9 ERID#
1
1
3

91137

LOS ALAMOS NATIONAL LABORATORY
ENVIRONMENTAL RESTORATION (RRES-R)
Records Processing Facility
ER Records Index Form

Date Received: 1/19/2006 ***Processor:*** NMV ***Page Count:*** 232

Privileged: (Y/N) N ***Record Category:*** P ***Administrative Record: (Y/N)*** Y

FileFolder: N/A

Miscellaneous Comments: SUBMITTED BY: PAM MAESTAS

Record Documents:

Start Pg	Doc Type	Doc Date	Title	Box	Package
1	REPORT	12/5/2000	INVESTIGATION OF MDA-R AT TA-16 IN SEPTEMBER 2000, MDA-R-RFI REPORT MDA-R AT TA-16 N/A N/A		

14349

1.0 INTRODUCTION 5

2.0 SELECTION OF SAMPLING LOCATIONS 8

2.1 Reconnaissance Sample Locations (Biased Samples) 8

2.1 Grid-Point Sample Locations 8

2.1 Borehole Sample Locations 8

2.1 Drainage Sample Locations 9

3.0 FIELD ACTIVITIES 11

3.1 Field Team Members 12

3.2 Sampling Approach 13

3.3 Field Documentation 14

3.4 Environmental Samples 15

3.4.1 Screening Samples 16

3.4.2 Grid-Point Sampling 18

3.4.3 Borehole Sampling 19

3.4.4 Drainage Sampling 20

3.5 Quality Control Samples 20

3.6 Deviations to the Sampling and Analysis Plan 21

3.7 Trenching Activities 22

4.0 HEALTH AND SAFETY MONITORING DURING SAMPLING ACTIVITIES 22

4.1 Health and Safety Requirements 22

4.2 Monitoring With Direct-Reading Instrumentation 24

4.2.1 Methods 24

4.2.2 Results 24

5.0 EQUIPMENT DECONTAMINATION PROCEDURES 25

5.1 Decontamination of Manual Sampling Equipment 25

5.2 Decontamination of Drilling and Heavy Equipment 25

5.3 Equipment Release Procedures 26

6.0 WASTE MANAGEMENT **26**

7.0 CONCLUSION **27**

12.0 EXHIBITS **28**

LIST OF FIGURES

Figure 1 Location of MDA-R at TA-16 2

Figure 2 Location of Grid Points at MDA-R .....

LIST OF APPENDICES

Appendix 1 Sample Collection Log Forms ..... Volume 1

Appendix 2 Chain of Custody Forms ..... Volume 1

Appendix 3 Radiation Survey Summary Report ..... Volume 1

Appendix 4 Field Log Notebook ..... Volume 1

Appendix 5 Health and Safety Notebook ..... Volume 1

Appendix 6 Completed Tailgate Safety Meeting Forms ..... Volume 1

Appendix 7 Direct-Reading Instrument Calibration Forms ..... Volume 1

Appendix 8 Field Photographic Log ..... Volume 1

Appendix 9 Sample Schedule ..... Volume 1

Appendix 10 Health and Safety Plan ..... Volume 1

Appendix 11 Data Quality Objectives for TA-16 ..... Volume 1

Appendix 12 RFI Sampling Plan and NOD Response to NMED ..... Volume 1

Appendix 13 Roy F. Weston Letter Report.....Volume 1

Appendix 14 Access Control Logs.....Volume 1

Appendix 15 Mini-Ram Dust Monitoring Forms.....Volume 1

Appendix 16 Noise Dosimetry Monitoring Forms.....Volume 1

Appendix 17 Planar Coordinates.....Volume 1

INVESTIGATION OF MDA-R AT TA-16 IN SEPTEMBER 2000

1.0 INTRODUCTION

This report summarizes Operable Unit (OU) 1082 Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at Technical Area-16 (TA-16) Materials Disposal Area (MDA) R during fiscal year 2000. These activities supported field sampling efforts conducted during the month of September as part of Los Alamos National Laboratory (the Laboratory) Environmental Restoration (ER) Project.

The TA-16 Phase I activities at MDA-R (Figure 1) summarized by this report include:

- Methods for selection of sampling locations;
- Field activities;
- Decontamination procedures;
- Equipment release procedures; and
- Waste management.

Sample selection was based upon field screening results. Field screening activities included a radiation survey, field screening for barium using the Spectrace 4000 X-Ray Fluorescence (XRF) instrument, and field screening for high explosives (HE) using the HE Spot Test Kit. Field screening was conducted at grid-points on a 900-ft by 300-ft grid placed over the entire PRS boundary. The purpose of the field screening was to bias sample locations based on elevated (above-background) radiation levels, elevated barium levels, and locations where HE was present.

Field sampling activities included surface soil sampling, shallow subsurface soil sampling using a hand auger and a hollow-stem auger drill rig. During the Phase I sampling activities, 61 surface and shallow subsurface samples were collected from 37 sample locations within the MDA-R PRS boundaries. Figure 1 shows the locations of field activities at MDA-R.

Since the time the OU 1082 RFI Work Plan was written, a severe wildfire burned through parts of TA-16, including MDA-R and its surroundings. An underground fire continued to smolder weeks after the initial wildfire had passed over the MDA-R area. Roy F. Weston personnel assisted JCNNM personnel and other fire fighters in the fire suppression activities. These activities mandated extensive excavation of the MDA-R slopes on the south rim of Canon de Valle. During the excavation, Weston personnel noticed intact pieces of barium nitrate in

the area of the large "west" drainage that bisected MDA-R. Weston removed approximately 100 pounds of barium nitrate from the slope and drainage to prevent further migration into Canon de Valle (Appendix 13).

Once the fire suppression was deemed complete, JCNNM felled numerous burnt trees along the south slope, and these were placed parallel to Canon de Valle for slope stabilization. Weston then stabilized the entire excavated area, leveling and re-grading both the mesa top and the slope. ESA Division personnel requested that Weston excavate a temporary ditch on the west edge of the excavated area to replace the large drainage that originally bisected the area. The old drainage was re-graded and leveled, and a new diversion drainage was excavated. IT personnel then hydromulched and re-seeded the entire excavated area.

On September3, 2000 a small plume of smoke was observed on the east end of the landfill. Weston excavated this area for the final fire suppression activity at MDA-R. This excavation is still open, and provides an excellent view into the east side of the landfill. Abundant buried debris can be seen, as well as exposed pieces of barium nitrate.

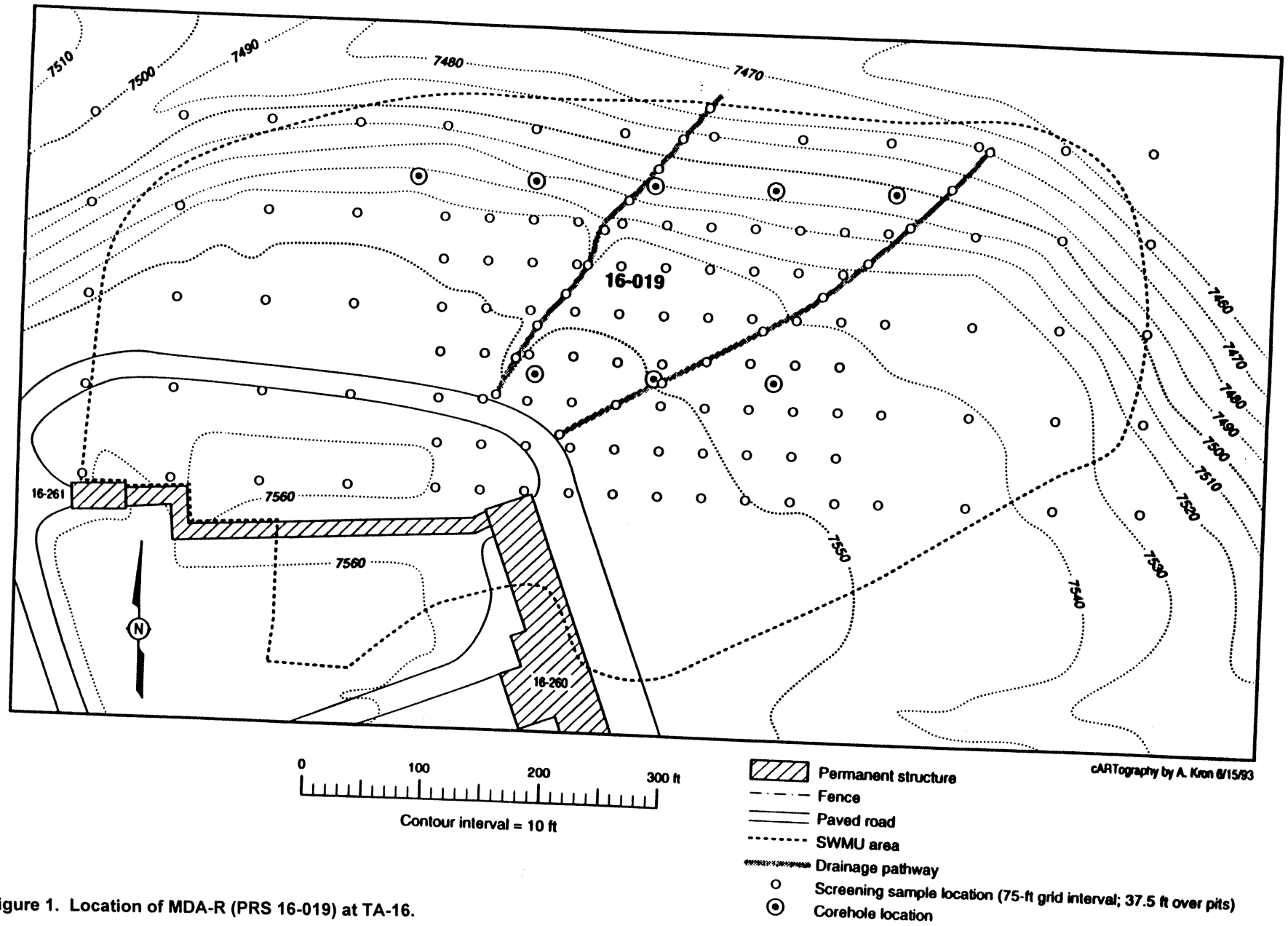


Figure 1. Location of MDA-R (PRS 16-019) at TA-16.

December 5, 2000

2.0 SELECTION OF SAMPLING LOCATIONS

Sample locations at MDA-R were selected using the criteria outlined in the RFI Work Plan for OU 1082 (LANL 1993) and the August 1994 OU 1082 Notice of Deficiency (NOD) Response provided to the New Mexico Environment Department (NMED) by the ER Project (Appendix 12). The RFI Work Plan and NOD identified the criteria for selecting reconnaissance sample locations and characterization sample locations. Reconnaissance samples provide data that indicate the presence or absence of contamination. Characterization samples provide data needed to complete a baseline risk assessment.

The sampling strategies outlined in the RFI Work Plan and the NOD Response was followed for the grid-based sampling and the borehole sampling, except for the deviations noted in Section 3.6. The drainage sampling strategy, however, was not followed as described due to the fact that the original drainages were no longer present at the PRS. The drainage sampling is described in Section 3.4.4.

2.1 Reconnaissance Sample Locations (Biased Samples)

Reconnaissance sample locations were selected to specifically maximize the likelihood of detecting contamination that might be present within the PRS. The samples taken from these locations are called "biased samples" because the sample locations were selected based on specific site characteristics, site history, and professional judgment.

2.1 Grid-Point Sample Locations

The reconnaissance sampling scheme for MDA-R surface and shallow subsurface soils prescribed the selection of sample points using field screening results. Each grid-point was field screened for barium, HE, and radioactivity, and sampling locations were selected based upon those results (Figure 2).

2.1 Borehole Sample Locations

Borehole locations were placed within the area where former burn pits were thought to be located. Three boreholes were located over the three burn pits. The remaining five boreholes were located along the canyon rim, where debris might have accumulated during bulldozing of the burn pit and landfill debris to the edge of the canyon (Figure 2).

2.1 Drainage Sample Locations

The two MDA-R drainages described in the OU 1082 RFI Work Plan are no longer present at the site due to fire suppression re-grading of the area. However, evidence of the "west" drainage that bisected the PRS still exists at the bottom of Canon de Valle. One surface sample point was located in an area of heavy sediment accumulation at the canyon bottom. A small drainage is located on the east end of the MDA-R boundary. This drainage begins on the mesa-top and flows into Canon de Valle. Debris is visible near the drainage, and several sediment traps are evident. This drainage may be a part of the original "east" drainage that began near the NE corner of building TA-16-260 (Figure 2), although there is no evidence of this "east" drainage on the mesa-top due to the recontouring of the area. A total of five sample locations were selected within the drainage. All locations were placed within sediment traps.

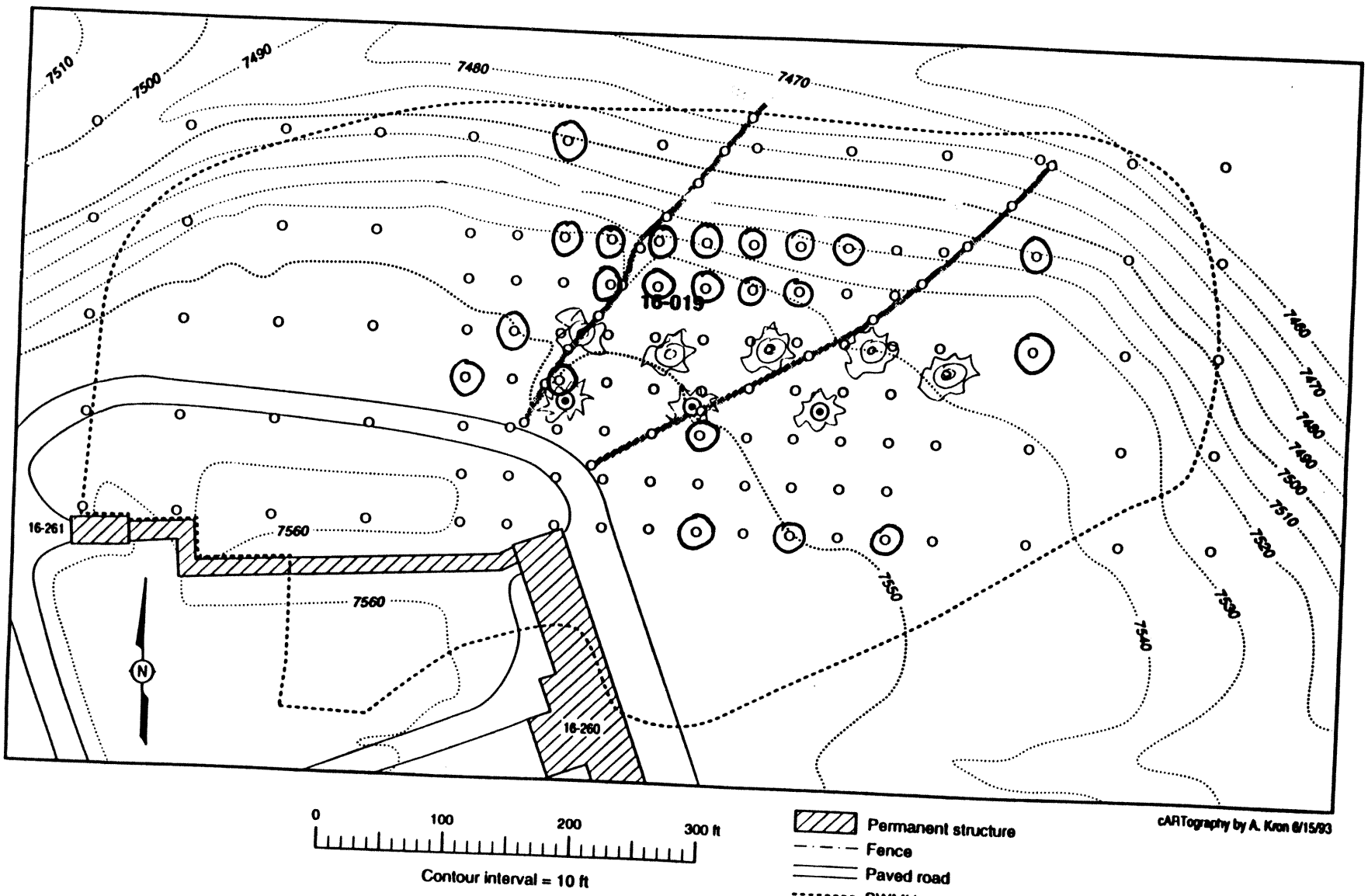


Figure 2. Detail of MDA-R Grid and Sample Locations

December 5, 2000

3.0 FIELD ACTIVITIES

Field sampling was conducted at MDA-R from September 8 through September 30, 2000. Personnel involved with field sampling activities are listed in Section 3.1, the approach to sampling is discussed in Section 3.2, and field documentation is described in Section 3.3. Environmental sampling (described in Section 4.4) consisted of the following:

- surface soil sampling
- shallow hand auger sampling
- shallow borehole sampling
- drainage sampling
- trenching

Quality control sampling (described in Section 3.5) consisted of co-located field duplicates and sample splits.

Excavation was also conducted at MDA-R to determine the depth to bedrock in the central part of the PRS. Two test trenches were dug to bedrock. Trenching activities are discussed in Section 3.7.

Section 3.6 lists the deviations from the RFI work plan and the NOD Response.

3.1 Field Team Members

The sampling team consisted of the following field team members:

Field Team Member	Role(s)	Organization
Peter Gram	Field Team Manager	IT Corp.
Kristi Beguin	Field Team Leader	IT Corp.
Russell Stone	Site Safety Officer	Prsm Inc.
Robert Monsalve-Jones	Site Safety Officer	IT Corp.
Elmer Alcon	Alternate Field Team Leader	IT Corp.
Alan Brenner	Field Technician	IT Corp.
Derrick Jones	Field Technician	IT Corp.
Carol Vargas	Field Technician	IT Corp.
Joe Vargas	Field Technician	IT Corp.
Esther Witherow	Field Technician	IT Corp.
Timothy Motah	Field Technician	IT Corp.

The field team members present during any given day are listed in the field log notebook presented in Appendix 4.

3.2 Sampling Approach

Most of the MDA-R sampling was conducted with one sampling team typically consisting of the following members:

- a field team leader (FTL)
- a site safety officer (SSO)
- a sampler to take field notes and label the sample
- a sampler to physically take the environmental sample
- a sampler to field screen the sample for HE, radiation, and Barium

Before each sample was bottled, the sample media was field screened to determine radioactivity levels, barium levels, and whether HE was present in the material. Once the field screening was conducted the samplers then proceeded to collect the sample, document weather and site conditions, take photos where appropriate, and document the environmental sample properties.

All samples were cooled with ice packs in portable ice chests as soon as possible after sample collection. Because sampling occurred on the weekends, samples were typically submitted to the Sample Management Office (SMO) on the following Monday. Upon sample collection, the sample containers were decontaminated, and affixed with a custody seal to prevent tampering. Samples were placed in a freezer within a locked field equipment trailer at the end of each workday.

3.3 Field Documentation

The Laboratory Standard Operating Procedures (SOP) were followed for all field documentation and sampling activities. These SOPs are listed in Exhibit 3. Field documentation was carried out conforming to LANL-ER-SOP-1.04, Sample Control and Field Documentation (LANL 1996b). Documentation of 2000 sampling activities at MDA-R provides the necessary evidence to ensure and defend the quality of data derived from the environmental samples. This documentation includes field notes, Sample Collection Logs, and Chain of Custody forms.

Field notes were recorded in a field notebook during the MDA-R sampling activities. The field log notebook is presented in Appendix 4. The field notes include descriptions of

- field team members present each work day
- general field conditions
- daily activities
- sampling equipment
- sample locations and identification numbers
- deviations from the work plans
- modes of field operations
- other pertinent observations

Sample Collection Logs were completed for each sample and are presented in Appendix 1. Information recorded on the log forms include

- date and time of collection
- sample identification, location, and type
- containers used
- depth of sample
- field screening results
- weather conditions at the time of sample collection

Chain of Custody/Request for Analysis forms were completed prior to submitting the samples to the Sample Management Office (SMO) to identify and document those personnel responsible for safeguarding the integrity of the samples. These forms provide a record of sample collection and transfer between field personnel and personnel at the Laboratory's sample management organization. The Chain of Custody/Request for Analysis forms are presented in Appendix 2.

3.4 Environmental Samples

Environmental samples taken during the MDA-R sampling activities TA-16 conformed to the RFI Work Plan and the NOD Response except as noted in Section 3.6. The following types of environmental samples were taken:

- Screening Samples (Section 3.4.1)
- Grid-Point Sampling (Section 3.4.2)
- Borehole Samples (Section 3.4.3)
- Drainage Samples (Section 3.4.4)

Detailed descriptions of samples taken for each sampling day during the MDA-R sampling activity are presented in Appendix 1. Exhibit 1 presents a summary of the MDA-R analytical samples and Exhibit 2 presents a summary of the MDA-R screening samples.

Photographs were taken during the field sampling activities. Photos referenced in this report are compiled in Appendix 8 with a brief description of each photo.

3.4.1 Screening Samples

Field screening techniques were used at MDA-R in order to bias for locations with high values of HE, radiation, and barium. The types of field screening used at MDA-R included:

- XRF screening for barium;
- High-energy gamma screening using a Sodium Iodide detector; and
- screening for HE using the Modified Griess Reagent Spot Test for Explosives.

Field screening was conducted at each grid-point location on the 300 by 900-foot grid located over the entire PRS boundary. Grid-point intervals were spaced 75 feet apart except over the central part of the grid, where the grid-spacing was halved to 37.5 feet to increase the likely-hood of detecting contamination over the former burn pit areas.

A total of 115 grid-point locations were placed for field screening for barium, HE, and radioactivity. The radiation survey was conducted in situ at each grid point. The results of the radiation survey are listed in Appendix 3. A small amount of soil was collected from each location in order to perform the XRF screening and the HE spot test screening in the field chem-lab trailer located near former building TA-16-27. XRF and HE spot test screening results are listed on the Sample Collection Logs (Appendix 1).

Several grid-points fell on the asphalt road that service building TA-16-260, and these points were not field screened. A large soil spoils pile, which was generated as a result of fire extinguishing activities due to the Cerro Grande Fire, also sits within the PRS boundary. Grid point locations that fell on the pile were not field screened. A total of 101 grid points were screened for high explosives using the HE spot test kit, for barium using the Spectrace 4000 XRF, and for radioactivity using a sodium iodide detector. A total of 14 grid points were not field screened for HE, barium, however the grid points were included in the radiation survey of the area.

Barium was detected above background levels at 87 grid-point locations. Barium was significantly elevated (<1000 mg/kg) at 60 locations, and from these, a total of 22 grid-points were selected for shallow subsurface sampling using the hand auger.

The radiation survey revealed six areas of slightly elevated radiation within the grid. Three of these six locations were selected as sampling locations as they also had significantly elevated barium levels.

No high explosives were detected at any of the grid-point locations, drainage locations, or in the boreholes.

Field screening was also conducted at 1-foot intervals during hand auger sampling in order to bias the depth intervals collected and to determine if the sampler needed to auger deeper.

During the borehole sampling, core intervals were field screened every foot in order to bias the depth intervals collected.

Exhibit 2 displays all the pertinent field screening information.

3.4.2 Grid-Point Sampling

Grid-point sampling was accomplished using a stainless steel hand-held auger. All hand auger sample collection activities at MDA-R 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 7 feet using a hand 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. Twenty-nine samples were collected using this method during the MDA-R sampling campaign (Exhibit 1).

Four grid-point locations were located in an area of very compact soil, thus sampling was conducted using the drill rig and a split-spoon sampler. All borehole drilling activities at MDA-R conformed to LANL-ER-SOP-04.01, Drilling Methods and Drilling Site Management (LANL 1992e). A hollow-stem auger Acker II drill rig was used to drill boreholes at the locations where soil compaction precluded the use of the hand auger. Ten grid-point samples were collected using this method.

Once field screening was completed, a total of 22 grid-point locations were selected for sampling based primarily on elevated barium results. Three of these 22 locations also exhibited slightly elevated radioactivity levels. Sampling protocol for the grid-point sampling included hand augering to a depth of three feet, with field screening for radioactivity, barium, and HE conducted every 12 inches. If field screening indicated the presence of contamination, hand augering and field screening was to continue until a decreasing trend could be shown. Analytical samples were collected at the bottom of the auger hole, and from the depth interval with the highest field screening results. Due to the abundance of large tuff cobble over the entire area (>6-inches diameter), the hand auger met refusal in most holes within the first two feet. There were 15 locations where two samples were collected from each hole. One sample per hole was collected from the remaining 7 locations. Exhibit 1 displays all the pertinent sampling information for MDA-R.

No high explosives were detected in any of the screening and sample locations. Barium was elevated in all of the locations. Radioactivity was at background levels at all screening and sample locations.

3.4.3 Borehole Sampling

All borehole drilling activities at MDA-R conformed to LANL-ER-SOP-04.01, Drilling Methods and Drilling Site Management (LANL 1992e). A hollow-stem auger rig was used to drill boreholes at eight locations at MDA-R. One additional borehole was drilled to provide a QA/QC sample.

Borehole drilling was performed by IT Corporation personnel with the following equipment:

- Acker II Auger Rig
- 4.25-inch-inner-diameter (I.D.) heavy-duty augers and bit
- Stainless steel split-spoon samplers, 2.5-feet by 4-inches

Samples were collected from the borehole using a stainless steel split-spoon sampler according to LANL-ER-SOP-06.24, Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers (LANL 1996c). The split-spoon samplers were monitored for volatile organic compounds (VOC) immediately after opening using a PID. The core material was then removed from the split-spoon sampler and placed into a stainless steel bowl. Each foot of core material was screened for radioactivity, barium, and HE. No HE or radioactivity was detected in any of the core intervals, thus screening intervals with the highest field screening results for barium were submitted for analysis. The sample material was broken up, mixed with a stainless steel spoon, and placed into the appropriate sample containers.

Drill cuttings generated from the drilling activities were placed into small piles around the borehole. After sampling was completed at each borehole, these cuttings were returned to the borehole to the approximate depths from which they were generated.

A total of 55 screening samples were collected from the eight boreholes. Sixteen analytical samples were submitted for off-site analysis. Analytical samples were selected from the depth interval with the highest barium screening results, and from the bottom of the borehole. Exhibit 1 presents a summary of all the analytical samples collected during drilling. Exhibit 2 presents a summary of the field screening samples collected during drilling.

3.4.4 Drainage Sampling

A total of six drainage samples were collected from MDA-R. As discussed in Section 1.0, the MDA-R drainages described in the RFI Work Plan no longer exist at this PRS. Recontouring conducted as part of the fire suppression efforts at MDA-R removed the original drainages that were to be sampled as part of the Phase I RFI. However, the western drainage that flowed northward into Canon de Valle was sampled in 1998 based on recommendations of Surface Water Assessment Team. A total of 4 surface soil samples were collected at that time, and they were analyzed for HE, metals, semi-volatile organic compounds, and total uranium. Because the RFI Work Plan required a total of 5 samples to be collected, one additional location was sampled during this field campaign. Evidence of the former drainage still exists at the bottom of Canon de Valle, and one sample was collected in an area of heavy sediment accumulation within the canyon bottom.

Five samples were collected from a small drainage on the eastern edge of the PRS boundary. This drainage flows northward into Canon de Valle. Samples were collected from small sediment traps within the drainage. Field screening was not conducted on any of the drainage samples, nor were sample locations biased to screening results.

3.5 Quality Control Samples

Field quality-control samples were collected during the MDA-R sampling activities to provide the means of assessing the quality of the data that resulted from these activities. Field quality-control samples were collected during the investigation as specified in the OU 1082 Site-Specific Quality Assurance Project Plan (Appendix 11). Field quality-control samples consisted of field duplicates. All quality control samples were collected at a frequency of 1 per 20 samples. Quality control samples are presented in the table below.

Sample ID	Location ID	Desc.	Ba Result (ppm)	HE Result	Rad (cpm)	Depth	Method
RE16-00-0240	16-6539	N-1 td split	311	Neg.	13600	4.0-5.0 ft	Split-spoon
RE16-00-0241	16-6520	J-1 split	3781	Neg.	11400	0-1 ft	Split-spoon
RE16-00-0258	Collocated to 1ft. E of 16-6530	Collocated to Rim Hole 4	258	Neg.	12150	10-12.5 ft.	Split-spoon

Field duplicate samples are analyzed to check for both sampling and laboratory analytical reproducibility. The collection procedure for duplicate samples varied slightly from the environmental sample procedure in that more material was placed into the stainless steel sampling bowl before homogenizing the material. This practice ensured that enough homogenized material was available for both samples before the samples were removed from the sampling bowl. The off-site laboratories were not told which samples were duplicates.

3.6 Deviations to the Sampling and Analysis Plan

This section describes the deviations from the OU 1082 RFI Work Plan, and the NOD Response. The RFI Work Plan specified that for both drilling and grid-point sampling, field screening would be conducted on 6-inch intervals from each hole. Screening was conducted on 12-inch intervals for each location. Sample material was well homogenized for each 12-inch interval screened.

The sampling plan stated that 5 samples would be collected from the west drainage, and 5 samples would be collected from the east drainage in order to characterize the contamination that may be transported via surface water away from MDA-R into Cañon de Valle.

As described in Section 1.0, the entire area has been excavated and re-contoured. This western drainage is not representative of the former drainage and only one location was sampled as part of the MDA-R campaign.

The recontouring of MDA-R also eliminated the former east drainage that bisected the PRS. Sediment traps within this eastern drainage were located, and a total of 5 samples were collected from the channel. The RFI Work Plan states that drainage samples will be biased to field screening results. Due to the few number of sediment accumulation areas, and the fact that these drainages are not the same ones described in the Work Plan, no field screening was conducted on any of the drainage samples.

Hand Auger holes for the grid-point locations were to extend to a minimum of 3 feet depth. Due to the widespread abundance of cobbles (>6-inches diameter), 12 of the 22 locations extended to the minimum 3-foot depth. However, for the majority of these samples, the 3-foot depth interval did not indicate a decreasing trend in contamination, and hand augering should have proceeded to deeper intervals until this decrease in contamination could be shown. At ten of the hand auger locations, samples were obtained from depths of 30-inches or less. Three of these locations had two samples collected from the auger hole: one from the interval with the highest barium results detected with the XRF, and one from the total depth of the hole. The remaining seven locations had only one sample collected from the hole. Exhibit 1 displays the analytical sampling information for the grid-point sampling, and Exhibit 2 present the field screening information.

3.7 Trenching Activities

Two trenches were excavated in the center of the PRS. These trenches were excavated where the slope began to extend down and northward into Canon de Valle. The purpose of trenching was to determine the depth to bedrock, and therefore help in estimating the amount of soil that may need to be removed from the PRS if a clean up is executed. One trench was dug just east of the former "west" drainage. This trench was approximately 15 feet in length. Bedrock was encountered at 5 feet depth. Another drainage was excavated 50 feet east of the first trench. This trench was also 15 feet in length, and again, bedrock was encountered at 5 feet depth. Trenching was conducted using a Caterpillar Excavator with a 1 cubic yard bucket. Trenching was documented in the Field Logbook (Appendix 4).

4.0 HEALTH AND SAFETY MONITORING DURING SAMPLING ACTIVITIES

Health and safety monitoring was conducted at MDA-R 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. General heath and safety requirements are described in Section 5.1, direct-reading instrument monitoring is described in Section 5.2, and other personal monitoring is described is Section 5.3.

4.1 Health and Safety Requirements

The site safety officer (SSO) was responsible for enforcing all health and safety requirements as stated in the Site-Specific Health and Safety Plan (SSHASP). The complete SSHASP and SSHASP Modifications are located in Appendix 5. The SSO conducted daily tailgate safety meetings, and the Tailgate Safety Meeting Forms (Appendix 6) document these meetings. The SSO also briefed visitors on health and safety issues, conducted or oversaw health and safety monitoring, and ensured that all health and safety concerns were met.

A task-by-task risk analysis was conducted to identify hazards associated with given tasks. The identified hazards were then evaluated to determine levels of protection needed for field personnel. On the basis of these evaluations, Modified Level D PPE was recommended and used during sampling activities. Modified Level D PPE consisted of

- Steel-toed work boots;
- Reusable cotton coveralls;
- inner and outer chemical-resistant gloves (or one or two pairs of inner gloves, depending on role of sampling team member);
- safety glasses.

