50
[illegible] - 5% - because color [illegible] clay

[illegible] 6/23/94

~~Sample Separation: [illegible]~~
~~[illegible] 6/23/94~~

Surroundings Same as for 004H-3

Photo #10 Facing East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/27/94 Time 1510 AAA9824

Technical Area 33 Operable Unit 1122

Name /Signature Kristi Lovato / Kristi Lovato

Control No. (from Chain of Custody form) 122-94-51 AC51-A

Location ID No. 33-[illegible]

Sample Type Sub surface Soil

Sample Location 004M-2

Composite NA YES X NO

Composite Type NA

Depth of Sample 3.5 (in)(ft)

Weather Clear Hot - 102°F Winds from the ~~North~~ South West 2-8mph

Containers Used	Analysis Requested
125ml glass	Semi-VOC
Rad liner	Rad Screen

LANL ER SOP # 2610 was used to collect this sample.

COMMENTS

Sample description: Very sandy fresh gravel - 2.5 yr - 5yr - brown, dry, fill of natural, very clay, roots -

~~Sample Screening: [illegible] RA [illegible] 6/27/94~~

Surroundings: 1 feet north of concrete block with septic pipes adjacent to slab. Large 3.5 feet in depth. Vegetation: [illegible] thunderhead, gutterweed, yellow flowers.

Photo # 6 facing North

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/23/94 Time 1530 AAA9825

Technical Area 33 Operable Unit 1122

AAA9825

Name /Signature Kristi Barnett | Kristi Barnett

Control No. (from Chain of Custody form) 1122-0051-1051-A

Location ID No. 33-1319

Sample Type Subsurface Soil

Sample Location 004M-8

Composite NF YES X NO

Composite Type NA

Depth of Sample 4 (in) (ft)

Weather Clear | Hot - 102°F Winds from the South East 5-10 mph

Containers Used	Analysis Requested
125ml glass	Semi-VOCs
2 dram Bag	Rad Screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Sandy loam with gravel - 30% pebbles - 10% [illegible] [illegible] [illegible] some organics

~~Sample Screening: [illegible] 6/23/94~~

Screening: Same as for ~~004M-6~~ 004M-7 6/23/94

Photo # [illegible] Facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

6/30/94 ~~AM~~ 2/ERS

Date: ~~[illegible]~~ Time 0950 AAA9826

Technical Area 33 Operable Unit 1122

AAA9826

Name /Signature Kristi Lancaster

Control No. (from Chain of Custody form) 1122-0058, 0058A

Location ID No. 33-1320

Sample Type Surface Soil

Sample Location 004H-9

Composite NE YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear, Ht. 80°F, Winds from the East 5-10mph

Containers Used	Analysis Requested
125ml plas	Sem-VOC
2-[illegible]	RPO Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Very loamy with gravel-1/3. pea-size to 1" in diameter, light tan, brown color, organics, leaves, roots, moderate, dry to moist.

~~RTS Sample screening~~ KA 6/30/94

KA 6/30/94 ~~Sample Selection~~ ~~KA~~

~~KA~~ 6/30/94

Surroundings from the drainage field. Vegetation includes mullein (very large), thistle, grasses, clover. Drainage channel 1 [illegible] north from septic tank photo # 330

~~HE Spot test kit~~ KA 6/30/94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1340 AAA 9685

Technical Area 33 Operable Unit 1122

AAA9685

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0052 0052-A Trench

Location ID No 33-1448

Sample Type Surface Soil

Sample Location 0073-B-1

Composite NA YES X NO

Composite Type NA

Depth of Sample 5 ft above surface (in (ft)), 4 ft IN

Weather 98°F Wind from the SOUTHWEST at <5 mph

Temp

Containers Used	Analysis Requested
500ml plastic	Cs137 Stroll
125ml glass	Metals
125-1 glass	Explosives
Poly bag	Rad Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: sandy loam, red brown color w/ ~10% rounded pebbles, little organic material, dry

Rte Sample 130 - 150 cpm

Post Sample Screening 125 - 135 cpm Beta Gamma

Alpha NA

Sample from windrow. Chamisa etc., vegetation growing on area

6-28-94 SOUTH

Rate #2014 facing to the ~~east~~ Sample collected from windrow by [illegible] 6/28/94 [illegible]

HE TEST - Negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1350 AAA 9686

Technical Area 33 Operable Unit 1122

AAA9686

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0052 0052A) [illegible]

Location ID No. 33-1448

Sample Type Sub-Surface soil

Sample Location 0073-B-2

Composite NA YES X NO

Composite Type NA

Depth of Sample 7ft IN 4 ft below surface (in) (ft)

Weather 98°F Wind from the SW at 25 mph

Temp

Containers Used	Analysis Requested
500ml plastic	1137 Sr
125ml glass	Metals
125ml glass	Explosives
Ziploc bag	Radiation

Geo. [illegible] 8/2/95

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil <1/4" rounded pebbles ~10-15% med brown color in sandy loam matrix, small organic material

FIC sample 80-100 cpm BG

Post Sample Screening 11C-12 cpm Beta Gamma

Explosives NA

Comments A sample was [illegible]

[illegible] 6-28-94

Loc # 20 is [illegible] to the input sample location is by [illegible]

HE TEST - negative

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1407 AAA 9687

Technical Area 33 Operable Unit 1122

AAA9687

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-SOS 20053-A Trench

Location ID No. 33-1448

Sample Type Sub-Surface Soil

Sample Location 007B-B-3

Composite NA YES X NO

Composite Type NA

Depth of Sample 11 ft. IN, 4 ft. (in) (ft) above surface

Weather Wind from the SW

Temp 98°F at 25 mph

Containers Used	Analysis Requested
500ml plastic	U-137, total U
125ml glass	Metals
125ml glass	Explosives
Ziploc bag	Rad Screen

LANL ER SOP # 01.09 was used to collect this sample.

COMMENTS

Soil: sandy loam, tuff, red brown color, rounded pebbles mixed w/ tuff (gray color) 1-3" diam, some organic material

QRP Samples 130-150 cpm β/γ

Test Sample Screening 100-160 cpm Beta Gamma

Alpha N/A

Screening: AS AAA 9685

6-21-94

Rec # 2017 Going to the ~~sect~~ location is at the State.

HE TEST - negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1450 AAA9688

Technical Area 33 Operable Unit 1122

Name /Signature [signature]

AAA9688

Control No. (from Chain of Custody form) 1122-0052, 0052-A

Location ID No 33-1448

Sample Type Sub surface Soil

Sample Location 007B-B-4

Composite NA YES X NO

Composite Type NA

Depth of Sample 19 ft IN 6 ft (in) (ft) below surface

Weather 98°F Wind from the SW at 25 mph

Temp

Containers Used	Analysis Requested
500ml plastic	Cs137 Total U.
125ml glass	Metals
125ml glass	Explosives
Ziploc bag	Radiography

LANL ER SOP # 0609 was used to collect this sample.

COMMENTS

Soil: sandy loam, red brown color pH ~ 20% tuff pebbles up to 1 inch diameter some organic material including twigs & roots

Pre sample 80-100 cpm

Post Sample Screening 80-100 cpm Beta Gamma

Fiber N/A

Witness: AS AAA9685

Note #23 6-28-94 Soil in both east. Sample location 19 & 20 by Steve P

HE TEST - negative

Note: We collected this sample at 19 ft IN (instead of 17 ft IN) because the backhoe operator excavated lower than the 6 ft depth. Final sample was 19 ft IN, 6 ft high.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1050 AA49689

Technical Area 33 Operable Unit 1122

AA49689

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-00E3-0052-A

Location ID No 33 ~~1144~~ Building 1487

Sample Type Dirt Soil

Sample Location 007B-B-6

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-1 (in) (ft)

Weather 88°F Wind from the N at 5 mph

Temp

Containers Used	Analysis Requested
500ml plastic	Cs137, Sr90
125ml glass	Metals
125ml glass	Explosives
Ziplock bag	Radioassay

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: little pieces of yellow DU in sample (1/8" diam.) 30% pebbles of tuff, sandy soil light brown color, dry. little organic material

Pre Sample: 10,000 cpm β/γ

Post Sample Screening 5,000 cpm Beta Gamma

Photo NA

Comments: sample collected from surface of berm w/ large bushy [illegible] adjacent to sample location

Photo # 2311 facing to the ~~[illegible]~~ south 6/28/94

HE TEST - negative

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1053 AAA9690

Technical Area 33 Operable Unit 1122

AAA9690

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-1053-0052-A

Location ID No 33-1497

Sample Type ~~Sub~~ Surface Soil

Sample Location 0073-B-7

Composite NA YES X NO

Composite Type NA

Depth of Sample 1-6 (in) (ft)

Weather 88°F Wind from the N at < 5 mph

Temp

Containers Used	Analysis Requested
500ml plastic	Cs137 [illegible]
125ml glass	Metals
125ml glass	Explosives
Ziploc bag	Rad Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Sample description as AAA9689 more organic material

Pre Sample Screening ~~[illegible]~~ 1145 6/28/94 cpm BG

Post Sample Screening 1800 → cpm Beta Gamma

Alpha NA

Screenings

As AAA9670

Note #20 Screening to the South 6/28/94 Refer to photo 11 same location

HE TEST - negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1120 AAA9691

Technical Area 33 Operable Unit 1122

AAA9691

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0052, 0052-A

Location ID No. ~~33-1445~~ 33-1407

Sample Type Surface Soil

Sample Location 0073-G-8

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) ft

Weather 90°F Wind from the N at 25 mph

Temp

Containers Used	Analysis Requested
500ml plastic	Cs137 total
125ml glass	Metals
125ml glass	Explosives
Red bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Sandy loam tuff pebbles (10-15%) light brown color, some organic material

RTE: Screen 300 cpm

Post Sample Screening 250 — non beta gamma

Alpha NA

Comments: sample collected from surface of berm - bare area

KM 6-28-94

Photo # 2012 facing to the ~~E~~ South

6/28/94

HE TEST - Negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 Time 1128 AAA9692

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-M53-0052-A

Location ID ~~No 33-1489~~ 33-1405

Sample Type Surface Soil

Sample Location CD7B - [illegible]

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather 90°F Wind from the [illegible] at [illegible] mph

Temp ✓

Containers Used	Analysis Requested
500ml plastic	Cs137 [illegible]
125ml glass	Metals
125ml glass	Explosives
Ziplock bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Soil description per AAA9691

Pre sample is 80-100 cpm BX

Post Sample Screening is 130-150 cpm Beta Gamma

Alpha N/A

Comments: Sample on berm directly adjacent to large test

Photo # 2013 facing to the east

HE TEST - negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-~~28~~ 29 -94 KM 6/29/94 Time: 1500 AAA9963

Technical Area: 33 Operable Unit: 1122

Name /Signature: [illegible]

Control No. (from Chain of Custody form): 1122-0054.0052A

Location ID No: 33-1490

Sample Type: Surface Soil

Sample Location: OD7B-B-10

Composite: NA YES X NO

Composite Type: NA

Depth of Sample: 0-6 (in) (ft)

Weather: Wind from the SW at 15 mph

Temp 98°F

Containers Used	Analysis Requested
500ml plastic	Cs137, total U.
125ml glass	Metals
125-l glass	Explosives
Ziploc bag	Rad Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Sandy - large grain size, brown color, very very small particles, very little organic material, alot of mica

Pre Screening 150-180 cpm

Post Sample Screening 130-140 cpm Beta Gamma

Alpha NA

Comments: In a drainage, suspect that Drainage is full of Tamarisk.