Hard hats and hearing protection were used when working within 50 feet of drilling equipment and heavy machinery.

Three work zones were established to assure that hazardous substances were not spread from the potentially contaminated areas:

- The exclusion zone (the contamination area where samples were collected)
- The contamination reduction zone (the decontamination area)
- The support zone (the clean area where administrative and support work was conducted)

The Laboratory's Industrial Hygiene Group (ESH-5) was responsible for overseeing all health and safety issues during the MDA-R sampling activities.

4.2 Monitoring With Direct-Reading Instrumentation

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

Direct-Reading Instrument	Action Level
• RAL Systems photo-ionization detector (PID), Model Mini SV	• 8.5 ppm.
• Ametek Audio Dosimeter, Model MK-3	• 85 dB
• MIE Miniram aerosol dust monitor, Model PDM-3	• 5.0 mg/m^3

4.2.1 Methods

Each instrument was calibrated at the beginning of each workday. The calibration logs are provided in Appendix 7. The PID was used to monitor organic vapor concentrations in the breathing zone of the sampler and the drillers during the borehole drilling and sampling. Monitoring results are documented in the Sample Collection Logs (Appendix 15) and the health and safety field notebook (Appendix 5).

The Miniram aerosol dust monitor was used downwind of sampling activities and drilling operations. The instrument was placed in several positions: downwind of the drill rig; on the drill rig; and on the sample collection and logging station table. Readings were taken on a continuous basis. Miniram measurements are presented in Appendix 15.

4.2.2 Results

Organic vapors were not detected above action levels using the PID at sample locations or in the breathing zone of field workers.

Miniram particulate readings taken from the drill rig had a time weighted average (TWA) ranging between 0.03 mg/m^3 and 0.13 mg/m^3. These readings are well below the action level of 5.0 mg/m^3 for particulates listed in the approved SSHASP.

Although the SSO monitored for noise, the field personnel wore hearing protection when working on or near the drill rig. The noise dosimetry readings are presented in Appendix 16.

5.0 EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination of non-expendable equipment is a critical part of data quality assurance. All sampling equipment was carefully decontaminated before reuse.

Specific procedures used for the decontamination of the manual sampling equipment, the drilling equipment, and heavy machinery are described in Sections 7.1, 7.2, and 7.3, respectively.

5.1 Decontamination of Manual Sampling Equipment

Sampling equipment such as hand augers, hammers, screwdrivers, spoons, and bowls were decontaminated after each use. Decontamination procedures entailed washing the equipment in a solution of Alconox™ and water, and rinsing in water. As specified in the approved Notice of Intent to Discharge (NOI), and with permission from the Laboratory's Water Quality Group ESH-18, decontamination water was poured back onto the PRS.

5.2 Decontamination of Drilling and Heavy Equipment

The split-spoon samplers, auger flights, and drill bit were decontaminated after each use. The split-spoon samplers, drill bit, and auger flights were decontaminated in tubs using a solution of Alconox™ and water with a final rinse of clean water. All decontamination water was discharged to the PRS from which the samples were collected with permission from the Laboratory's Water Quality Group ESH-18.

The hollow-stem auger drill rig and the excavator were decontaminated before leaving the site. These vehicles were backed onto the PRS, and decontaminated using a high-pressure steam cleaner.

5.3 Equipment Release Procedures

Prior to releasing equipment from TA-16, items were checked for HE contamination using the HE spot test kit. HE contamination was not found on any of the equipment used during the MDA-R sampling activities. After the equipment was checked for HE contamination, an ESA facility representative issued an ESA-Division HE Release slip for the equipment so that it could be transported out of the HE corridor.

6.0 WASTE MANAGEMENT

The practice of waste minimization (as required by the Laboratory's LIR 404-00-02.2 General Waste Management Requirements) was incorporated into the work strategy and greatly reduced the amount of waste generated during the MDA-R activities.

All disposable PPE used during the MDA-R activities were decontaminated prior to disposal. Nitrile gloves were decontaminated in an Alconox and water solution and rinsed with clean water prior to disposing of them as non-hazardous/non-radioactive solid wastes.

The field crew wore cotton coveralls during sampling and drilling activities, and these were laundered at the TA-16 laundry facility.

Hazardous solid and liquid wastes were not generated during the MDA-R activities. Reusable sampling equipment was used during the sampling activities and all equipment was decontaminated with Alconox and water after each use. Drill cuttings were placed adjacent to the borehole and were returned to the borehole upon completion of the drilling. Decontamination fluids were returned back to PRS at the end of each workday, with permission of the Laboratory's Water Quality and Hydrology Group ESH-18.

7.0 CONCLUSION

This RFI sampling effort at MDA-R completes Phase I sampling for PRS 16-019.

A land survey was conducted conforming to ER SOPs and the RFI Work Plan, and the planar coordinates are presented in Appendix 17. Sixty-one surface and subsurface soil samples were collected in conformance with LANL ER SOPs and the RFI Work Plan. Health and safety monitoring was conducted in compliance with the Health and Safety Plan.

8.0 EXHIBITS

This section contains exhibits that are referenced in the preceding sections but were too large to include with the text.

EXHIBIT 1

Analytical Sample Summary

Analytical Sample ID	Location ID	Location Description	Depth Interval Collected	Date Collected	Associated Screening ID #s	HEXP	SVOCs	METALL	TotalU
RE16-00-0230	16-6532	BH-1 (Pit Hole 1)	1.5-2.5 feet	9/9/00	RE16-00-1569	x	x	x	x
RE16-00-0237	16-6532	BH-1 (Pit Hole 1)	10.0-11.0 feet	9/18/00	RE16-00-1574	x	x	x	x
RE16-00-0231	16-6533	BH-2 (Pit Hole 2)	2.5-5.0 feet	9/10/00	RE16-00-1576	x	x	x	x
RE16-00-0238	16-6533	BH-2 (Pit Hole 2)	11.0-12.0 feet	9/16/00	RE16-00-1581	x	x	x	x
RE16-00-0232	16-6534	BH-3 (Pit Hole 3)	1.0-2.0 feet	9/10/00	RE16-00-1583	x	x	x	x
RE16-00-0239	16-6534	BH-3 (Pit Hole 3)	7.5-9.0 feet	9/16/00	RE16-00-1587	x	x	x	x
RE16-00-0225	16-6527	BH-4 (Rim Hole 1)	1.0-2.5 feet	9/10/00	RE16-00-1589	x	x	x	x
RE16-00-0226	16-6528	BH-5 (Rim Hole 2)	1.0-2.5 feet	9/10/00	RE16-00-1610	x	x	x	x
RE16-00-0256	16-6528	BH-5 (Rim Hole 2)	5.0-6.0 feet	9/16/00	RE16-00-1612	x	x	x	x
RE16-00-0234	16-6529	BH-6 (Rim Hole 3)	1.0-2.5 feet	9/16/00	RE16-00-1614	x	x	x	x
RE16-00-0227	16-6529	BH-6 (Rim Hole 3)	17.5-20.0 feet	9/10/00	RE16-00-1628	x	x	x	x
RE16-00-0228	16-6530	BH-7 (Rim Hole 4)	2.5-5.0 feet	9/17/00	RE16-00-1630	x	x	x	x
RE16-00-0235	16-6530	BH-7 (Rim Hole 4)	10.0-11.0 feet	9/17/00	RE16-00-1633	x	x	x	x
RE16-00-0258	16-6535	BH-7c	10-11.0 feet	9/17/00	RE16-00-1634	x	x	x	x
RE16-00-0229	16-6531	BH-8 (Rim Hole 5)	0-2.5 feet	9/17/00	RE16-00-1797	x	x	x	x
RE16-00-0236	16-6531	BH-8 (Rim Hole 5)	7.5-10.0 feet	9/18/00	RE16-00-1608	x	x	x	x
RE16-00-0219	16-6521	W. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0220	16-6522	E. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0221	16-6523	E. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0222	16-6524	E. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0223	16-6525	E. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0224	16-6526	E. drnge	0-6 inches	9/22/00	None	x	x	x	x
RE16-00-0200	16-6502	E-4	0-12 inches	9/23/00	RE16-00-1523	x	x	x	x
RE16-00-0201	16-6503	F-5	0-12 inches	9/23/00	RE16-00-1532	x	x	x	x
RE16-00-0204	16-6506	I-7	0-12 inches	9/23/00	RE16-00-1557	x	x	x	x
RE16-00-0244	16-6506	I-7 td	36-48 inches	9/23/00	RE16-00-1557	x	x	x	x
RE16-00-0205	16-6507	G-4	12-18 inches	9/23/00	RE16-00-1539	x	x	x	x
RE16-00-0207	16-6509	G-7	0-12 inches	9/23/00	RE16-00-1542	x	x	x	x
RE16-00-0247	16-6509	G-7 td	12-24 inches	9/23/00	RE16-00-1542	x	x	x	x
RE16-00-0208	16-6510	G-8	0-12 inches	9/23/00	RE16-00-1543	x	x	x	x
RE16-00-0248	16-6510	G-8 td	24-36 inches	9/23/00	RE16-00-1543	x	x	x	x
RE16-00-0249	16-6519	P-3	0-12 inches	9/24/00	RE16-00-1784	x	x	x	x
RE16-00-0212	16-6514	J-6	24-32 inches	9/24/00	RE16-00-1564	x	x	x	x
RE16-00-0252	16-6514	J-6 td	32-40 inches	9/24/00	RE16-00-1564	x	x	x	x
RE16-00-0213	16-6515	J-7	24-36 inches	9/23/00	RE16-00-1565	x	x	x	x
RE16-00-0253	16-6515	J-7 td	72-84 inches	9/24/00	RE16-00-1565	x	x	x	x
RE16-00-0326	16-6508	I-6	0-12 inches	9/24/00	RE16-00-1760	x	x	x	x

Analytical Sample ID	Location ID	Location Description	Depth Interval Collected	Date Collected	Associated Screening ID #s	HEXP	SVOCs	METTAL	TotalU
RE16-00-0327	16-6508	I-6 td	20-25 inches	9/24/00	RE16-00-1760	x	x	x	x
RE16-00-0328	16-6511	K-6	0-12 inches	9/24/00	RE16-00-1752	x	x	x	x
RE16-00-0329	16-6511	K-6 td	24-36 inches	9/24/00	RE16-00-1752	x	x	x	x
RE16-00-0330	16-6512	K-7	0-12 inches	9/24/00	RE16-00-1753	x	x	x	x
RE16-00-0331	16-6512	K-7 td	24-36 inches	9/24/00	RE16-00-1753	x	x	x	x
RE16-00-0334	16-6513	L-6	0-12 inches	9/24/00	RE16-00-1760	x	x	x	x
RE16-00-0335	16-6513	L-6 td	24-36 inches	9/24/00	RE16-00-1760	x	x	x	x
RE16-00-0336	16-6516	M-7	0-12 inches	9/24/00	RE16-00-1768	x	x	x	x
RE16-00-0340	16-6517	P-4	0-12 inches	9/24/00	RE16-00-1785	x	x	x	x
RE16-00-0341	16-6517	P-4 td	24-36 inches	9/24/00	RE16-00-1785	x	x	x	x
RE16-00-0342	16-6518	L-7	0-12 inches	9/24/00	RE16-00-1761	x	x	x	x
RE16-00-0345	16-6518	L-7 td	12-24 inches	9/24/00	RE16-00-1761	x	x	x	x
RE16-00-0343	16-6504	H-6	24-30 inches	9/24/00	RE16-00-1549	x	x	x	x
RE16-00-0344	16-6505	H-7	0-12 inches	9/24/00	RE16-00-1550	x	x	x	x
RE16-00-0210	16-6520	J-1	0-12 inches	9/30/00	RE16-00-1559	x	x	x	x
RE16-00-0241	16-6520	J-1 split	0-12 inches	9/30/00	RE16-00-1559	x	x	x	x
RE16-00-0250	16-6520	J-1 td	48-60 inches	9/30/00	RE16-00-1559	x	x	x	x
RE16-00-0211	16-6537	J-3	0-30 inches	9/30/00	RE16-00-1561	x	x	x	x
RE16-00-0251	16-6537	J-3 td	48-60 inches	9/30/00	RE16-00-1561	x	x	x	x
RE16-00-0332	16-6538	L-1	0-12 inches	9/30/00	RE16-00-1755	x	x	x	x
RE16-00-0333	16-6538	L-1 td	48-54 inches	9/30/00	RE16-00-1755	x	x	x	x
RE16-00-0338	16-6539	N-1	0-12 inches	9/30/00	RE16-00-1770	x	x	x	x
RE16-00-0339	16-6539	N-1 td	48-60 inches	9/30/00	RE16-00-1770	x	x	x	x
RE16-00-0240	16-6539	N-1 td split	48-60 inches	9/30/00	RE16-00-1770	x	x	x	x

EXHIBIT 2

Screening Sample Summary

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1569	16-6532	BH-1	9/9/00	1.5-2.5 ft	RE16-00-0230	441	Negative	12100
RE16-00-1570	16-6532	BH-1	9/9/00	2.5-5.0 ft		248.8	Negative	12400
RE16-00-1571	16-6532	BH-1	9/9/00	5.0-6.0 ft		137.9	Negative	11100
RE16-00-1572	16-6532	BH-1	9/9/00	6.0-7.5 ft		47.5	Negative	11700
RE16-00-1573	16-6532	BH-1	9/9/00	7.5-8.5 ft		187.91	Negative	12230
RE16-00-1574	16-6532	BH-1	9/9/00	8.5-10.0 ft	RE16-00-0237	225	Negative	13100
RE16-00-1575	16-6533	BH-2	9/10/00	1.0-2.5 ft		525	Negative	11100
RE16-00-1576	16-6533	BH-2	9/10/00	2.5-3.5 ft	RE16-00-0231	569	Negative	12100
RE16-00-1577	16-6533	BH-2	9/10/00	3.5-5.0 ft		523	Negative	13100
RE16-00-1578	16-6533	BH-2	9/10/00	5.0-6.0 ft		165.2	Negative	11200
RE16-00-1579	16-6533	BH-2	9/10/00	6.0-7.5 ft		221.5	Negative	11400
RE16-00-1580	16-6533	BH-2	9/10/00	7.5-8.5 ft		175.9	Negative	11950
RE16-00-1581	16-6533	BH-2	9/10/00	9.0-10.0 ft	RE16-00-0238	65.2	Negative	11950
RE16-00-1582	16-6534	BH-3	9/10/00	0-1.0 ft		523	Negative	13420
RE16-00-1583	16-6534	BH-3	9/10/00	1.0-2.5 ft	RE16-00-0232	596	Negative	13490
RE16-00-1584	16-6534	BH-3	9/10/00	2.5-3.5 ft		153.3	Negative	12400
RE16-00-1585	16-6534	BH-3	9/10/00	3.5-5.0 ft		171.3	Negative	13010
RE16-00-1586	16-6534	BH-3	9/10/00	5.0-6.0 ft		99.3	Negative	11400

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1587	16-6534	BH-3	9/10/00	6.0-7.5 ft	RE16-00-0239	125.3	Negative	12160
RE16-00-1588	16-6527	BH-4	9/10/00	0-1.0 ft	RE16-00-0225	423	Negative	12400
RE16-00-1589	16-6527	BH-4	9/10/00	1.0-2.5 ft		497	Negative	12100
RE16-00-1590	16-6527	BH-4	9/10/00	2.5-3.5 ft		395	Negative	11200
RE16-00-1591	16-6527	BH-4	9/10/00	3.5-5.0 ft		242.9	Negative	10500
RE16-00-1592	16-6527	BH-4	9/10/00	5.0-6.0 ft		238	Negative	12800
RE16-00-1609	16-6527	BH-4	9/10/00	6.0-7.5 ft			Negative	
RE16-00-1610	16-6528	BH-5	9/10/00	1.0-2.5 ft	RE16-00-0226	484	Negative	12200
RE16-00-1611	16-6528	BH-5	9/10/00	2.5-3.5 ft		397	Negative	12000
RE16-00-1612	16-6528	BH-5	9/10/00	3.5-5.0 ft	RE16-00-0256	332	Negative	12100
RE16-00-1613	16-6529	BH-6	9/10/00	0-1.0 ft			Negative	
RE16-00-1614	16-6529	BH-6	9/10/00	1.0-2.5 ft	RE16-00-0234	437	Negative	12400
RE16-00-1615	16-6529	BH-6	9/10/00	2.5-3.5 ft		427	Negative	12250
RE16-00-1616	16-6529	BH-6	9/10/00	3.5-5.0 ft		413	Negative	12500
RE16-00-1617	16-6529	BH-6	9/10/00	5.0-6.0 ft		297	Negative	12200
RE16-00-1618	16-6529	BH-6	9/10/00	6.0-7.5 ft		203.7	Negative	12200
RE16-00-1619	16-6529	BH-6	9/10/00	7.5-8.5 ft			Negative	
RE16-00-1620	16-6529	BH-6	9/10/00	9.0-10.0 ft		188.8	Negative	12100
RE16-00-1621	16-6529	BH-6	9/10/00	10.0-11.0 ft		100.8	Negative	11850
RE16-00-1622	16-6529	BH-6	9/10/00	11.0-12.5 ft		11.8	Negative	11250
RE16-00-1623	16-6529	BH-6	9/10/00	12.5-13.5 ft		147.1	Negative	11180

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1624	16-6529	BH-6	9/10/00	13.5-15.0 ft		146.8	Negative	11850
RE16-00-1625	16-6529	BH-6	9/16/00	15.0-16.0 ft		127.6	Negative	129000
RE16-00-1626	16-6529	BH-6	9/16/00	16.0-17.5 ft		125.7	Negative	12720
RE16-00-1627	16-6529	BH-6	9/16/00	17.5-18.5 ft		94.7	Negative	14100
RE16-00-1628	16-6529	BH-6	9/16/00	18.5-20.0 ft	RE16-00-0227	97.4	Negative	14000
RE16-00-1629	16-6530	BH-7	9/17/00	0-2.5 ft				
RE16-00-1630	16-6530	BH-7	9/17/00	2.5-5.0 ft	RE16-00-0228	5608	Negative	12650
RE16-00-1631	16-6530	BH-7	9/17/00	5.0-7.5 ft		374	Negative	12250
RE16-00-1632	16-6530	BH-7	9/17/00	7.5-10.0 ft		1219	Negative	12150
RE16-00-1633	16-6530	BH-7	9/17/00	10.0-11.0 ft	RE16-00-0235	293	Negative	12500
RE16-00-1634	16-6535	BH-7c	9/17/00	10.0-11.0 ft	RE16-00-0258	175	Negative	12150
RE16-00-1797	16-6531	BH-8	9/17/00	0-2.5 ft	RE16-00-0229	312	Negative	12900
RE16-00-1604	16-6531	BH-8	9/17/00	2.5-3.5 ft		208	Negative	12850
RE16-00-1798	16-6531	BH-8	9/17/00	3.5-5.0 ft		199	Negative	11650
RE16-00-1605	16-6531	BH-8	9/17/00	5.0-7.5 ft		233	Negative	12500
RE16-00-1607	16-6531	BH-8	9/18/00	7.5-10.0 ft		128.8	Negative	12600
RE16-00-1608	16-6531	BH-8	9/18/00	10.0-12.5 ft	RE16-00-0236	322	Negative	11700
RE16-00-1500	16-6613	A-1	9/3/00	0-6 in		243.9	Negative	14300

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1501	16-6614	A-2	9/3/00	not collected				12700
RE16-00-1502	16-6615	A-3	9/3/00	0-6 in		190	Negative	14300
RE16-00-1503	16-6616	A-4	9/3/00	0-6 in		228.6	Negative	14300
RE16-00-1504	16-6617	A-5	9/3/00	0-6 in		85.7	Negative	15700
RE16-00-1505	16-6618	B-1	9/3/00	0-6 in		82.3	Negative	14900
RE16-00-1506	16-6619	B-2	9/3/00	0-6 in		198.4	Negative	16600
RE16-00-1507	16-6620	B-3	9/3/00	0-6 in		264.2	Negative	15100
RE16-00-1508	16-6621	B-4	9/3/00	0-6 in		212.7	Negative	16000
RE16-00-1509	16-6622	B-5	9/3/00	0-6 in		140.1	Negative	17000
RE16-00-1510	16-6623	C-1	9/3/00	0-6 in		222.1	Negative	15000
RE16-00-1511	16-6624	C-2	9/3/00	not collected				13700
RE16-00-1512	16-6625	C-3	9/3/00	0-6 in		868	Negative	14600
RE16-00-1513	16-6626	C-4	9/3/00	0-6 in		91.9	Negative	14800
RE16-00-1514	16-6627	C-5	9/3/00	0-6 in		312	Negative	17100
RE16-00-1515	16-6628	D-1	9/3/00	0-6 in		1533	Negative	13800
RE16-00-1516	16-6629	D-2	9/3/00	not collected				12400
RE16-00-1517	16-6630	D-3	9/3/00	0-6 in		1222	Negative	12600
RE16-00-1518	16-6631	D-4	9/3/00	0-6 in		936	Negative	14300
RE16-00-1519	16-6632	D-5	9/3/00	0-6 in		26.2	Negative	15500
RE16-00-1520	16-6633	E-1	9/3/00	0-6 in		1054	Negative	15100
RE16-00-1521	16-6634	E-2	9/3/00	0-6 in		508	Negative	14900
RE16-00-1522	16-6635	E-3	9/3/00	not collected				15700
RE16-00-1523	16-6502	E-4	9/3/00	0-6 in	RE16-00-0200	4836	Negative	13300
RE16-00-1524	16-6636	E-5	9/3/00	0-6 in		2010	Negative	13400

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1525	16-6637	E-6	9/3/00	0-6 in		647	Negative	12100
RE16-00-1526	16-6638	E-7	9/3/00	0-6 in		1528	Negative	15200
RE16-00-1527	16-6639	E-8	9/3/00	0-6 in		477	Negative	13500
RE16-00-1528	16-6640	F-1	9/3/00	0-6 in		781	Negative	14300
RE16-00-1529	16-6641	F-2	9/3/00	0-6 in		581	Negative	15300
RE16-00-1530	16-6642	F-3	9/3/00	0-6 in		460	Negative	14800
RE16-00-1531	16-6643	F-4	9/3/00	0-6 in		1886	Negative	13200
RE16-00-1532	16-6503	F-5	9/3/00	0-6 in	RE16-00-0201	1522	Negative	15600
RE16-00-1533	16-6644	F-6	9/3/00	0-6 in		1445	Negative	14200
RE16-00-1534	16-6645	F-7	9/3/00	0-6 in		1957	Negative	16300
RE16-00-1535	16-6646	G-1	9/3/00	0-6 in		444	Negative	16200
RE16-00-1536	16-6647	G-2	9/3/00	0-6 in		298	Negative	17000
RE16-00-1538	16-6648	G-3	9/3/00	0-6 in		1085	Negative	13700
RE16-00-1539	16-6507	G-4	9/3/00	0-6 in	RE16-00-0205	3004	Negative	14100
RE16-00-1540	16-6649	G-5	9/3/00	0-6 in		1242	Negative	15600
RE16-00-1541	16-6650	G-6	9/3/00	0-6 in		2053	Negative	12500
RE16-00-1542	16-6509	G-7	9/3/00	0-6 in	RE16-00-0207 RE16-00-0247	3531	Negative	14400
RE16-00-1543	16-6510	G-8	9/3/00	0-6 in	RE16-00-0208 RE16-00-0248	6114	Negative	12300
RE16-00-1544	16-6651	H-1	9/3/00	0-6 in		470	Negative	13400
RE16-00-1545	16-6652	H-2	9/3/00	0-6 in		597	Negative	12500
RE16-00-1546	16-6653	H-3	9/3/00	0-6 in		1525	Negative	13000

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1547	16-6654	H-4	9/3/00	0-6 in		1610	Negative	13000
RE16-00-1548	16-6655	H-5	9/3/00	0-6 in		1052	Negative	13000
RE16-00-1549	16-6504	H-6	9/3/00	0-6 in	RE16-00-0343	2311	Negative	13200
RE16-00-1550	16-6505	H-7	9/3/00	0-6 in	RE16-00-0344	2981	Negative	15700
RE16-00-1551	16-6656	I-1	9/3/00	0-6 in		3534	Negative	15000
RE16-00-1552	16-6657	I-2	9/3/00	0-6 in		1430	Negative	12200
RE16-00-1553	16-6658	I-3	9/3/00	0-6 in		1061	Negative	12000
RE16-00-1554	16-6659	I-4	9/3/00	0-6 in		7382	Negative	13100
RE16-00-1555	16-6660	I-5	9/3/00	0-6 in		3056	Negative	13900
RE16-00-1556	16-6508	I-6	9/3/00	0-6 in	RE16-00-0326 RE16-00-0327	79480	Negative	13400
RE16-00-1557	16-6506	I-7	9/3/00	0-6 in		180000	Negative	13600
RE16-00-1558	16-6661	I-8	9/3/00	0-6 in		4231	Negative	12400
RE16-00-1559	16-6520	J-1	9/3/00	0-6 in	RE16-00-0210 RE16-00-0241 RE16-00-0250	17610	Negative	11400
RE16-00-1560	16-6662	J-2	9/3/00	0-6 in		3979	Negative	13400

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1561	16-6537	J-3	9/3/00	0-6 in	RE16-00-0211 RE16-00-0251	15830	Negative	13300
RE16-00-1562	16-6663	J-4	9/3/00	0-6 in		2014	Negative	13700
RE16-00-1563	16-6664	J-5	9/3/00	0-6 in		686	Negative	14600
RE16-00-1564	16-6514	J-6	9/3/00	0-6 in	RE16-00-0212 RE16-00-0252	5388	Negative	13800
RE16-00-1565	16-6515	J-7	9/3/00	0-6 in	RE16-00-0213 RE16-00-0253	9563	Negative	15600
RE16-00-1566	16-6665	K-1	9/3/00	0-6 in		1676	Negative	18200
RE16-00-1567	16-6666	K-2	9/3/00	0-6 in		3820	Negative	14800
RE16-00-1568	16-6667	K-3	9/3/00	not collected				15000
RE16-00-1750	16-6668	K-4	9/3/00	not collected				14200
RE16-00-1751	16-6669	K-5	9/3/00	0-6 in		2665	Negative	14000
RE16-00-1752	16-6511	K-6	9/3/00	0-6 in	RE16-00-0328 RE16-00-0329	5159	Negative	14200
RE16-00-1753	16-6512	K-7	9/3/00	0-6 in	RE16-00-0330 RE16-00-0331	10410	Negative	13100

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1754	16-6670	K-8	9/3/00	0-6 in		2058	Negative	13800
RE16-00-1755	16-6538	L-1	9/3/00	0-6 in	RE16-00-0332 RE16-00-0333	11320	Negative	13100
RE16-00-1756	16-6671	L-2	9/3/00	not collected				13700
RE16-00-1757	16-6672	L-3	9/3/00	not collected				13700
RE16-00-1758	16-6673	L-4	9/3/00	not collected				14000
RE16-00-1759	16-6674	L-5	9/3/00	0-6 in		1993	Negative	14800
RE16-00-1760	16-6513	L-6	9/3/00	0-6 in	RE16-00-0334 RE16-00-0335	7683	Negative	16600
RE16-00-1761	16-6518	L-7	9/3/00	0-6 in	RE16-00-0342 RE16-00-0345	3828	Negative	15600
RE16-00-1762	16-6675	M-1	9/3/00	not collected				17700
RE16-00-1763	16-6676	M-2	9/3/00	not collected				17500
RE16-00-1764	16-6677	M-3	9/3/00	not collected				17100
RE16-00-1765	16-6678	M-4	9/3/00	0-6 in		2306	Negative	14400
RE16-00-1766	16-6679	M-5	9/3/00	0-6 in		2523	Negative	14000
RE16-00-1767	16-6680	M-6	9/3/00	0-6 in		1025	Negative	14200

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1768	16-6516	M-7	9/3/00	0-6 in	RE16-00-0336	6777	Negative	14600
RE16-00-1769	16-6681	M-8	9/3/00	0-6 in		832	Negative	12900
RE16-00-1770	16-6539	N-1	9/3/00	0-6 in	RE16-00-0338 RE16-00-0339 RE16-00-0240	9880	Negative	13600
RE16-00-1771	16-6682	N-2	9/3/00	not collected				14800
RE16-00-1772	16-6683	N-3	9/3/00	not collected				14200
RE16-00-1773	16-6684	N-4	9/3/00	0-6 in		1301	Negative	14000
RE16-00-1774	16-6685	N-5	9/3/00	0-6 in		1051	Negative	14700
RE16-00-1775	16-6686	N-6	9/3/00	0-6 in		718	Negative	17400
RE16-00-1776	16-6687	N-7	9/3/00	0-6 in		1693	Negative	16900
RE16-00-1777	16-6688	O-1	9/8/00	0-6 in		3538	Negative	18000
RE16-00-1778	16-6689	O-2	9/8/00	0-6 in		3322	Negative	15500
RE16-00-1779	16-6690	O-3	9/8/00	0-6 in		3147	Negative	14300
RE16-00-1780	16-6691	O-4	9/8/00	0-6 in		1009	Negative	13900
RE16-00-1781	16-6692	O-5	9/8/00	0-6 in		585	Negative	13400
RE16-00-1782	16-6693	P-1	9/8/00	0-6 in		501	Negative	13500
RE16-00-1783	16-6694	P-2	9/8/00	0-6 in		849	Negative	13100
RE16-00-1784	16-6519	P-3	9/8/00	0-6 in	RE16-00-0248	192.9	Negative	13900

Screening Sample ID	Location ID	Location Description	Date Collected	Depth Interval Collected	Associated Sample Ids	Ba Screening Result (in ppm)	HE Spot Test Results	Rad Screening Results (cpm)
RE16-00-1785	16-6517	P-4	9/8/00	0-6 in	RE16-00-0340 RE16-00-0341	4158	Negative	14800
RE16-00-1786	16-6695	P-5	9/8/00	0-6 in		2834	Negative	17100
RE16-00-1787	16-6696	Q-1	9/8/00	0-6 in		385	Negative	16300
RE16-00-1788	16-6697	Q-2	9/8/00	0-6 in		676	Negative	16100
RE16-00-1789	16-6698	Q-3	9/8/00	0-6 in		408	Negative	15200
RE16-00-1790	16-6699	Q-4	9/8/00	0-6 in		1717	Negative	13900
RE16-00-1791	16-6700	Q-5	9/8/00	0-6 in		505	Negative	13100
RE16-00-1792	16-6701	R-1	9/8/00	0-6 in		693	Negative	17400
RE16-00-1793	16-6702	R-2	9/8/00	0-6 in		351	Negative	17800
RE16-00-1794	16-6703	R-3	9/8/00	0-6 in		445	Negative	16800
RE16-00-1795	16-6704	R-4	9/8/00	0-6 in		325	Negative	17900
RE16-00-1796	16-6705	R-5	9/8/00	0-6 in		339	Negative	14800

EXHIBIT 3

Standard Operating Procedures Used During the MDA-R Phase I RFI Investigation

ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations

ER-SOP-1.02, Rev. 0 Sample Container and Preservation

ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples

ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation

ER-SOP-1.05, Rev. 0 Field Quality Control Samples

ER-SOP-1.06, Rev. 1 Management of ER Project Wastes

ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas

ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment

ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management

ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples

ER-SOP-6.10, Rev. 1 Hand auger and Thin-Wall Tube Sampler

ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers

ER-SOP-10.06, Rev. 1 High Explosives Spot Test

ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument

APPENDICES

Appendix 1

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0230

Date 9/9/00 **Time** 1450 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Pit Borehole 1 BH 1

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06532	NA	1.5	to 2.5 ft.	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0022~~
02	HEXP	125 ml Glass	Ice	1082-00-0022
03	METTAL	125 ml Polyethylene	Ice	1082-00-0022
04	SEMI	125 ml Glass	Ice	1082-00-0022
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~	None	1082-00-0022

ILOK3 9/9/00

ILOK3 9/9/00

Weather Windy from NW 5-10mph, 75°F

Sample Description Medium to dark brown soil, small rocks

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
16-06532	1.5	to 2.5	ft.	Field Rad (beta/gam)	BG	~~dpm~~ cpm	AB 10/24/00
16-06532	↓	to ↓		HE Spot Test	Neg.		
16-06532	↓	to ↓		XRF - BA	441	ppm	

ILOK3 9/9/00 ILOK3

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 1, Frame 17

Comments:

60% Recovery

This sample is selected for lab analysis based on elevated ba screening Results

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0237

Date 9.18.00 Time 18:15 19:00 Sample Type Soil

Technical Area 16 Operable Unit 1082 Sample Location Borehole at depth

MDA-R

QA/QC Type None Borehole 1 Total Depth

Composite: ○ Yes ◉ No Name (Print) Kristi Beguin

Composite Type: None Signature

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6532	NA	10.0	-11.0	ft.	0	depth	0

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0024 0057
02	METTAL	125 ml Polyethylene	Ice	1082-00-0024
03	SEMI	125 ml Glass	Ice	1082-00-0024
04	TUICPMS	125 mL Polyethylene	None	1082-00-0024

AB 10/20/00

Weather windy ~25-30 mph NW, overcast, cool ~65°F

Sample Description lt red-brn, dry

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6532	10 to -11 ft 0	Field Rad (beta/gam)	12.90	~~dpm~~	AB 10/24/00
	0 to 0	HE Spot Test			
	0 to 0	XRF - BA	175.4	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame # 20
Roll #3

Comments:

~ 100% recovery 10' - 10.7'

~ no recovery 10.7' - 11'

PID 0.0.

10 ~ 10.7' - qbt4, slightly weathered, dry, Crushed for sample

Media Code = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0231

Date 9/10/00 **Time** 09:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Pit Borehole 2 BH2

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06533	NA	2.5 +0	5.0 ft.	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	Ice	~~1082-00-0022~~
02	HEXP	125 ml Glass	Ice	1082-00-0022
03	METTAL	125 ml Polyethylene	Ice	1082-00-0022
04	SEMI	125 ml Glass	Ice	1082-00-0022
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~ WCK 9/10/00	None	1082-00-0022

WCK 9/10/00

Weather Windy ~15mph gusts from NW ~ cool 75°F, clear sunny

Sample Description Grayish brown color, dry, 4/2 medium (5) granular Rad. (4) platy, fine (6) angular

Field Screening

Loc ID	Depth				Screening Method	Result	Units	Comments
16-06533	2.5	to 5	0	ft.	Field Rad (beta/gam)	BG	~~dpm~~ cpm	AS WCK 9/10/00
16-06533	2.5	to 5	0	↓	HE Spot Test	Neg.		
16-06533	2.5	to 5	0	↓	XRF - BA	569	ppm	

WCK 9/5/00 WCK

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 20, Roll 1

Comments: Media Code: 2.5'-3.0' = S
3.0'-5.0' = QBT4

This sample was screening id BH2-2

Approx. 75% Recovery 3-5ft.

Rad 12.0 cpm

Contact w/ Bedrock @ 3' depth

Sample selected based on elevated ba screening

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0238

Date 9-16-00 **Time** 16:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole at depth

MDA-R

QA/QC Type None Borehole 2 Total Depth

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6533	NA	0	11-12.0'		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0024
02	METTAL	125 ml Polyethylene	Ice	1082-00-0024
03	SEMI	125 ml Glass	Ice	1082-00-0024
04	TUICPMS	125 mL Polyethylene	None	1082-00-0024

Weather warm ~80°F, partly cloudy, ~~[illegible]~~ 5 mph NW breeze

Sample Description ct brown, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6533	11.0 to	12.0'	Field Rad (beta/gam)	13.0	~~dpm~~ cpm	AB 10/24/00
	11.0 to	12.0'	HE Spot Test	—		
	11.0 to	12.0'	XRF - BA	227	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll# 3

Frame# ~~3~~ 9

Comments:

~98% recovery

12' only (bottom)

Media Code = QBT 4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0232

Date 9/10/00 **Time** 1051 **Sample Type** Soil

Technical Area 16 MDA-R **Operable Unit** 1082 **Sample Location** Pit Borehole 3 BH3

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06534	NA	1.0	to 2.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0022~~ KK 9/10/00
02	HEXP	125 ml Glass	Ice	1082-00-0022
03	METTAL	125 ml Polyethylene	Ice	1082-00-0022
04	SEMI	125 ml Glass	Ice	1082-00-0022
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~ KK 9/10/00	None	1082-00-0022

Weather Windy - gusts - 15 mph from NW, cool - 72°F Sunny, clear

Sample Description 6/2 very fine to very course grain & platey fine to angular crystal shape

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06534	1.0 to 2.5	0 ft.	Field Rad (beta/gam)	B/G	~~dpm~~ KK 9/11/00 cpm	AB 10/24/00
16-06534	1.0 to 2.5	0	HE Spot Test	Neg.		
16-06534	1.0 to 2.5	0	XRF - BA	596	ppm	

KK 9/10/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 1, Frame 25

Comments:

Approximately 70% Recovery

Rad Screening 13.42 cpm

PID - Background

This sample collected based on elevated ba levels.

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0239

Date 9-16-00 **Time** 14:60

Technical Area 16 **Operable Unit** 1082

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location Borehole at depth

Borehole 3 Total Depth

Name (Print) Kristi Beguin

Signature

MDA-R

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6534	NA	7.50	9.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0024
02	METTAL	125 ml Polyethylene	Ice	1082-00-0024
03	SEMI	125 ml Glass	Ice	1082-00-0024
04	TUICPMS	125 mL Polyethylene	None	1082-00-0024

Weather warm ~80°F, partly cloudy, 5-10 mph NW breeze

Sample Description lt brn, fine grained, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6534	7.50 to	9.0 ft.	Field Rad (beta/gam)	13.35	~~dpm~~ cpm	AB 10/24/00
	7.50 to	9.0	HE Spot Test	—		
	7.50 to	9.0	XRF - BA	310	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll# 2

Frame# 23

Comments:

~50% recovery

Media Code = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0225

Date 9/10/00 **Time** 1150 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Rim Borehole 1 BH4

HIDAR

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06527	NA	1.0	to 2.5 ft.	0	depth	0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0021~~ KK3 9/10/00
02	HEXP	125 ml Glass	Ice	1082-00-0021
03	METTAL	125 ml Polyethylene	Ice	1082-00-0021
04	SEMI	125 ml Glass	Ice	1082-00-0021
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~ KK3 9/10/00	None	1082-00-0021

Weather Warm ~75°F, clear, breezy ~5mph gusts from NW

Sample Description pale red, fine grain w/ medium to large tuff gravels. tuff powder present from drilling.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06527	1.0 to 2.5	0 ft.	Field Rad (beta/gam)	BG	~~dpm~~ cpm	AB 10/24/00
16-06527	1.0 to 2.5	0	HE Spot Test	Neg.		
16-06527	1.0 to 2.5	0	XRF - BA	~~444~~ 497	ppm	

KK3 9/10/00 9/14/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 4, Roll 2

Comments:

~90% Recovery

Rad 12.4 cpm

PID Reading was Reading 5.0 Right at borehole upon Removal of bit.

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0226

Date 9/10/00 **Time** ~~1600~~ 1520 (WKS 9/11/00) **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Rim Borehole 2 BH5

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06528	NA	~~(WKS 2.5~~	~~+0 5.0~~	ft.	1.0	-2.5 ft.	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0021~~ (WKS 9/10/a
02	HEXP	125 ml Glass	Ice	1082-00-0021
03	METTAL	125 ml Polyethylene	Ice	1082-00-0021
04	SEMI	125 ml Glass	Ice	1082-00-0021
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~ (WKS 9/10/00	None	1082-00-0021

Weather Warm ~78°F, sunny, clear, slight breeze from NW 5mph

Sample Description Dark brown, twigs & some moderate organics, fine grain fill soil.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06528	1.0 to 2.5	ft.	Field Rad (beta/gam)	BG	~~dpm~~ cpm	AB 10/24/00
16-06528	1.0 to 2.5	↓	HE Spot Test	Neg.		
16-06528	1.0 to 2.5	↓	XRF - BA	(WKS ~~56~~ 484	ppm	

(WKS 9/10/00 (WKS 9/15/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 7
Roll 2

Comments: Media Code = S

Rad 12.20 cpm

~ 80% Recovery

This sample collected as analytical sample due to elevated PA Readings in screening.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0256

Date 9-16-00 **Time** 15:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** ~~MDA-R Grid~~ Borehole #5 Total Depth

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6528	NA	0	5-6 ft.	0			

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0052
02	METTAL	125 ml Polyethylene	Ice	1082-00-0052
03	SEMI	125 ml Glass	Ice	1082-00-0052
04	TUICPMS	125 mL Polyethylene	None	1082-00-0052

Weather ~75°F, 10-15 mph wind, NW partly cloudy

Sample Description dry, lt. brown w/ red tint

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6528	5.0 to	6.0 ft.	Field Rad (beta/gam)	12.50	~~dpm~~ cpm	AB 10/24/00
	↓ to	↓	HE Spot Test	—		
	↓ to	↓	XRF - BA	216	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #3

Frame # 1

Comments:

~50% recovery

Media Code = QBT 4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0227

Date 9/10/00 **Time** 1600 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Rim Borehole 3 BH 6

MIDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06529	NA	1.0	-2.5	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	Ice	1082-00-0021
02	HEXP	125 ml Glass	Ice	1082-00-0021
03	METTAL	125 ml Polyethylene	Ice	1082-00-0021
04	SEMI	125 ml Glass	Ice	1082-00-0021
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~	None	1082-00-0021

~~01~~ 1082-00-0021 1082-00-0021 9/10/00

05 1082-00-0021 9/10/00

Weather Warm, Sunny, clear 78°f, slight breeze 5mph from NW

Sample Description Medium brown fill soils, medium sized grain

Field Screening Moderate tuff gravels, dry.

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06529	1.0 to 2.5	ft.	Field Rad (beta/gam)	B/G	~~dpm~~ cpm	AB 10/24/00
16-06529	1.0 to 2.5		HE Spot Test	Neg.		
16-06529	1.0 to 2.5		XRF - BA	437	ppm	

1082-00-0021 9/10/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 15
Roll #2

Comments:

12.4 cpm is Rad screening

PID Reading on core material - 0.1

~50% Recovery

This sample selected based on elevated ba Readings.

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0234

Date 9/16/00 Time 1040 hr Sample Type Soil

Technical Area 16- MDA-R Operable Unit 1082 Sample Location ~~MDA-R Grid~~ BH-6TD AB 10/30/00

QA/QC Type None

Composite: ○ Yes ◉ No Name (Print) Kristi Beguin

Composite Type: None Signature

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06529	NA	17.50	20.0	ft	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0023
02	METTAL	125 ml Polyethylene	Ice	1082-00-0023
03	SEMI	125 ml Glass	Ice	1082-00-0023
04	TUICPMS	125 mL Polyethylene	None	1082-00-0023

Weather Same as RE16-00-0238

Sample Description Light Reddish brown, dry QBT4 tuff.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
06529	17.50 to 20.0 ft.	Field Rad (beta/gam)	BG	~~dpm~~ cpm	AB 10/19/00
AB 10/19/00	~~0 to 0~~	HE Spot Test	Neg		
AB 10/19/00	~~0 to 0~~	XRF - BA	97.4	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments:

This replacement SCL stands in lieu of missing original.

Media Code = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0228

Date 9-17-00 **Time** 11:28 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Rim Borehole 4

MDA-R BH-7 Based on Screening

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06530	NA	2.50	5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
01	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0021 0055~~ KBK 10/5/00
02	HEXP	125 ml Glass	Ice	1082-00-0021
03	METTAL	125 ml Polyethylene	Ice	1082-00-0021
04	SEMI	125 ml Glass	Ice	1082-00-0021
05	TUICPMS AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0021

KBK 10/5/00

Weather partly cloudy ~80°F, 5 mph NW wind

Sample Description dk brn, dry soil

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-06530	2.50 to 5.0 ft.	Field Rad (beta/gam)	12.65	~~dpm~~ cpm	AB 10/24/00
16-06530	2.50 to 5.0	HE Spot Test	—		
16-06530	2.50 to 5.0	XRF - BA	5608	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments:

Media Code = S

Collected Based upon elevated screening results

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0235

Date 9-17-00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole at depth

MDA-R Borehole 7 TD

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6530	NA	10.0	11.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0023
02	METTAL	125 ml Polyethylene	Ice	1082-00-0023
03	SEMI	125 ml Glass	Ice	1082-00-0023
04	TUICPMS	125 mL Polyethylene	None	1082-00-0023

Weather ~80°F, partly cloudy, ~5mph NW breeze

Sample Description lt red-brn, dry, QBT tuff.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6530	10.0 to 11.0 ft.	Field Rad (beta/gam)	12.5	~~dpm~~ cpm	AB 10/24/00
	10.0 to 11.0	HE Spot Test	—		
	10.0 to 11.0	XRF - BA	293	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #3

Frame #15

Comments:

Media Code = QBT4.

Sample collected from total depth of borehole.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0258

Date 9-19-00 **Time** 13:00 **Sample Type** ~~Soil~~ WCK3

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole 7-C TD

MDA-R Colocated BH #7 Sample

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6530	NA	10.0	12.50	ft.	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0054
02	METTAL	125 ml Polyethylene	Ice	1082-00-0054
03	SEMI	125 ml Glass	Ice	1082-00-0054
04	TUICPMS	125 mL Polyethylene	None	1082-00-0054

Weather ~76°F Partial Overcast, 10 mph NW breeze

Sample Description red brn w/ pale red tint, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6530	10.0 to	12.50 ft.	Field Rad (beta/gam)	12.25	~~dpm~~ cpm	AB 10/24/00
	10.0 to	12.50	HE Spot Test			
	10.0 to	12.50	XRF - BA	258	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo #15

Roll #3

Comments:

PID 0.4

Media Code = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0229

Date 9-17-00 **Time** 1345

Technical Area 16 **Operable Unit** 1082

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location Rim Borehole ~~5~~ BH-8 Based on Screening

Name (Print) Kristi Beguin

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06531	NA	0	2.5	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis		Container	Preservative	C of C Control No.	
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0021~~	AB 10/19/00
02	HEXP		125 ml Glass	Ice	1082-00-0021 0058	
03	METTAL		125 ml Polyethylene	Ice	1082-00-0021	AB 10/20/00
04	SEMI		125 ml Glass	Ice	1082-00-0021	
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml Poly	None	1082-00-0021	

Weather ~75F, 3/4 overcast, 10 mph NW wind

Sample Description Medium brown, dry, silts & sands, abundant gravel.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-06531	0 to 2.5 0 ft.	Field Rad (beta/gam)	~~12.6~~ 12.9	~~dpm~~ cpm	AB 10/24/00
16-06531	0 to 2.50	HE Spot Test	-		
16-06531	0 to 2.50	XRF - BA	~~28.8~~ 312 EW	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame # ~~19~~ EW 16

Roll # 3

Comments:

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0236

Date 9-18-00 **Time** 18:15 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole at depth

MDA-R Borehole & Total Depth

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6531	NA	7.50	10.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0023 0056
02	METTAL	125 ml Polyethylene	Ice	1082-00-0023
03	SEMI	125 ml Glass	Ice	1082-00-0023
04	TUICPMS	125 mL Polyethylene	None	1082-00-0023

AB 10/20/00

Weather 3/4 overcast, ~75°F, 10 mph NW wind

Sample Description lt brn' rock horn w/ red streaks

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6531	7.5 0 to 10.0 ft.	Field Rad (beta/gam)	12.1e	~~dpm~~ cpm	AB 10/24/00
	7.5 0 to 10.0	HE Spot Test	—		
	7.5 0 to 10.0	XRF - BA	128.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame # 18
Roll # 3

Comments: Media Code = QBT4

Bedrock contact @ 9'

~ 100% recovery

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0219

Date 9/22/00 **Time** 1655 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** West Drainage

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06521	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0019~~ KAS 9/22/00
02	HEXP	125 ml Glass	Ice	1082-00-0019
03	METTAL	125 ml Polyethylene	Ice	1082-00-0019
04	SEMI	125 ml Glass	Ice	1082-00-0019
05	TUICPMS AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0019

Weather Same as RE16-00-0220

Sample Description See below

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06521	0 to	6.0 in.	Field Rad (beta/gam)	17.54	~~dpm~~ cpm	AB 10/24/00
16-06521	0 to	6.0	HE Spot Test	Neg.		
16-06521	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

? No Photo taken. Ran out of film

Comments: Media Code = S

Abundant tuff gravels and cobbles present collected from old gravel bar. Some burnt logs present. Soil dry, light brown, moderate organics - pine needles.

Location: At bottom of Cañon de Valle where former drainage emptied into canyon-bottom. Sample collected from area of old sediment deposit.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0220

Date 9/22/00 **Time** 1610 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** East Drainage

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06522	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0020~~
02	HEXP	125 ml Glass	Ice	1082-00-0020
03	METTAL	125 ml Polyethylene	Ice	1082-00-0020
04	SEMI	125 ml Glass	Ice	1082-00-0020
05	TUICPMS AB 10/18/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0020

Weather Partly cloudy, warm 70°, windy from West 10-20 mph

Sample Description Light brown, dry. Abundant tuff gravels

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06522	0 to	6.0"	Field Rad (beta/gam)	12	~~dpm~~ cpm	AB 10/24/00
16-06522	0 to	6.0	HE Spot Test	Neg.		
16-06522	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3, Photos 22-23

Comments:

Media Code = S

cont. 1-3" diameter, minor organics (roots, pine needles, hydromulch materials).

1st Drainage sample at top of Eastern drainage & metals. Running off from top of MDA. Large boulders approx. 20 ft. SE of sample location. Berm has also been built up approx. 7 ft. SE of sample location

MDA 9/22/00

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0221

Date 9/22/00 **Time** 1620 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** East Drainage

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06523	NA	0	6	in.	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0020~~
02	HEXP		125 ml Glass	Ice	1082-00-0020
03	METTAL		125 ml Polyethylene	Ice	1082-00-0020
04	SEMI		125 ml Glass	Ice	1082-00-0020
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0020

Weather Same as RE16-00-0220

Sample Description Light brown, dry, moderate organics, (roots & detritus)

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06523	0 to	6.0 in.	Field Rad (beta/gam)	11.5	~~dpm~~ cpm	AB 10/24/00
16-06523	0 to	6.0	HE Spot Test	Neg.		
16-06523	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 24 ~~& 25~~ KKB 9/22/00

Roll 3

Comments: Media Code = S

soil: - minor tuff gravels present in sample 0.5-1" diameter

2nd sample from top of drainage. Abundant wild rose bushes near sample location. Abundant pine needles & grass at location.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0222

Date 9/22/00 **Time** 1630 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** East Drainage

MDA-12

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06524	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	Ice	~~1082-00-0020~~
02	HEXP		125 ml Glass	Ice	1082-00-0020
03	METTAL		125 ml Polyethylene	Ice	1082-00-0020
04	SEMI		125 ml Glass	Ice	1082-00-0020
05	TUICPMS	AB 10/19/00	125 ml poly ~~250 ml Amber Glass~~	None	1082-00-0020

Weather Same as RE16-00-0220

Sample Description Sample consists of dry, loamy light brown soil

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06524	0 to	6.0"	Field Rad (beta/gam)	15.43	~~dpm~~ cpm	Na I 2 AB 10/24/00
16-06524	0 to	6.0	HE Spot Test	Neg.		
16-06524	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

25 Photo, Roll 3

Comments: Media Code = S

Moderate to abundant tuff gravels 1cm diameter to 5" diameter. Minor organics - Roots & pine needles.

3rd sample from mesa top, heading downward into CdV.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0223

Date 9/22/00 **Time** 1635 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** East Drainage

QA/QC Type MDA-R None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06525	NA	0	~6 in.		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0020~~
02	HEXP		125 ml Glass	Ice	1082-00-0020
03	METTAL		125 ml Polyethylene	Ice	1082-00-0020
04	SEMI		125 ml Glass	Ice	1082-00-0020
05	TUICPMS	AB 10/19/00	125 ml poly ~~250 ml Amber Glass~~	None	1082-00-0020

Weather Same as RE16-0220

Sample Description Loamy medium to dark brown soil, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06525	0 to	6.0"	Field Rad (beta/gam)	13.12	~~dpm~~ cpm	AB 10/24/00
16-06525	0 to	6.0	HE Spot Test	Neg.		
16-06525	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo Taken
Ran out of film.

Comments:

Moderate to abundant organics present (roots, needles)
minor tuffy gravels - .5 - 3" diameter.

4th Sample in drainage. Collected from area where an old trash can got sedimented into drainage and only top of can is showing.

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0224

Date 9/16/00 **Time** 16:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** East Drainage

~~NDA~~-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06526	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Contalner	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0020~~
02	HEXP	125 ml Glass	Ice	1082-00-0020
03	METTAL	125 ml Polyethylene	Ice	1082-00-0020
04	SEMI	125 ml Glass	Ice	1082-00-0020
05	TUICPMS	AB 10/19/00 ~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0020

Weather Same as RE16-00-0220

Sample Description Medium to dark brown. Minor to moderate

Field Screening continued below

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06526	0 to	6.0"	Field Rad (beta/gam)	11.94	~~dpm~~ cpm	AB 10/24/00
16-06526	0 to	6.0	HE Spot Test	Neg.		
16-06526	0 to	6.0	XRF - BA	N/A	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo taken Ran out of film

Comments: Recia Code = S

final sample from drainage. located within an area where large cobbles (6" – 12") were distributed into a fan shaped deposit.

sample: >organics present (roots, pine needles) dry. Abundant tuff gravels 1cm – 3" diameter present.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0210

Date 9/30/00 **Time** 11:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R J-1

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
~~1-16-06512~~ 16-6520 9/30/00	NA	0 ~~2.5~~ 0 9/30/00	ft 12" 0		0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0018~~ AB 10/19/00
02	HEXP	125 ml Glass	Ice	1082-00-0018 0067
03	METTAL	125 ml Polyethylene	Ice	1082-00-0018
04	SEMI	125 ml Glass	Ice	1082-00-0018 AB 10/20/00
05	TUICPMS	125ml poly ~~250 ml Amber Glass~~ 9/30/00	None	1082-00-0018

Weather Sunny, a few high clouds, warm ~70° Calm (calm)

Sample Description Light brown soil, with intermixed clays. Large tuff cobbles, dry, minor organics - Roots

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
~~16-06512~~ 6520	0 to 12" 0	Field Rad (beta/gam)	Bkg.	~~dpm~~ cpm	AB 10/24/00
16-~~06512~~	0 to 0	HE Spot Test	Neg.		
16-~~06512~~	0 to 0	XRF - BA	3,781	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 20 of core interval Approx. 60% Recovery

21 & 22 Roll 5

Comments: Hit tuff Right at 2.5 ft. Media Code = S

	Ba	Rad	HE
Interval 1: 0-12"	3,781	Bkg.	Neg.
~~11:00 am~~ 11:20 AM			
AB 11/1/00	Ba		
Interval 2: 12"-24"	654	Bkg.	Neg
Interval 3: 24"-36"	Ba 823	Bkg.	Neg
Interval 4: 36-48"	Ba ~~320~~ 495 9/30/00	Bkg.	Neg.
Interval 5 48-60	320	Bkg.	Neg.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0241

Date 9/30/00 **Time** 11:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid ~~TB~~ F-5 16AS AB 10/23/00

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin J-1 split

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6520	NA	0-12"	~~0-2.5~~ 9/30/00	~~ft~~	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0025
02	METTAL	125 ml Polyethylene	Ice	1082-00-0025
03	SEMI	125 ml Glass	Ice	1082-00-0025
04	TUICPMS	125 mL Polyethylene	None	1082-00-0025

Weather Same as RE16-00-0210

Sample Description Same as RE16-00-0210

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6520	0 to 12"	Field Rad (beta/gam)	BKG.	~~dpm~~ cpm	AB 10/24/00
↓	to	HE Spot Test	Neg.		
↓	to	XRF - BA	3,781	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 20 of core interval
Photos 21 & 22 Roll 4

Comments:

This is a split of the first core interval

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0250

Date 9/30/00 **Time** 11:25 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid TD

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin J-1

Composite Type: None **Signature** [signature]

Grabs:

Location ID	Stake ID	Start	Depth	End	Depth	Units	Vol	Units	Comments
16-~~6536~~ 6520	NA 9/30/00	4.0 -	0	5.0	0	ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Contalner	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-~~0049~~ 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-~~0049~~
03	SEMI	125 ml Glass	Ice	1082-00-~~0049~~
04	TUICPMS	125 mL Polyethylene	None	1082-00-~~0049~~

AB 10/20/00

Weather Same as RE16-00-0210

Sample Description Reddish brown crushed tuff, dry, minor silts, minor clays, minor tuff cobbles.

Field Screening

Loc ID	Depth	Screening Method	Result	Units Comments
16-~~6536~~ 6520	0 to 5.0 ft.	Field Rad (beta/gam)	Bkg.	~~dpm~~ cpm
	0 to 0	HE Spot Test	Neg.	
	0 to 0	XRF - BA	320	ppm

AB 10/24/00 AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 23, Roll 5

Comments: Approximately 60% Recovery

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0211

Date 9/30/00 **Time** 1200 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R J-3

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 ~~16-06513~~ 16-6537 9/30/00	NA	0	-2.5	0ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Contalner	Preservative	C of C Control No.	
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0018~~	AB 10/19/00
02	HEXP	125 ml Glass	Ice	1082-00-0018 0067	
03	METTAL	125 ml Polyethylene	Ice	1082-00-0018	AB 10/20/00
04	SEMI	125 ml Glass	Ice	1082-00-0018	
05	TUICPMS AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0018	

Weather Same as RE16-00-0210

Sample Description Medium to dark brown silts and clay ft U. Large tuff cobbles 4" diameter, dry, MINOR organics (roots)

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-06513 6537	0 to 2.5 ft.	Field Rad (beta/gam)	Bkg.	~~dpm~~ cpm	AB 10/24/00
16-06513	0 to	HE Spot Test	Neg.		
16-06513	0 to	XRF - BA	8025	ppm	

TAS 9/30/00 AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 25
Roll 5

Comments:

Media Code = S

	Ba	Rad	HE
Interval 1	0-2.5' 8,025	Bkg.	Neg
Interval 2	2.5-3.5 895	Bkg.	Neg
Interval 3	No Recovery		
Interval 4	4.5-5.0 300	Bkg	Neg.

0 Recovery from 2.5' We collected the cuttings from 0-2.5 ft, for screening purposes.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0251

Date 9/30/00 **Time** 1205 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid TD

MDA-R

QA/QC Type None J-3 TD

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6537	NA	4.0	5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0049 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-0049 ↓
03	SEMI	125 ml Glass	Ice	1082-00-0049
04	TUICPMS	125 mL Polyethylene	None	1082-00-0049

Weather Same as RE16-00-0210

Sample Description Mostly crushed tuff and clays minor silts

Field Screening Reddish brown, slightly moist, minor organics (roots.

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6537	4.0 to	5.0 ft.	Field Rad (beta/gam)	BKG.	~~dpm~~ cpm	AB 10/24/00
↓	4.0 to	5.0	HE Spot Test	Neg.		
	4.0 to	5.0	XRF - BA	300	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 24
Roll 5

Comments:

Media Code = S ALLH

16-6537 9/30/00

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-~~0245~~ 0332

Date 9/30/00 **Time** 13:40 **Sample Type** Soil AB 10/5/00

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid ~~TB~~ AB 10/23/00

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

C4 L-1

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6538	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0047 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-0047
03	SEMI	125 ml Glass	Ice	1082-00-0047 AB 10/20/00
04	TUICPMS	125 mL Polyethylene	None	1082-00-0047

Weather Partly Cloudy, 72°F, Slight breeze from NE 5-10 mph.

Sample Description Extremely clay rich silts and sands, Abundant tuff gravels, clay is dark red-brown, sands are gray

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6538	0 to	1.0 ft.	Field Rad (beta/gam)	BKG.	~~dpm~~ cpm	AB 10/24/00
	0 to	1.0	HE Spot Test	Neg.		
	0 to	1.0	XRF - BA	7970	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo #26
Roll 5

Comments:

Depths are wrong in photo, so is tiv

	Ba	HE	Rad
Interval 1-0-1'	7970	Neg.	Blg.
Interval 2-1-2'	390	Neg	bkg
Interval 3-2-3'	795	Neg	
Interval 4-3-4	731	Neg	BKg
Interval 5-4-~~5~~	527 - hit Refusal	Neg.	" BKg

Media Code = S

(6)

Los Alamos National Laboratory Environmental Restoration Program

9/30/00 SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0333

Date ~~9-24-00~~ 9/30/00 Time 1415

Technical Area 16 Operable Unit 1082 MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location L-1 TD

Name (Print) Kristi Beguin

Signature

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6538	NA	~~3.5~~ 4.0 AB 11/1/00	0 4.5	0 Ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0060 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-0060 ↓
03	SEMI	125 ml Glass	Ice	1082-00-0060
04	TUICPMS	125 mL Polyethylene	None	1082-00-0060

AB 10/20/00

Weather Same as RE16-00-0332

Sample Description Mostly crushed tuff and minor clays

Field Screening light, Reddish brown, semi moist, minor Roots, abundant grave

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6538 3.5	0 to 4.5 ft 0	Field Rad (beta/gam)	Blg.	~~dpm~~ cpm	AB 10/24/00
↓ ↓	0 to ↓ 0	HE Spot Test	Neg.		
	0 to ↓ 0	XRF - BA	527	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #1.5 AB 9/30/00

Frame # 27

Comments:

Media code: = ALLH

Hit Refusal at 4.5 ft.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0338

Date 9/30/00 **Time** 1500 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** N-1

MDH-12

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6539	NA	0 –	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0061 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-0061 ↓
03	SEMI	125 ml Glass	Ice	1082-00-0061
04	TUICPMS	125 mL Polyethylene	None	1082-00-0061

AB 10/20/00

Weather Same as RE16-00-0332

Sample Description Light grayish brown silts & sands, very dry, abundant tuff gravels, minor organics

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6539	0 to	1.0 ft.	Field Rad (beta/gam)	BKg.	~~dpm~~ cpm	AB 10/24/00
↓	0 to	1.0	HE Spot Test	Neg.		
	0 to	1.0	XRF - BA	2604	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 5, Photo 28

Comments:

Media code: S

		Ba	Rad	HE
Interval 1	0-1'	2604	BKg.	Neg.
Interval 2	1-2	1035	BKg.	Neg.
Interval 3	2-3	242	BKg.	Neg.
Interval 4	3-4	232	BKg.	Neg.
Interval 5	4-5	311	BKg.	Neg.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0240

Date 9/30/00 **Time** 1510

Technical Area 16 **Operable Unit** 1082

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location MDA-R Grid TD ~~E-4~~ MDA-R N-1TD

Name (Print) Kristi Beguin Split 9/30/00

Signature

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6539	NA	4.0	5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0025
02	METTAL	125 ml Polyethylene	Ice	1082-00-0025
03	SEMI	125 ml Glass	Ice	1082-00-0025
04	TUICPMS	125 mL Polyethylene	None	1082-00-0025

Weather Same as RE16-00-0332

Sample Description Same as RE16-00-0339

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6539	4.0 to	5.0 ft.	Field Rad (beta/gam)	BKg.	~~dpm~~ cpm	AB 10/24/00
↓	4.0 to	5.0	HE Spot Test	Neg.		
↓	4.0 to	5.0	XRF - BA	311	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 5 Photo 29 & 30

Comments:

This is a split of RE16-00-0339

Media Code = ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0339

Date 9/30/00 **Time** 1510 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** N-1 TD

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6539	NA	4.0	5.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0061 0067
02	METTAL	125 ml Polyethylene	Ice	1082-00-0061 ↓
03	SEMI	125 ml Glass	Ice	1082-00-0061 ↓
04	TUICPMS	125 mL Polyethylene	None	1082-00-0061 ↓

AB 10/20/00

Weather Same as RE16-00-0332

Sample Description Reddish brown Weathered Qbt tuff

Field Screening semi moist, minor organics, Moderate tuff gravels.