KM 6-29-94 Sent to the lab

HE TEST - 1st test showed slight color change (purple)
2nd test - negative
3rd test - negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-28-94 (29 5/28/94) Time 0851

AAA 0894

Technical Area 33 Operable Unit 1122

AAA9894

Name /Signature [signature]

Control No. (from Chain of Custody form) 1122-0055, 0055A

Location ID No. 33-1491

Sample Type Surface Soil

Sample Location 007B-B-1

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear Wind from the SW at 0-5 mph

Temp 85°

Containers Used	Analysis Requested
500ml plastic	Cs137 Stroll.
125ml glass	Metals
125ml glass	Explosives
Red bag	Rad Screening

LANL ER SOP # 0609 was used to collect this sample.

COMMENTS

Soil: Lt tan silty 3 inches, sandy, much pebbles - 70% gravel 1-20%, leaves, grass, mesa sediment, light brown color, very dry

Post Sample Screening 100-120 cpm Beta Gamma

~~Alpha~~ 60 4/29/94

Sample is in drainage channel, 5 feet Southeast culvert in much sagebrush, tuff blocks, gravel sediment, 10 feet south of asphalt road

Photo # ~~2022~~ facing to the South - at the sample location

HE TEST - Negative

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/29/94 Time 1100 4899

AAA9899

Technical Area 33 Operable Unit 1122

Name /Signature ~~Kristi Hamed~~ Linda Flint [illegible]

Control No. (from Chain of Custody form) 1122-[illegible] trenching

Location ID No. 33-1496 Sample Type Sub-Surface Soil

Sample Location 007B-B16

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 24 ft IN, 7 ft above surface (in) (ft)

Weather 86°F, partly cloudy winds from SW @ 5 mph

Containers Used	Analysis Requested
125 ml gal	metals
125 ml gal	explosives
500 ml pl	Cs137 Tank Ur
2 pint	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Crushed tuff w/ tuff rocks ~~pebbles~~ cobbles (≈ 2") w/ 10% crushed material looks like only inclusions of tuff were preserved by moisture. There is mostly fine sandy loam

Pre-Sample Screening: 100-120 cpm BG

Post-Sample Screening: 100-120 cpm — CPM BACKGROUND

PID: NA

Screening: Also plus trench sample

Photo: #27 looking SE

HE Spot Test Kit: negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/29/94 Time 1212 9898

Technical Area 33 Operable Unit 1122

AAA9898

Name /Signature ~~Kent Armstrong~~ Lind, Flint & [illegible] trenching

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No. 33-14965

Sample Type Sub surface Soil

Sample Location 007B-B-15

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 17 ft. IN, 5 ft above surface (in) (ft)

Weather partly cloudy 85°F winds from SW 6 mph

Containers Used	Analysis Requested
125 ml gl	metals
125 ml gl	explosives
500 ml pl	Cs137 Tenelur
2 pint	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Mostly tuff (green, brown, white) pebbles, [illegible] organic material, [illegible] (prior to [illegible] tuff below in the [illegible] layer [illegible] red) brown sandy loam [illegible]

Pre-Sample Screening: 100-120 cpm B/G

Post-Sample Screening: 100-120 cpm B/G

PID: NA

Surroundings: Same as other trench samples

Photo: To 25 [illegible]

HE Spot Test Kit: negative

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/29/94 Time 1000 9907

AAA9897

Technical Area 33 Operable Unit 1122

Name /Signature [illegible] Linda Fickling

Control No. (from Chain of Custody form) 1122 - [illegible] trenching

Location ID No 33-1494

Sample Type Sub Surface Soil

Sample Location 007B-B-14

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 12FT IN, 5FT above surface (in) (ft)

Weather partly cloudy 85°F
winds from SW < 5 mph

Containers Used	Analysis Requested
125 ml gl	metals
125 ml gl	explosives
500 ml pl	Cs137 Total Ur
Ziplock	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: rocks & gravel ~ 0-5% ~~10%~~ 6/29/94 light-med brown sandy loam fine particles ~ 15%

[illegible] 100 - 120 cpm BG

[illegible] 100 - 150

[illegible] NA

Comments: Same as other trench samples

Field [illegible] #25 fully used

HE Spot Test Kit Neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/29/94 Time 0935 AAA9896

Technical Area 33 Operable Unit 1122

AAA9896

Name /Signature Kristi Aamodt Linda Fluk

Control No. (from Chain of Custody form) 1122 - [illegible] trenching

Location ID No. 33-1493 Sub Surface

Sample Type Soil

Sample Location 007B-B-13

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 6 ft IN, 4 ft above surface (in) (ft)

Weather Partly cloudy / Hot - 85°F, Winds from the SWest 5-8 mph

Containers Used	Analysis Requested
125 ml gal	metals
125 ml gal	explosives
500 ml pl	Cs137 Tot Ur
Ziplock	rad screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Some pieces of yellow DY noted in sample. light-med brown color, all fine pebbles (<1/2") some organic material, sandy loam

Pre Sample Screening: 650 cpm BG

Post-Sample Screening: 1200 cpm — [illegible]

PID : NA

Surroundings: As per other trench samples

Photo. # 24. looking at location in trench facing east

HE Spot Test Kit: negative

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-~~28~~ 29-94 6/29/94 Time 0905 AAA 9895

Technical Area 33 Operable Unit 1122

AAA9895

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0055.005-A drainage

Location ID No 33-1492

Sample Type Surface Soil

Sample Location 0073-B-17

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot Wind from the Southwest

Temp 85°F ~0-5 mph

Containers Used	Analysis Requested
500ml plastic	Gr37 Stroll.
125ml glass	Metals
125ml glass	Explosives
Red bag	Rad Screening

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil Sandy rocky sediment leaves grasses roots pebbles - 20%, gravel - 15%, light brown color very dry

Post Sample Screening 80-100 cpm Beta Gamma

~~Alpha~~ KS 6/29/94

Sampling About 30 feet downing drainage channel Sagebrush, juniper, cook scrub, tuff blocks gravel grasses yucca

Photo # ~~20~~ 21 facing to the

HE TEST - Negative

Photo # 23 facing South

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 0830

Technical Area 33 Operable Unit 122

AAA9906

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1503

Sample Type Surface Soil

Sample Location 004M-6-new location

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in)(ft)

Weather Clear Hot - 80°F, Winds from the East 5 mph

Containers Used	Analysis Requested
125ml glass	Sem VOC
~~[illegible]~~	[illegible]
Ziplock Bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: very fine loamy soil, very dry, much organics - pine needles, grass (1-10 m), pea size to 1" in diameter, white & brown color

Surroundings: Right on the surface of a drainage channel. Location is 10 feet north of septic system. About 4 feet north of concrete pad with vents. A hole was dug to determine the location of the drain pipe. Sample was collected on surface 6 feet from location. Mullein, tumbleweed, Rabbitbrush, clover, grasses, agave, wild flowers

Photo #31 facing west - Sample location and hole to find drainage pipe

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

6/30/94 KH 2/25/95

Date ~~6/27/94~~ Time 0910 AAA9827

Technical Area 33 Operable Unit 1122

AAA9827

Name /Signature Kristi Lancit

Control No. (from Chain of Custody form) 1122-0054, 0058-A

Location ID No. 33-1470

Sample Type Surface Soil

Sample Location 004M-9C

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot - 85°F, Winds from the East 5-10mph

Containers Used	Analysis Requested
125ml glass	Semi-VOCs
~~[illegible]~~	RA [illegible]
Ziplock bag	RANSCAN

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: very fine loamy soil, very dry, but moist soil after top inch. organics - roots, leaves, white bacteria, fine to 1/2 inch pebbles - 5%, gravel 5-10% - appears to be crushed tuff

6/30/94 ~~[illegible]~~ 6/30/94

Surroundings: in a drainage field - same as RFR 004M-9

Photo #'s 34 - Auger hole for surface sample facing west
35 - Sample in the hole facing north

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: ~~6/29/94~~ 6/30/94 xH 2/26/95 Time: 0900

Technical Area: 33 Operable Unit: 1122

AAA9829

Name /Signature: Keith Lacroix / Kyle Lawrence

Control No. (from Chain of Custody form): 1122-0054, 0055-A

Location ID No: 33 1320

Sample Type: Subsurface Soil

Sample Location: 004H-11

Composite: N/A YES X NO

Composite Type: N/A

Depth of Sample: 4 (in) (ft)

Weather: Hot - 85°F, Clear, Winds from the East 5-10 mph

Containers Used	Analysis Requested
125ml glass	Semi-VOCs
Ziplock bag	EPA Sieve

LANL ER SOP # 06.110 was used to collect this sample.