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6539	4.0 to	5.0 ft.	Field Rad (beta/gam)	BKg.	~~dpm~~ cpm	AB 10/24/00
↓	4.0 to	5.0	HE Spot Test	Neg.		
↓	4.0 to	5.0	XRF - BA	311	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 5 Photo 29 & 30

Comments:

Media code: ALLH

Took a split of this sample.
RE16-00-0040

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0200

Date 9-23-00 **Time** 09:25 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin E4

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06502	NA	0	12.0	in.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0016~~
02	HEXP		125 ml Glass	Ice	1082-00-0016
03	METTAL		125 ml Polyethylene	Ice	1082-00-0016
04	SEMI		125 ml Glass	Ice	1082-00-0016
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0016

AB 10/19/00

Weather ~70°F, clear w/ few scattered clouds, ~5mph wind west

Sample Description See below, comments.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06502	0 to	12.0 in.	Field Rad (beta/gam)	12.61	~~dpm~~ cpm	AB 10/24/00
16-06502	0 to	12.0	HE Spot Test	Neg		
16-06502	0 to	12.0	XRF - BA	3127	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Roll # 4 (Interval 1)
Photo # 1

Media Code = S

Interval 1 0-12" HE: — Ba: ~~12.61~~ 3,127 Rad: 12.61

lt brn, pale red tint, sm-lg size cobbles, fine particles

Interval 2 Hit Refusal

Interval 3 Hit Refusal

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0201

Date 9-23-00 **Time** 9:55 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R F-5

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06503	NA	0	12.0	in.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0016~~
02	HEXP		125 ml Glass	Ice	1082-00-0016
03	METTAL		125 ml Polyethylene	Ice	1082-00-0016
04	SEMI		125 ml Glass	Ice	1082-00-0016
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0016

AB 10/19/00

Weather Same as RE16-00-0200

Sample Description See comments.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06503	0 to	12.0 in.	Field Rad (beta/gam)	15.84	~~dpm~~ cpm	AB 10/24/00
16-06503	0 to	12.0	HE Spot Test	neg		
16-06503	0 to	12.0	XRF - BA	1804	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo #2 Roll #4 (Interval 1)

Comments:

	HE	Ba	RAD
Interval 1 0-12"	—	1804	15.84
Interval 2 12"-18"	—	547	12.48

et brn, sm-lg cobbles

Interval 3 Hit Refusal

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0204

Date 9-23-00 **Time** 10:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** I-7 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06506	NA	0	12.0	"	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0016~~
02	HEXP	125 ml Glass	Ice	1082-00-0016
03	METTAL	125 ml Polyethylene	Ice	1082-00-0016
04	SEMI	125 ml Glass	Ice	1082-00-0016
05	TUICPMS	~~250 ml Amber Glass~~ 125 ml Poly	None	1082-00-0016

AB 10/19/00

AB 10/19/2000

Weather Same as RE16-00-0200

Sample Description See comments.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-06506	0 to 12.0 "	Field Rad (beta/gam)	14.38	~~dpm~~ cpm	AB 10/24/00
16-06506	0 to 12.0	HE Spot Test	neg		
16-06506	0 to 12.0	XRF - BA	26,040	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll# 4

Frame#4 (Interval 1)

Comments: Media Code = SS

	HE	BA	RAD	
Interval 1 0-12"	—	26,040	14.38	Sample No. 0204
2 1'-2'	—	2,056	13.47	
3 2'-3'	—	17,780	13.17	
4 3-4 ft	—	4,835	14.87	Sample No 0044

et bin, sm-med size clumps

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0244

Date 9-23-00 **Time** 10:50

Technical Area 16 **Operable Unit** 1082

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location MDA-R Grid TD I-7

Name (Print) Kristi Beguin

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6506	NA	3.0	4.0	ft.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Contalner	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0047
02	METTAL	125 ml Polyethylene	Ice	1082-00-0047
03	SEMI	125 ml Glass	Ice	1082-00-0047
04	TUICPMS	125 mL Polyethylene	None	1082-00-0047

Weather ~70°F, 10-15 w mph wind, partly cloudy

Sample Description See comments.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6506	3.0 to	4.0 ft.	Field Rad (beta/gam)	14.87	~~dpm~~ cpm	AB 10/24/00
↓	3.0 to	4.0	HE Spot Test	—		
↓	3.0 to	4.0	XRF - BA	4,835	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll # 4

Frame # 6

Comments:

Hit refusal & therefore did not auger deeper than ~4!

Media Code = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0205

Date 4/23/00 **Time** 10:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDAR

QA/QC Type None ~~J-4~~ G-4

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06507	NA	12 - 18.0	in.		0	0	

These Samples were collected using LANL ER SOP 06.10

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0017~~
02	HEXP		125 ml Glass	Ice	1082-00-0017
03	METTAL		125 ml Polyethylene	Ice	1082-00-0017
04	SEMI		125 ml Glass	Ice	1082-00-0017
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0017

AB 10/19/00

Weather partly cloudy; 65°F; wind 5-15 mph, E

Sample Description Soil: light brown, mostly crushed tuff; dry; moderate-to-abundant pea-sized gravel; minor organics (roots).

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06507	12" to	18"	Field Rad (beta/gam)	13.0	~~dpm~~ cpm	AB 10/24/00
16-06507	to		HE Spot Test	neg		
16-06507	to		XRF - BA	5063	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

1
0

Comments: Media Code = ALLIT

Interval 1	0-12"	HE:	Ba:	Rad:
→ Interval 2		neg	SD = 58.4 4548 ppm	13.3 cpm
Interval 3	12-18"	neg	SD = 63.0 5073 ppm	13.0 cpm

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0207

Date 4/23/00 **Time** 10:55 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06509	NA	0-12"	0		0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0017~~
02	HEXP	125 ml Glass	Ice	1082-00-0017
03	METTAL	125 ml Polyethylene	Ice	1082-00-0017
04	SEMI	125 ml Glass	Ice	1082-00-0017
05	TUICPMS	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0017

AB 10/19/00

AB 10/19/00

Weather Sunny, a few high clouds, winds from NSE 5-10mph, 68°F

Sample Description ~~Medium~~ dark brown; semi-moist; moderate organics (grass, roots, cinders from fire); plaster particles; moderate-to-abundant tuff gravel, 1/2-2" diameter.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-06509	0 to 12.0 "	Field Rad (beta/gam)	14.90	~~dpm~~ cpm	
16-06509	0 to 12.0	HE Spot Test	neg		
16-06509	0 to 12.0	XRF - BA	2588	ppm	

AB 9/22/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments: Media Code = S

	HE	Ba	Rad
Interval 1; 0-12"	neg	2588 ppm SD=142	14.90 cpm
Interval 2; 12-24"	neg	1658 ppm SD=33	14.53 cpm

Interval 3; not collected, hit refusal.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0247

Date 9/23/00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid TD G-7
MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
~~16-6504~~ 16-6509	NA 9/23/00	0 12-24"	0		0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0048
02	METTAL	125 ml Polyethylene	Ice	1082-00-0048
03	SEMI	125 ml Glass	Ice	1082-00-0048
04	TUICPMS	125 mL Polyethylene	None	1082-00-0048

Weather Sunny; a few high clouds; winds from SE, 10-15 mph; 68°F.

Sample Description: medium dark brown; semi-moist; moderate organics (grass, roots, cinders from fire); ~~flaster particles;~~ moderate-to-abundant tuff gravel, 1/2-3". AB 9/22/00

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6509	12.0 to	24.0 "	Field Rad (beta/gam)	14.53	~~dpm~~ cpm	
	12.0 to	24.0	HE Spot Test	neg		
	12.0 to	24.0	XRF - BA	1658	ppm	SD = 33

AB 9/22/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments:

~~HE~~ ~~Ba~~

AB 9/22/00

Media Code = ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0208

Date 9/23/00 **Time** 11:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R G-8

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06510	NA	0	12.0	"	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0017~~
02	HEXP		125 ml Glass	Ice	1082-00-0017
03	METTAL		125 ml Polyethylene	Ice	1082-00-0017
04	SEMI		125 ml Glass	Ice	1082-00-0017
05	TUICPMS	AB 10/10/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0017

AB 10/10/00

Weather Sunny; a few high clouds; winds from SE, 5-10 mph; 70°F,

Sample Description: Medium brown; abundant cryptobiotic; minor rootlets, minor cinder + ash from CG fire; moderate tuff gravels, ½-1".

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-06510	0 to	12.0 "	Field Rad (beta/gam)	15.18	~~dpm~~ cpm	AB 10/24/00
16-06510	0 to	12.0	HE Spot Test	neg		
16-06510	0 to	12.0	XRF - BA	665	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments: Media Code = S

	HE	Ba	Rad
interval 1; 0-12"	neg	665 ppm	15.18 cpm
interval 2; 12-24"	neg	433 ppm	15.08 cpm
interval 3; 24-36"	neg	132 ppm	15.38 cpm

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0248

Date 9/23/00 **Time** 11:55 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid TD G-8

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6510	NA	0	24-36	0	inches	0	

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0048
02	METTAL	125 ml Polyethylene	Ice	1082-00-0048
03	SEMI	125 ml Glass	Ice	1082-00-0048
04	TUICPMS	125 mL Polyethylene	None	1082-00-0048

Weather: Sunny; a few high clouds; wind from SE, 10-15 mph; 75°F.

Sample Description: Very fine crushed tuff; dark brown; dry; moderate organics (pine needles, roots); minor tuff gravels, 1 cm - 1½ in diameter.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6510	24" to	36"	Field Rad (beta/gam)	15,35	~~dpm~~ cpm	
↓	to		HE Spot Test	neg		
	to		XRF - BA	132 ~~123~~	ppm	

AB 10/24/00 AB 10/24/00 9/23/00

AB 9/22/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

Comments:

Media Code = ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0212

24

Date 9-23-00 **Time** 11:40

Technical Area 16 **Operable Unit** 1082

MDA R

QA/QC Type None

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location MDA-R Grid J-6

Name (Print) Kristi Beguin

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06514	NA	24	to 32	inches	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis		Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~		~~125 ml Glass~~	~~Ice~~	~~1082-00-0018~~
02	HEXP		125 ml Glass	Ice	1082-00-0018
03	METTAL		125 ml Polyethylene	Ice	1082-00-0018
04	SEMI		125 ml Glass	Ice	1082-00-0018
05	TUICPMS	AB 10/19/00	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0018

AB 10/19/00

Weather: Clear; 50°F; wind 5-10 from SE

Sample Description: Medium to dark brown soil; very clay-rich; moderate to abundant*

Field Screening

Loc ID	Depth				Screening Method	Result	Units	Comments
16-06514	24	to 32	in		Field Rad (beta/gam)	20.51	~~dpm~~ cpm	AB 10/24/00
16-06514		to			HE Spot Test	neg		
16-06514		to			XRF - BA	6801	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4, photo # 16 Media Code = ALLH

Comments: * pea-size tuff gravel; semimoist; minor organics (hydromulch, roots); minor engineering fill gravels.

	HE	Ba	Rad
Interval 1, 0-12"	neg	5131 ppm	13.35 cpm
2, 12-24"	neg	5972 ppm	12.93 cpm
3, → 24-32"	neg	6801 ppm	20.51 cpm
4, 32-40"	neg	6725 ppm	13.56 cpm

Hit refusal at 40".

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0252

Date 9/24/00 **Time** 11:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid TD

MDA-R J6 TD

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6514	NA	32.0	40.0	"	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0050
02	METTAL	125 ml Polyethylene	Ice	1082-00-0050
03	SEMI	125 ml Glass	Ice	1082-00-0050
04	TUICPMS	125 mL Polyethylene	None	1082-00-0050

Weather clear; 50°F; wind 5-10 from SE

Sample Description: Medium to dark brown soil; very clay-rich; moderate to abundant *

Field Screening

AB 10/24/00

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6514	32 ~~0~~ to	40 ~~0~~	Field Rad (beta/gam)	13.56	~~dpm~~ cpm	
	0 to	0	HE Spot Test	neg		
	0 to	0	XRF - BA	6725	ppm	

AB 9/24/00

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4, Photo #17

Comments: * pea-size tuff gravel; semimoist; minor organics (roots, hydromulch); minor engineering fill gravels.

Media Code = ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0343

Date 9/24/00 **Time** 1410 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-12 H-6

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6504	NA	24-	30	in"	0	0	

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0062
02	METTAL	125 ml Polyethylene	Ice	1082-00-0062
03	SEMI	125 ml Glass	Ice	1082-00-0062
04	TUICPMS	125 mL Polyethylene	None	1082-00-0062

Weather clear; 70° F; wind 0-5 mph from NW;

Sample Description: Medium brown; moderately clay-rich; moderate tuff gravels, *

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6504	24.0 to	30 in.	Field Rad (beta/gam)	13.77	~~dpm~~ cpm	
	24.0 to	30	HE Spot Test	neg		
	24.0 to	30	XRF - BA	1345	ppm	

AB 9/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4, Photo #19

Comments: * ≤ 2.5 cm; dry; moderate organics (roots, grass, hydromulch).

Media code: ALLH

	Rad	HE	Ba
interval 1, 0-12"	13.3	Neg.	827
interval 2, 12-24"	13.8 cpm	Neg.	1226 ppm
interval 3, 24-30"	13.77 cpm	Neg	1345 ppm

Hit refusal at 30".

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0344

Date 9/24/00 **Time** 15:22 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** ~~H-6 TA5~~ H-7

QA/QC Type None MDA-R

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6505	NA	0 - 12"	0		0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0062
02	METTAL	125 ml Polyethylene	Ice	1082-00-0062
03	SEMI	125 ml Glass	Ice	1082-00-0062
04	TUICPMS	125 mL Polyethylene	None	1082-00-0062

Weather: Clear; 70°F; wind 10-15 mph from N

Sample Description: Grayish brown; very fine crushed tuff and CG Fire ash; *

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6505	0 to 12"	0	Field Rad (beta/gam)	17.17	~~dpm~~ cpm	AB 10/24/00
↓	0 to ↓	0	HE Spot Test	neg		
	0 to ↓	0	XRF - BA	2054	ppm	

16K3 9/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

* moderate tuff gravels, 1cm; moderate organics (roots); very dry.

Comments:

Media code: S

	Rad	HE	Ba
Interval 1, 0-12"	17.17 cpm	neg	2054 ppm
Interval 2, 12-22"	17.49 cpm	neg	1659 ppm

Hit refusal at 22".

Interval 3,

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0213

Date 9-23-00 **Time** 11:05 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

MDA-R J-7

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-06515	NA	~~2.0~~	~~3.0~~	ft.	0		1-2 ft. depth

KB 9/23/00

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
~~01~~	~~ASBESTOS~~	~~125 ml Glass~~	~~Ice~~	~~1082-00-0018~~
02	HEXP	125 ml Glass	Ice	1082-00-0018
03	METTAL	125 ml Polyethylene	Ice	1082-00-0018
04	SEMI	125 ml Glass	Ice	1082-00-0018
05	TUICPMS	~~250 ml Amber Glass~~ 125 ml poly	None	1082-00-0018

AB 10/24/00 AB 10/24/00

Weather Partly cloudy, ~75°F, 10-15mph W wind

Sample Description See comments.

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
16-06515	1.0 to 2.0	0	ft.	Field Rad (beta/gam)	17.50	~~dpm~~ cpm	AB 10/24/00
16-06515	0 to	0		HE Spot Test			
16-06515	0 to	0		XRF - BA	916	ppm	

KB 9/23/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4
Frame # 8

(Photo says 2'-3' should be 1'-2')

9/24/00 6 5-6' 15.0 4032
dk brn, gray / blk ashy material, fine sand

7 6'-7' 21.0 939

Comments:

Media Code = S

Interval	Depth	HE	Ba	Rad	
1	0-1	✓	831	15.0	
	mod brn, dk gray / blk ashy				
2	1-2	—	916	17.50	Sample No. 0213
3	2-3	—	626	16.80	Sample No. 0253
4	3-4		903	16.50	
5	4-5		133	16.6	

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0253

Date ~~9-23-00~~ 9-24-00 EW **Time** ~~11:05~~ 10:00 EW **Sample Type** Soil

Technical Area 16 MDA-R **Operable Unit** 1082 **Sample Location** MDA-R Grid TD J-7

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6515	NA	6' ~~2~~.0' EW 9/23/00	4 ~~3~~ EW .0'	7'	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Contalner	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0050
02	METTAL	125 ml Polyethylene	Ice	1082-00-0050
03	SEMI	125 ml Glass	Ice	1082-00-0050
04	TUICPMS	125 mL Polyethylene	None	1082-00-0050

Weather ~~partly cloudy, windy ~15 mph W~~ 9/24/00 clear, cold ~65°F, 5mph breeze

Sample Description Dark ashey brown, silty, very dry.

Field Screening Much ash present in soil. Minor gravel.

Loc ID	Depth	Screening Method		Result	Units	Comments
16-6515	6 ~~2~~.0 to ~~4~~ EW 9/23/00 .0' 7'	Field Rad (beta/gam)	21.0	~~16.80~~ EW 9/23/00	~~dpm~~ cpm	AB 10/24/00
	6 EW ~~1.0 to 13~~.0' 7'	HE Spot Test		—		
	6 EW ~~2.0 to 13.0'~~ 7'	XRF - BA	939	~~626~~ EW 9/23/00	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4

Frame # ~~9~~ EW 9/23/00 ?

Comments:

6' - 7' Sample

Media Code = ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0326

Date 9/24/00 **Time** 10:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** I-6

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

AB 9/24/00

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6508	NA	0" ~~0~~	~~0~~12"		0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0059
02	METTAL	125 ml Polyethylene	Ice	1082-00-0059
03	SEMI	125 ml Glass	Ice	1082-00-0059
04	TUICPMS	125 mL Polyethylene	None	1082-00-0059

Weather: Clear; 45°F; wind 5-10 mph from SE;

Sample Description: Medium to dark brown material; consists mostly of engineering fill; abundant pea-size tuff gravel; minor roots; semimoist; cinder from GO Fire, hydromulch present

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6508	0 to 12"	0	Field Rad (beta/gam)	12.52	~~dpm~~ cpm	AB 10/24/00
↓	AB 10/24/00 ~~0 to~~	~~0~~	HE Spot Test	neg		
	AB 10/24/00 ~~0 to~~	~~0~~	XRF - BA	57,130	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

?

* pieces of Ba present.

Comments:

Media code: S

	Rad	HE	Ba
Interval 1, 0-12"	12.52 cpm	neg	57,130 Pieces of Ba present in sample.
Interval 2, 12-20"	13.10 cpm	neg	43,210 ppm
Interval 3, 20-25" hit refusal at 25".	12.87 cpm	neg	31,170 ppm

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0327

Date 9/24/00 **Time** 10:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** I-6 TD

QA/QC Type MDAR None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6508	NA	20	25.0	"	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0059
02	METTAL	125 ml Polyethylene	Ice	1082-00-0059
03	SEMI	125 ml Glass	Ice	1082-00-0059
04	TUICPMS	125 mL Polyethylene	None	1082-00-0059

Weather Clear; 45°F; wind 5-10 mph from SE.

Sample Description: Pea-size gravel to 1" in diameter; medium to dark brown material; consists mostly of engineering fill; pea-size tuff gravel; moderate roots; semimoist; cinder*

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6508	20 ~~0~~ to ~~0~~ 25"	Field Rad (beta/gam)	12.87	~~dpm~~ cpm	AB 10/24/00
	AB 10/24/00 ~~0 to 0~~	HE Spot Test	neg		
	AB 10/24/00 ~~0 to 0~~	XRF - BA	31,170	ppm	

AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 4, photo 15.

Comments:

Media code: ALLH

* GG Fire, hydromulch present.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0328

Date 9-24-00 **Time** 10:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** K-6

MOAR

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6511	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0059
02	METTAL	125 ml Polyethylene	Ice	1082-00-0059
03	SEMI	125 ml Glass	Ice	1082-00-0059
04	TUICPMS	125 mL Polyethylene	None	1082-00-0059

Weather Clear, Cold in 62°F, NS mph W breeze

Sample Description Dry, silts, minor sands, minor mychorrulch organics, abundant gravels, dry.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6511	0 to 1.0 ft.	Field Rad (beta/gam)	4603	~~dpm~~ cpm	AB 10/24/00
↓	0 to 1.0	HE Spot Test	—		
	0 to 1.0	XRF - BA	14.95	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4
Frame #11

Comments:

Media code: S

		HE Spot	Ba	RAD
Interval 1	0-1'	—	4603	14.95
2	1-2'	—	1925	13.60
3	2-3'	—	1687	14.21

Hit Refusal at 3'. Can go no further.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0329

Date 9-24-00 **Time** 10:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** K-6 TD

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6511	NA	2.0	3.0	~~ft.~~	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0059
02	METTAL	125 ml Polyethylene	Ice	1082-00-0059
03	SEMI	125 ml Glass	Ice	1082-00-0059
04	TUICPMS	125 mL Polyethylene	None	1082-00-0059

Weather Clear, cold ~ 62°F, ~5mph W breeze

Sample Description Same as RE16-00-0328

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
16-6511	2.0 to	3.0	~~ft.~~	Field Rad (beta/gam)	14.21	~~dpm~~ cpm	AB 10/24/00
↓	2.0 to	3.0		HE Spot Test	—		
↓	2.0 to	3.0		XRF - BA	1087	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll# 4

Frame# 12

Comments:

Media code: ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0330

Date 9-24-00 **Time** 10:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** K-7

MDA-K

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6512	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0059
02	METTAL	125 ml Polyethylene	Ice	1082-00-0059
03	SEMI	125 ml Glass	Ice	1082-00-0059
04	TUICPMS	125 mL Polyethylene	None	1082-00-0059

Weather clear, ~62°F, 5mph W breeze

Sample Description ~~Red~~ lt brn, med size clumps, fallen limbs, sticks

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6512	0 to	1.0 ft.	Field Rad (beta/gam)	14.90	~~dpm~~ cpm	AB 10/24/00
↓	0 to	1.0	HE Spot Test	—		
↓	0 to	1.0	XRF - BA	4071	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4

Frame # 13

Comments:

Media code: ALLH

		HE	Ba	RAD
Interval 1	0-1'	—	4071	14.90

med brn, sm clumps, fine sediments, sm twigs

2	1-2'	—	423	15.10

very lt. brown, ashy-like texture, fine sediments, sm. clumps, twigs

3	2-3'	—	358	14.66

very lt. brown, ashy-like texture, fine sediments, few sm. clumps + twigs

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0331

Date 9-24-00 **Time** 10:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 45 **Sample Location** K-7 TD

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6512	NA	2.0	3.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0060
02	METTAL	125 ml Polyethylene	Ice	1082-00-0060
03	SEMI	125 ml Glass	Ice	1082-00-0060
04	TUICPMS	125 mL Polyethylene	None	1082-00-0060

Weather Clear, ~62°F, 5mph W wind

Sample Description very fine brown, ashy-like material, fine sediments

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6512	2.0 to	3.0 ft.	Field Rad (beta/gam)	14.666	~~dpm~~ cpm	AB 10/24/00
	2.0 to	3.0	HE Spot Test	—		
↓	2.0 to	3.0	XRF - BA	358	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #4

Frame # 7

Comments:

Media code: ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0334

Date 9-24-00 **Time** 10:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** L-6

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6513	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0060
02	METTAL	125 ml Polyethylene	Ice	1082-00-0060
03	SEMI	125 ml Glass	Ice	1082-00-0060
04	TUICPMS	125 mL Polyethylene	None	1082-00-0060

Weather Clear, ~65°F, ~5mph w breeze

Sample Description See comments.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6513	0 to 1.0 ft.	Field Rad (beta/gam)	1345	~~dpm~~ cpm	AB 10/24/00
	~~AB 10/24/00 0 to 0~~	HE Spot Test	—		
	~~AB 10/24/00 0 to 0~~	XRF - BA	7887	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll# 7

Frame# 6

Comments:

Media code:

		HE	Ba	RAD
Interval 1	0-1'	—	7887	13.45

med-dk brn, sm pebbles & clumps, sticks

2	1-2'	—	7230	16.80

lt brn mixed w/ med dk brn, twigs, sm clumps, pebbles

3	2-3'	—	4837	17.40

med-lt brn, fine sediments, silt-like texture

Refusal hit @ ~3.0'. Can auger no further.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0335

Date 9/24/00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** L-6 TD

QA/QC Type MDAR None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6513	NA	24"-36"	0		0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0060
02	METTAL	125 ml Polyethylene	Ice	1082-00-0060
03	SEMI	125 ml Glass	Ice	1082-00-0060
04	TUICPMS	125 mL Polyethylene	None	1082-00-0060

Weather Same as RE16-00-0334

Sample Description Med lt brn, fine sediments, silt-like texture

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6513	24" to 36"	Field Rad (beta/gam)	17.40	~~dpm~~ cpm	AB 10/24/00
↓	↓ to ↓	HE Spot Test	—		
↓	↓ to ↓	XRF - BA	4831	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Media code: ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0336

Date 9-24-00 **Time** 11:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** M-7

MOU-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6516	NA	0	1.0	~~ft.~~	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0061
02	METTAL	125 ml Polyethylene	Ice	1082-00-0061
03	SEMI	125 ml Glass	Ice	1082-00-0061
04	TUICPMS	125 mL Polyethylene	None	1082-00-0061

Weather Clear - approx 65°F 5mph W. breeze

Sample Description medium brown silts & sands, abundant tuff gravels, minor organics - roots, hydromulch.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6516	0 to	1.0 ~~ft.~~	Field Rad (beta/gam)	15.95	~~dpm~~ cpm	AB 10/24/00
↓	0 to	1.0	HE Spot Test	—		
↓	0 to	1.0	XRF - BA	1501	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

7
0

Comments:

Media code: S

Interval 1

2 > cannot auger below ~1.0' due to refusal

3

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0340

Date 9-24-00 **Time** 15:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R P-4

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	16-6517	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0061
02	METTAL	125 ml Polyethylene	Ice	1082-00-0061
03	SEMI	125 ml Glass	Ice	1082-00-0061
04	TUICPMS	125 mL Polyethylene	None	1082-00-0061

Weather Clear, ~70°F, ~10mph W breeze

Sample Description See description, in comments.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6517	0 to 1.0 ft.	Field Rad (beta/gam)	13.25	~~dpm~~ cpm	AB 10/24/00
↓	0 to 1.0	HE Spot Test	—		
↓	0 to 1.0	XRF - BA	2678	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

7
0

Comments:

Media code: ALLH

	HE	RAD	Ba
Interval 1 - 0-1 ft	—	13.25	2678
lt brn, humus, sticks, sm pebbles, roots, fine particles			
2 - 1-2 ft	—	13.30	2099
med brn, sticks, sm to med rocks & clumps, fine particles			
3 - 2-3 ft	—		1099
med-lt brn, sticks, fine particles, sm. rocks to 15.0			

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0341

Date 9-24-00 **Time** 15:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** P-41TD

MDA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6517	NA	2.0	3.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0062
02	METTAL	125 ml Polyethylene	Ice	1082-00-0062
03	SEMI	125 ml Glass	Ice	1082-00-0062
04	TUICPMS	125 mL Polyethylene	None	1082-00-0062

Weather Clear, ~70°F, ~10 mph W wind

Sample Description med-lt brn, sticks, fine particles, sm to lg rocks

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
16-6517	2.0 to	3.0	ft.	Field Rad (beta/gam)	15.0	~~dpm~~ cpm	AB 10/24/00
↓	2.0 to	3.0		HE Spot Test	—		
	2.0 to	3.0		XRF - BA	1099	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

7
0

Comments:

Media code: ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0342

Date 9-24-00 **Time** 14:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R L-7

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6518	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0062
02	METTAL	125 ml Polyethylene	Ice	1082-00-0062
03	SEMI	125 ml Glass	Ice	1082-00-0062
04	TUICPMS	125 mL Polyethylene	None	1082-00-0062

Weather ~70°F, 5mph W breeze, clear

Sample Description See comments.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6518	0 to 1.0 ft.	Field Rad (beta/gam)	16.0	~~dpm~~ cpm	AB 10/24/00
↓	0 to 1.0	HE Spot Test	—		
↓	0 to 1.0	XRF - BA	698	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

7
0

Comments:

Media code: S

Interval 1, 0-1 ft — HE — Ba 698 — RAD 16.0

med lt. brn, sm to med clumps, twigs, fine material

2, 1-2 ft — 369 — 15.40

med lt brn, sm to lg size clumps, sticks, fine material

3 Cannot auger past 2.5' due to refusal

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0345

Date 9-24-00 **Time** 14:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** L-7-TD

MOA-R

QA/QC Type None

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6518	NA	1.0	2.0	ft.	0		

These Samples were collected using LANL ER SOP

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0062
02	METTAL	125 ml Polyethylene	Ice	1082-00-0062
03	SEMI	125 ml Glass	Ice	1082-00-0062
04	TUICPMS	125 mL Polyethylene	None	1082-00-0062

Weather ~10° clear, 5mph w breeze

Sample Description med lt brn, sm to lg size clumps, sticks, fine material

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6518	1.0 to 2.0 ft.	Field Rad (beta/gam)	15.40	~~dpm~~ cpm	AB 10/24/00
↓	1.0 to 2.0	HE Spot Test			
	1.0 to 2.0	XRF - BA	269	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

7
P

Comments:

Media code: ALLH

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-0249

Date 9/24/00 **Time** 1555 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** ~~MDA-R Grid TD~~ FROM Excavated Area E end of site

MDA-R

QA/QC Type None ~~H-4 H-7 TD~~ 9/24/00

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** P-3

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
16-6519	NA	0	-12" 0	in.	0		

These Samples were collected using LANL ER SOP 06.10

ID	Analysis	Container	Preservative	C of C Control No.
01	HEXP	125 ml Glass	Ice	1082-00-0049
02	METTAL	125 ml Polyethylene	Ice	1082-00-0049
03	SEMI	125 ml Glass	Ice	1082-00-0049
04	TUICPMS	125 mL Polyethylene	None	1082-00-0049

Weather Same as RE16-00-0345

Sample Description Mostly clay, minor cinders, organic debris-roots, timber

Field Screening Reddish brown, semi moist

Loc ID	Depth	Screening Method	Result	Units	Comments
16-6519	0 to 12"	Field Rad (beta/gam)	14.5	~~dpm~~ cpm	AB 10/24/00
↓	ϕ to ↓ ϕ	HE Spot Test	Neg.		
	ϕ to ϕ	XRF - BA	1224	ppm	

AB 10/24/00 AB 10/24/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

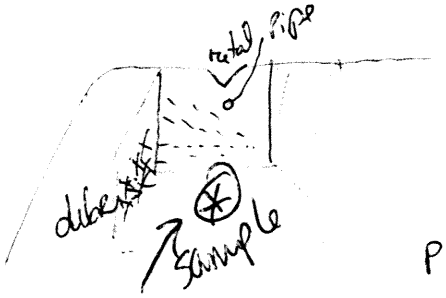
?

Comments: This pit was cut down approximately 10-15ft. below grade.

Interval 1 - 0-12"

0-12 inches hit Refusal

This sample is gridpoint P-3. Only we moved the point N. 3ft.



debris includes iron pipe, copper-stained clay tiles, Rotten timbers, Cables piping, large clay tiles, barium

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1569

Date 9-9-00 **Time** 14:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH 1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6532	NA	1.5 to 2.5	0 ft.		0	0	

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Windy ~75°F Winds from NW 5-10 mph, Clear, sunny

Sample Description Medium to dark brown soil, Moderate to abundant small Rocks (eng. fill gravels, tuff gravels)

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
NA 16-6532	1.5	to 2.5	ft	Field Rad (beta/gam)	B/G	dpm	12.1 cpm
NA	0	to 0		HE Spot Test	Neg.		
NA	0	to 0		XRF - BA	441	ppm	

9/9/00 9/9/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo of Core
Frame 17, Roll 1

Media Code: S

Comments:

~60% Recovery

1 1.5 2.0

0 No Sample → 2.5

Screening of 0-1 ft. Not obtained no Recovery.

This sample will be submitted for lab analysis

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1570

Date 9/9/00 **Time** 1520 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH 1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6532	NA	2.5 to	5.0	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-~~1570~~ 1569 9/10/00

Sample Description Light to Medium brown color w/ Reddish tint abundant to minor small gravels - tuff. Dry.

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
NA16-6532	2.5	to	5.0	Field Rad (beta/gam)	~~Neg~~ B/G 9/10/00	dpm	12.4 cpm
NA	2.5	to	5.0	HE Spot Test	Neg		
NA	2.5	to	5.0	XRF - BA	248.8	ppm	

9/10/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 1
Frame 18

Media Code: 6

Comments:

~75% Recovery 3.5 -5.0 ft.
screening of 3.5 to 4.5 ft.
Rad - B/G
HE Spot Test - Neg.
XRF - 252.7 - ba

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1571

Date 9/9/00 **Time** 1535 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only BH 1

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** _____

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6532	NA	5.0 ~~7.5~~	6.0	ft	0		

KMB 9/9/00

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1569

Sample Description Medium to light brown tuffy gravels and fill.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6532	5.0 to	6.0	Field Rad (beta/gam)	BKg.	dpm	11.1 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	137.9	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

No photo taken

Comments:

98% Recovery in 2.5 ft. core barrel.