COMMENTS

Sample description: very sandy - mostly dry-bed gravel, very moist, tan-brown color, organics - roots

~~Sample Sequence: [illegible] 4/30/94~~

Surroundings: In the drainage channel, Dixon Blvd. North from septic tank. Vegetation - mullein (very large), thistle, weeds, grasses, hollyhock, clovers

~~Photo #: 34 facing West 36 facing West - KM 4/30/94~~

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 1/30/94 2/26/95 Time 0845

Technical Area 33 Operable Unit 1122

AAA9823

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No 33-1320

Sample Type Subsurface

Sample Location CX4H-10

Composite NO YES X NC

Composite Type Grab

Depth of Sample 3 (ft)

Weather Clear 14-85°F winds from the East 5-10 mph

Containers Used	Analysis Requested
[illegible]	Semi-VOC
2 plastic	RCRA

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

River (non-native)

Sample [illegible] Hospital gravel - 50% [illegible] [illegible] soil, [illegible] brown color, [illegible] [illegible] is pressed to 1" in diameter

[illegible] 1/30/94

Sample location is a drainage half-mile [illegible] large timbered, grass stickers, clover, wild flowers. Drainage channel [illegible] North and the septic tank

Photo # 32 Facing North - photo of sample - [illegible] of [illegible] reached the gravel fill.

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7/30/94 Time 1450

Technical Area 33 Operable Unit 1122

AAA9905

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122 [illegible] Trench

Location ID No. 33-1502

Sample Type Sub-Surface Soil

Sample Location 007BB-22

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 27 ft IN, 5 ft above surface (in) (ft)

Weather Cloudy Thunderstorms
= 80°F, Winds from the West
5-10 mph

Containers Used	Analysis Requested
500 ml pl	Cs137 total alpha
125 ml gl	metals
125 ml gl	explosives
2 plot	rad screening

LANL ER SOP # 0602 was used to collect this sample.

COMMENTS Sample description: [illegible] sandy - loam [illegible] cobble - 10% soil [illegible] [illegible] color [illegible] - 5% [illegible]

pre-sample screening 100-120 cpm beta gamma
post sample screening 100-120 cpm beta gamma

Surroundings: [illegible] and grass and [illegible] [illegible] and gravel

Photo # 28 - 27 feet into the trench, 35 feet down [illegible]
29 - 27 feet in, 5 feet from ground surface looking [illegible]
30 - Same as # 29

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 1140 0900

Technical Area 33 Operable Unit 1122

AAA9900

Name /Signature Keith Bennett / Keith Bennett

Control No. (from Chain of Custody form) 1127-0057 + 0058-A

Location ID No. 33-1497

Sample Type Surface Soil

Sample Location 007B-11 007B-B-17

Composite N/A YES ✓ NO

Composite Type N/A

Depth of Sample 0-6 (in) (ft)

Weather Mean Lt. 95°F Winds from the West 5-15mph

Containers Used	Analysis Requested
1 500 ml	Total U
1 125 ml	explosives
1 125 ml	metals
1 2 pint	radiochem

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Much organics - roots, grass, leaves, pebbles - 15%, gravel - 5%, white bits present, very clay, loamy sand

PID Screening 160 - 220
post screening 280 - 300

photos #8

HE Screening neg

Surroundings: at the base of the berm, in the ponderosa, many grasses, wildflowers, plants, lots of organic debris

Randomized location is 20 ft east of trench line, 0.48 ft in from toe of berm

LE 6/30/94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 1125 9901

Technical Area 33 Operable Unit 1122

AAA9901

Name /Signature Krish Agarwal / Krish Agarwal

Control No. (from Chain of Custody form) 1122-0059 + 0058-A

Location ID No. 33-1498 Sample Type Surface Soil

Sample Location ~~0078-18~~ 0078-B-18

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear Hot 95°F Winds from the west

Containers Used	Analysis Requested
1 500 ml	~~gamma~~ Sr/Cs137 total U
1 125 ml	explosives
1 125 ml	metals
1 125 ml	radiochem

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

soil: fine sandy loam pebbles 10%, gravel 15%
very dry, whitish brown

pre screening 80-100
post screening 80-100

photos ~~#~~ 3 facing West

HE screening neg.

Surroundings: in between sagebrush bushes near the top of the berm much organic debris on surface, grasses

Randomized location is 20 ft east of transect line & 45 ft IN from toe of berm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/20/94 Time 1115 9902

Technical Area 33 Operable Unit 1122

AAA9902

Name /Signature Krishi Aswadt / Krishi Aswadt

Control No. (from Chain of Custody form) 1122 - 0057 + 0057-A

Location ID No. 33 - 1499

Sample Type Surface Soil

Sample Location ~~0078-19~~ 0078-B19

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0 - 6 (in) (ft)

Weather Clear Hot 95°F Winds from the West 5-15mph

Containers Used	Analysis Requested
1 500 ml poly	~~Gamma~~ Cs137 total/ur
1 125 ml poly	explosives
1 125 ml poly	metals
1 ziplock	radium

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil is very fine loamy soil pebbles 30%, much crushed tuff, organics, roots, light brown, very dry

pre screening 80-100
post screening 80-100

photos #4 facing West

HE screening neg

Surroundings: Sagebrush top of the berm in the ~~Eastern side~~ Western side, grasses
Eastern

Randomized location is 17 ft east of fence line & 30 ft IN from toe of berm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 1105 990 3

Technical Area 33 Operable Unit 122

AAA9903

Name /Signature Krish Arnott / Krish Arnott

Control No. (from Chain of Custody form) 122 - 0059 + 0058-A

Location ID No. 33 - 1,500

Sample Type Surface Soil

Sample Location ~~0078 20~~ 0078-B-20

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0 - 6 (in) (ft)

Weather HOT

Containers Used	Analysis Requested
1 1500 ml pl	~~[illegible]~~ Cs137 total U
1 125 ml pl	explosives
1 125 ml pl	metals
1 Ziplock	radiog

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: Very fine loamy soil pebbles - 25%, grass, grasses, roots, gravel - 10%, very dry, brownish color.

pre screening 100 - 120
post screening 100 - 120

photos #2 facing north

HE screening neg

Surroundings: Sagebrush, grasses, on the top southern section of the dam.

located 11 ft west of center line, 40 ft in from toe of dam (randomized location)

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6/30/94 Time 1050 9904

Technical Area 33 Operable Unit 1122

AAA9904

Name /Signature Kristi Arnold / Kristi Arnold

Control No. (from Chain of Custody form) 1122 - 0068 058-A

Location ID No. 33 - 1501

Sample Location ~~0078-21~~ 0078-B-24 Sample Type Surface Soil

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample 0 - 6 (in) (ft)

Weather Clear Hot 95°F, Winds from the west

Containers Used	Analysis Requested
1 500 ml pl	~~gamma~~ Cs137 Total U
1 125 ml gl	explosives
1 125 ml gl	metals
1 2 ml gl	radon

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil: very dry, loam, soil chunks blown with many pebbles and gravel - 15% and 10%, organics, roots and roots

pre screening: 450-500 cpm beta gamma
post screening 450-500

photo #: Facing east - sample location

HE screening neg

Surroundings: Sagebrush and grasses, on the western central part of the berm

Location (randomized) 16 ft west of trench line, 28 ft in from toe of berm

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7/1/94 Time 1:35 AAA 9714

Technical Area 33 Operable Unit 1122

AAA9714

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33 1477 ~~1477~~ ~~1477~~ 1477 Sample Type Soil Surface Soil

Sample Location 010C-2

Composite N/A YES X NO

Composite Type N/A

Depth of Sample / (in/ft)

Weather 85°F [illegible] 25 MPH, mostly sunny

Containers Used	Analysis Requested
500 ml plastic	Gamma [illegible]
125 ml glass	Explosives
125 ml plastic	Metals
Ziploc Bag	RD screen

~~CG-16~~ [illegible] 7/1/94

LANL ER SOP # ~~06-09~~ 01/06/94 was used to collect this sample.

06.09

COMMENTS Explosives Test Requested

Soil description [illegible]

Surroundings [illegible]

Sample [illegible] [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9715

AAA9715

Date: 7/1/97 Time [illegible]

Technical Area 33 Operable Unit 1122

Name/Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1478

Sample Type Surface Soil

Sample Location 010C-3

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-15 (in)/(ft)

Weather 85°F winds from NW
Sample partly cloudy, windy
Sunny

Containers Used	Analysis Requested
500 ml plastic	Gamma
125 ml plastic	Explosives
125 ml plastic	Metals
Ziploc Bag	RAD screen

~~[illegible]~~ KAB 3/3/95

LANL ER SOP # ~~06.09~~ ~~[illegible]~~ KAB 3/3/95 was used to collect this sample.
06.09

COMMENTS Explosives Test Requested: negative

Soil description: Sample collected from [illegible]
[illegible] Sandy silt, rounded cobble [illegible]
(35-40%) [illegible] 2" [illegible]
Pre Screening 150-1000 cpm 3X
Post Sample Screening 150-160 cpm 3X

Surroundings: Berm is [illegible]
[illegible] Along [illegible]
[illegible] of the surface [illegible]
Berm is flat on top [illegible]
to drainage.

Left clean area well prior proceeding
Sample soil was dry to start with

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7/1/94 Time [illegible] AAA 9716

Technical Area 33 Operable Unit 1122

AAA9716

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-2-CC61, CC61-A

Location ID No. 33 479 1478 [illegible] 7/15/94

Sample Type Surface Soil

Sample Location 010C-4

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 1 (in)(ft)

Weather 85°F [illegible] 15 mph, partly sunny

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	Explosives
125 ml glass	Metals
Ziplock Bag	RD screen

~~EC.TO~~ CF 7/1/94

LANL ER SOP # ~~06.09~~ 06.09 was used to collect this sample.

COMMENTS Explosives Test Repeated - negative

Soil description [illegible]

RF Screening [illegible] cpm [illegible]
Post sample screening [illegible] cpm [illegible]

Surroundings [illegible]

Soil Sample was dry. We met at [illegible] well pad to sample

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1027

AAA 9717

AAA9717

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No 33 — 1480

Sample Type ~~Sub~~ Surface Soil

Sample Location 010C — 5

Composite N/A YES X NO

Composite Type NA

Depth of Sample ~~0 — 6 in~~ 1 ft

Weather 55°F partly sunny
[illegible]

Containers Used	Analysis Requested
500 ml plastic	Cs 137 [illegible]
125 ml glass	Explosives
125 ml glass	Metals
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives Test Revealed - negative

SOIL DESCRIPTION: [illegible] brown sandy soil [illegible] 3" diam. [illegible] (2 1/2" long) some [illegible] pieces [illegible]
pit 5' [illegible] 366 - 382 cpm
POST SAMPLE SCREENING [illegible]

SURROUNDINGS [illegible]
Sample collected from [illegible]
[illegible]

Sample was dry - [illegible]
down well prior to sampling

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 6-7-00 Time ~~1125~~ 1105 AAA 9718

Technical Area 33 Operable Unit 1122

AAA9718

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33 — 1481

Sample Type Surface Soil

Sample Location 010C — 6

Composite N/A YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather 85°F mostly sunny [illegible] from N/NW at <5 MPH

Containers Used	Analysis Requested
500 ml plastic	Cs 137, U [illegible]
125 ml glass	Explosives
125 ml glass	Metals
Ziploc bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Explosives Test Revealed [illegible] value

SOIL DESCRIPTION: [illegible]

PRE SCREENING - [illegible] OK

POST SAMPLE SCREENING - [illegible] OK

SURROUNDINGS: [illegible]

Soil was dry but soil well [illegible] to sample [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1650 [illegible] AAA 9713

Technical Area 33 Operable Unit 1122

AAA9713

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122 - [illegible]

Location ID No. 33 - 1421

Sample Type Subsurface Soil

Sample Location 010C - 1

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 1 (in)(ft)

Weather 95°F [illegible] 15 [illegible] 25 mph, [illegible] sunny

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	Explosives
125 ml glass	Metals
Ziplock bag	RAD screen

LANL ER SOP # ~~06.09~~ [illegible] 6/16/94 was used to collect this sample.
06.09

COMMENTS Explosives Test Requested - negative

Soil description [illegible]

Surroundings: Refer to AAA 9715 [illegible]

Soil Sample was dig. [illegible] 1 - 1½ [illegible] [illegible] prior to sampling

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7/11/04 Time 1435 AAA 9908

AAA9908

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-[illegible]

Location ID No. 33-1505

Sample Type Sub-surface [illegible]

Sample Location CO7B-B-24

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-24 In, 1.25 ft (in) (ft) surface

Weather Wind from W. East

Temp 90°F 0-5 mph

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
2nd Day	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - sandy loam, [illegible] 50%, little organics (roots, grass), light brown, dry

pre screening 300-350 cpm

Post screening 1300-1400 cpm - [illegible] Beta gamma

Surroundings Open field

HE TEST - neg

Probe # 10 Facing to the West

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1425 [illegible]

Technical Area 33 Operable Unit 1122

AAA9907

Name /Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1504

Sample Type [illegible]

Sample Location 007B-B-23

Composite NA YES X NO

Composite Type NA

Depth of Sample [illegible] (in) (ft)

Weather [illegible] East

Temp 90°F at [illegible] mph

Containers Used	Analysis Requested
[illegible]	[illegible]
125 glass	[illegible]
125 glass	[illegible]
[illegible]	[illegible]

LANL ER SOP # 01.09 was used to collect this sample.

COMMENTS

Soil description: [illegible] silty [illegible] sediment [illegible] SCO, [illegible], dry

[illegible] 200-300 cpm

[illegible] 300-350 [illegible] cpm, Beta [illegible]

[illegible] from the [illegible] at 1:25 [illegible]

HE TEST [illegible]

[illegible] to the [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7.5.94 Time 1300 HH4597

Technical Area 33 Operable Unit 1122

AAA3597

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0064

Location ID No. 33-1451

Sample Type liquid

Sample Location 0040-1

Composite [illegible] YES Y NO

Composite Type LA

Depth of Sample Collection within (in) (ft) surface

Weather Clear 74-95°F 10 mph from the SE 5-10 mph

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	VOC
[illegible]	[illegible] 7/7/94

LANL ER SOP # 06.15 was used to collect this sample.

COMMENTS

Sample description: liquid sample collected from septic tank 33-96. Slightly yellow-colored liquid appears to be nothing of but clear liquid in the tanks etc.

[illegible] 7/5/94

PID [illegible] ppm

Surroundings: Tank is located 45 feet north of Bunker 950 in a grove of sagebrush and juniper trees.

Photo #1 [illegible] with Celwaco Sampler. Sample bottle sample jar.

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-5-94 Time 1315 AAA 9598

Technical Area 33 Operable Unit 1122

AAA9598

Name /Signature Kristi Arnold | Kristi Arnold

Control No. (from Chain of Custody form)

Location ID No. 33 - 1451

Sample Type Water / Sludge

Sample Location 004c - 2

Composite N/A YES X NO

Composite Type N/A

Depth of Sample (in) (ft)

Weather Clear, Hot - 95F, Winds calm to begin from the East 5-10 mph

Containers Used	Analysis Requested
1L Plastic	Rad & Gross
1 Glass	Metals, cyanide
1 Glass	Semi-VOCs
40ml Glass	VOCs

LANL ER SOP # 06.15 was used to collect this sample.

COMMENTS

Sample description: Unable to collect sludge sample as there is no sludge in the septic tank. Mostly clear liquid.

KO 7/5/94 ~~Test Sample Screening: Photo Ionization~~ PID 0.0 ppm

KO 7/5/94 ~~Screening:~~ An attempt was made to collect a sediment sample from the bottom of the tank. The bottom was scraped and the material brought to the surface. It was all grayish with a slight bit of sediment. It was determined that there was not enough sediment in the tank to collect a decent sample. Photos # 2 & 3 document the sediment - grayish material

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1425 AAA9599

Technical Area 33 Operable Unit 122

Name /Signature Keith Lamont | Keith Lamont

Control No. (from Chain of Custody form) 122-CC14, CC14-A

Location ID No. 33 - 1450

Sample Type Surface Soil

Sample Location 004c - 3

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in) (m)

Weather Clear, Hot - 95°F, Winds from NE 5-10 mph

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Metals [illegible]
125ml glass	Semi-VOCs
2 plastic Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: Very loamy-sand, many roots, gravel 5-10%, cobbles -20%, mostly tuff gravel, Grass also present. Medium brown, very dry

Post Sample Screening: 90-110 counts/gamma
PID: 0 ppm

Surroundings: Drainage field of septic tank located just North of an asphalt Road. Septic System is just East of septic system (according to 1961 Map) Sagebrush, juniper, grasses, wildflowers, Mullein

Photo #7 shows the auger-hole where an attempt was made to find the pipe. The soil was soft and appeared to be a trench. It turned out not to be. That was let after a spot

#8 Shows a distinct soil change between a dark buried soil and crushed tuff. Appears to be the end of historic trenching operations when pipe was laid.

#9 Shows whole trench - facing SE. This is barely

LANL-ER-SOP-01.04, R2

that we are indeed in the drainage field although the pipe was not found

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1500 AAA 9600

Technical Area 33 Operable Unit 1122

AAA9600

Name /Signature Kirsh Arnodt | Kirsh Arnodt

Control No. (from Chain of Custody form) 1122-CCCS, CC14-A

Location ID No. 33-1450

Sample Type Subsurface Soil

Sample Location 004c-4

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 2.5 (in) (ft)

Weather Clear Hot -95°F Winds from the NE

Containers Used	Analysis Requested
500ml plastic	Cs137 Co60
125ml glass	Metals Cyanide
125ml glass	Semi-VOCs
40ml glass vial	VOCs
Ziplock bag	Rad Scan

LANL ER SOP # C6.1C was used to collect this sample.

COMMENTS

Sample description: Mostly crushed tuff fine, sandy, whitish brown, granules, pebbles - 15% vesicular

Post Sample Screening: 90-110 counts/gamma
PID: 0 ppm

Surroundings: Same as for 004c-3

Photo #4 a photo of experimental trench which is being dug to locate the outflow pipe from Septic Tank. Approximately 3 feet in depth. Facing SE
Photos #5 & #6 facing West showing the trench and the variations of soil layering
Photo #10 location is bottom surface of trench

soil →
tuff →
soil →
(very broad consolidated)

Tuff very loose, crumbly

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-5-94 Time 1510 AAA9601

Technical Area 33 Operable Unit 1122

AAA9601

Name /Signature Kristi Arnold | Kristi Arnold

Control No. (from Chain of Custody form) 1122-004-004-A

Location ID No. 33-1450

Sample Type Subsurface Soil

Sample Location 004c-5

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 4.5 (in) (ft)

Weather Clear, Hot 95°F, Winds from the Northwest 1-8mph

Containers Used	Analysis Requested
8oz glass	Inorganic
125ml glass	Metals Cyanide
125ml glass	Semi VOCs
40ml vials	VOCs
Ziplock bag	Rad Scan

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Sample description: Mostly crushed tuff gravel-5%, pebbles-20%, very fine, grayish, medium brown, very dry

Post Sample Screening: BG-100 [illegible] | [illegible]
PID 0.0 ppm

Surroundings: Same as for 004c-3

Hand-augered sample was taken two feet below bottom surface of trench

Photo # 10 - Hole which was augered to a depth of 2 feet below trench

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1515 AAA9602

Technical Area 33 Operable Unit 1122

AAA9602

Name /Signature Kristi Lamont | Kristi Lamont

Control No. (from Chain of Custody form) 1123-0005-0004-A

Location ID No. 33-1309

Sample Type Surface Soil

Sample Location 004c-6

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 0-6 (in)(ft)

Weather Clear Hot - 95°F Winds from the West 1-5mph

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Total Cyanide
125ml glass	[illegible]
2 plastic bags	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: very fine loamy soil, grasses, pebbles 15%, gravel - 10%, roots, very dry, medium brown.