Screening of 5.0-6.0 ft. Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1572

Date 9/9/00 **Time** 15:39 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin BH-1

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6532	NA	6.0-7.5	0	ft.	0	

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Windy ~15mph from NW, warm - 75° F. Sunny, clear

Sample Description Light brown QBT tuff, crushed tuff from drilling.

Field Screening dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6532	6.0 to 7.5	0 ft.	Field Rad (beta/gam)	BKg.	dpm	11.7 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	47.5	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo taken

Comments:

Screening of 6.0-7.5 feet.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1573

Date 9/9/00 **Time** 1539 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only BH-1

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6532	NA	7.50	8.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1572

Sample Description Light brown crushed tuff, tuff gravels, dry.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA16-6532 7.5	0 to 8.5 0 ft.	Field Rad (beta/gam)	BKg.	dpm	12.23 cpm
NA ↓ ↓	0 to ↓ 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	187.91	ppm	

9/9/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo Taken

Comments:

Hit tuff at 8.0 ft. depth.

Media Code QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1574

Date 9/9/00 **Time** 1540 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-1 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6032	NA	8.5	to 10.0 ft.		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1572

Sample Description light brown tuff

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6032	8.5 to	10.0 ft.	Field Rad (beta/gam)	BKg.	~~dpm~~ cpm	9/9/00 13.1 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	225.0	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo Taken

Comments:

Screening of 8.5 to 10.0 ft.

10 feet is the total depth of this borehole.
We drilled 2 ft. into tuff

Media Code: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1575

Date 9/10/00 **Time** 0930 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole #2

QA/QC Type Field Screening Only BH-2

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** _____

Grabs: 16-6533 - Location ID

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 NA 16-6533	NA	1.0 -	2.5	ft.	0		

KK 9/10/00

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Windy ~15mph from NW, 70°F, clear, sunny

Sample Description Medium brown, silts minor clays, abundant tuff gravels, minor organics

Field Screening

Loc ID	Depth			Screening Method	Result	Units	Comments
NA 16-6533	1.0 to	2.5	0	Field Rad (beta/gam)	BKg	dpm	11.1 cpm
NA	0 to		0	HE Spot Test			
NA	0 to		0	XRF - BA	525 Neg	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 19, Roll 1

Comments:

50% Recovery. No Recovery from 0-1 foot.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1576

Date 9/10/00 **Time** 09:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin BH-2

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA ~~16-6532~~ 16-6533	NA	2.5 to	3.5 ft.	0	0		

9/10/00 **These Samples were collected using LANL ER SOP** 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1575

Sample Description Medium brown, clay Rich soil & fill, abundant tuff gravels, dry, minor organics.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6533	2.5 0 to 3.5 0 ft.		Field Rad (beta/gam)	BKg.	dpm	12.1 cpm
NA	↓ ↓ 0 to ↓	0	HE Spot Test	No.		
NA	↓ ↓ 0 to ↓	0	XRF - BA	569	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 20
Roll 1

Comments:

75% Recovery for this core Run.

Hit tuff at 3 feet depth.

This sample was submitted as a lab sample.

Media Code: S 0-3 ft.

QBT 4 3.5 ft.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1577

Date 9/10/00 **Time** 09:44 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6533	NA	3.5	5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1575

Sample Description ~~Same as RE16-00-1576 except~~ VOAs 9/10/00

Field Screening Tuff and crushed tuff from drilling. red. Red-brown,

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6533	3.5 0 to	5.0 ft.	Field Rad (beta/gam)	BKg.	dpm	13.1 cpm
NA	↓ ↓ 0 to	↓ 0	HE Spot Test	Neg.		
NA	↓ ↓ 0 to	↓ 0	XRF - BA	523	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Photo 20
Roll 1

Comments:

Sample: minor clay weathering, slightly moist.

Media Code: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1578

Date 9/10/00 **Time** 09:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6533	NA	5.0	6.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1574

Sample Description Reddish Brown Weathered QBT tuff. Slightly moist.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6533	5.0' to	6.0'	Field Rad (beta/gam)	Bkg.	dpm	11.2 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	165.2	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 23
Roll 1

Comments:

86% Recovery from 5.0 - 7.5 feet core run.

MC: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1579

Date 9/10/00 **Time** 09:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-2 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6533	NA	6.0	7.5	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1574

Sample Description Same as RE16-00-1578

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6533	6.0 to 7.50'	Field Rad (beta/gam)	BKg.	dpm	11.4 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	221.5	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 23
Roll 1

Comments:

MC: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1580

Date 9/10/00 **Time** 10:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH 2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6533	NA	7.50	8.5 0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1574

Sample Description Reddish-brown tuff, mildly compacted, dry

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6533	7.5' to 8.5' 0	Field Rad (beta/gam)	BKg.	dpm	11.95 cpm
NA	0 to 0	HE Spot Test	Negative		
NA	0 to 0	XRF - BA	175.9	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 24
Roll 1

Comments:

50% Recovery in this 7.5 to 10.0 foot Run

Media Code: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1581

Date 9/10/00 **Time** 10:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6533	NA	9.0	10.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1574

Sample Description Same as RE16-00-1580

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6533	9.0' to	10.0'	Field Rad (beta/gam)	BKg.	dpm	11.95 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	652	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 24
Roll 1

Comments:

There was only 50% Recovery in this core Run.

Media Code: QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1582

Date 9/10/00 **Time** 10:51 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6534	NA	0	1.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Winds from NW 15-20 mph, 70° F, sunny, clear

Sample Description fine fill silts and sands, abundant tuff gravels, dry, medium to light brown color, minor organics.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6534	0 to	1.0	Field Rad (beta/gam)	BKg	dpm	13.42 cpm
NA ↓	0 to	↓ 0	HE Spot Test	Neg.		
NA ↓	0 to	↓ 0	XRF - BA	523	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 1
Frame 25

Comments:

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1583

Date 9/10/00 **Time** 10:51 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH 3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6534	NA	1.0	2.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1582

Sample Description Same as RE16-00-1582

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6534	1.0' to 2.50'	Field Rad (beta/gam)	BKg.	dpm	13.49 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	596	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 1

Frame 25

Comments:

This screening sample is submitted for lab analysis.

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1584

Date 9/10/00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6534	NA	2.5 to 3.5 ft	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1582

Sample Description Medium brown silts and sands, minor clays, abundant tuff gravels, dry, minor organics.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6534	2.5 0 to	3.5 0 ft.	Field Rad (beta/gam)	BKg.	dpm	12.40 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	153.3	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 1
Roll 2

Comments:

95% Recovery in this core Run.

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1585

Date 9/10/00 **Time** 11:00

Technical Area 16 **Operable Unit** 1082

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Sample Type Soil

Sample Location Borehole BH-3 16-6534 9/10/00

Name (Print) Kristi Beguin BH-3

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6534	NA	3.5 to 0	5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1582

Sample Description Same as RE16-00-1584

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6534	0 to	0	Field Rad (beta/gam)	BKg.	dpm	13.01 cpm
NA ↓	0 to	0	HE Spot Test	Neg.		
NA ↓	0 to	0	XRF - BA	171.3	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 1
Roll 2

Comments:

Hit tuff at 5.0 feet

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1586

Date 9/10/00 **Time** 11:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH 3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-65349	NA	5.0	to 6.0	Ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1582

Sample Description pale Red color, fine silts & sands, clay clumps, moderate tuff gravels. DRY.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-65349	5.0 to	6.0 ft.	Field Rad (beta/gam)	BKg.	dpm	11.4
NA	↓ 0 to	↓ 0	HE Spot Test	Neg.		
NA	↓ 0 to	↓ 0	XRF - BA	99.3	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 2
Frame 3

Comments:

92% Recovery in this drill Run.

MC = GBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1587

Date 9/10/00 **Time** 11:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-3 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6534	NA	6.0	7.5	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1582

Sample Description Same as RE16-00-1586

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6534	6.0 to 7.5 0	Field Rad (beta/gam)	BKg.	dpm	12.16 cpm
NA	0 to 0	HE Spot Test	Neg		
NA	0 to 0	XRF - BA	125.3	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 2
Frame 3

Comments:

7.5 ft. is the total depth of this borehole.

MC= QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1588

Date 9/10/00 **Time** 11:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6527	NA	0 - 1.0	~~to 2.5~~ 0	ft.	0		

KMB 9/10/00

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Warm - 75°F Clear, breezes from NW 0-5mph.

Sample Description pale Reddish brown silts and sands, minor clays, abundant tuff gravels, minor organics, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6527	0 to	1.0'	Field Rad (beta/gam)	BKg.	dpm	12.4 cpm
NA ↓	0 to	↓ 0	HE Spot Test	Neg		
NA ↓	0 to	↓ 0	XRF - BA	423 ~~497~~	ppm	

KMB 9/10/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame #4

Photo Roll 2

Comments:

PID Reading was 5.0 ppm while pulling sample from Corehole.

90% Recovery with this 0-2.5' Core Run.

MC = ~~QBT4~~ KMB 9/10/00 S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1589

Date 9/10/00 **Time** 11:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-4 Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 NA 16-6527	NA	1.0	-2.5 0	Ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1588

Sample Description Same as RE16-00-1588

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6527	1.0 to 2.5	0	Field Rad (beta/gam)	BKg.	dpm	12.1 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	~~423~~ 497	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants): 1603 9/10/00 Frame 4, Roll 2

Comments:

PID Reading was 5.0 ppm coming out of core hole. Direct Reading on core material in the split-spoon was 0.2 ppm.

This sample will be submitted for laboratory analysis.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1590

Date 9/10/00 **Time** 13:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6527	NA	2.5 0	3.5 0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1588

Sample Description Same as RE16-00-1588. Slightly moist.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6527	2.5' 0 to 3.5' 0	Field Rad (beta/gam)	BKg.	dpm	11.2 cpm
NA	↓ ↓ 0 to ↓ 0	HE Spot Test	Neg.		
NA	↓ ↓ 0 to ↓ 0	XRF - BA	395	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 5, Roll 2

Comments:

90% Recovery with the 2.5-5.0 foot CORE Run.

Hit tuff at 3.5 feet.

PID was 0.6 ppm on the split-spoon material.

MC= S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1591

Date 9/10/00 **Time** 13:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6527	NA	3.50	to 5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1588

Sample Description ~~Same as RE16-00-1588~~ Reddish-maroon colored tuff, and tuff sands and gravels, minor silts, moderately compact, dry, 9/10/00

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6527	3.50 to	5.0	Field Rad (beta/gam)	Bkg.	dpm	10.5 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	242.9	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 5, Roll 2

Comments:

90% Recovery on this 2.5-5.0 foot CORE Run.

Hit tuff at 3.5 feet.

PID Reading was 0.6 ppm on the split-spoon material.

MC= QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1592

Date 9/10/00 **Time** 13:43 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-4 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6527	NA	5.0	6.0	Ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1588

Sample Description Reddish brown to rust colored weathered tuff.

Field Screening Minor compaction, slightly moist, clay rich.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6527	5.0' to	6.0'	Field Rad (beta/gam)	BKg.	dpm	12.8 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	238	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 6
Roll 2

Comments:

Only 10% Recovery with this Run. Very poor Recovery for 5.0-7.5 foot core Run.

MC = GBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1609

Date 9/10/00 **Time** 13:43 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6527	NA	6.0	to 7.5	0 ft	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1588

Sample Description No Recovery

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6527	6.0' to 7.5' 0	Field Rad (beta/gam)	Not Screened	ppm	
NA	0 to 0	HE Spot Test			
NA	0 to 0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 6, Roll 2

Comments:

No Recovery for this interval.

Only 10% Recovery for the 5.0 - 7.5 foot Run

We cannot drill any deeper at this location due to the proximity and angle of the canyon slope. It is too dangerous to drill any deeper.

MC = GBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1610

Date 9/10/00 **Time** 15:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6528	NA	1.0	2.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Warm - 78°F, sunny, clear, breeze from NW 5-10mph.

Sample Description Dark brown sands, silts, minor clay, twigs - sticks

Field Screening Present in sample, dry, minor gravels.

Loc ID	Depth	Screening Method	Result	Units	Comments
NA16-6528	1.0 to 2.50	Field Rad (beta/gam)	BKG.	dpm	12.20 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	484	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 7
Roll 2

Comments:

No Recovery from 0-1.0 ft. depth
Approx. 80% Recovery in sampler.

This sample was submitted for Laboratory analysis.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1611

Date 9/10/00 **Time** 15:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6528	NA	2.50	to 3.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1610

Sample Description Same as RE16-00-1610

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6528	2.50 to 3.50	Field Rad (beta/gam)	BKg.	dpm	12.0 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	397	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 8, Roll 2

Comments:

Approx. 90% Recovery in the 2.5 to 5.0 foot core Run.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1612

Date 9/10/00 **Time** 1530 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6528	NA	3.50	to 5.0	ft	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1610

Sample Description Same as RE16-00-1610

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6528	3.50' to	5.0'	Field Rad (beta/gam)	BKg.	dpm	12.10 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	332	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 8, Roll 2

Comments:

Hit tuff at 5.0 feet.

Approx. 90% Recovery in this 2.5 - 5.0 foot core Run.

Hit Refusal at 5.0 feet. We cannot drill any deeper at this location.

MC-5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1613

Date 9/10/00 **Time** 16:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	0	– 1.0	ft	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Warm, sunny ~78°F, breezes from NW 5-10mph.

Sample Description No Recovery for this interval.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	0 to 1.0'	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	↓		
NA ↓	0 to ↓ 0	XRF - BA	↓	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 15
Roll 2

Comments:

No Recovery for the 0-1 foot interval.

MC= ~~QBT4~~ ~~[illegible]~~ 9/10/00
S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1614

Date 9/10/00 **Time** 16:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only BH-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	1.0	to 2.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Medium brown soil, silts and sands, minor clays, abundant tuff gravels, dry, minor organics.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	1.0 to 2.50'	Field Rad (beta/gam)	BKg.	dpm	12.4 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	437.	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 15, Roll 2

Comments:

50 % Recovery for the 0-2.5 foot core interval

PID Reading on the split spoon sampler material was 0.1 ppm.

This samp was submitted for lab analysis.

MC = S GBT4 9/10/00

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1615

Date 9/10/00 **Time** 16:05 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	2.50	to 3.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Light to medium brown, fine silts and medium-grain sands, minor clay, abundant gravel, dry.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	2.50 to 3.50'	Field Rad (beta/gam)	BKg.	dpm	12.25 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	427	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 2, Frame 16

Comments:

Very little Recovery in the 2.5-5.0 foot interval. But enough material to screen.

Approx. 40% Recovery in split spoon.

MC = 5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1616

Date 9/10/00 **Time** 1605 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-6 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	3.50	to 5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1615

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6529	3.50' to	5.0'	Field Rad (beta/gam)	Bkg.	dpm	12.50 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	413	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 16, Roll 2

Comments:

Approx. 40% Recovery in this interval

PID Reading on core material was 0.1 ppm.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1617

Date 9/10/00 **Time** 16:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	5.0	to 6.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1615, except Reddish brown color.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	5.0' to 6.0'	Field Rad (beta/gam)	BKg.	dpm	12.20 cpm
NA ↓	↓ 0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	↓ 0 to ↓ 0	XRF - BA	297	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 17
Roll 2

Comments:

Approx. 60% Recovery

MC = ~~QBT4~~ [illegible] 9/10/00

S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1618

Date 9/10/00 **Time** 16:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-6 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	6.0	7.5	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1615, except slightly more reddish-brown in color

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	6.0 to 7.50'	Field Rad (beta/gam)	12.20 ~~dpm~~	cpm	BKg.
NA	0 to 0	HE Spot Test	Negative		
NA	0 to 0	XRF - BA	203.7	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 17
Roll 2

Comments:

60% Recovery in this core Run.

MC= 5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1619

Date 9/10/00 **Time** 16:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	7.5 0	to 8.5 0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description No Recovery for this interval

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	7.50 to 8.50 ft	Field Rad (beta/gam)	Not Screened	dpm	
NA	0 to 0	HE Spot Test			
NA	0 to 0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 2

Frame 18

Comments:

50% Recovery in the 7.5 to 10.0 foot interval

No Recovery for the 7.5 to 8.95' interval.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1620

Date 9/10/00 **Time** 16:20 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	9.0	10.0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Dark Reddish brown, clay-rich material. Looks like a weathered tuff. Slightly moist, NO ORGANICS

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	9.0 to 10.0	Field Rad (beta/gam)	BKg.	dpm	12.10 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	188.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 18
Roll 2

Comments:

50% Recovery in the 7.5 to 10.0 foot interval.

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1621

Date 9/10/00 **Time** 16:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only BH-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	10.0 -	11.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1620

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6529	0 to	11.0'	Field Rad (beta/gam)	BKg.	dpm	11.85
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	100.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 19
Roll 2

Comments:

Approx. 83 % Recovery in the 10.0 - 12.5 foot interval.

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1622

Date 9/10/00 **Time** 16:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	11.0	to 12.5	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1620

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	11.0 to 12.5 0	Field Rad (beta/gam)	BKg.	dpm	11.25 cpm
NA ↓	↓ 0 to ↓ 0	HE Spot Test	NDS.		
NA ↓	0 to ↓ 0	XRF - BA	11.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 19
Roll 2

Comments:

83% Recovery for 10 - 12.5 ft. interval

MC = 5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1623

Date 9/10/00 **Time** 16:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-6 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	12.5 to	13.5	0	ft.	0	

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Mostly clay - dark Reddish-brown color, slightly moist, could be weathered tuff, but NO compaction.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6529	12.5' 0 to	13.5 0'	Field Rad (beta/gam)	BKg.	dpm	11.18 cpm
NA	0 to	0	HE Spot Test	N.S.		
NA	0 to	0	XRF - BA	147.1	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 20
Roll 2

Comments:

60% Recovery.

PID 0.1 ppm from split spoon.

MC=5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1624

Date 9/10/00 **Time** ~~16~~ 1605 9/10/00 16:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	13.5 to 0	15.0 0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1613

Sample Description Same as RE16-00-1623

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	13.50 to 15.0'	Field Rad (beta/gam)	BKg.	dpm	11.85 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	146.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 20
Roll 2

Comments:

60% Recovery.

PID Reading 0.1 from split-spoon

We are breaking down drill rig, leaving sampler in hole, and will complete this borehole next Weekend: 9/16/00.

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1625

Date 9/16/00 **Time** 10:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-6 Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	15.0	16.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Warm - 80°F, slight breeze from N-NW ~5mph, clear, sunny

Sample Description Dark Reddish-brown clay, slightly moist

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	15.0 to 16.0 ft.	Field Rad (beta/gam)	BKg.	dpm	12.9 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	127.6	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 21
Roll 2

Comments:

~95% Recovery.

MC = 5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1626

Date 9/16/00 **Time** 10:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	16.0	17.50		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1625

Sample Description Same as RE16-00-1625

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	16.0 to 17.50	Field Rad (beta/gam)	BKg.	dpm	12.72 cpm
NA ↓	↓ 0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	0 to ↓ 0	XRF - BA	125.7	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 21
Roll 2

Comments:

Approx 95% Recovery.

Hit bedrock at 16.5 feet depth

MC = QRT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1627

Date 9/16/00 **Time** 10:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-6 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	17.50	to 18.50	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1625

Sample Description Pinkish mauve brown tuffs, tuff gravels & sands

Field Screening Moderate compaction, minor clay-bearing soils

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6529	17.50 to 18.50 ft.	Field Rad (beta/gam)	BKG.	dpm	141.10 cpm
NA ↓	↓ 0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	↓ 0 to ↓ 0	XRF - BA	941.7	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 22
Roll 2

Comments:

~80% Recovery

MC = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1628

Date 9/16/00 **Time** 10:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6529	NA	18.50	to 20	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1625

Sample Description Same as RE16-00-1627

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6529	18.50 to	20 ft.	Field Rad (beta/gam)	BKg.	dpm	14.0 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	97.4	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 2
Frame 22

Comments: 80% Recovery. This sample submitted as lab sample RE16-00-0234.

MC=QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1629

Date 9/17/00 **Time** 10:10 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6530	NA	0	-2.5 ~~1.~~	0 ft.	0		

KGS 09/17/00

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather ~~Same as RE16-00-1625~~ KGS 9/16/00 Approx. 80°F, Cloudy, breeze fr. NW 5-10 mph.

Sample Description No Recovery

Field Screening

Loc ID	Depth	Screening Method	Result	Units Comments
NA 16-6530	0 to 2.5 0	Field Rad (beta/gam)	Not Screened	dpm
NA ↓	0 to ↓ 0	HE Spot Test	↓	
NA ↓	0 to ↓ 0	XRF - BA	↓	ppm

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3
Photo 12

Comments:

No Recovery at all for the 0-2.5 foot Run. A plug of QBT tuff plugged up the shoe and prevented the split-spoon sampler from obtaining Sample Material

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1630

Date 9/17/00 **Time** 10:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-7 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6530	NA	2.5 to	5.0	0 ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Warm 80°F, Cloudy breeze from NW 5-10 mph. Sunny

Sample Description Dark brown, very dry sand and silt. Abundant gravel (tuff),

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6530	2.5 to 5.0 ft.	Field Rad (beta/gam)	BKg.	dpm	12.65 cpm
NA	0 to 0	HE Spot Test	N.S.		
NA	0 to 0	XRF - BA	5608	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3

Frame 10

Comments:

PID = 0.1 ppm on core material.

There is approximately 28% Recovery, but we are not able to determine from what interval the material is from. Therefore we are screening this as a whole.

This sample submitted as a lab sample RE16-00-0228

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1631

Date 9/17/00 **Time** 10:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6530	NA	5.0	750	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1630

Sample Description Dark brown silts & sands, slightly moist, moderate to abundant tuff gravels, minor clay present.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6530	5.0 to 750	Field Rad (beta/gam)	BKg.	dpm	12.25 cpm
NA	0 to 0	HE Spot Test	Neg.		
NA	0 to 0	XRF - BA	374	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3

Frame 13

Comments:

PID Read .4 ppm on core material.

Again, poor Recovery. Approx. 30-40 % Recovery, it is difficult to Know what depth interval the material is from, thus We will screen the entire interval as a Whole

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1632

Date 9/17/00 **Time** 10:55 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6530	NA	7.5	0 to 10.0	Ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1630

Sample Description See below

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6530	0 to	0	Field Rad (beta/gam)	See below	dpm	
NA ↓	0 to	0	HE Spot Test	↓		
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3
Frame 14

Comments:

Approx. 95% Recovery. MC = 5 from 7.5'-9.0'
QBT4 from 9.0'-10.0'

7.5 to 8.5 ft.: light reddish-brown tuff and tuff gravels, minor silts & sands. Dry.

Rad: Bkg. 12.15 cpm
HE: Neg.
XRF: 1219 ppm Ba.

8.5 to 10.0 ft: Hit tuff at 9.0 ft depth.

Light, Reddish to mauve-colored tuff. Dry, tuff sands present from drilling, moderate compaction.

Rad - bkg. 12.25 cpm
HE - Neg.
XRF - 1148 ppm - Ba

~~MC = 5~~ KGB
9/17/00

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1633

Date 9/17/00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** BH-7 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6530	NA	10	to 11.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1630

Sample Description Reddish to light brown tuff and tuff sands

Field Screening Minor tuff gravels - from drilling, moderately compacted.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6530	10 to	11.0 ft.	Field Rad (beta/gam)	Bkg.	dpm	12.5 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	293	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 15
Roll 3

Comments:

PID Reading 0.4 ppm on split spoon.

30-40 % Recovery. No Recovery for 11-12.5 foot interval

This sample submitted as lab sample:

~~RE16-00-0236~~ WCAS

RE16-00-0235

MC = GBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1634

Date 9/17/00 **Time** 11:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-7c

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6535	NA	10	to 11.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1630

Sample Description Mostly crushed tuff (from drilling), dry, Minor tuff gravels, Medium Reddish

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6535	10 to	11.0	Field Rad (beta/gam)	BKg	dpm	12.15 cpm
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	175	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame / No Photo taken (?)

Comments:

This is a co-located Borehole to BH-7

We did not do any field screening on the drill run. We cored to 10 feet and collected the 10.0 - 11.0 foot depth interval.

Lab Sample RE16-00-0258

MC = QBT 4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1797

Date 9/17/00 **Time** 13:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole BH-8

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs: 16-6531

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 NA ~~16-6535~~	NA	0 -	2.5	0 ft.	0		

16-6535 9/17/00

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Approx. 75°F, Partly cloudy, winds 10-15 mph from NW.

Sample Description Medium brown to Reddish soil - Clays and silts. Dry, Moderate tuffy gravels, Minor organic materials.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
16-6535 NA ~~16-6535~~	0 to	2.50'	Field Rad (beta/gam)	BKg.	dpm	12.9 cpm
9/17/00 NA 16-6531	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	312	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame 16
Roll 3

Comments:

30-40 % Recovery.

Submitted as lab sample RE16-00-0229

MC=S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1604

Date 9-19-00 **Time** ~~13:50~~ 9/17/00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 13:50 **Sample Location** Borehole 8-2

MDA-R

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6531	NA	2.50	3.50	Ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather 34 overcast, ~75°F, 5-10mph NW wind

Sample Description lt brn w/pale red tint, dry, minor gravels,

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6531	2.50 to 3.50	Field Rad (beta/gam)	0.85	~~dpm~~ 9/17/00 cpm	Neg.
NA ↓	2.50 to 3.50	HE Spot Test			
NA ↓	2.50 to 3.50	XRF - BA	208	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #3

Frame #14

Comments:

PID = 0.4 on core material

MC = S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1798

Date 9/17/00 **Time** 13:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only BH-8

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 NA 16-6531	NA	3.5	0 to 5.0	ft.	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Slightly overcast ~75°F, 5-10mph winds from NW

Sample Description Light brown to pale Red silts & sands, very

Field Screening dry, minor gravels.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6531	0 to	0	Field Rad (beta/gam)	11.65	~~dpm~~ cpm	LOKS 9/17/00
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	199	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll 3

Frame 17

Comments:

PID Read 0.4 on Core.

MC=5

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1605

Date 9-17-00 **Time** 14:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole 8-3

mDA-R

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6531	NA	5.0	7.50		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather 3/4 overcast ~75°F, S-10 mph NW wind

Sample Description same as RE16-00-1798

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6531	5.0 to 7.50	Field Rad (beta/gam)	12.50	dpm	
NA	5.0 to 7.50	HE Spot Test			
NA	5.0 to 7.50	XRF - BA	233	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Roll #3

Frame# 18

Comments:

50 ~ 60% recovery

Difficult to tell what interval this material is from. Only about 12-15 inches of core present in sample. Will screen interval as a whole.

MC = 5

Los Alamos National Laboratory Environmental Restoration Program

9-18-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1607

Date ~~9-17-00~~ MAS 9/17/00 **Time** ~~17:40~~ MAS 9/17/00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 17:40 **Sample Location** Borehole BH 8.4

MDA-R

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6531	NA	7.50	10.0	ft	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1605

Sample Description 7.5' to 9' Lt brown, dry w/ red tint
9' to 10' Lt brn to dk brn w/ red streaks

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6531	7.5 0 to 10.0	Field Rad (beta/gam)	12.60	~~dpm~~ cpm	MAS 9/18/00
NA	7.5 0 to 10.0	HE Spot Test			Neg.
NA	7.5 0 to 10.0	XRF - BA	128.8	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame # 19
Roll # 3

Comments:

Contact @ ~9'

~90% recovery

Screening for 9.0' - 10.0' interval:

Rad = 11.65 cpm
HE Spot = Neg.
XRF = 114.7 Ba

MC = QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1608

Date 9.18.00 **Time** 18:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole 8.5

QA/QC Type MDA-R Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Krjsti Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6531	NA	10.0	12.50		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Windy ~ 25-30 mph NW, overcast, ~65°

Sample Description lt brn w/ red streaks

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6531	10.0 to 12.50	Field Rad (beta/gam)	11.70	dpm	
NA ↓	10.0 to 12.50	HE Spot Test	—		
NA ↓	10.0 to 12.50	XRF - BA	322	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Frame #20
Roll #3

Comments:

Bedrock @ 9' - 12.5'

~ 25% recovery Very Poor Recovery.

Difficult to discern whether this interval was the 10-11 or 11-12 foot depths. Therefore Screened as a whole

This sample was submitted as lab sample:

RE16-00-0236

MC=QBT4

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1500

Date 9-3-00 **Time** 0830 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid A-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66613	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather 9/3/00 ~~N/A~~ Sunny, a few high clouds, warm 80°F, breeze fr. NW 0-5mph

Sample Description ~~fine particles, very fine angular, Lt. red brown~~

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66613	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA 243.9		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

No Photo taken

Comments:

Sample No. A-1

Logged 9-10-00 @ 0920

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1501

Date 9-3-00 **Time** 0831 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only A-2

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6014	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather _____

Sample Description _____

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6014	0 to	0	Field Rad (beta/gam)		dpm	
NA ↓	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Not Collected. Sample fell on asphalt. This point will be surveyed.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1502

Date 9-3-00 **Time** 0832 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid A-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6615	NA	0	6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather ~~N/A~~ Same as RE16-00-1500

Sample Description ~~16K 9/13/00~~ very fine granules, platy & angular, weak red brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6615	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	— Neg.		
NA ↓	0 to ↓	0	XRF - BA	190.0	ppm	W/ XRF cups

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. A-3

Samples recorded on XR7 9-10-00 @ 1015

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1503

Date 9-3-00 **Time** 0833 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid A-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6616	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather ~~N/A~~ 9/3/00 Same as RE16-00-1500

Sample Description Coarse granules, fine to course platy & angular weak red brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6616	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test —			
NA ↓	0 to ↓	0	XRF - BA 228.6		ppm	w/ cups

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. A-4

Sample recorded on XR7 on 9-10-00 @ 1020

Media Code : S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1504

Date 9-3-00 **Time** 0834 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid A-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66017	NA	0 ~ 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather WS 9/3/00 ~~N/A~~ Same as RE16-00-1500

Sample Description mixed granules (5m) humus, fine-med, platy, weak-red brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66017	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	857	ppm	W / XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. A-5

Sample recorded 9-10-00 @ 1027

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1505

Date 9-30 0 **Time** 0835 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid B-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6618	NA	0	6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description very fine platy, angular + gran., red brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6618	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	82.3	ppm	W/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. B-1

recorded on XRF 9-10-00 @ 1032

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1506

Date 9-3-00 **Time** 0836 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid B-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6619	NA	0	~6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather ~~N/A~~ 9/13/00 ~~DRY~~ Same as RE16-00-1500

Sample Description roots, 5/2, very fine gran. very fine platy, very fine angular

Field Screening dark brown

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6619	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA 198.4		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. B-2

recorded on XRF 9-10-00 @ 1037

Media Code : S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1507

Date 9-3-00 **Time** 0837 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid B-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6620	NA	0	- 6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Contalner	Preservative	C of C	Control No.