Post sample screening: 70 - 90 counts/gamma
PID 0.0 ppm

Surroundings: Same as for 004c-3
Location is directly 1/2 the length of the trench
Photo #11 Sample location: just to the south of large tuff block, direction in - trench samples. Photo faces west.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1520 AAA 9603

Technical Area 33 Operable Unit 1122

AAA9603

Name /Signature Kristi Arnodt | Kristi Arnodt

Control No. (from Chain of Custody form) 1122-9605 004A

Location ID No 33-1309

Sample Type Subsurface

Sample Location 004c-7

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 2.5 (in) (ft)

Weather Clear Hot 95°F Winds from the West 5-10mph

Containers Used	Analysis Requested
500ml plastic	[illegible] Cs137, Co60
125ml glass	Metals [illegible]
125ml glass	Semi-VOC
2 plastic bags	Rad Screen
[illegible]	VOCs

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Sample description: very sandy crushed tuff gravel - 20% pebbles - 10% white to brown very dry no organics

Post Sample Screening: 100-130 cpm beta | gamma
PID 0.0 ppm

Surroundings: Same as for 004c-3
Photo # 12 Bottom of trench

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1525 AAA9604

Technical Area 33 Operable Unit 1122

Name /Signature Krish Lamont | Krish Lamont

AAA9604

Control No. (from Chain of Custody form) 1122-00[illegible]-004.A

Location ID No. 33 - 1309

Sample Type Subsurface

Sample Location 004c - 8

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 5 (in) (ft)

Weather Clear, Hot, 95°F, Winds from the West 5-10 mph

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Metals [illegible]
125ml glass	Semi-VOCs
40ml glass x2	VOCs
Ziploc bag	Rad Screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Sample description: fine loamy sand, pebbles 15%, gravel - 15%, some roots, grasses, medium to broad, slightly moist

Post Sample Screening: 100-130 counts/gamma
PID 0.0 ppm

Surroundings: Same as for 004c-3

Photo # 13 - Augur Hole

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-5-94 Time 1530 AAA9605

Technical Area 33 Operable Unit 1122

AAA9605

Name /Signature Krish Lamont | Krish Lamont

Control No. (from Chain of Custody form) 1122-0004-0004-A

Location ID No. 33-1310

Sample Type Surface Soil

Sample Location 004c-9

Composite N/A YES X NO

Composite Type UA

Depth of Sample 0-6 (in) (ft)

Weather Clear, Hot-95°F, Winds from the South 5-10mph

Containers Used	Analysis Requested
500 plastic	Pu239 Pu240
125ml glass	Metals [illegible]
125ml glass	Semi VOCs
2-plastic bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Sample description: very fine loamy soil Heavy organics - roots, grasses, grasses approx - 10%, pinolon 10%, very dry, medium breaks

Post Sample Screening: BG-110 ~~[illegible]~~ | gamma
PIR 0.0 ppm

Surroundings: Same as ~~for~~ ~~[illegible]~~ 7/5/94 for 00-1C-3

Photo #14 surface location.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: [illegible] Time 1535 AAA 9606

Technical Area 33 Operable Unit 1122

AAA9606

Name /Signature Kirsh Arnoldt | Kirsh Arnoldt

Control No. (from Chain of Custody form) [illegible]

Location ID No 33 - 1310

Sample Type Subsurface Soil

Sample Location 004C - 10

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 2.5 (in) (ft)

Weather Clear Hot - 95°F, Winds from the West

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Metals Cyanide
125ml glass	Semi VOCs
40ml amber	VOCs
Ziplock Bag	Rad Scan

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Sample description: very fine sandy soil
gravel - 10%, pebbles - 20%, very light / medium
brown, dry, roots, grass

Post Sample Screening: 90-110 counts/gamma
PID 0.0 ppm

Surroundings: Same as for 004C-3

Photo # 15 bottom of trench

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-[illegible] Time 1545 AAA9607

Technical Area 33 Operable Unit 1122

Name /Signature Krish Arnold | Krish Arnold

Control No. (from Chain of Custody form) 1122-00[illegible]-[illegible]-A

Location ID No. 33-1310

Sample Type Subsurface Soil

Sample Location 004c-11

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 4 (in) (ft)

Weather Clear Hot - 95°F, Winds from the West 5-15mph

Containers Used	Analysis Requested
500 ml plastic	Gross Alpha
125 ml glass	Metals Cyanide
125 ml glass	Semi-VOCs
40 ml glass	VOCs
2 gallon bag	Bag Screen

LANL ER SOP # 00.10 was used to collect this sample.

COMMENTS

Sample description: fine loamy sand, crushed tuff, pebbles - 20%, gravel - 5%, very dry, whitish brown

Post Sample Screening: 90-110 cpm beta/gamma
PID 0 ppm

Surroundings: Same as for 004c-3
Photo # 116 augers hole

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-6-94 Time 1005 AAA9684

Technical Area 33 Operable Unit 1122

AAA9684

Name /Signature Krishi Aamodt | Krishi Aamodt

Control No. (from Chain of Custody form) [illegible]

Location ID No. 33-1457

Sample Type Sub Surface Soil | Excavation

Sample Location 007A-5

Composite NA YES X NO

Composite Type NA

Depth of Sample 19 feet 8 feet length (in) (ft)

Weather Clear, warm - 89°F, winds from the west - 5-10 mph

Containers Used	Analysis Requested
500ml plastic	[illegible]
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-VOCs
Ziploc Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Sample description: 19' in 8' Elev.
loamy tuff soil, big pieces of tuff, many tuff pebbles - 20%, and gravel - 15%, medium brown color, dry, pieces of organic material - wood chips from sagebrush roots, grasses, roots

HE Test: negative

Post Sample Screening: BG - 100 cpm beta/gamma
PID 0: 0 ppm

Surroundings: At the top of DRH - 19 feet in and 8 feet above ground surface. Ponderosa grass, many pieces of tuff, chamisa, wild flowers
Photo # 17 - facing west, shows trench at depth where sample was collected.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-6-94 Time 1040 AAA9685

Technical Area 33 Operable Unit 1122

AAA9683

Name /Signature Keith Aardt | K. Aardt

Control No. (from Chain of Custody form) 1122-0005, 0006A

Location ID No. 33-1457

Sample Type Sub Surface Soil | Excavated

Sample Location 007A-4

Composite NA YES X NO

Composite Type NA

Depth of Sample 4 feet from ground surface, 9 ft. in (in) (ft)

Weather Clear Hot - 93°F, Winds from the west 5-10mph

Containers Used	Analysis Requested
500ml glass	GC/MS (VOC)
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-VOCs
Ziplock Bag	RAD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Sample description: 9' In 4' Sev.

Mostly sand, some organics - roots - wood debris, gravel, some pebbles -15% light brown color, dry

HE Test: Negative

Post Sample Screening: 80-100 cpm beta/gamma
PID: 0 ppm

Surroundings: Same as for 007A-3 except for different depth

Photo #19 sample location from the trench

Photo #18 Encountered sand deposit - no projectiles or debris. 11 feet in, 6 feet above ground surface

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-6-94 Time 1130 AAA9682

Technical Area 33 Operable Unit 1122

AAA9682

Name /Signature Keith Aldredge / Keith Aldredge

Control No. (from Chain of Custody form) 1122-0068A 0068

Location ID No 33-1457

Sample Type Surface Soil / Excavation

Sample Location 007A-3

Composite UA YES X NC

Composite Type UA

Depth of Sample 5 feet length, 3 ft (in) (ft) above ground surface

Weather Clear, Hot - 94°F, Winds from the west 5-15mph

Containers Used	Analysis Requested
500ml plastic	Gross Alpha
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-VOCs
2 ziplock bag	RPD Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Sample description: 5' to 3' Elev.
Mostly sand, some organics, wood debris, roots, grass, pebbles - 20%, light brown color dry

HE Test: Negative

Rad Sample Screening: 80-100 cpm beta/gamma
RDS: 0 ppm

Surroundings: Same as for 007A-5 except for different depth & width and the berm

Photo # 20
21 Sample location inside trench - Right when read shade
22 - Pile of dirt from trench, last bucket taken to be sampled
23 - depth of trench to tuff layer, facing East
#24 wood debris (from catcher box?) found at 7 feet into berm 3 feet above ground surface, facing east on the Northern side of trench. Left in is a large piece of wood about 17 inches in diameter which looks like it's been cracked in two

LANL-ER-SOP-01.04, R2

25-30
Pictures of entire trench

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 1218 AAA9912

Technical Area 33 Operable Unit 1122

AAA9912

Name /Signature Kenny Hansel / KH 7-7-94

Control No. (from Chain of Custody form) 33-0068 + 33-0069 A

Location ID No. 33-1375 Sample Type Sub Surface Soil

Sample Location 006B-17

Composite NA YES X NO

Composite Type NA

Depth of Sample 0 Around metal projectiles (in) (ft)

Weather Sunny Wind from the East at 0-5 mph

Temp 85-89°

Containers Used	Analysis Requested
500 ml 2 bottles	Cs137, Co60, Total U
125 ml glass	Semi-Vol
125 ml glass	Metals
125 ml glass	Explosives
Zip Bag	Rad Screen

West side of Double Fence

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description: sandy loam, approx 30% pebbles, little organic material (roots), light brown dry.

Post 7-7-94 KH sample screening: 80-100 cpm beta gamma

Photo # 16 facing NORTH (Sample location on pile)
17 facing WEST (trench)
18 metal object

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 10 15 AAA9910

Technical Area 33 Operable Unit 1122

AAA9910

Name /Signature Kenny Hansel / [signature]

Control No. (from Chain of Custody form) ~~33-0071~~ + 33-0069-A

Location ID No. 33-1375 Sample Type Surface Soil

Sample Location 006B-15

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ Around metal projectiles (in) (ft)

Weather Sunny, wind from the East at 0-5 mph

Temp 85-89°

Containers Used	Analysis Requested
500 ml plastic	Cs137 Co60 Tl208
125 ml glass	Semi-Vol
125 ml glass	Metals
125 ml glass	Explosives
Zip Bag	Rad Screen

LANL ER SOP # 2.09 was used to collect this sample.

COMMENTS

Soil description: tuff pebbles, gravel + cobbles (gray) up to a inch in diameter (1500), fine crits, sandy loam, light brown, dry

Test ~~dos~~ 7-7-94 KH sample screening: Xu = 120 cpm beta gamma

Photo # - 5 facing to the NORTH (sample location for sample)
6 metal object
7 facing to the NORTH (trench where bucket was from)

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 1145 AAA9911

Technical Area 33 Operable Unit 122

AAA9911

Name /Signature Kenny Hagen / [signature]

Control No. (from Chain of Custody form) ~~33-0069~~ + ~~33~~ 0069-A

Location ID No. 33-1375

Sample Type Subsurface Soil

Sample Location 006B-16

Composite NA YES X NO

Composite Type NA

Depth of Sample 0 Around metal projectiles (in) (ft)

Weather Sunny Wind from the East at 0-5 mph

Temp 85-89°

Containers Used	Analysis Requested
500ml 2 bottles	GRO/DRO Total
125ml glass	Semi-Vol
125ml glass	Metals
125ml glass	Explosives
3oz Bag	Radiochem

West side of Mortar Range

LANL ER SOP # 6.09 was used to collect this sample.