Weather [initials] 9/3/00 ~~N/A~~ Same as RE16-00-1500

Sample Description very fine gran., platy + angular, red brown

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6620	0 to 6" 0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	—		
NA ↓	0 to ↓ 0	XRF - BA	264.2	ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. B-3

logged 9-10-00 @ 0940

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1508

Date 9-3-00 **Time** 0837 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid B-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6621	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather NA Same as RE16-00-1500

Sample Description very Clumpy

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6621	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	212.7	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No. B-4

logged on XRF on 9-10-00 @ 1047

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1509

Date 9-3-00 **Time** 0838 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid B-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6622	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather NA Same as RE16-00-1500

Sample Description humus, dk. brown, (5m)gran. + clumps - clay

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6622	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to	0	HE Spot Test	—		
NA ↓	0 to	0	XRF - BA	140.1	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No. B-5

recorded on XR7 - 9-10-00@ 1135

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1510

Date 9-3-00 **Time** 0839 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

C-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6623	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather N/A Same as RE16-00-1500

Sample Description lt. brown, sm-med clumps, humus, sm. gran.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6623	0 to	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to	0	HE Spot Test	—		
NA ↓	0 to	0	XRF - BA 222.1		ppm	W/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. C-1

Logged on XR7 9-10-00 @ 1140

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1511

Date 9/3/00 **Time** 0840 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid C-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6624	NA	0	~6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6624	0 to	0	Field Rad (beta/gam)		dpm	
NA ↓	0 to	0	HE Spot Test			
NA ↓	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected.
Sample fell on asphalt

Media Code S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1512

Date 9-3-00 **Time** 0841 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid C-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6625	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description humus, dk. brown, sm. pebbles + C Tuffs

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6625	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	868.0	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. C-3

logged on XRF 9-10-00 @ 1400

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1513

Date 9-3-00 **Time** 0842 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid C-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-00626	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, roots, sm pebbles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-00626	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	91.9	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. C-4

recorded on XRF 9-10-00 @ 1405

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1514

Date 9-3-00 **Time** 0843 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid C-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6627	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, clumpy, humus

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6627	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	312.0	ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. C-5

recorded on XR7 9-10-00 @ 1415

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1515

Date 9-3-00 **Time** 0844 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid D-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6628	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Lt. brown, sm. granules

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6628	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA ~~637~~ 9/13/00	1533	ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. D-1

Logged on XR7 - 9-11-00 @ 1140

Ba = 637 ppm 1st test
w/out Sample Cup

2nd test

med. brown, fine particles

XR7 - Ba: 1533

He Spot test: —

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1516

Date 9/3/00 **Time** 0845 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid D-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1 NA 16-6029	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6029	0 to 6"	0	Field Rad (beta/gam)		dpm	
NA	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Not Collected. Sample fell on asphalt

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1517

Date 9-3-00 **Time** 0846 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid D-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-00630	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, fine to sm. particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA16-00630	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA 1222		ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Sample NO. D-3

First test:

Logged + tested 9-18-00 @ 1445

Ba = 1009 w/out sample cup.

Second test:

dk. brown, fine to sm. particles

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1518

Date 9-3-00 **Time** 0848 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid D-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6631	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown soil, small particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6631	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA 936		ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Media Code: S

Sample NO. D-4

Tested + logged 9-18-00 @ 1145

first test:

~~Pale~~ ~~med~~ pale brown, med. crumb, fine platy, mod angular

logged + tested 9-12-00 @ 1443

He spot test: —

XRF Ba: 315 w/out sample cup

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1519

Date 9-3-00 **Time** 0849 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid D-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6632	NA	0	6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. crumb, fine. platy, fine angular, med. brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6632	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA	26.2	ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. D-5

logged + tested 9-12-00 @ 1440

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1520

Date 9-3-00 **Time** 0850 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid E 1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6633	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Fine silts and sands, light to medium brown dry, Minor Rootlets

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6633	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA 1054		ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO E-1

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1521

Date 9-3-00 **Time** 0851 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-2

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66341	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description fine. crumb, fine. platy, fine. angular, lt. brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66341	0 to 6"	0	Field Rad (beta/gam)	BKG	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA ~~310~~ 11:45 9/13/00	508	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-2

First test:

tested & logged 9-12-00 @ 1500

Ba = 310 w/out XRF sample cup

Second test:

med. brown, sm. to fine particles

logged & tested 9-18-00 @ 1530

XRF Ba: 508

He Spot test:

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1522

Date 9/3/00 **Time** 0852 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-3

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6635	NA	0	~~to~~ 9/3/00	0	0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6635	0 to	0	Field Rad (beta/gam)		dpm	
NA ↓	0 to	0	HE Spot Test			
NA ↓	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected

Sample location fell on asphalt

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1523

Date 9-3-00 **Time** 0853 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-4

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6502	NA	0	-6"	0	0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description very fine crumby brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6502	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	3621 / 4836	ppm	in XRF cup
				w/out XRF cup		

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-4

First test: logged & tested 9-12-00 @ 1455

Second test: med. Lt. brown, sm. particles

XRF Ba: 4836

He Spot test:

tested & logged 9-18-00

This sample submitted as lab sample RE16-00-0200

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1524

Date 9-3-00 **Time** 0854 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-5

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-06636	NA	0 - 6''	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, sm. particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-06636	0 to 6''	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA 2010		ppm	w/ sample cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-5

logged & tested 9-18-00 @ 1555

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1525

Date 9-3-00 **Time** 0855 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-06637	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-06637	0 to 6"	0	Field Rad (beta/gam)	BKg	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA 6047		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-6

logged & tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1526

Date 9-3-00 **Time** 0856 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin E-7

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6638	NA	0 – 6"	0		0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Dark brown soil, mostly silt, minor sands.

Field Screening Some ash present in soil

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6638	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA 1528		ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-7

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1527

Date 9-3-00 **Time** 0857 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only E-8

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-06639	NA	0	- 6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Lt. brown, sands, silts, minor ash present in soil, minor rootlets

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-06639	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	477	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. E-8

tested + logged @ 1040

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1529

Date 9-3-00 **Time** 0900 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin F-2

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6041	NA	0	-6''	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, sm-med lg size pebbles + rocks

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6041	0 to 6''	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	390 - 1st test w/out XRF cup | 581	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 7-2

First test: logged 9-11-00 @ 1340

Second test: med. brown, fine particles

XRF Ba: 581 w/ XRF cup

He Spot test:

tested + logged 9-18-00 @ 1115

Radia Codes

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1531

Date 9-3-00 **Time** 0903 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid F-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6643	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C	Control No.

Weather Same as RE16-00-1500

Sample Description med-dk brown, sm.-med. size pebbles + Clumps

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6643	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test —			
NA ↓	0 to ↓	0	XRF - BA 529 (1st test) w/out cup	1886	ppm	~~No~~ 2nd test in XRF cups

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 7-4

First test: logged on 9-11-00 @ 1125
Ba = 529 w/out XRF cup

Second test: med. brown, sm. to lg. particles

XR7 Ba: 1886 w/ XRF cup

He Spot test: —

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1532

Date 9-3-00 **Time** 0905 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid F-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6503	NA	0 - 6"	0		0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description lt. brown, fine particles, sm. clumps, river clay, abundant tuff gravel. Very dry.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6503	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	–		
NA ↓	0 to ↓	0	XRF - BA 1522		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 7-5

logged on 9-11-00 @ 1505

This sample selected as hand auger location. RE16-00-0201 associated lab sample.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1533

Date 9-3-00 **Time** 0907 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid F-6

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6644	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Lt-med. brown, sm-med. clumps, sm granules

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6644	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA	857 (1st test) w/out XRF cup	1445 ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 7-6

First test: logged 9-11-00 @ 1435

Second test: med. brown, fine to sm. particles

XRF Ba: 1445 w/ XRF cup

He spot test:

logged + tested 9-18-00 @ 1542

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1534

Date 9-3-00 **Time** 0909 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid F-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6645	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. dk. brown, fine granules, sm. Clumps

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6645	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	–		
NA	0 to	0	XRF - BA 1376 (1st test no cup)	1957	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 7-7

First test: logged 9-11-00 @ 1440

second test: med. brown, fine particles

XRF Ba: 1957 w/ XRF cup

He spot test:

tested + logged 9-18-00 @ 1053

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1535

Date 9-3-00 **Time** 0911 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin G-1

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6646 NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine.-sm. granules, sm. Clumps.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6646	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	444	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-1

logged 9-11-00 @ 1455

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1536

Date 9-3-00 **Time** 0913 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid G-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6647	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Very fine Silts, minor sands, very dry Medium brown, minor organics

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6647	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA	298	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample G-2
logged 9-11-00@1347

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1538

Date 9-3-00 **Time** 0914 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only G-3

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6648	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, sm. particles, humus, roots

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6648	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	–		
NA ↓	0 to ↓	0	XRF - BA	1085	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-3

logged 9-11-00 @ 1350

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1539

Date 9-3-00 **Time** 0915 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid G-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6507	NA	0 – 6''	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, sm. granules mixed w/med rocks /pebbles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6507	0 to 6''	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to	0	HE Spot Test	–		
NA	0 to	0	XRF - BA	3004	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-4

logged 9-11-00 @ 1400

This location selected as hand auger location RE16-00-0205 is associated lab sample.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1540

Date 9-3-00 **Time** 0920 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

G-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6649	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather RE16-00-1500 Same as

Sample Description Lt. brown w/red tint.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6649	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA	1242	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-5

logged 9-11-00 @ 1355

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1541

Date 9/13/00 **Time** 0930 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only G-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6650	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Dark brown sands and silts, minor organics from hydromulch, abundant tuff gravels, very dry.

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6650	0 to 6" 0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	0 to ↓ 0	XRF - BA 2053		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-6

logged + tested 9-11-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1542

Date 9-3-00 **Time** 0940 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only G-7

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-65099	NA	0 ~6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, fine granules, moderate ash

Field Screening present in soil, very silty, dry, minor organics

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-65099	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA 3130 (1st test, no cup)	3531	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. G-7

logged + tested 9-11-00

This location selected as hand auger location

RE16-00-0207 are associated lab samples.

" - " - 0247

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1544

Date 9-3-00 **Time** 10:40 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only H-1

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6652	NA	0	-6''	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description roots, med. brown, sm. rocks, fine particles

Field Screening dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6652	0 to 6''	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test —			
NA	0 to	0	XRF - BA 282.6 (1st test No cup)	470	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-1

First test: logged + tested 9-18-00

Second test: med. brown, fine particles

XRF Ba: 470

He spot test:

logged 9-18-00 @ 1105

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1545

Date 9-3-00 **Time** 10:41 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

H-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6652	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description lt brown w/red tint, fine particles, mostly sands & silts, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6652	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA 597		ppm	Second test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-2

second test: tested & logged 9-18-00

First test: fine gran. Lt. red brown, sm. rocks & chucks

XRF Ba: 525

He Spot test:

logged & tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1546

Date 9-3-00 **Time** 10:42 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid H-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6654	NA	0	-6''	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description lt. brown, fine particles, dry, silt & sand

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6654	0 to 6''	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg		
NA	0 to	0	XRF - BA 1525 (1st test, NO XRF cup)		ppm	1102 - 2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-3

First test: logged & tested 9-18-00

Second test: Lt. brown, sm. chucks & rocks, fine gran.

XRF Ba: 1102

HE Spot test: -

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1547

Date 9-3-00 **Time** 10:44 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid H-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6654	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Contalner	Preservative	C of C	Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6654	0 to -6" 0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	0 to ↓ 0	XRF - BA 1427	~~1610~~ 1610	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-4

Second test: tested + logged 9-18-00 @ 1125

First test: med. brown, humus, + roots sm-lg clumps, fine gran.

XRF Ba: 1610 w/out XRF cup

He Spot test: —

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1548

Date 9-3-00 **Time** 10:47 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

H-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6655	NA	0 - 6"	0		0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Lt brown, sm-med. clumps, sticks

Field Screening dry, Minor hydromulch present

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6655	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA 723 (1st test, NO XRF cup)	1052	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-5

First test: logged + tested 9-18-00

Second test:

XRF Ba: 1052 in XRF cup

He Spot test:

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1549

Date 9-3-00 **Time** 1049 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only H-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6504	NA	0	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather _____

Sample Description med. brown, fine particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6504	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 1008 (1st test) (100 XRF cup)	2311	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-6

Second test: logged + tested 9-18-00 @ 1550

First test: dk. brown, fine particles

XRF Ba: 2311 in XRF cup

He Spot test: —

This location selected as hand auger location

Sample RE16-00-0343 is associated lab sample.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1550

Date 9-3-00 **Time** 1051 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid H-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6505	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles, sands, minor silts, ash present in sample, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6505	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 2981		ppm	in cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. H-7 Media Code: S

first test: tested & logged 9-18-00 @ 1120

second test: med. brown, fine granules, med-lg. Chunks & rocks debris glass

XRF Ba: 1668 in cup

HE Spot test: –

This location selected as sample location RE16-00-0344 is an associated lab sample.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1551

Date 9-3-00 **Time** 1053 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

I-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66656	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. dk. brown, fine grain. med size clumps of clay

Field Screening dry

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-66656	0 to 6" 0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to 0	HE Spot Test	—		
NA	0 to 0	XRF - BA	1942	ppm	2nd test in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-1

second test: logged + tested 9-11-00

first test:

XRF Ba: 3534 w/out cup

logged + tested 9-11-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1552

Date 9-3-00 **Time** 10:55 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid I-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6657	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description fine particles, very fine angular light brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6657	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	1098	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-2

logged + tested 9-12-00 @ 1430

1st test - 4,144 ppm Ba w/out XRF cup.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1553

Date 9-3-00 **Time** 11:00 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid I-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6658	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description fine crumb, fine angular, med. brown, dry sand & silt

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6658	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test —			
NA	0 to	0	XRF - BA 1061		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-3

logged + tested 9-12-00 @ 1505

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1554

Date 9-3-00 **Time** 1103 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid I-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6659	NA	0	-6"	0		0	

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather RE16-00-1500 is the same

Sample Description very fine silts & sands, light brown in color, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6659	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 7382		ppm	IN XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-4

Second test: logged & tested 9-18-00 @ 1540

first test: very fine granules, light brown

XRF Ba: 4742 w/out XRF cup

~~HE spot test~~: —

logged & tested 9-12-00 @ 1435

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1555

Date 9-3-00 **Time** 1110 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid I-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6660	NA	0 – 6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. red brown, small particles, dry, Minor organics

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA	16-6660	0 to 6" 0	Field Rad (beta/gam)	BKG.	dpm	
NA	↓	0 to ↓ 0	HE Spot Test	Neg.		2nd Result in XRF cup
NA	↓	0 to ↓ 0	XRF - BA	1037	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-5

tested + logged 9-18-00

1st test Result 3056 ppm w/out XRF cup.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1556

Date 9-3-00 **Time** 1113 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin I-6

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6508	NA	0	6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. dk. brown, fine granules, sm-med. clumps sm. amount

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6508	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to	0	HE Spot Test	—		
NA ↓	0 to	0	XRF - BA	23,085	ppm	2nd Result in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-6

logged + tested 9-11-00

1st test – 79,480 ppm w/out XRF cup.

This location selected for hand auger sampling.

Samples RE16-00-0326
" - 00-0327 are associated lab samples.

Weston XRF data = 48,370 ppm, in XRF cup.
(same cup as we used)

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1557

Date 9-3-00 **Time** 1115 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only I-7

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-65506	NA	0	-6''	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med-dk brown, fine granules, sm-med. Clumps

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-65506	0 to 6''	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA	~~30292~~ 180,000	ppm	2nd test in XRF cup

KGK 9/14/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. I-7

logged + tested 9-11-00

1st test: 180,000 ppm in XRF cup

Weston test 105,012 ppm in same XRF cup as 1st test.

Second test Result: 30,292 ppm. Different XRF cup.

This sample selected as a hand augu location.

RE16-00-0204
RE16-00-0244 are the associated lab samples.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1558

Date 9-3-00 **Time** 1117 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid I-8

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6661	NA	0 - 6''	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Dark brown ashy silt. Minor organics. Dry.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA16-6661	0 to 6''	0	Field Rad (beta/gam)	BKS.	dpm	
NA	0 to	0	HE Spot Test	NCS.		
NA	0 to	0	XRF - BA	4231	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1559

Date 9-3-00 **Time** 1118 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only J-1

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6520	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6520	0 to 6"	0	Field Rad (beta/gam)	BKG	dpm	
NA ↓	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 17610		ppm	IN XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. J-1 Media Code: S

C.V. ~~Second~~ First test: logged & tested 9-18-00 @ 1445

C.V. ~~First~~ Second test: med. dk. brown, sm. granules, humus

XRF Ba: 11359 w/out XRF cup

He Spot test: –

logged & tested 9-11-00 @ 1410

This sample selected as sample location.

Samples RE16-00-0210 are the associated samples.

" - " - 0241

" - " - 0250

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1560

Date 9-3-00 **Time** 1120 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid J-2

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-66662 NA	0	to 6"		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dk. brown, sm to fine particles, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66662	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg		
NA ↓	0 to ↓	0	XRF - Ba 3979		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

2nd Sample NO. J-2

~~First~~ test: logged + tested 9-18-00

MKS 9/12/00

MKS 9/12/00

~~Second~~ First test: med. crumb, fine angular, brown

XRF Ba: 3390 w/out XRF cup.

He spot test: —

logged + tested 9-12-00 @ 1531

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1561

Date 9-3-00 **Time** 1122 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid J-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6537	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med brown, fine, silt, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6537	0 to	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to	0	HE Spot Test	— (Neg)		
NA ↓	0 to	0	XRF - BA 15830		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. J-3

logged + tested 9-18-00

This location selected for sampling.

RE16-00-0211 are the associated samples.
0251

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1562

Date 9-3-00 **Time** 1124 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only J-4

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-66663	NA	0 – 6"		0		0

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles, dry, minor organics from hydromulch,

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66663	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	NEG.		
NA ↓	0 to ↓	0	XRF - BA 2014		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. J-4

second test: logged & tested 9-18-00 @ 1045

First test: med. crumb, fine angular - med. brown

XRF Ba: 1683 cr. w/out XRF cup

He Spot test: —

logged & tested 9-12-00 @ 1528

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1564

Date 9-3-00 **Time** 1128 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only J-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Begbin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6514	NA	0 -6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description fine crumb, fine angular, dk brown with reddish tint,

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6514	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	5033 (1st test w/out cup) / 5388	ppm	with XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Media Code: S

Sample NO. J-6

first test: logged & tested 9-12-00 @ 1525

Second test: med. brown w/pale red tint, fine particles

XRF Ba: 5388

He Spot test: —

logged & tested 9-18-00

This sample location selected for hand augering.

Samples RE16-00-0212 are the associated samples.

" - " - 0252

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1565

Date 9-3-00 **Time** 1130 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid J-7

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6515	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description very fine crumb, very fine angular, black-brown

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6515	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA	(6000 (1st test No cup)) 9563	ppm	2nd test w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. J-7 Media Code: S

first test: logged & tested 9-12-00 @ 1510

Second test: dk. brown, fine particles

XRF Ba: 9563 w/ XRF cup

He spot test:

logged & tested 9-18-00 @ 1610

This location selected for sampling.

RE16-00-0213
" -00-0253 are the associated samples.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1566

Date 9-3-00 **Time** 1132 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

K-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6665	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Medium to dark brown loamy soil. Moderate

Field Screening Organics - pine needles, grass, dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6665	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA 1676		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No: K-1

logged & tested 9-12-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1567

Date 9-3-00 **Time** 1134 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin K-2

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66666	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Very dry, silty-soil. No organics, Minor gravel.

Field Screening Point fell on dirt Road.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66666	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 3870		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No. K-2

logged + tested 9-12-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1568

Date 9-3-00 **Time** 11:34 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** MDA-R Grid

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin K-3

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6667	NA	0 - 6''	0		0		

These Samples were collected using LANL ER SOP 06.09

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA16-6667	0 to 6''	0	Field Rad (beta/gam)	Not Screened	dpm	
NA	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected
Location fell on Soil Spoils Pile

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1750

Date 9-3-00 **Time** 1136 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** ~~Borehole~~ MDA-R Grid Samples K-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6668	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA16-6668	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected

Location fell on soil spoils pile

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1751

Date 9-3-00 **Time** 1140 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole K-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6669	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Silty sands minor loam, dry, light brown, minor organics - grass from hydromulch, moderate tuff gravels.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6669	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 2665		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. K-5

logged + tested 9-12-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1753

Date 9-3-00 **Time** 11:44 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin K-7

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6512	NA	0	-6"	0		0

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Medium brown, minor organics - hydromulch, minor ash, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6512	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA 10410		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. K-7

logged + tested 9-12-00

This location selected for sampling.

RE16-00-0330 are the associated samples.
" - " - 0331

Radiu Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1754

Date 9-3-00 **Time** 1146 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only K-8

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6670NA	0	-6''		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Silt & loam, minor organics - hydromulch, dry, medium brown.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6670	0 to 6''	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA 2058		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No. K-8

logged + tested 9-12-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1755

Date 9-3-00 **Time** 1148 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only L-1

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6538	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Lt. brown, sm to fine particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6538	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	–		
NA ↓	0 to ↓	0	XRF - BA 11320		ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. L-1

Second test: logged + tested 9-11-00 Media Code: S

First test: Lt. brown, sm-med rocks, fine sm. granules

XRF Ba: 5819 w/out XRF cup.

HE Spot test: –

logged + tested 9-11-00 @ 1420

This location selected for sampling.

RE16-00-0332 are the associated samples.

" - " - 0333

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1756

Date 9-3-00 **Time** 1150 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** L-2 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6671	NA	0	~6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6671	0 to 6"	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test			
NA ↓	0 to	0	XRF - BA	↓	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not collected.
Sample fell on soil spoils pile

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1757

Date 9-3-00 **Time** 11:51 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** L-3 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6672	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6672	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test	↓		
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected. Sample fell on soil spoil spile.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1758

Date 9-3-00 **Time** 1152 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** L-4 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6674	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6674	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test			
NA ↓	0 to	0	XRF - BA	↓	ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected Sample fell on soil spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1759

Date 9/3/00 **Time** 1153 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole L-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6674	NA	0-6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Loamy Silts minor Sands, medium brown, dry, minor organics from hydromulch, Present.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA16-6674	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA	1993	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Logged 9/18/00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1760

Date 9-3-00 **Time** 1156 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** L-6 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6513	NA	0 to 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6513	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 7683		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. L-6

Media Code: S

Second test: logged + tested 9-18-00

first test: med. brown, fine granules, sm-med. clumps.

XRF Ba: 4906 w/out XRF cup

He spot test: —

logged + tested 9-11-00 @ 1425

This sample location selection for sampling.

RE16-00-0334

RE16-00-0335 are the associated samples.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1761

Date 9-3-00 **Time** 11:59 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** L-7 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6518	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description dark brown, fine particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6518	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 3828		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. L-7

Media Code: S

second ~~first~~ test: logged & tested 9-11-00

First test: dk. brown, humus, fine grain

XRF Ba: 1583 w/out XRF cup

HE Spot test: -

logged & tested 9-11-00 @ 1425

The samples RE16-00-0342 were collected from this 11-11-0345 location.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1762

Date 9-3-00 **Time** 1204 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** M-1 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6675	NA	0 -6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6675	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test	↓		
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not collected. Location fell on soil spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1763

Date 9-3-00 **Time** 1107 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** M-2 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6676	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather _____

Sample Description _____

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6676	0 to	0	Field Rad (beta/gam)		dpm	
NA	0 to	0	HE Spot Test			
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected.

Location fell on soil spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1764

Date 9-3-00 **Time** 1205 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole M-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs: 16-6677

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA ~~16-6676~~	NA KKS 11/9/00	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description _____

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA ~~16-6676~~	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA 16-6677	0 to	0	HE Spot Test	↓		
NA ↓	0 to	0	XRF - BA	↓	ppm	

KKS 11/9/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected

Sample fell on soil spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1765

Date 9-3-00 **Time** 1210 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole M-4

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6678	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C	Control No.

Weather Same as RE16-00-1500

Sample Description med-dk. brown sm to fine particles

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6678	0 to 6" 0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	—		
NA ↓	0 to ↓ 0	XRF - BA 2306		ppm	w/out XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. M-4
logged + tested 9-18-00 @ 1520

First test:

second test: med. crumb, dk. brown
XRF Ba 669 ~~w/out~~ 9/12/00
w/ sample XRF cup
He Spot test: -
logged + tested 9-12-00 @ 1517

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1766

Date 9-3-00 **Time** 1215 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole M-5

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6679	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, fine particles, dry

Field Screening

Loc ID	Depth	Screening Method	Result	Units	Comments
NA 16-6679	0 to 6" 0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓ 0	HE Spot Test	Neg.		
NA ↓	0 to ↓ 0	XRF - BA 2523		ppm	w/out XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Sample NO. M-5

first test: logged + tested 9-12-00

second test: med. crumb, brown

XRF Ba: 1392 w/XRF cup

HeSpot test: –

logged + tested 9-12-00 @ 1521

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1767

Date 9-3-00 **Time** 1215 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only M-6

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6681	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Mostly loamy-silt & sand, minor organics from hydromulch, dry, medium brown.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6681	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	N/S		
NA	0 to	0	XRF - BA	1025	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. M-6

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1768

Date 9-3-00 **Time** 1220 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin M-7

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6516	NA	0	6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description very fine granular black/brown soil, dry, minor organics from hydromulch

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6516	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA 5473	6777 (w/out cup)	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. M-7

first test: logged & tested 9-12-00 @ 1513

Second test: dk brown, fine particles.

XRF Ba: 6777 w/out XRF cup

He spot test:

logged & tested 9-18-00 @ 1545

Sample RE16-00-0336 was collected from this location.

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1769

Date 9-3-00 **Time** 1225 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin M-8

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66081	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description fine crumb, dark brown soil, ash present, abundant gravels

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66081	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA ~~704~~ 11 9/14/00	832	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. M-8

first test: logged + tested 9-12-00 @ 1536
704 ppm - Ba w/out XRF cup.

second test: dk. brown, fine particles.
XRF Ba: 832 w/ XRF cup
HE Spot test:
logged + tested 9-18-00 @ 1435

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1770

Date ~~9-8-00~~ 9/8/00 **Time** 12:30 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** N-1 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6539	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Silty-loamy sands, moderate tuffy gravels, minor organics - straw from wattles, light to red. brown, dry.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6539	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 9880		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. N-1
logged + tested 9-18-00

Samples RE16-00-0338 were collected from this
0339 location.
0240

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1771

Date ~~9-8-00~~ 9/8/00 **Time** 1231

Technical Area 16 **Operable Unit** 1082

Sample Type Soil

Sample Location Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

N-2

Name (Print) Kristi Beguin

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6682	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather _____

Sample Description _____

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6682	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test	↓		
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments: Not Collected

Location fell on Weston Spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1772

Date ~~9-8-00~~ 9/8/00 **Time** 12:32 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole N-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6683	NA	0	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather _____

Sample Description _____

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6683	0 to	0	Field Rad (beta/gam)	Not Screened	dpm	
NA ↓	0 to	0	HE Spot Test	↓		
NA	0 to	0	XRF - BA		ppm	

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Not Collected
Sample Location fell on soil spoils pile.

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1773

Date ~~9-8-00~~ 9/8/00 **Time** 1234

Technical Area 16 **Operable Unit** 1082

Sample Type Soil

Sample Location Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

Name (Print) Kristi Beguin N-4

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6684	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-15-00

Sample Description medium brown silts and sands, moderate tuff gravels,

Field Screening minor hydrocarbon, dry.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6684	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 1301		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. N-4

logged & tested 9-18-00 @ 1530

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1774

Date ~~4-8-00~~ 9/18/00 **Time** 12:37 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** N-5 Kristi Beguin

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6685	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description med. brown, sm particles, abundant tuff gravels, moderate hydromulch organics, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6685	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 1051		ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. N-5

tested & logged 9-18-00 @ 1110

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1775

Date ~~9-8-00~~ 9/8/00 **Time** 12:38

Technical Area 16 **Operable Unit** 1082

Sample Type Soil

Sample Location Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No

Composite Type: None

Grabs:

N-6

Name (Print) Kristi Beguin

Signature Kristi Beguin

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6686	NA	0	~6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather dk Same as RE16-00-1500

Sample Description med. brown, small particles, minor tuff gravels and hydromulch organics, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6686	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 718		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample No. N-6

tested & logged 9-18-00 @ 1135

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

9-3-00 **SAMPLE COLLECTION LOG FOR SAMPLE ID** RE16-00-1776

Date ~~9-8-00~~ KKS 9/8/00 **Time** 1239 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only N-7

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6687	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1500

Sample Description Dark brown silty sands, moderate tuff gravels, minor organics, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6687	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to ↓	0	HE Spot Test	Neg.		
NA	0 to ↓	0	XRF - BA 1693		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. N-7

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1777

Date 9-8-00 **Time** 10:35 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6688	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Partly Cloudy, cool 75°F breeze fr. W. 5-15 mph

Sample Description Medium to dk. brown, small size clumps (clay)

Field Screening Minor tuff gravels, fine humus, dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6688	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 3538		ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 0-1

Second test: logged & tested 9-18-00

First test: med-dk brown, sm size clumps, fine humus

XRF Ba: 2488 w/out XRF cup

He spot test: —

logged & tested 9-11-00 @ 1310

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1778

Date 9-8-00 **Time** 1038 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin 0-2

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6689	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med red brown, fine particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6689	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg		
NA	0 to	0	XRF - BA 3322		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 0-2

second test: logged + tested 9-18-00 @ 1130

first test: med. brown w/red tint, sm + lg. clumps (clay)

XRF Ba: 1779 w/out XRF cup

He Spot test: -

logged + tested 9-11-00 @ 1325

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1779

Date 9-8-00 **Time** 1040 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin 0-3

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66090	NA	0	—6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description lt. brown, fine granules, sm. size pebbles, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66090	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA ~~1409~~ KCA 9/18/00	3147	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 0-3

First test: logged & tested 9-11-00 @ 1320
1409 Ba - w/out XRF cup

Second test: med. brown
XRF Ba: 3147
HE Spot test:
logged & tested 9-18-00 @ 1600

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1780

Date 9-8-00 **Time** 1043 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin 0-4

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6691	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk brown, fine particles, sticks, sm pebbles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6691	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	690 1009 (w/out cup)	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 0-4

2nd ~~First test:~~ logged & tested 9-11-00 @ 1330

1665 9/10/00

First ~~second~~ test: dk. brown, humus, fine particles

1665 9/10/00

XRF Ba: 1009 w/out XRF cup

He spot test:

tested & logged 9-18-00 @ 1130

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1781

Date 9-8-00 **Time** 10:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature**

Grabs:

0-5

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6692	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk brown w/pale red tint, fine particles, dry

Field Screening Moderate hydromulch organics present

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6692	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA 595		ppm	w/out XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. 0-5

First test: logged + tested 9-18-00
w/out XRF cup

Media Code: S

second test: dk. brown, fine to small particles
XRF Ba: 518 w/XRF cup
HE Spot test:
tested & logged 9-18-00

third test: dk brown, humus clumps, fine granules
XRF Ba: 443 w/XRF cup
HE Spot test: —
logged + tested 9-11-00 @ 1315

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1782

Date 9-8-00 **Time** 10:49 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole P-1

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6693	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description Lt. brown, sm clumps, fine gran., humus

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6693	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test —	Neg.		
NA ↓	0 to ↓	0	XRF - BA 501.0		ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. P-1

logged + tested 9-10-00 @ 1153

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1783

Date 9-8-00 **Time** 10:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only P-2

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6694	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk. brown, clumpy w/ sm. rocks, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6694	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA	849	ppm	in XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. P-2

logged & tested 9-10-00 @ 1420

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1784

Date 9-8-00 **Time** 1053 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** ~~Borehole~~ 1000 grid point P-3

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6519	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med. brown, med-lg clumps, fine gran. dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6519	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to ↓	0	HE Spot Test	—		
NA	0 to ↓	0	XRF - BA	192.9	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

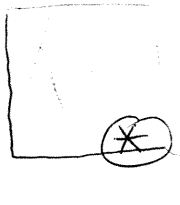
Radia Code: S

Sample NO. P-3

logged + tested 9-10-00 1430

Sample RE16-00-0248 collected from this location.

Although field screening did not show an elevated Reading for Ba, this is the location of the lingering Cerro Grande fire burning under ground. Weston had excavated this area out to extinguish the fire, and thus this sample is representative of the deepest layer beneath the MDA that we can access. There is much visible debris and quite a bit of exposed Ba Nitrate present in pockets at this excavation. Sample was collected at base of area.



Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1785

Date 9-8-00 **Time** 1055 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin P-4

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6517	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med-dk brown, sm. amount humus, sm. granules

Field Screening dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6517	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	–		
NA ↓	0 to ↓	0	XRF - BA 4158		ppm	10/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. P-4

logged + tested 9-10-00

Samples RE16-00-0340 collected from this location
0341

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1786

Date 9-8-00 **Time** 1059 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only P-5

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6695	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description very dk. brown, small granules, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6695	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	—		
NA ↓	0 to ↓	0	XRF - BA	2834	ppm	10/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. P-5

logged + tested 9-10-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1787

Date 9-8-00 **Time** 1103 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin Q-1

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6696	NA	0 – 6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med. dk. brown, fine humus, roots, fine sm. clumps

Field Screening dry

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6696	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	–		
NA ↓	0 to ↓	0	XRF - BA	385	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. Q-1

logged & tested 9-11-00 @ 1300

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1788

Date 9-8-00 **Time** 1108 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only Q-2

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA	16-6697	NA	0 – 6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description Lt. brown, fine particles, dry, humus, roots

Field Screening Present

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6697	0 to 6"	0	Field Rad (beta/gam)	BKG	dpm	
NA ↓	0 to ↓	0	HE Spot Test	NEG.		
NA ↓	0 to ↓	0	XRF - BA 6076		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. Q-2

second test: logged + tested 9-18-00 @ 1435

first test! med. dk. brown, sm clumps, humus, roots

XRF Ba: 299.8 w/out XRF cup

HE Spot test: —

logged + tested 9-11-00 @ 1301

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1789

Date 9/8/00 **Time** 1110 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin Q-3

Composite Type: None **Signature**

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6698	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description Dark brown soil, Moderate loam, Moderate organics,

Field Screening Roots, Pine needles.