COMMENTS

Soil description: sandy loam, gray tuff pebbles (30%), a little organic material (roots), light brown, dry

Rad sample screening: 80-100 cpm beta gamma

Photo # - 8 facing NORTH (sample location in pic)
9 facing SOUTH (trench where bucket came from)
10 metal object

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 11 55 AAA 9672

Technical Area 33 Operable Unit 1122

AAA9672

Name /Signature [illegible]

Control No. (from Chain of Custody form) 33-0051 ← 33-0069-A

Location ID No. 33-1275 Sample Type Sub West Side Drill Berm

Sample Location [illegible]-7

Composite N/A YES NO

Composite Type N/A

Depth of Sample [illegible] (in) (ft)

Weather [illegible] East at 0-5 mph

Temp 87°

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

[illegible] rock [illegible] soil [illegible] light brown, dry

[illegible]

Test sample [illegible] RO = 100 cpm beta [illegible]
Yes RO = 100 cpm beta [illegible]

Pics #13 [illegible] (sample location [illegible])
#14 South (channel [illegible])
#15 [illegible] South

note. roll of film from 7-6-94, pictures 31-36, were take of the support zone.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 11:46 AAA 9673

Technical Area 33 Operable Unit 1122

AAA9673

Name /Signature [illegible]

Control No. (from Chain of Custody form) 0071 & 0069-A

Location ID No. 33-1375 Sample Type: Soil

Sample Location

Composite N A YES X NO

Composite Type N A

Depth of Sample (in) (ft)

Weather Sunny Wind South East at 5 mph

Temp 78°

Containers Used	Analysis Requested
500 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
Red Bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - gray [illegible] (5%), [illegible] loam, [illegible] light brown, dry

Surrounding - within the trench

Post sample screening 80-100 cpm [illegible]

Photo #11 facing to the NORTH (Sample location [illegible])

#12 facing to the North (Trench [illegible])

TEST PIT

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-7-94 Time 09:41 AAA 9674

Technical Area 33 Operable Unit 1122

AAA9674

Name /Signature [illegible]

Control No. (from Chain of Custody form) 33-0071 ~~1322~~ 1122-0069-A

Location ID No. ~~0068~~ 33-1375

Sample Type Soil

Sample Location 0068-9

Composite N A YES X NO

Composite Type N A

Depth of Sample 1 ft 5 ft elevation (in) (ft)

Weather Sunny W 1 South West to 2 mph

Temp 80°

Containers Used	Analysis Requested
500 ml plastic	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
125 ml glass	[illegible]
Ziploc bag	[illegible]

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - tuff [illegible] (40%) some [illegible] soil [illegible] [illegible] material (roots) light brown dry

Screening - within the trench lots of tuff [illegible]

Post sample screening 55 1000 cpm [illegible]

Photo #3 facing to the EAST

#4 of the trench facing to the South

HE TEST - [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9706

Date: 7-8-94 Time 1052

Technical Area 33 Operable Unit 1122

AAA9706

Name /Signature Kenny Hurd / Kenny Hurd

Control No. (from Chain of Custody form) 33-COC & 33-COC-A

Location ID No. 33-1371

Sample Type Sub Surface

Sample Location 0063-18

Composite N/A YES X NO

Composite Type N/A

Depth of Sample 5 ft in 7 ft elevation (in) (ft)

Weather Sunny Wind S.W. 10 to 15 mph

Temp 80°F

Containers Used	Analysis Requested
500 ml plastic	Cs137 Co60 Th U
250 ml glass	Explosives
125 ml glass	Metals
125 ml glass	Semi-VOCs
Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - Sandy loam scattered tuff gravel with tuff rocks, pebbles, cobbles, a few large rocks, organic material, white - light brown dry

Screening - within the trench

~~Pre sample screen~~ 50-100
Post sample screen 50-100 cpm Bkgd. gamma

Photo #27 facing to the NORTH (Sample location 30 p.1.)
29 " " NORTH (Trench)

HE TEST - neg

29 - unknown?
30 Trench (Finished) facing to the NORTH

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9707

Date: 7-8-94 Time 10:46

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Howard / Kenny Howard

Control No. (from Chain of Custody form) 33-1070 + 33-1070-A

Location ID No. 33-1371

Sample Type Surface East side of Pedestal

Sample Location 0063-19

Composite NA YES X NO

Composite Type NA

Depth of Sample 8 ft in elevation (in) (ft)

Weather Sunny N-d S-w the South at 10-15 mph

Temp 80°

Containers Used	Analysis Requested
500ml plastic	Cs137 Co60 Pu U
250ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-Vol.
Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description = sandy loam with gray tuff fragments, pebbles, some cobbles up to 1 in diameter, fine roots, light brown, dry

Surroundings = within the tramp

Pre sample screen 80-100

Post sample screen 80-100 (per Rich Gruen)

Photo #25 facing to the NORTH (Sample location from p.1)
26 " " NORTH (trench)

HE TEST = neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AAA 9708

Date: 7-8-94 Time: 8:51

Technical Area: 33 Operable Unit: 122

AAA9708

Name /Signature: Kenny Hassell / K. Hassell

Control No. (from Chain of Custody form): 122-XXX + 122-XXX

Location ID No: 33-1371

Sample Type: Sub Surface

East Side Double Bag

Sample Location: 206B-20

Composite: NA YES: X NO

Composite Type: NA

Depth of Sample: 20 ft in 8 ft increments (in) (ft)

Weather: Sunny N. to S. in the SW.

Temp 75° at 10-15 mph

Containers Used	Analysis Requested
500-1 plastic	Cs137 Co60 Th U
125ml glass	Explosives
125ml glass	Metals
125ml glass	Semi-VOC
Bag	Rad Scan

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Soil description - sandy loam with gray + white tuff cobbles pebbles + cobbles (30%) very little organic material ~~[illegible]~~ 7-8-94 (from cuts), light brown, dry

Sample - within the trench

Pre sample screening 80 - 100 cpm Rad scan

Post sample screening 80 - 100 cpm Rad scan

Photo #22 facing to the NORTH (sample from pile)

Photo #23 " " NORTH (trench where bucket came from)

HE TEST - neg

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-12-94 Time 0830 AAA9709

Technical Area 33 Operable Unit 1122

Name /Signature Kirsh Lamcat | Kirsh Lamcat

Control No. (from Chain of Custody form) 1172-0072 0072A

Location ID No. 35 - 1450

Sample Type Surface Soil

Sample Location 004C-12

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear, Hot - 85°F, Winds from the North 0 Sush

Containers Used	Analysis Requested
500ml plastic	Cs137 Pu239
125ml glass	Metals, Cyanide
~~1 Ziplock~~	~~Semivocs~~ KMT 12/94
Ziplock Bag	Rad Screen
125ml glass	SemiVOCs

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Sample description: Soil very loamy, with 5% gravel ½-1 inch diameter, grasses roots, light to medium brown, very dry, 1 pebble - 15%

Post-Sample Screening: 90-100 cpm beta/gamma
FIS O: 0 ppm

Surrounding: 3 feet South East of the Septic tank cover, 1 large sagebrush, junipers, grasses, mullein. An asphalt road sits 15 feet South of location

Photo # 32 = Sample location - facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-12-94 Time 0849 AAA9710

Technical Area 33 Operable Unit 1122

AAA9710

Name /Signature Kristi Arnoldt | Kristi Arnoldt.

Control No. (from Chain of Custody form) 1122-0072, 0072A

Location ID No. 35-1450

Sample Type Subsurface Soil

Sample Location OU4C-12 13

Composite UA YES X NO

Composite Type UA

Depth of Sample 3 (in) (ft)

Weather Clear, Hot - 85°F, Winds from the North 0-8mph

Containers Used	Analysis Requested
500ml plastic	Metals
125ml glass	Metals, Cyanide
125ml glass	Semi-VOCs
Ziplock Bag	Rad Screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS Sample description: very fine loamy soil, roots, grasses, pebbles - 15%, gravel - 5%, medium to light brown color, very dry

Post-Sample Screening: 80-100 cpm beta/gamma
PID 0: 0 ppm

Surroundings: Same as for OU4C-12

Photo # 33 facing North Corrugated metal hole

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-12-94 Time 0855 AAA9711

Technical Area 33 Operable Unit 1122

AAA9711

Name/Signature Kirsti Aamodt / Kirsti Aamodt

Control No. (from Chain of Custody form) 1122-0072 0072A

Location ID No. 33-1450

Sample Type Subsurface Soil

Sample Location 004C-12 14

Composite UA YES X NO

Composite Type UA

Depth of Sample 6 (in) (ft)

Weather Clear, Hot - 85°F, Winds from the North 0-8 mph

Containers Used	Analysis Requested
500ml plastic	Pu, U, Th, Cs
125ml glass	Metals, cyanide
125ml glass	Semi-VOCs
Ziploc Bag	Rad Screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS Sample description: fine loamy soil, many pebbles - 95%, gravel - 5% to medium brown, very dry, loose, grasses 3/12/94

Post-Sample Screening: 80-100 cpm beta/gamma
PID: 1 ppm

Subsoil logs: Same as for 004C-12

Photo #33 looking auger hole facing North

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 4/12/94 Time 1000 AAA 9682

Technical Area 33 Operable Unit 1122

Name /Signature Kristin Arnold / Kristin Arnold

AAA9682

Control No. (from Chain of Custody form)

Location ID No.

Sample Location CCCB-22 Sample Type Excavation

Composite NA YES X NO

Composite Type NA

Depth of Sample (in) (ft)

Weather Mec. Hot - 85°F Winds from the North

Containers Used	Analysis Requested
125ml/Glass	Sem VOCs
125ml/Glass	metals
125ml/Glass	Explosives
500ml/Plastic	Cyanide
2oz Bag	Rad Screen

Did Not Collect

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

A 20 foot (length) x 10 foot (wide) x 15 foot (depth) trench was dug with the backhoe in the hope of locating any metal object which may have contributed to the anomaly located with the geophysics equipment.

After digging the pit, the dirt was scanned with the metal detector and scraped aside with a shovel to find any metal.

Nothing was found.

The trench was dug to tuff and backfilled.

Photos #1-8 of the trench facing North (high-lin)

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: ~~6~~ 7/12/94 Time 0900 AAA9881

Technical Area 33 Operable Unit 1122

Name /Signature Kirsh Ascarat / Kirsh Ascarat

AAA9881

Control No. (from Chain of Custody form)

Location ID No.

Sample Type Surface Soil

Sample Location CC16B-21

Composite NA YES X NO

Composite Type NA

Depth of Sample (in) (ft)

Weather Clear, Hot. 85°F. 10 mph from the North 0-8 mph

Containers Used	Analysis Requested
500ml plastic	Total Cyanide
125ml glass	Explosives
125ml plastic	Metals
125ml glass	Semi-volatiles
2 ziplock bags	Rad Scan

Did Not Collect

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Dug an ~~10~~ 18 (7-12-94) feet (length) x 8 feet (wide) x 8 feet (depth) trench. Dig was dug to locate anomalies located during the geophysics survey.

After digging two bucket-fulls the soil was scraped with shovel, scanned with metal detector and nothing was located.

Nothing came up on the metal detector nor while scraping with shovel.

Photo # 34 shows the trench facing South

#s 35, 36, 37, 38 all of the trench

The trench was dug to the tuff / soil interface where a large block of tuff was found. An excavator could not continue any further.

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time ~~0930~~ 1000 AAA9871

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0073

Location ID No. R-Site - East Site

Sample Type Liquid / DA water

Sample Location DA

Composite ~~DA~~ YES X NO

Composite Type DA

Depth of Sample DA (in) (ft)

Weather Clear Warm 85°F Wind from SW - 0 - 8 mph

Containers Used	Analysis Requested
500ml plastic	Cyanide
500ml plastic	Metals
500ml plastic	Total U
500ml plastic	Explosives
500ml plastic	Semi-VOCs

LANL ER SOP # 105 was used to collect this sample.

COMMENTS

Sample collected from backhoe bucket. Sample water (deionized water) was poured over the backhoe bucket, collected in a stainless steel ~~bowl~~ 7-13-94 bowl, and poured into the sample bottles.
5 bottles total were collected.

LANL-ER-SOP-01.04, R2

Randomized

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1157 AAA 9916

Technical Area 33 Operable Unit 1122

AAA9916

Name /Signature Kenny Hancock / [signature]

Control No. (from Chain of Custody form) 1132-0074 0074A

Location ID No. 33-~~1472~~ 1515

Sample Type Surface Soil

Sample Location 007C-A6B-10

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ 7-12-94 (in) (ft)

Weather Clear, Cloud South SW 10-8 mph

Temp 85°F

Containers Used	Analysis Requested
500 ml plastic	Gr RT Tritium
125 ml glass	Metals
Ziplock Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

Catcher Box # 2

3 feet in, 2 feet elev.

COMMENTS

Soil description loamy dark reddish-brown (from decaste wood debris) soft, some pebbles - 5% many pieces of wood, dry

Rad sample screen for sample size 30-100 CPM Beta, Gamma

Sample collected at base of [illegible] catcher box

[illegible] #10 facing south. The bucket portion of the catcher box was [illegible] by hand. Aside still intact in view of catcher box being dismantled

dismantled

Five feet up, 7 feet in a foot long piece of an iron and copper cylinder was found. It is solid but of [illegible] heavy, [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1220 AAA 9846

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hand / [signature]

Control No. (from Chain of Custody form) 1122-0074, 0075-A

Location ID No. 33-~~4472~~ 5x9 Sample Type Surface Soil

Sample Location 007C-A6B-7

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~Fr~~ 7 ft 5, 6 ft above ground surface (in) (ft)

Weather Cloudy, Clouds Smoke SW at 5-10 mph

Temp 85°F

Containers Used	Analysis Requested
500 ml plastic	Gamma Rad Tech U.
125 ml glass	Metals
Ziplock Bag	Rad Screen

LANL ER SOP # 36.09 was used to collect this sample.

COMMENTS Catcher Box #2

Soil description loam, Reddish-brown color many pebbles - 25%, sand gravel - 15%, very dry, many pieces of cheesecloth - used to scrape

~~First sample screened~~
~~Last sample screened~~ 80-100 CPM Beta, Gamma

Second - Biased sample taken at location of large cylinder. Only 6 cylinders would have been inside of the catcher box

~~Photo # for 1 ft.~~

Photo # 13 - Photo facing south, of 6 foot long cylinder sticking out of berm 7 feet in about 4 feet above ground
14 - Picture of the cluster of 36 inch long cylinders and a steel cap. facing South

LANL-ER-SOP-01.04, R2 # 15 - Photo of Both clusters together, facing south

These cylinders would have been inside the center of the right-hand catcher box

Map on other side of page

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1230 AAA9847

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hansel / [signature]

Control No. (from Chain of Custody form) 1132-0074, 0074-A

Location ID No. 33-~~1472~~ 1510

Sample Type Surface Soil

Sample Location 007C-A6B-8

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ 12 IN. (in) (ft) surface

Weather Cloudy (1) to Sunny SW 5-10 mph

Temp 85°F

Containers Used	Analysis Requested
500 ml plastic	Cs 137, Th, U.
125 ml glass	Metals
2 ziploc bags	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

Catalog Box # 2

COMMENTS

Soil description - loam, reddish-brown color very dry pebbles - 20%, organic - 15%, [illegible] wood scrap [illegible] debris

Rad sample screening [illegible] CPM Beta, Gamma

Sample [illegible] same as for PQA [illegible]
Sample was placed for the cluster [illegible]
Hole #14 [illegible] to the South
Photo of the cluster

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1330 AAA 9862

Technical Area 33 Operable Unit 1122

AAA9862

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0074 Soil

Location ID No. NA

Sample Type RE - Blank

Sample Location NA

Composite NA YES X NO

Composite Type —

Depth of Sample — (in) (ft)

Weather —

Containers Used	Analysis Requested
125 ml	Tritium, Cs 137
125 ml	Nitrate

LANL ER SOP # 105 was used to collect this sample.

COMMENTS
From Idaho National Laboratory

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

7-15-94

~~7-15~~ 7/15/94

Date: ~~7-13-94~~ 7/15/94 Time 0940

AAA 9844

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hand

Control No. (from Chain of Custody form) 1122-007C-007C-A

Location ID No. 33-~~1472~~ 1507

Sample Type Surface Soil

Sample Location 007C-A6B-5

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ (in) (ft)

Weather Clear Hot, Cl. & Sunny SE 0-5 mph

Temp 87°F

Containers Used	Analysis Requested
500 ml plastic	Gamma Rad U.
125 ml glass	Metals
2 piece Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

Catcher Box #1 Biased

COMMENTS

Soil description - loamy, reddish to medium-brown color, pebbles - 1/8" angular, very dry, pieces of depleted uranium present in the soil, roots, pieces of wood debris.

Rad sample screen - 135,000 CPM Beta, Gamma
Lab sample screen - 7,000 CPM Beta, Gamma

Second mix - approximately 3 feet north of catcher box location in shallow soil. Natural. A large piece of depleted uranium, 1 inch by 1 inch, is present.

Lab #39 from the last piece of depleted uranium 30 m from excavated soil

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: ~~7-17-94~~ 7-15-94 Time 10:53

AAA 9850

AAA9850

Technical Area 33 Operable Unit 1122

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0077

Location ID No. [illegible]

Sample Location [illegible]

Sample Type [illegible]

Composite NA YES ✓ NO

Composite Type NA

Depth of Sample [illegible] (in)(ft)

Weather [illegible]

Containers Used	Analysis Requested
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # 06.15 was used to collect this sample.

COMMENTS

Sample description - water was clear - light brown
no large pieces of material suspended in the water

[illegible]

Photo #: NA SEE Sample Collection Log form
dated 7-5-94 AAA 9597 - Photo #1 of Mike with
Elwood Samples - Kenny filling jar
with septic tank liquid
Also see Sample Collection log 7-5-94 AAA9598
photos #2 & 3

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-14-94 Time 1345

AAA 9843

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hancl / [signature]

Control No. (from Chain of Custody form) 1132-0075, 0075A

Location ID No. ~~33-1477~~ 33-1506

Sample Type Surface Soil

Sample Location 007C-A6B-4

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ (in) (ft)

Weather Stormy (c) S Southwest at 5-10 mph

Temp 85°

Containers Used	Analysis Requested
Scan plastic	Gr Bz Tl U.
125ml glass	Metals
Ziplock Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Catch Box #1 Biased

Soil description - sandy loam, lots of tuff (wh. ½) 30% [illegible] some organics (roots) and biotic [illegible]

Pre sample screen - 80-100 CPM Beta, Gamma

Post sample screen - 80-100 CPM Beta, Gamma

Second pit - out side of trench, east side, about one ft above ground level.

Trench #28 [illegible] to the south

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-15-94 Time 1000

AAA9848

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hansel / [signature]

Control No. (from Chain of Custody form) 1[illegible]075[illegible]-A

Location ID No. 33-~~1472~~ 1511

Sample Type Surface Soil

Sample Location 007C-A6R-9

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ 0 ft. elev. (in) (ft) 7 feet into trench.

Weather Clear, Hot and Sunny S at 0-8 mph

Temp 89°F

Containers Used	Analysis Requested
500 ml plastic	Gamma Spec
125 ml glass	Metals
Ziploc Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS

Catcher Box #~~3~~ 2

Soil description loam cobbles-20%, gravel-5%, ~~[illegible]~~ medium subangular with Bandelier tuff. Area disturbed. Roots, wood debris, trash. Dust suppression fines displaced U placement in soil.

Pre sample screen 15,000 CPM Beta, Gamma

Post sample screen 16,000 CPM Beta, Gamma

Subsoil - Taken from boxes. Came from middle of box location.

Photo # [illegible]

Photos # 16 & 17 Faces N & NW on the pile where soil was placed facing SW

Photo # 18 Photo of cylinder found in the bottom of excavated pit where box was located. Facing South.

LANL-ER-SOP-01.04, R2

Randomized

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1300 AAA 9913

Technical Area 33 Operable Unit 1122

AAA9913

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0075, 0075-A

Location ID No. ~~33-1472~~ 33-1512 Sample Type [illegible]

Sample Location ~~[illegible]~~ 33-1512-A6B-1

Composite N/A YES X NO

Composite Type N/A

Depth of Sample ~~[illegible]~~ (in) (ft)

Weather 84°F [illegible]
Sank at 5-10 mph

Temp

Containers Used	Analysis Requested
500 ml shot	[illegible]
125 ml [illegible]	[illegible]
2 quart Bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

5' in 8' elev. Catcher box # 1

COMMENTS

Soil description: loamy, pebbles 10%, gravel 5%, brown color

HE Test: Negative

[illegible] 80-100 PM [illegible]

[illegible] 80-100

[illegible] - catcher box berm

[illegible] #197 [illegible] 1 [illegible] South Photo of intact 203 structure being demolished
#1 Catcher Box #1
#2 Photo of catcher box after test portion is demolished
#3 Sample location facing East

LANL-ER-SOP-01.04, R2

Randomized

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-13-94 Time 1310 AAA9914

Technical Area 33 Operable Unit 1122

Name /Signature Kenny Hanel / [signature]

Control No. (from Chain of Custody form) 1133-0075, 0075-A

Location ID No. 33-~~1172~~ 7-13-94 1513

Sample Type Surface Soil

Sample Location 007C-A6B-L

Composite NA YES X NO

Composite Type NA

Depth of Sample ~~0~~ 7-13-94 (in) (ft)

Weather 84°F Cloudy South 5-10 mph

Temp

Containers Used	Analysis Requested
500 ml plastic	Gr BZ Tritium
125 ml glass	Metals
Ziplock Bag	Rad Screen

LANL ER SOP # 06.07 was used to collect this sample.