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6698	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA	408	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1790

Date 9-8-00 **Time** 11:15 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin Q-4

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-66699	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Contalner	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med dk brown, clumpy, roots, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-66699	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	-		
NA ↓	0 to ↓	0	XRF - BA 1717		ppm	10/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. Q-4

logged + tested 9-11-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1791

Date 9-8-00 **Time** 1124 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin Q-5

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6700	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk brown, fine humus, twigs, fine clumps

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6700	0 to 6"	0	Field Rad (beta/gam)	Bkg.	dpm	
NA	0 to	0	HE Spot Test	—		
NA	0 to	0	XRF - BA	505	ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. Q-5

second test: logged & tested 9-11-00 @ 1200

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1792

Date 9-8-00 **Time** 1130 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** R-1 Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6701	NA	0 - 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med. dk. brown, fine to sm particles

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6701	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA	693	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. R-1

~~Second~~ test: logged + tested 9-18-00 @ 1423

first test: lt. brown, humus, fine to med. size clumps, sm sticks

XRF Ba: 373 w/out XRF cup

He Spot test: –

logged + tested 9-11-00 @ 1130

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1793

Date 9-8-00 **Time** 1135 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** R-2 Kristi Beguin

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6702	NA	0	-6"	0	0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med-dk brown, fine to small particles, twigs/ humus, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6702	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA ↓	0 to ↓	0	HE Spot Test	Neg.		
NA ↓	0 to ↓	0	XRF - BA 351		ppm	w/ XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. R-2

Second test: logged + tested 9-18-00 @ 1440

first test: humus, sm. sticks, lt. brown, w/ fine to med. sm. clumps

XRF-Ba: 1950 w/out XRF cup

HE Spot test: –

logged + tested 9-11-00 @ 1135

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1794

Date 9-8-00 **Time** 1140 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** R-3 Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6703	NA	0 – 6"	0		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk brown, fine to med. size. Clumps, sm. sticks

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6703	0 to 6"	0	Field Rad (beta/gam)	BKg.	dpm	
NA	0 to	0	HE Spot Test	–		
NA	0 to	0	XRF - BA 369 1160 9/18/00	445	ppm	w/ XRF cups

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. R-3

First test: logged + tested 9-11-00 @ 1145

369 ppm = Ba w/ XRF

w/ out cup

Second test: med. dk. brown, fine particles

XRF Ba: 445 w/ XRF cups

HE Spot test:

logged + tested 9-18-00

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1795

Date 9-8-00 **Time** 11:45 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** R-4 Kristi Beguin

Composite Type: None **Signature** [signature]

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA16-6704	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description med. dk. brown, humus, sm-lg sticks, sm clumps, dry

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6704	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to	0	HE Spot Test	Neg.		
NA	0 to	0	XRF - BA ~~234.0~~ TLR 9/10/00	325	ppm	w/XRF cup

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO. R-4

first test: logged + tested 9-11-00 @ 1150
Ba = 234 ppm w/out XRF cup

second test: med dk brown humus, fine to sm. particles, twigs
XRF Ba: 325 w/ XRF cup
He spot test:
logged + tested 9-18-00 @ 1410

Media Code: S

Los Alamos National Laboratory Environmental Restoration Program

SAMPLE COLLECTION LOG FOR SAMPLE ID RE16-00-1796

Date 9-10-00 **Time** 11:50 **Sample Type** Soil

Technical Area 16 **Operable Unit** 1082 **Sample Location** Borehole

QA/QC Type Field Screening Only

Composite: ○ Yes ◉ No **Name (Print)** Kristi Beguin R-5

Composite Type: None **Signature** Kristi Beguin

Grabs:

	Location ID	Stake ID	Start Depth	End Depth	Units	Vol	Units	Comments
1	NA 16-6705	NA	0	-6"		0		

These Samples were collected using LANL ER SOP 06.24

ID	Analysis	Container	Preservative	C of C Control No.

Weather Same as RE16-00-1777

Sample Description dk brown w/ black gray tint, fine toned. Clumps, fine humus.

Field Screening

Loc ID	Depth		Screening Method	Result	Units	Comments
NA 16-6705	0 to 6"	0	Field Rad (beta/gam)	BKG.	dpm	
NA	0 to	0	HE Spot Test	NEG.		
NA	0 to	0	XRF - BA 190.5	339	ppm	w/ XRF cup

LLK 9/19/00

Photo (Roll, Frame, Azimuth, Subject, Participants):

Comments:

Sample NO R-5

first test: logged + tested 9-11-00 @ 1155

Ba = 190.5 ppm w/out XRF cup

second test: dk. brown, humus, fine particles

XRF Ba: 339 w/ XRF cup

He Spot test:

Logged + tested 9-18-00 @ 1130

Media Code: S

Appendix 2

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: ~~Kristi Beguin~~ **(Signature):** **Affiliation:** IT Corporation	**Date:** 9/11/00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): **Affiliation:** TT Corp	**Time:** 1122	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0225	05	9/10/00 1520	~~250 ml Amber Glass~~ 125ml poly	Soil	None	TUICPMS	
RE16-00-0225	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0225	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0225	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0225	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0226	05		~~250 ml Amber Glass~~	Soil	None	TUICPMS	
RE16-00-0226	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0226	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0226	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0226	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0227	05	9/11/00 1400	~~250 ml Amber Glass~~	Soil	None	TUICPMS	
RE16-00-0227	02		125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0227	01	9/10/00 1600	125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0227	03	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0227	04		125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0228~~	~~05~~		~~250 ml Amber Glass~~	~~Soil~~	~~None~~	~~TUICPMS~~	
~~RE16-00-0228~~	~~02~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0228~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0228	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0228	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0229	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0229	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0229	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0229	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0229	04		125 ml Glass	Soil	Ice	SEMI	

9/12/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: ~~Kristi Beguin~~ (Signature): **Affiliation:** IT Corporation	**Date:** 9/12/00	**Relinquished by:** (Signature): **Affiliation:**	**Date:**	**Relinquished by:** (Signature): **Affiliation:**
Received by: (Signature): **Affiliation:** IT Corp	**Time:** 1110	**Received by:** (Signature): **Affiliation:**	**Time:**	**Received by:** (Signature): **Affiliation:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0230	04	9/11/00 1150	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0230	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0230	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0230	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0230	05		~~250 ml Amber Glass~~	Soil	None	TUICPMS	
RE16-00-0231	05		~~250 ml Amber Glass~~	Soil	None	TUICPMS	
RE16-00-0231	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0231	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0231	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0231	04	9/11/00 1051	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0232	05		~~250 ml Amber Glass~~	Soil	None	TUICPMS	
RE16-00-0232	02		125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0232~~	~~01~~	~~9/10/00 1051~~	~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~ ~~1335 9/11/00~~	
RE16-00-0232	03	9/10/00 1051	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0232	04	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

COC 1082-00-0023
Page 1 of 1

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 **days**
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**
Received by: **(Signature):** **Affiliation:**	**Time:**	**Received by:** **(Signature):** **Affiliation:**	**Time:**	**Received by:** **(Signature):** **Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0234	04	7/18/00 10:10	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0234	01	7/18/00 10:10	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0235	04	7/18/00 11:00	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0234	02	7/18/00 10:10	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0234	03	7/18/00 10:10	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0235	01	7/18/00 11:00	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0235	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0235	03	↓	125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0236~~	~~04~~		~~125 mL Polyethylene~~	~~Soil~~	~~None~~	~~TUICPMS~~	
~~RE16-00-0236~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0236~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	
~~RE16-00-0236~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	

Labels 7/18/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

COC 1082-00-0024
Page 1 of 1

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 **days**
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0237~~	~~04~~		~~125 mL Polyethylene~~	~~Soil~~	~~None~~	~~TUICPMS~~	
~~RE16-00-0237~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0237~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	10 days 9/18/00
~~RE16-00-0237~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	
RE16-00-0238	04	9/19/00 1000	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0238	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0238	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0238	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0239	04	9/19/00 1400	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0239	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0239	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0239	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**
Received by: **(Signature):** **Affiliation:**	**Time:** 1:25	**Received by:** **(Signature):** **Affiliation:**	**Time:**	**Received by:** **(Signature):** **Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0256	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0256	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0256	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0256	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0258	04	9/19/00 1000	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0258	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0258	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0258	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area	16	Send Lab Report to	Karen Shultz Paige M992	Field Unit Leader	Warren Neff (505)665-9259
Operable Unit	1082				
Date	09/17/2000	LANL Destination	SMO	Turnaround	30 days
OU Contact	Peter Gram	LANL Contact	Stephanie Hagelberg	Lab Report Required	10/17/2000
Contact Phone No	(505) 667-5207	LANL Mail Stop		Charge Code	MR3R0331U8H0

Relinquished by: Kristi Beguin (Signature): [signature] Affiliation: IT Corporation	Date: 9/18/00	Relinquished by: (Signature): Affiliation:	Date:	Relinquished by: (Signature): Affiliation:	Date:
Received by: (Signature): [signature] Affiliation: IT [illegible]	Time: 1120	Received by: (Signature): Affiliation:	Time:	Received by: (Signature): Affiliation:	Time:

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0228~~	~~01~~	~~09/17/200 1128~~	~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~ KGS 9/18/00	
RE16-00-0228	02	09/17/200 1128	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0228	03	09/17/200 1128	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0228	04	09/17/200 1128	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0228	05	09/17/200 1128	125 ml Poly ~~250 ml Amber Glass~~	Soil	None	TUICPMS AB 10/19/00	

AB 10/19/00

~~1120~~ KGS
Stet

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 7/19/00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 10:13	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0236	04	7/17/00 0815	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0236	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0236	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0236	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 11/17/00	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**
Received by: **(Signature):** **Affiliation:**	**Time:** 10:15	**Received by:** **(Signature):** **Affiliation:**	**Time:**	**Received by:** **(Signature):** **Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0237	04	9/18/00 1700	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0237	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0237	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0237	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date 09/17/2000	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required** 10/17/2000
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** Kristi Beguin **Affiliation:** IT Corporation	**Date:** 9/19/00	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**	**Relinquished by:** **(Signature):** **Affiliation:**	**Date:**
Received by: **(Signature):** Jacqueline Torres **Affiliation:** IT Corporation	**Time:** 10:12	**Received by:** **(Signature):** **Affiliation:**	**Time:**	**Received by:** **(Signature):** **Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0229~~	01	09/17/200 1345	~~125 ml Glass~~	Soil	~~Ice~~	~~ASBESTOS~~ MK 9/19/00	
~~RE16-00-0229~~	02	09/17/200 1345	125 ml Glass	Soil	Ice	HEXP	
~~RE16-00-0229~~	03	09/17/200 1345	125 ml Polyethylene	Soil	Ice	METTAL	
~~RE16-00-0229~~	04	09/17/200 1345	125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0229~~	05	09/17/200 1345	~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS AB 10/19/00	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0215	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0215	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0215	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0215	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0215	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0216	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0216	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0216	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0216	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0216	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0217	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0217	02		125 ml Glass	Soil	Ice	HEXP	

7/25/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0217	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0217	03		125 ml Polyethylene	Soil	Ice	METTAL	ICAP 9/25/00
RE16-00-0217	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0218	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0218	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0218	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0218	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0218	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0219	05	9/22/00 1055	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0219	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0219	01		125 ml Glass	Soil	Ice	ASBESTOS	ICAP 9/25/00
RE16-00-0219	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0219	04		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 10/19/00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 1245	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): **Radiological**___ **Highly Toxic**___ **Flammable**___ **Skin Irritant**___ **Non-Hazard**___ **Other**___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0220	05	10/19/00 1230	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS A13 10/19/00	
RE16-00-0220	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0220	01		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0220	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0220	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0221	05	10/19/00 1230	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS AB 10/19/00	
RE16-00-0221	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0221	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0221	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0221	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0222	05	10/19/00 1230	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS A13 10/19/00	
RE16-00-0222	02		125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0222~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~ VOAS 9/25/00	
RE16-00-0222	03	9/27/00 1430	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0222	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0223	05	9/27/00 1435	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS AB 10/19/00	
RE16-00-0223	02		125 ml Glass	Soil	Ice	HEXP	
~~RE16-00-0223~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~ VOAS 9/25/00	
RE16-00-0223	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0223	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0224	05	9/27/00 1615	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS AB 10/19/00	
RE16-00-0224	02		125 ml Glass	Soil	Ice	HEXP	
~~RE16-00-0224~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~ VOAS 9/25/00	
RE16-00-0224	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0224	04		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0210	05	9/13/00 11:00	~~250 ml Amber Glass~~ 125 ml Polyethylene	Soil	None	TUICPMS	
RE16-00-0210	02		125 ml Glass 10-5-00	Soil	Ice	HEXP	
RE16-00-0210	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0210	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0210	04	9/14/00 13:00	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0211	05		~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS AB 10/19/00	
RE16-00-0211	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0211	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0211	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0211	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0250	04	9/20/00 11:25	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0250	01		125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0250	02	9/30/00 1135	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0250	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0251	04	9/30/00 1205	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0251	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0251	02	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0251	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0332	04	9/30/00 1510	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0332	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0332	02	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0332	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0333	04	9/30/00 1415	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0333	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0333	02	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0333	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0338	04	9/30/00 1505	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0338	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0338	02	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0338	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0339	04	9/30/00 1310	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0339	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0339	02	↓ ↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0339	03	↓ ↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 10-2	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): **Radiological**___ **Highly Toxic**___ **Flammable**___ **Skin Irritant**___ **Non-Hazard**___ **Other**___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0240	04	10/9/00 1510	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0240	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0240	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0240	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0241	04	10/9/00 1520	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0241	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0241	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0241	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0242	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0242	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0242	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0242	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 11:00	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0202~~	~~05~~		~~250 ml Amber Glass~~	~~Soil~~	~~None~~	~~TUICPMS~~	
RE16-00-0201	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0201	03		125 ml Polyethylene	Soil	Ice	METTAL	
~~RE16-00-0201~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0201	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0201	05		~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0200	05		~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0200	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0200	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0200	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0200	04		125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0202~~	~~02~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 **days**
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0202	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0202	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0202	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0203	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0203	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0203	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0203	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0203	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0204	05	9/23/00 1030	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0204	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0204	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0204	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0204	04		125 ml Glass	Soil	Ice	SEMI	

LCKs 9/25/00

LCKs 9/25/00

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date 09/23/2000	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required** 10/23/2000
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0205~~	~~01~~	~~09/23/200 1000~~	~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0205	02	09/23/200 1000	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0205	03	09/23/200 1000	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0205	04	09/23/200 1000	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0205	05	09/23/200 1000	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS	AB 10/19/00
~~RE16-00-0207~~	~~01~~	~~09/23/200 1055~~	~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0207	02	09/23/200 1055	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0207	03	09/23/200 1055	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0207	04	09/23/200 1055	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0207	05	09/23/200 1055	~~250 ml Amber Glass~~ 125 ml poly	Soil	None	TUICPMS	AB 10/19/00
~~RE16-00-0208~~	~~01~~	~~09/23/200 1145~~	~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~ASBESTOS~~	
RE16-00-0208	02	09/23/200 1145	125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige		**Field Unit Leader** Warren Neff
Operable Unit 1082	M992		(505)665-9259
Date 09/23/2000	**LANL Destination** SMO		**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg		**Lab Report Required** 10/23/2000
Contact Phone No (505) 667-5207	**LANL Mail Stop**		**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0208	03	09/23/200 1145	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0208	04	09/23/200 1145	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0208	05	09/23/200 1145	~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS AB 10/19/00	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0210	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0210	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0210	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0210	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0210	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0211	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0211	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0211	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0211	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0211	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0212	05		125 ml Poly ~~250 ml Amber Glass~~	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0212	02		125 ml Glass	Soil	Ice	HEXP	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0212	01	9/29/00 11:10	125 ml Glass	Soil	Ice	ASBESTOS	VOA 9/25/00
RE16-00-0212	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0212	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0213	05	9/25/00 11:05	~~250 ml Amber Glass~~ 125 ml Poly	Soil	None	TUICPMS	AB 10/19/00
RE16-00-0213	02		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0213	01		125 ml Glass	Soil	Ice	ASBESTOS	VOAs 9/25/00
RE16-00-0213	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0213	04		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0214	05		250 ml Amber Glass	Soil	None	TUICPMS	
RE16-00-0214	02		125 ml Glass	Soil	Ice	HEXP	VOAs 9/25/00
RE16-00-0214	01		125 ml Glass	Soil	Ice	ASBESTOS	
RE16-00-0214	03		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0214	04		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0243	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0243	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0243	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0243	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0244	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0244	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0244	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0244	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0245	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0245	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0245	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0245	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 7-5-00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 1355	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0246	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0246	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0246	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0246	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0247	04	7/25/00 1100	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0247	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0247	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0247	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0248	04	7/25/00 1155	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0248	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0248	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0248	03		125 ml Glass	Soil	Ice	SEMI	

UWS 7/25/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 9-25-00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 11:00	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0249	04	9/21/00 12:55	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0249	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0249	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0249	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0250	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0250	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0250	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0250	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0251	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0251	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0251	02		125 ml Polyethylene	Soil	Ice	METTAL	KDLS 9/25/00
RE16-00-0251	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 9/25/00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 1100	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0252	04	9/24/00 11:30	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0252	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0252	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0252	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0253	04	9/24/00 10:00	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0253	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0253	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0253	03		125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0254~~	~~04~~		~~125 mL Polyethylene~~	~~Soil~~	~~None~~	~~TUICPMS~~	11/6/13 9/25/00
~~RE16-00-0254~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0254~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	
~~RE16-00-0254~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): **Radiological**___ **Highly Toxic**___ **Flammable**___ **Skin Irritant**___ **Non-Hazard**___ **Other**___

SCREENING METHOD: None

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0326	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0326	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0326	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0326	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0327	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0327	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0327	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0327	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0328	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0328	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0328	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0328	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0329	04	9/2/1100 10:30	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0329	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0329	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0329	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0330	04	9/2/1100 10:35	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0330	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0330	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0330	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0331	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0331	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0331	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0331	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0332	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0332	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0332	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0332	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0333	04		125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0333	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0333	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0333	03		125 ml Glass	Soil	Ice	SEMI	

1645 9/25/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 **days**
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0334	04	9/24/00 10:50	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0334	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0334	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0334	03		125 ml Glass	Soil	Ice	SEMI	
RE16-00-0335	04	9/24/00 11:20	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0335	01	↓ ↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0335	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0335	03		125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:** 9/24/00	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 1555	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0336	04	9/24/00 11:20	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0336	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0336	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0336	03		125 ml Glass	Soil	Ice	SEMI	
~~RE16-00-0337~~	~~04~~		~~125 mL Polyethylene~~	~~Soil~~	~~None~~	~~TUICPMS~~	
~~RE16-00-0337~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0337~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	
~~RE16-00-0337~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	
RE16-00-0338	04		125 mL Polyethylene	Soil	None	TUICPMS	
~~RE16-00-0338~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0338~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	
~~RE16-00-0338~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	

~~HEXP, METTAL, SEMI~~ 9/25/00

HEXP, METTAL 9/25/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area	16	**Send Lab Report to**	Karen Shultz Paige	**Field Unit Leader**	Warren Neff
Operable Unit	1082		M992		(505)665-9259
Date		**LANL Destination**	SMO	**Turnaround**	30 days
OU Contact	Peter Gram	**LANL Contact**	Stephanie Hagelberg	**Lab Report Required**	
Contact Phone No	(505) 667-5207	**LANL Mail Stop**		**Charge Code**	MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
~~RE16-00-0339~~	~~04~~		~~125 mL Polyethylene~~	~~Soil~~	~~None~~	~~TUICPMS~~	
~~RE16-00-0339~~	~~01~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~HEXP~~	
~~RE16-00-0339~~	~~02~~		~~125 ml Polyethylene~~	~~Soil~~	~~Ice~~	~~METTAL~~	
~~RE16-00-0339~~	~~03~~		~~125 ml Glass~~	~~Soil~~	~~Ice~~	~~SEMI~~	
RE16-00-0340	04	9/24/00 1510	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0340	01		125 ml Glass	Soil	Ice	HEXP	
RE16-00-0340	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0340	03		125 ml Glass	Soil	Ice	SEMI	

HBK 9/25/00

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Relinquished by: Kristi Beguin **(Signature):** **Affiliation:** IT Corporation	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**	**Relinquished by: (Signature): Affiliation:**	**Date:**
Received by: (Signature): Affiliation:	**Time:** 1600	**Received by: (Signature): Affiliation:**	**Time:**	**Received by: (Signature): Affiliation:**	**Time:**

POSSIBLE HAZARD IDENTIFICATION: (please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances): Radiological___ Highly Toxic___ Flammable___ Skin Irritant___ Non-Hazard___ Other___

SCREENING METHOD: No

SAMPLE DISPOSAL: Disposal by Lab

Comments:

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0341	04	3/24/00 1420	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0341	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0341	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0341	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0342	04	3/24/00 1420	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0342	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0342	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0342	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0343	04	3/24/00 1420	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0343	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0343	02		125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0343	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination Yellow - RPF Pink - FTL Copy

Los Alamos National Laboratory Environmental Restoration (Los Alamos, NM 87545)
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Technical Area 16	**Send Lab Report to** Karen Shultz Paige	**Field Unit Leader** Warren Neff
Operable Unit 1082	M992	(505)665-9259
Date	**LANL Destination** SMO	**Turnaround** 30 days
OU Contact Peter Gram	**LANL Contact** Stephanie Hagelberg	**Lab Report Required**
Contact Phone No (505) 667-5207	**LANL Mail Stop**	**Charge Code** MR3R0331U8H0

Field Unique Sample #/ID	Cont ID	Date & Time Collected	Sample Container Volume/Material	Matrix	Preserv	ANALYSIS REQUESTED: (SMO Order Codes)	REMARKS (Conditions of receipt, etc.)
RE16-00-0344	04	9/21/00 1522	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0344	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0344	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0344	03	↓	125 ml Glass	Soil	Ice	SEMI	
RE16-00-0345	04	9/21/00 1430	125 mL Polyethylene	Soil	None	TUICPMS	
RE16-00-0345	01	↓	125 ml Glass	Soil	Ice	HEXP	
RE16-00-0345	02	↓	125 ml Polyethylene	Soil	Ice	METTAL	
RE16-00-0345	03	↓	125 ml Glass	Soil	Ice	SEMI	

Original - LANL Destination

Yellow - RPF

Pink - FTL Copy

Appendix 3

Radiation Survey of the Material Disposal Area - R (MDA-R)

Introduction

The in-situ gamma radiation survey has been performed over the Material Disposal Area - R (MDA-R) area. MDA-R is located behind and to the north of Building 260, at Technical Area (TA) 16, Los Alamos National Laboratories (LANL). The survey was performed using Eberline model E-600 survey meters coupled to Eberline SPA3 sodium iodide probes. The LANL Environmental Safety and Health (ESH) Group 4, Health Physics Measurements, calibrated each instrument and probe on August 30, 2000.

Instrumentation

The survey was performed on September 8th and 9th, and 27th 2000, with the data being electronically recorded in the E-600s and analyzed at a later date. At the beginning and end of each days survey activities a source response check and background check were performed at the High Explosive Production Site (HEPS) trailers at TA-16. On all days the source and background checks were satisfactory. The source is a depleted uranium disc of undetermined quantity stored at the HEPS trailers at TA-16. Backgrounds were checked on the ground between the HEPS storage trailers and between the MDA-R and 260IM project.

Survey

The survey consisted of collecting one-minute measurements at each of the staked grid nodes. The probes were positioned with the active end in contact with the ground at each grid node. After the one-minute count the resulting data was stored in the E-600 and later downloaded to a computer.

Technicians were instructed in the operation of the E-600 instrument and handling of the SPA3 probe performed the survey. The probe is positioned up right with the active end down and in contact with the ground. The count is initiated by pressing the "star" button on the E-600. At the completion of the count the E-600 would beep, then the log button is pressed. The E-600 responds with a second beep at which time the technicians were instructed to observe the data register to see that it had incremented one register. The log button is pressed a second time to log the reading. When the data is properly logged the E-600 responds with three beeps.

After the data was downloaded and placed in a Microsoft Excel Spreadsheet an analysis of the data was performed. The source checks and background checks were analyzed and found to be satisfactory. The standard deviation of the source checks was 28 and 21 percent respectively for E-600 #012110 and E-600 #012128. Background check data was analyzed and found to be within 5% of each other.

Data Analysis

The data was transferred to an IT computer in the Los Alamos office for analysis. Individual instrument data sets were kept in separate files. The analysis consisted of subtracting the average background from the HEPS trailer area from the raw or gross counts for each data. The resulting adjusted counts were then averaged for each instrument and a standard deviation calculated for each data set. The average data set counts were compared and found to be within plus or minus one standard deviation of each other.

A logic test was applied to each data set comparing the individual datum to the average plus one standard deviation (test number) of the data set. If the datum was less then the test number then the datum passed, if the datum was greater then the test number then the datum failed. Out of 115 data points 23 data points failed or were greater then the average of the data set plus the data set standard deviation. The failed data points were plotted on a site map and are presented on Figure 1.

A second logic test was applied to each data set similar to the first logic test. The difference is that the test number was the average of the data set plus two times the standard deviation of the data set. The results indicated that out of the 115 data point's 2 data points failed the test. The failed data points were plotted on a site map and are presented on Figure 1.

A third logic test was applied to the data in the same manner as the previous two tests. The test value was the average of the data set plus three times the standard deviation of the data set. All data points passed the test.

Results

As a result of the in-situe gamma radiation survey at MDA-R, and visual observation of the plotted failed data points, the following can be discerned. There are three locations that warrant further investigation:

1. the lower portion of the slop into Canyon de Villa,
2. the area of grid nodes G-7 and H-7, and
3. the area of grid nodes L-6, L-7, M-6, M-7, M-8, N-6, N-7, and O-5.

One additional area may also warrant further investigation and that is the eastern most area of the grid. This eastern most area and the lower portion of the slope appear to have slightly elevated gamma radiation results. These elevated areas may be due to the geology and geography of the area. Additionally, in both areas there are exposed rock and tuff materials, which results in more natural occurring radioactive materials being exposed and may account for the elevated gamma readings.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2	Row	Column	Survey Location	Log Date	Log Time	Probe S/N	Log Mode	Channel Type	Reading	Gross/Net	Units	E-600 S/N	E-600 Address
3	Source		1	36777	0.425	13094	Scaler	Gamma	78900	Gross	cpm	12128	0
4	Background		2	36777	0.425694444444444	13094	Scaler	Gamma	11700	Gross	cpm	12128	0
5	1	b	3	36777	0.486111111111111	13094	Scaler	Gamma	14900	Gross	cpm	12128	0
6	2	b	4	36777	0.488194444444444	13094	Scaler	Gamma	16600	Gross	cpm	12128	0
7	3	b	5	36777	0.489583333333333	13094	Scaler	Gamma	15100	Gross	cpm	12128	0
8	4	b	6	36777	0.493055555555556	13094	Scaler	Gamma	16000	Gross	cpm	12128	0
9	5	b	7	36777	0.499305555555556	13094	Scaler	Gamma	17000	Gross	cpm	12128	0
10	Source		11	36777	0.665972222222222	13094	Scaler	Gamma	131000	Gross	cpm	12128	0
11	Background		12	36777	0.666666666666667	13094	Scaler	Gamma	14500	Gross	cpm	12128	0
12	Source		13	36778	0.339583333333333	13094	Scaler	Gamma	97500	Gross	cpm	12128	0
13	Background		14	36778	0.340972222222222	13094	Scaler	Gamma	11600	Gross	cpm	12128	0
14	1	c	15	36778	0.398611111111111	13094	Scaler	Gamma	15000	Gross	cpm	12128	0
15	2	c	16	36778	0.401388888888889	13094	Scaler	Gamma	13700	Gross	cpm	12128	0
16	3	c	17	36778	0.402777777777778	13094	Scaler	Gamma	14600	Gross	cpm	12128	0
17	4	c	18	36778	0.404166666666667	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
18	5	c	19	36778	0.40625	13094	Scaler	Gamma	17100	Gross	cpm	12128	0
19	1	f	21	36778	0.4125	13094	Scaler	Gamma	14300	Gross	cpm	12128	0
20	2	f	22	36778	0.413194444444444	13094	Scaler	Gamma	15300	Gross	cpm	12128	0
21	3	f	23	36778	0.415277777777778	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
22	4	f	24	36778	0.416666666666667	13094	Scaler	Gamma	13200	Gross	cpm	12128	0
23	5	f	25	36778	0.418055555555556	13094	Scaler	Gamma	15600	Gross	cpm	12128	0
24	6	f	26	36778	0.419444444444444	13094	Scaler	Gamma	14200	Gross	cpm	12128	0
25	7	f	27	36778	0.420833333333333	13094	Scaler	Gamma	16300	Gross	cpm	12128	0
26	8	g	28	36778	0.427083333333333	13094	Scaler	Gamma	16200	Gross	cpm	12128	0
27	7	g	29	36778	0.429166666666667	13094	Scaler	Gamma	17000	Gross	cpm	12128	0
28	6	g	30	36778	0.430555555555556	13094	Scaler	Gamma	13700	Gross	cpm	12128	0
29	5	g	31	36778	0.431944444444444	13094	Scaler	Gamma	14100	Gross	cpm	12128	0
30	4	g	32	36778	0.434027777777778	13094	Scaler	Gamma	15600	Gross	cpm	12128	0
31	3	g	33	36778	0.436805555555556	13094	Scaler	Gamma	12500	Gross	cpm	12128	0
32	1	g	31	36796	0.748611111111111	13094	Scaler	Gamma	14400	Gross	cpm	12128	0
33	2	g	32	36796	0.750694444444444	13094	Scaler	Gamma	12300	Gross	cpm	12128	0
34	1	j	36	36778	0.445138888888889	13094	Scaler	Gamma	11400	Gross	cpm	12128	0
35	2	j	37	36778	0.447222222222222	13094	Scaler	Gamma	13400	Gross	cpm	12128	0
36	3	j	38	36778	0.448611111111111	13094	Scaler	Gamma	13300	Gross	cpm	12128	0
37	4	j	39	36778	0.45	13094	Scaler	Gamma	13700	Gross	cpm	12128	0
38	5	j	40	36778	0.451388888888889	13094	Scaler	Gamma	14600	Gross	cpm	12128	0
39	6	j	41	36778	0.452777777777778	13094	Scaler	Gamma	13800	Gross	cpm	12128	0
40	7	j	42	36778	0.454166666666667	13094	Scaler	Gamma	15600	Gross	cpm	12128	0
41	8	k	43	36778	0.45625	13094	Scaler	Gamma	18200	Gross	cpm	12128	0
42	7	k	44	36778	0.457638888888889	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
43	6	k	45	36778	0.459027777777778	13094	Scaler	Gamma	15000	Gross	cpm	12128	0
44	5	k	46	36778	0.460416666666667	13094	Scaler	Gamma	14200	Gross	cpm	12128	0
45	4	k	47	36778	0.461805555555556	13094	Scaler	Gamma	14000	Gross	cpm	12128	0
46	3	k	48	36778	0.463888888888889	13094	Scaler	Gamma	14200	Gross	cpm	12128	0
47	2	k	49	36778	0.464583333333333	13094	Scaler	Gamma	13100	Gross	cpm	12128	0
48	1	k	33	36796	0.752777777777778	13094	Scaler	Gamma	13800	Gross	cpm	12128	0
49	1	l	34	36796	0.754861111111111	13094	Scaler	Gamma	13100	Gross	cpm	12128	0
50	2	l	52	36778	0.470138888888889	13094	Scaler	Gamma	13700	Gross	cpm	12128	0
51	3	l	53	36778	0.472916666666667	13094	Scaler	Gamma	13700	Gross	cpm	12128	0
52	4	l	54	36778	0.474305555555556	13094	Scaler	Gamma	14000	Gross	cpm	12128	0
53	5	l	55	36778	0.475694444444444	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
54	6	l	56	36778	0.477083333333333	13094	Scaler	Gamma	16600	Gross	cpm	12128	0