10' in, 6' elev. Catcher Box #1

COMMENTS

Soil description loamy soil pebbles 10% gravel 5% brown/tan

HE Tests Negative

Pre sample screen 80-100

Post sample screen 80-100 CPM Beta, Gamma

Sample is inside catcher box

Photo # 16 Facing to the East

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 7-14-94 Time 8:15 AAA 9851

Technical Area 33 Operable Unit 1122

AAA9851

Name /Signature [illegible]

Control No. (from Chain of Custody form) 1122-0075 Soil

Location ID No NA

Sample Type PE Blank

Sample Location NA

Composite NA YES X NO

Composite Type NA

Depth of Sample NA (in) (ft)

Weather Warm Sunny, still

Containers Used	Analysis Requested
125 [illegible]	[illegible]
125 [illegible]	Total U, Cs-137

LANL ER SOP # 06.05 was used to collect this sample.

COMMENTS
From Idaho National Lab

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

AMB-12

Date [illegible] Time [illegible]

Technical Area 33 Operable Unit 1122

AFIX BAR CODE STICKER HERE

Name Signature [illegible]

Control No. (from Chain of Custody form) [illegible]

Location ID No. [illegible]

Sample Type QA-water

Sample Location [illegible]

Composite [illegible] YES [illegible] NO

Composite Type [illegible]

Depth of Sample [illegible] (in) (ft)

Weather [illegible]

Containers Used	Analysis Requested
500ml pl	metals
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

LANL ER SOP # [illegible] was used to collect this sample. [illegible]

COMMENTS [illegible]

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12- -94 Time 12:45 AAA9368

Technical Area 33 Operable Unit 122

AAA9368

Name /Signature Kristi Harrott | Kristi Harrott

Control No. (from Chain of Custody form) 320088 0088-A

Location ID No. 33-1521

Sample Type Subsurface

Sample Location 004a

Composite NA YES X NO

Composite Type NA

Depth of Sample 2 (in) (ft)

Weather Clear, Cool Wind from the East at 0-5 mph

Temp. 55 °F

Containers Used	Analysis Requested
~~500ml plastic~~	
125ml glass	Semi-VOCs
125ml glass	metals
40ml amber	VOCs
125ml poly	Cs137, Total U
~~500ml poly~~	Tritium, Nitrate
RAD BAG	Rad Screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS Surroundings: Same as for AAA 9366
eastern most N/S runoff clay pipe exposed
Sample collected from 1st / South in clay pipes
south of feeder line

Soil description: Same as for AAA 9366

RAD Screening beta | gamma cpm

OVA Screening 0 ppm

Photo # 10 Photo of the pipe facing ~~South~~ 12-2-94 East

~~TE Sat Test Results~~ 12-2-94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-2-94 Time 12:10 AAA9364

AAA9364

Technical Area 33 Operable Unit 1122

Name /Signature Kristi Aarnott | Kristi Aarnott

Control No. (from Chain of Custody form) 2nd 1122-0088, 0088-A

Location ID No. 33-1519

Sample Type Subsurface

Sample Location 004a

Composite NA YES X NO

Composite Type NA

Depth of Sample 3 (in) (ft)

Weather Clear, Cool Wind from the East at 0-5 mph

Temp. 53°F

Containers Used	Analysis Requested
~~500ml poly~~	
125ml glass	Semi-VOCs
125ml glass	Metals
40ml amber	VOCs
125ml poly	Cs137 Total U
500ml poly	Tritium Nitrate
RADBAG	Rad Screening

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS Surroundings: Same as for AAA-9366
2nd most of the N/S running flow pipes.
at 1st seam with 1 packet liner

Soil description: Same as for AAA 9366

RAD Screening beta/gamma cpm

PID Screening 0 ppm

Photo # 8 Shows perforation in pipe

~~LE Sig. Tech. Rev.~~: KA 12-2-94

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-2-94 Time 11:55 AAA9366

Technical Area 33 Operable Unit 122

AAA9366

Name /Signature Krish Aamodt Krish Aamodt

Control No. (from Chain of Custody form) 122-0089, 0088-A

Location ID No. 33-1520

Sample Type Subsurface

Sample Location 004a

Composite NA YES X NO

Composite Type NA

Depth of Sample 3 (in) (ft)

Weather Clear, Cool Wind from the East at 0-5 mph

Temp. 53°F

Containers Used	Analysis Requested
~~500 plastic~~	
125ml glass	Semi-VOCs
125ml glass	metals
40ml amber	VOCs
125ml poly	Cs137, Total U
500ml poly	Tritium, Nitrate
RAD BAG	Rad screen

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS

Surroundings: In the leachfield at Hain Site, Much sagebrush, dead grass and weeds flat area downslope of Hain South Parking lot

Soil description: loamy with fill gravel and cobbles ranging from 2 inches to 4 inches in diameter Roots, some grassy material, slightly moist, light brown

RAD Screening beta/gamma cpm

DID Screening 0 ppm

Photo # 7 shows perforation in clay pipe
6 shows location of three holes AAA9366
is on left hand side of picture

~~TE see Test Results.~~ KA 12-2-94

collected from sample 4th pipe from west ~30' south of feeder line

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-2-94 Time ~~11:00 AM~~ 1220 (JF 12-2-94) AAA 9346

Technical Area 33 Operable Unit 1122

AFFIX BAR CODE STICKER HERE

Name /Signature Russell H. Abell Russell H Abell Judy Fitz

Control No. (from Chain of Custody form) 1122-0089 0058A

Location ID No. 33 - ~~1032~~ 1518 (JF 12-2-94)

Sample Location ~~H~~ 33-002-d-X (JF 12-2-94)

Sample Type Surface Soil

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear, Sunny Wind from the still

Temp. 50 °F at mph

Containers Used	Analysis Requested
500ml plastic	Tritium, moisture
Rad bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Surroundings: Approx 20' down drainage from the outfall pipe - in the cattails. Also other surrounding big juniper trees

Soil description: Soil is slightly tan, wet brown, alot of organic material, no tuff pebbles

Tritium sniffer = 0 reading

RAD Screening beta/gamma NA cpm

PID Screening NA ppm NA

Photo # No photo. We will survey this at a later date

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-7-94 Time 1235

AAA 9363

AFFIX BAR CODE STICKER HERE

Technical Area 33 Operable Unit 1122

Name /Signature Linda Flint Linda Flint

Control No. (from Chain of Custody form) 1122-0089

Location ID No. 33-1633

Sample Location 33-0081-3

Sample Type Surface Soil

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in)/(ft)

Weather Clear, Sunny, Wind from the

Temp. 50°F at still mph

Containers Used	Analysis Requested
500 ml plastic	Tritium, moisture
Red bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Surroundings: Location within high foothills with large dead tree located in small canyon. Soil bed is well covered with trees

Soil description: Soil is brown and brown/tan. Mix of organic material, rocks, pebbles

Tritium sniffer - 0 reading

RAD Screening beta/gamma NA cpm

OVA Screening NA ppm NA

Photo # NA

Same location we collected last year 1993

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-2-94 Time 1150 AM 12-2-94 AAA 9345

Technical Area 33 Operable Unit 1122

AFFIX BAR CODE STICKER HERE

Name /Signature Russell H. Abell Russell H. Abell

Control No. (from Chain of Custody form) 1122-0089, 0088-A

Location ID No. 33-1031 Surface Soil 12-2-94

Sample Location 33-002-d-1 Sample Type ~~Tritium, Moisture~~

Composite NA YES X NO

Composite Type NA

Depth of Sample 0-6 (in) (ft)

Weather Clear, sunny Wind from the at still day mph

Temp. 50°F

Containers Used	Analysis Requested
500 ml plastic	Tritium, moisture
Red bag	Rad Screen

LANL ER SOP # 06.09 was used to collect this sample.

COMMENTS Surroundings: Outfall at the head of the cattails collected from just bellow the VC pipe surrounded by juniper trees, circle of chamisa & cattails

Soil description: Soil is frozen red brown clay with organics matted (roots)

overhoff 4739 PN#
Tritium sniffer 0

RAD Screening beta | gamma NA NA cpm

DID Screening NA ppm NA

Photo # NA This location was sampled last year. outfall pipe by EPA 04/47 TA-33 86 outfall

LANL-ER-SOP-01.04, R2

Los Alamos National Laboratory Environmental Restoration
SAMPLE COLLECTION LOG

Date: 12-2-94 Time ~~12:25~~ 12-2-94 12:25 AAA9362

Technical Area 33 Operable Unit 1122

AAA9362

Name /Signature Kristi Aarott / Kristi Aarott

Control No. (from Chain of Custody form) 1122-0090, 0088A

Location ID No. 33-1518

Sample Location 004.a Sample Type Sub-surface

Composite NA YES X NO

Composite Type NA

Depth of Sample 3.5 (in)(ft)

Weather Clear, Cool Wind from the East at 0-5 mph

Temp. 55°

Containers Used	Analysis Requested
~~500ml plastic~~	
125ml glass	Semi-VOCs
125ml glass	metals
40ml amber	VOCs
125ml poly	Cs137, Total U
~~500ml poly~~	Tritium, Moisture
Ziplock bag	Rad screening

12-2-94

LANL ER SOP # 06.10 was used to collect this sample.

COMMENTS Surroundings: Same as for AAA 9366
Location is upstream most of N/S run, clay pipe, 1st seam south of feeder line

Soil description: Same as for AAA 9366

RAD Screening beta/gamma cpm

PID Screening 0 ppm

Photo # 9 Shows excavation in pipe

~~LE Sec. Test Results.~~ 12-2-94

LANL-ER-SOP-01.04, R2