	A	B	C	D	E	F	G	H	I	J	K	L	M
2	Row	Column	Survey Location	Log Date	Log Time	Probe S/N	Log Mode	Channel Type	Reading	Gross/Net	Units	E-600 S/N	E-600 Address
55	7	l	57	36778	0.478472222222222	13094	Scaler	Gamma	15600	Gross	cpm	12128	0
56	8	m	36	36796	0.761111111111111	13094	Scaler	Gamma	17700	Gross	cpm	12128	0
57	7	m	35	36796	0.758333333333333	13094	Scaler	Gamma	17500	Gross	cpm	12128	0
58	6	m	60	36778	0.484722222222222	13094	Scaler	Gamma	17100	Gross	cpm	12128	0
59	5	m	61	36778	0.486111111111111	13094	Scaler	Gamma	14400	Gross	cpm	12128	0
60	4	m	62	36778	0.4875	13094	Scaler	Gamma	14000	Gross	cpm	12128	0
61	3	m	63	36778	0.488888888888889	13094	Scaler	Gamma	14200	Gross	cpm	12128	0
62	2	m	64	36778	0.490277777777778	13094	Scaler	Gamma	14600	Gross	cpm	12128	0
63	1	m	65	36778	0.492361111111111	13094	Scaler	Gamma	12900	Gross	cpm	12128	0
64	1	n	66	36778	0.493055555555556	13094	Scaler	Gamma	13600	Gross	cpm	12128	0
65	2	n	67	36778	0.494444444444444	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
66	3	n	68	36778	0.495833333333333	13094	Scaler	Gamma	14200	Gross	cpm	12128	0
67	4	n	69	36778	0.497222222222222	13094	Scaler	Gamma	14000	Gross	cpm	12128	0
68	5	n	70	36778	0.497916666666667	13094	Scaler	Gamma	14700	Gross	cpm	12128	0
69	6	n	71	36778	0.499305555555556	13094	Scaler	Gamma	17400	Gross	cpm	12128	0
70	7	n	72	36778	0.500694444444444	13094	Scaler	Gamma	16900	Gross	cpm	12128	0
71	5	o	73	36778	0.504166666666667	13094	Scaler	Gamma	18000	Gross	cpm	12128	0
72	4	o	74	36778	0.505555555555556	13094	Scaler	Gamma	15500	Gross	cpm	12128	0
73	3	o	75	36778	0.507638888888889	13094	Scaler	Gamma	14300	Gross	cpm	12128	0
74	2	o	76	36778	0.509027777777778	13094	Scaler	Gamma	13900	Gross	cpm	12128	0
75	1	o	77	36778	0.510416666666667	13094	Scaler	Gamma	13400	Gross	cpm	12128	0
76	1	r	78	36778	0.5125	13094	Scaler	Gamma	17400	Gross	cpm	12128	0
77	2	r	79	36778	0.515277777777778	13094	Scaler	Gamma	17800	Gross	cpm	12128	0
78	5	r	80	36778	0.519444444444444	13094	Scaler	Gamma	16800	Gross	cpm	12128	0
79	4	r	81	36778	0.520833333333333	13094	Scaler	Gamma	17900	Gross	cpm	12128	0
80	3	r	82	36778	0.589583333333333	13094	Scaler	Gamma	14800	Gross	cpm	12128	0
81	Source		83	36778	0.690277777777778	13094	Scaler	Gamma	103000	Gross	cpm	12128	0
82	Background		84	36778	0.691666666666667	13094	Scaler	Gamma	11100	Gross	cpm	12128	0
83	Source 9/27/00		24	36796	0.723611111111111	13094	Scaler	Gamma	96300	Gross	cpm	12128	0
84	Source 9/27/00		25	36796	0.724305555555556	13094	Scaler	Gamma	97100	Gross	cpm	12128	0
85	Source 9/27/00		26	36796	0.738194444444444	13094	Scaler	Gamma	95200	Gross	cpm	12128	0
86	Background 9/27/00		27	36796	0.739583333333333	13094	Scaler	Gamma	12800	Gross	cpm	12128	0
87	Background 9/27/00		28	36796	0.740277777777778	13094	Scaler	Gamma	12500	Gross	cpm	12128	0
88	Background 9/27/00		29	36796	0.741666666666667	13094	Scaler	Gamma	12400	Gross	cpm	12128	0
89	Background 9/27/00		30	36796	0.742361111111111	13094	Scaler	Gamma	12800	Gross	cpm	12128	0
90	Background 9/27/00		37	36796	0.768055555555556	13094	Scaler	Gamma	12700	Gross	cpm	12128	0
91	Background 9/27/00		38	36796	0.769444444444444	13094	Scaler	Gamma	12500	Gross	cpm	12128	0
92	Background 9/27/00		39	36796	0.771527777777778	13094	Scaler	Gamma	12600	Gross	cpm	12128	0
93	Source 9/27/00		40	36796	0.773611111111111	13094	Scaler	Gamma	117000	Gross	cpm	12128	0
94	Source 9/27/00		41	36796	0.774305555555555	13094	Scaler	Gamma	118000	Gross	cpm	12128	0
95	Source 9/27/00		42	36796	0.775	13094	Scaler	Gamma	118000	Gross	cpm	12128	0
96	Background 9/27/00		43	36796	0.779166666666667	13094	Scaler	Gamma	11500	Gross	cpm	12128	0
97	Background 9/27/00		44	36796	0.780555555555556	13094	Scaler	Gamma	11600	Gross	cpm	12128	0
98	Background 9/27/00		45	36796	0.781944444444444	13094	Scaler	Gamma	11800	Gross	cpm	12128	0
99													
100						Average Background			=AVERAGE(I4,I11,I13,I				Average net counts
101						1 standard deviation			=STDEV(I4,I11,I13,I82,				1 standard deviation
102						2 standard Deviation			=2*I101				2 standard Deviation
103						3 Standard Deviation			=3*I101				3 Standard Deviation
104													
105						Average Source che			=AVERAGE(I3,I10,I12,I				
106						Standard Deviation			=STDEV(I3,I10,I12,I81,				
107						% Deviation			=I106/I105				

	A	B	N	O	P	Q	R	S	T	U
1								Logic Test		
2	Row	Column	Stored Bkg	Bkg Units	Status	Adjusted Net Counts	Difference from average	If Adjusted net counts is less then average net counts plus 1 standard deviaiton then 1, else 0	If Adjusted net counts is less then average net counts plus 2 standard deviaiton then 1, else 0	If Adjusted net counts is less then average net counts plus 3 standard deviaiton then 1, else 0
3	Source		8558	cpm	Normal					
4	Background		8558	cpm	Normal					
5	1	b	8558	cpm	Normal	=I5-I100	=Q5-Q100	=IF($Q5<$S$100,1,0)	=IF(Q5<T100,1,0)	=IF(Q5<U100,1,0)
6	2	b	8558	cpm	Normal	=I6-I100	=Q6-Q100	=IF($Q6<$S$100,1,0)	=IF(Q6<T100,1,0)	=IF(Q6<U100,1,0)
7	3	b	8558	cpm	Normal	=I7-I100	=Q7-Q100	=IF($Q7<$S$100,1,0)	=IF(Q7<T100,1,0)	=IF(Q7<U100,1,0)
8	4	b	8558	cpm	Normal	=I8-I100	=Q8-Q100	=IF($Q8<$S$100,1,0)	=IF(Q8<T100,1,0)	=IF(Q8<U100,1,0)
9	5	b	8558	cpm	Normal	=I9-I100	=Q9-Q100	=IF($Q9<$S$100,1,0)	=IF(Q9<T100,1,0)	=IF(Q9<U100,1,0)
10	Source		8558	cpm	Normal					
11	Background		8558	cpm	Normal					
12	Source		8558	cpm	Normal					
13	Background		8558	cpm	Normal					
14	1	c	8558	cpm	Normal	=I14-I100	=Q14-Q100	=IF($Q14<$S$100,1,0)	=IF(Q14<T100,1,0)	=IF(Q14<U100,1,0)
15	2	c	8558	cpm	Normal	=I15-I100	=Q15-Q100	=IF($Q15<$S$100,1,0)	=IF(Q15<T100,1,0)	=IF(Q15<U100,1,0)
16	3	c	8558	cpm	Normal	=I16-I100	=Q16-Q100	=IF($Q16<$S$100,1,0)	=IF(Q16<T100,1,0)	=IF(Q16<U100,1,0)
17	4	c	8558	cpm	Normal	=I17-I100	=Q17-Q100	=IF($Q17<$S$100,1,0)	=IF(Q17<T100,1,0)	=IF(Q17<U100,1,0)
18	5	c	8558	cpm	Normal	=I18-I100	=Q18-Q100	=IF($Q18<$S$100,1,0)	=IF(Q18<T100,1,0)	=IF(Q18<U100,1,0)
19	1	f	8558	cpm	Normal	=I19-I100	=Q19-Q100	=IF($Q19<$S$100,1,0)	=IF(Q19<T100,1,0)	=IF(Q19<U100,1,0)
20	2	f	8558	cpm	Normal	=I20-I100	=Q20-Q100	=IF($Q20<$S$100,1,0)	=IF(Q20<T100,1,0)	=IF(Q20<U100,1,0)
21	3	f	8558	cpm	Normal	=I21-I100	=Q21-Q100	=IF($Q21<$S$100,1,0)	=IF(Q21<T100,1,0)	=IF(Q21<U100,1,0)
22	4	f	8558	cpm	Normal	=I22-I100	=Q22-Q100	=IF($Q22<$S$100,1,0)	=IF(Q22<T100,1,0)	=IF(Q22<U100,1,0)
23	5	f	8558	cpm	Normal	=I23-I100	=Q23-Q100	=IF($Q23<$S$100,1,0)	=IF(Q23<T100,1,0)	=IF(Q23<U100,1,0)
24	6	f	8558	cpm	Normal	=I24-I100	=Q24-Q100	=IF($Q24<$S$100,1,0)	=IF(Q24<T100,1,0)	=IF(Q24<U100,1,0)
25	7	f	8558	cpm	Normal	=I25-I100	=Q25-Q100	=IF($Q25<$S$100,1,0)	=IF(Q25<T100,1,0)	=IF(Q25<U100,1,0)
26	8	g	8558	cpm	Normal	=I26-I100	=Q26-Q100	=IF($Q26<$S$100,1,0)	=IF(Q26<T100,1,0)	=IF(Q26<U100,1,0)
27	7	g	8558	cpm	Normal	=I27-I100	=Q27-Q100	=IF($Q27<$S$100,1,0)	=IF(Q27<T100,1,0)	=IF(Q27<U100,1,0)
28	6	g	8558	cpm	Normal	=I28-I100	=Q28-Q100	=IF($Q28<$S$100,1,0)	=IF(Q28<T100,1,0)	=IF(Q28<U100,1,0)
29	5	g	8558	cpm	Normal	=I29-I100	=Q29-Q100	=IF($Q29<$S$100,1,0)	=IF(Q29<T100,1,0)	=IF(Q29<U100,1,0)
30	4	g	8558	cpm	Normal	=I30-I100	=Q30-Q100	=IF($Q30<$S$100,1,0)	=IF(Q30<T100,1,0)	=IF(Q30<U100,1,0)
31	3	g	8558	cpm	Normal	=I31-I100	=Q31-Q100	=IF($Q31<$S$100,1,0)	=IF(Q31<T100,1,0)	=IF(Q31<U100,1,0)
32	1	g	13615	cpm	Normal	=I32-I100	=Q32-Q100	=IF($Q32<$S$100,1,0)	=IF(Q32<T100,1,0)	=IF(Q32<U100,1,0)
33	2	g	13615	cpm	Normal	=I33-I100	=Q33-Q100	=IF($Q33<$S$100,1,0)	=IF(Q33<T100,1,0)	=IF(Q33<U100,1,0)
34	1	j	8558	cpm	Normal	=I34-I100	=Q34-Q100	=IF($Q34<$S$100,1,0)	=IF(Q34<T100,1,0)	=IF(Q34<U100,1,0)
35	2	j	8558	cpm	Normal	=I35-I100	=Q35-Q100	=IF($Q35<$S$100,1,0)	=IF(Q35<T100,1,0)	=IF(Q35<U100,1,0)
36	3	j	8558	cpm	Normal	=I36-I100	=Q36-Q100	=IF($Q36<$S$100,1,0)	=IF(Q36<T100,1,0)	=IF(Q36<U100,1,0)
37	4	j	8558	cpm	Normal	=I37-I100	=Q37-Q100	=IF($Q37<$S$100,1,0)	=IF(Q37<T100,1,0)	=IF(Q37<U100,1,0)
38	5	j	8558	cpm	Normal	=I38-I100	=Q38-Q100	=IF($Q38<$S$100,1,0)	=IF(Q38<T100,1,0)	=IF(Q38<U100,1,0)
39	6	j	8558	cpm	Normal	=I39-I100	=Q39-Q100	=IF($Q39<$S$100,1,0)	=IF(Q39<T100,1,0)	=IF(Q39<U100,1,0)
40	7	j	8558	cpm	Normal	=I40-I100	=Q40-Q100	=IF($Q40<$S$100,1,0)	=IF(Q40<T100,1,0)	=IF(Q40<U100,1,0)
41	8	k	8558	cpm	Normal	=I41-I100	=Q41-Q100	=IF($Q41<$S$100,1,0)	=IF(Q41<T100,1,0)	=IF(Q41<U100,1,0)
42	7	k	8558	cpm	Normal	=I42-I100	=Q42-Q100	=IF($Q42<$S$100,1,0)	=IF(Q42<T100,1,0)	=IF(Q42<U100,1,0)
43	6	k	8558	cpm	Normal	=I43-I100	=Q43-Q100	=IF($Q43<$S$100,1,0)	=IF(Q43<T100,1,0)	=IF(Q43<U100,1,0)
44	5	k	8558	cpm	Normal	=I44-I100	=Q44-Q100	=IF($Q44<$S$100,1,0)	=IF(Q44<T100,1,0)	=IF(Q44<U100,1,0)
45	4	k	8558	cpm	Normal	=I45-I100	=Q45-Q100	=IF($Q45<$S$100,1,0)	=IF(Q45<T100,1,0)	=IF(Q45<U100,1,0)
46	3	k	8558	cpm	Normal	=I46-I100	=Q46-Q100	=IF($Q46<$S$100,1,0)	=IF(Q46<T100,1,0)	=IF(Q46<U100,1,0)
47	2	k	8558	cpm	Normal	=I47-I100	=Q47-Q100	=IF($Q47<$S$100,1,0)	=IF(Q47<T100,1,0)	=IF(Q47<U100,1,0)
48	1	k	13615	cpm	Normal	=I48-I100	=Q48-Q100	=IF($Q48<$S$100,1,0)	=IF(Q48<T100,1,0)	=IF(Q48<U100,1,0)
49	1	l	13615	cpm	Normal	=I49-I100	=Q49-Q100	=IF($Q49<$S$100,1,0)	=IF(Q49<T100,1,0)	=IF(Q49<U100,1,0)
50	2	l	8558	cpm	Normal	=I50-I100	=Q50-Q100	=IF($Q50<$S$100,1,0)	=IF(Q50<T100,1,0)	=IF(Q50<U100,1,0)
51	3	l	8558	cpm	Normal	=I51-I100	=Q51-Q100	=IF($Q51<$S$100,1,0)	=IF(Q51<T100,1,0)	=IF(Q51<U100,1,0)
52	4	l	8558	cpm	Normal	=I52-I100	=Q52-Q100	=IF($Q52<$S$100,1,0)	=IF(Q52<T100,1,0)	=IF(Q52<U100,1,0)
53	5	l	8558	cpm	Normal	=I53-I100	=Q53-Q100	=IF($Q53<$S$100,1,0)	=IF(Q53<T100,1,0)	=IF(Q53<U100,1,0)
54	6	l	8558	cpm	Normal	=I54-I100	=Q54-Q100	=IF($Q54<$S$100,1,0)	=IF(Q54<T100,1,0)	=IF(Q54<U100,1,0)

	A	B	N	O	P	Q	R	S	T	U
2	Row	Column	Stored Bkg	Bkg Units	Status	Adjusted Net Counts	Difference from average	If Adjusted net counts is less then average net	If Adjusted net counts is less then average net	If Adjusted net counts is less then average net
55	7	l	8558	cpm	Normal	=I55-I100	=Q55-Q100	=IF($Q55<$S$100,1,0)	=IF($Q55<$T$100,1,0)	=IF($Q55<$U$100,1,0)
56	8	m	13615	cpm	Normal	=I56-I100	=Q56-Q100	=IF($Q56<$S$100,1,0)	=IF($Q56<$T$100,1,0)	=IF($Q56<$U$100,1,0)
57	7	m	13615	cpm	Normal	=I57-I100	=Q57-Q100	=IF($Q57<$S$100,1,0)	=IF($Q57<$T$100,1,0)	=IF($Q57<$U$100,1,0)
58	6	m	8558	cpm	Normal	=I58-I100	=Q58-Q100	=IF($Q58<$S$100,1,0)	=IF($Q58<$T$100,1,0)	=IF($Q58<$U$100,1,0)
59	5	m	8558	cpm	Normal	=I59-I100	=Q59-Q100	=IF($Q59<$S$100,1,0)	=IF($Q59<$T$100,1,0)	=IF($Q59<$U$100,1,0)
60	4	m	8558	cpm	Normal	=I60-I100	=Q60-Q100	=IF($Q60<$S$100,1,0)	=IF($Q60<$T$100,1,0)	=IF($Q60<$U$100,1,0)
61	3	m	8558	cpm	Normal	=I61-I100	=Q61-Q100	=IF($Q61<$S$100,1,0)	=IF($Q61<$T$100,1,0)	=IF($Q61<$U$100,1,0)
62	2	m	8558	cpm	Normal	=I62-I100	=Q62-Q100	=IF($Q62<$S$100,1,0)	=IF($Q62<$T$100,1,0)	=IF($Q62<$U$100,1,0)
63	1	m	8558	cpm	Normal	=I63-I100	=Q63-Q100	=IF($Q63<$S$100,1,0)	=IF($Q63<$T$100,1,0)	=IF($Q63<$U$100,1,0)
64	1	n	8558	cpm	Normal	=I64-I100	=Q64-Q100	=IF($Q64<$S$100,1,0)	=IF($Q64<$T$100,1,0)	=IF($Q64<$U$100,1,0)
65	2	n	8558	cpm	Normal	=I65-I100	=Q65-Q100	=IF($Q65<$S$100,1,0)	=IF($Q65<$T$100,1,0)	=IF($Q65<$U$100,1,0)
66	3	n	8558	cpm	Normal	=I66-I100	=Q66-Q100	=IF($Q66<$S$100,1,0)	=IF($Q66<$T$100,1,0)	=IF($Q66<$U$100,1,0)
67	4	n	8558	cpm	Normal	=I67-I100	=Q67-Q100	=IF($Q67<$S$100,1,0)	=IF($Q67<$T$100,1,0)	=IF($Q67<$U$100,1,0)
68	5	n	8558	cpm	Normal	=I68-I100	=Q68-Q100	=IF($Q68<$S$100,1,0)	=IF($Q68<$T$100,1,0)	=IF($Q68<$U$100,1,0)
69	6	n	8558	cpm	Normal	=I69-I100	=Q69-Q100	=IF($Q69<$S$100,1,0)	=IF($Q69<$T$100,1,0)	=IF($Q69<$U$100,1,0)
70	7	n	8558	cpm	Normal	=I70-I100	=Q70-Q100	=IF($Q70<$S$100,1,0)	=IF($Q70<$T$100,1,0)	=IF($Q70<$U$100,1,0)
71	5	o	8558	cpm	Normal	=I71-I100	=Q71-Q100	=IF($Q71<$S$100,1,0)	=IF($Q71<$T$100,1,0)	=IF($Q71<$U$100,1,0)
72	4	o	8558	cpm	Normal	=I72-I100	=Q72-Q100	=IF($Q72<$S$100,1,0)	=IF($Q72<$T$100,1,0)	=IF($Q72<$U$100,1,0)
73	3	o	8558	cpm	Normal	=I73-I100	=Q73-Q100	=IF($Q73<$S$100,1,0)	=IF($Q73<$T$100,1,0)	=IF($Q73<$U$100,1,0)
74	2	o	8558	cpm	Normal	=I74-I100	=Q74-Q100	=IF($Q74<$S$100,1,0)	=IF($Q74<$T$100,1,0)	=IF($Q74<$U$100,1,0)
75	1	o	8558	cpm	Normal	=I75-I100	=Q75-Q100	=IF($Q75<$S$100,1,0)	=IF($Q75<$T$100,1,0)	=IF($Q75<$U$100,1,0)
76	1	r	8558	cpm	Normal	=I76-I100	=Q76-Q100	=IF($Q76<$S$100,1,0)	=IF($Q76<$T$100,1,0)	=IF($Q76<$U$100,1,0)
77	2	r	8558	cpm	Normal	=I77-I100	=Q77-Q100	=IF($Q77<$S$100,1,0)	=IF($Q77<$T$100,1,0)	=IF($Q77<$U$100,1,0)
78	5	r	8558	cpm	Normal	=I78-I100	=Q78-Q100	=IF($Q78<$S$100,1,0)	=IF($Q78<$T$100,1,0)	=IF($Q78<$U$100,1,0)
79	4	r	8558	cpm	Normal	=I79-I100	=Q79-Q100	=IF($Q79<$S$100,1,0)	=IF($Q79<$T$100,1,0)	=IF($Q79<$U$100,1,0)
80	3	r	8558	cpm	Normal	=I80-I100	=Q80-Q100	=IF($Q80<$S$100,1,0)	=IF($Q80<$T$100,1,0)	=IF($Q80<$U$100,1,0)
81	Source		8558	cpm	Normal					
82	Background		8558	cpm	Normal					
83	Source 9/27/00		13615	cpm	Normal					
84	Source 9/27/00		13615	cpm	Normal					
85	Source 9/27/00		13615	cpm	Normal					
86	Background 9/27/00		13615	cpm	Normal					
87	Background 9/27/00		13615	cpm	Normal					
88	Background 9/27/00		13615	cpm	Normal					
89	Background 9/27/00		13615	cpm	Normal					
90	Background 9/27/00		13615	cpm	Normal					
91	Background 9/27/00		13615	cpm	Normal					
92	Background 9/27/00		13615	cpm	Normal					
93	Source 9/27/00		13615	cpm	Normal					
94	Source 9/27/00		13615	cpm	Normal					
95	Source 9/27/00		13615	cpm	Normal					
96	Background 9/27/00		13615	cpm	Normal					
97	Background 9/27/00		13615	cpm	Normal					
98	Background 9/27/00		13615	cpm	Normal				Average net background plus	
99								1 SD	2 SD	3 SD
100						=AVERAGE(Q5:Q9,Q14:Q80		=Q100+Q101	=Q100+Q102	=Q100+Q103
101						=STDEV(Q5:Q9,Q14:Q80)				
102						=2*Q101				
103						=3*Q101				
104										
105										
106										
107										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1																			Logic Test		
2	Row	Column	Survey Lo	Log Date	Log Time	Probe S/	Log Mode	Channel	Reading	Gross/Net	Units	E-600 S/	E-600 Ad	Stored Bk	Bkg Units	Status	Adjusted Net	Difference fr			
3	Source		1	36777	0.425	13094	Scaler	Gamma	78900	Gross	cpm	12128	0	8558	cpm	Normal					
4	Background		2	36777	0.4256944	13094	Scaler	Gamma	11700	Gross	cpm	12128	0	8558	cpm	Normal			If Adjusted net co	If Adjusted net co	If Adjusted net co
5	1	b	3	36777	0.4861111	13094	Scaler	Gamma	14900	Gross	cpm	12128	0	8558	cpm	Normal	3426.666667	-54.166667	1	1	1
6	2	b	4	36777	0.4881944	13094	Scaler	Gamma	16600	Gross	cpm	12128	0	8558	cpm	Normal	5126.666667	1645.83333	0	1	1
7	3	b	5	36777	0.4895833	13094	Scaler	Gamma	15100	Gross	cpm	12128	0	8558	cpm	Normal	3626.666667	145.833333	1	1	1
8	4	b	6	36777	0.4930556	13094	Scaler	Gamma	16000	Gross	cpm	12128	0	8558	cpm	Normal	4526.666667	1045.83333	1	1	1
9	5	b	7	36777	0.4993056	13094	Scaler	Gamma	17000	Gross	cpm	12128	0	8558	cpm	Normal	5526.666667	2045.83333	0	1	1
10	Source		11	36777	0.6659722	13094	Scaler	Gamma	131000	Gross	cpm	12128	0	8558	cpm	Normal					
11	Background		12	36777	0.6666667	13094	Scaler	Gamma	14500	Gross	cpm	12128	0	8558	cpm	Normal					
12	Source		13	36778	0.3395833	13094	Scaler	Gamma	97500	Gross	cpm	12128	0	8558	cpm	Normal					
13	Background		14	36778	0.3409722	13094	Scaler	Gamma	11600	Gross	cpm	12128	0	8558	cpm	Normal					
14	1	c	15	36778	0.3986111	13094	Scaler	Gamma	15000	Gross	cpm	12128	0	8558	cpm	Normal	3526.666667	45.8333333	1	1	1
15	2	c	16	36778	0.4013889	13094	Scaler	Gamma	13700	Gross	cpm	12128	0	8558	cpm	Normal	2226.666667	-1254.1667	1	1	1
16	3	c	17	36778	0.4027778	13094	Scaler	Gamma	14600	Gross	cpm	12128	0	8558	cpm	Normal	3126.666667	-354.16667	1	1	1
17	4	c	18	36778	0.4041667	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
18	5	c	19	36778	0.40625	13094	Scaler	Gamma	17100	Gross	cpm	12128	0	8558	cpm	Normal	5626.666667	2145.83333	0	1	1
19	1	f	21	36778	0.4125	13094	Scaler	Gamma	14300	Gross	cpm	12128	0	8558	cpm	Normal	2826.666667	-654.16667	1	1	1
20	2	f	22	36778	0.4131944	13094	Scaler	Gamma	15300	Gross	cpm	12128	0	8558	cpm	Normal	3826.666667	345.833333	1	1	1
21	3	f	23	36778	0.4152778	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
22	4	f	24	36778	0.4166667	13094	Scaler	Gamma	13200	Gross	cpm	12128	0	8558	cpm	Normal	1726.666667	-1754.1667	1	1	1
23	5	f	25	36778	0.4180556	13094	Scaler	Gamma	15600	Gross	cpm	12128	0	8558	cpm	Normal	4126.666667	645.833333	1	1	1
24	6	f	26	36778	0.4194444	13094	Scaler	Gamma	14200	Gross	cpm	12128	0	8558	cpm	Normal	2726.666667	-754.16667	1	1	1
25	7	f	27	36778	0.4208333	13094	Scaler	Gamma	16300	Gross	cpm	12128	0	8558	cpm	Normal	4826.666667	1345.83333	1	1	1
26	8	g	28	36778	0.4270833	13094	Scaler	Gamma	16200	Gross	cpm	12128	0	8558	cpm	Normal	4726.666667	1245.83333	1	1	1
27	7	g	29	36778	0.4291667	13094	Scaler	Gamma	17000	Gross	cpm	12128	0	8558	cpm	Normal	5526.666667	2045.83333	0	1	1
28	6	g	30	36778	0.4305556	13094	Scaler	Gamma	13700	Gross	cpm	12128	0	8558	cpm	Normal	2226.666667	-1254.1667	1	1	1
29	5	g	31	36778	0.4319444	13094	Scaler	Gamma	14100	Gross	cpm	12128	0	8558	cpm	Normal	2626.666667	-854.16667	1	1	1
30	4	g	32	36778	0.4340278	13094	Scaler	Gamma	15600	Gross	cpm	12128	0	8558	cpm	Normal	4126.666667	645.833333	1	1	1
31	3	g	33	36778	0.4368056	13094	Scaler	Gamma	12500	Gross	cpm	12128	0	8558	cpm	Normal	1026.666667	-2454.1667	1	1	1
32	1	g	31	36796	0.7486111	13094	Scaler	Gamma	14400	Gross	cpm	12128	0	13615	cpm	Normal	2926.666667	-554.16667	1	1	1
33	2	g	32	36796	0.7506944	13094	Scaler	Gamma	12300	Gross	cpm	12128	0	13615	cpm	Normal	826.6666667	-2654.1667	1	1	1
34	1	j	36	36778	0.4451389	13094	Scaler	Gamma	11400	Gross	cpm	12128	0	8558	cpm	Normal	-73.3333333	-3554.1667	1	1	1
35	2	j	37	36778	0.4472222	13094	Scaler	Gamma	13400	Gross	cpm	12128	0	8558	cpm	Normal	1926.666667	-1554.1667	1	1	1
36	3	j	38	36778	0.4486111	13094	Scaler	Gamma	13300	Gross	cpm	12128	0	8558	cpm	Normal	1826.666667	-1654.1667	1	1	1
37	4	j	39	36778	0.45	13094	Scaler	Gamma	13700	Gross	cpm	12128	0	8558	cpm	Normal	2226.666667	-1254.1667	1	1	1
38	5	j	40	36778	0.4513889	13094	Scaler	Gamma	14600	Gross	cpm	12128	0	8558	cpm	Normal	3126.666667	-354.16667	1	1	1
39	6	j	41	36778	0.4527778	13094	Scaler	Gamma	13800	Gross	cpm	12128	0	8558	cpm	Normal	2326.666667	-1154.1667	1	1	1
40	7	j	42	36778	0.4541667	13094	Scaler	Gamma	15600	Gross	cpm	12128	0	8558	cpm	Normal	4126.666667	645.833333	1	1	1
41	8	k	43	36778	0.45625	13094	Scaler	Gamma	18200	Gross	cpm	12128	0	8558	cpm	Normal	6726.666667	3245.83333	0	0	1
42	7	k	44	36778	0.4576389	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
43	6	k	45	36778	0.4590278	13094	Scaler	Gamma	15000	Gross	cpm	12128	0	8558	cpm	Normal	3526.666667	45.8333333	1	1	1
44	5	k	46	36778	0.4604167	13094	Scaler	Gamma	14200	Gross	cpm	12128	0	8558	cpm	Normal	2726.666667	-754.16667	1	1	1
45	4	k	47	36778	0.4618056	13094	Scaler	Gamma	14000	Gross	cpm	12128	0	8558	cpm	Normal	2526.666667	-954.16667	1	1	1
46	3	k	48	36778	0.4638889	13094	Scaler	Gamma	14200	Gross	cpm	12128	0	8558	cpm	Normal	2726.666667	-754.16667	1	1	1
47	2	k	49	36778	0.4645833	13094	Scaler	Gamma	13100	Gross	cpm	12128	0	8558	cpm	Normal	1626.666667	-1854.1667	1	1	1
48	1	k	33	36796	0.7527778	13094	Scaler	Gamma	13800	Gross	cpm	12128	0	13615	cpm	Normal	2326.666667	-1154.1667	1	1	1
49	1	l	34	36796	0.7548611	13094	Scaler	Gamma	13100	Gross	cpm	12128	0	13615	cpm	Normal	1626.666667	-1854.1667	1	1	1
50	2	l	52	36778	0.4701389	13094	Scaler	Gamma	13700	Gross	cpm	12128	0	8558	cpm	Normal	2226.666667	-1254.1667	1	1	1
51	3	l	53	36778	0.4729167	13094	Scaler	Gamma	13700	Gross	cpm	12128	0	8558	cpm	Normal	2226.666667	-1254.1667	1	1	1
52	4	l	54	36778	0.4743056	13094	Scaler	Gamma	14000	Gross	cpm	12128	0	8558	cpm	Normal	2526.666667	-954.16667	1	1	1
53	5	l	55	36778	0.4756944	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
54	6	l	56	36778	0.4770833	13094	Scaler	Gamma	16600	Gross	cpm	12128	0	8558	cpm	Normal	5126.666667	1645.83333	0	1	1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
2	Row	Column	Survey Lo	Log Date	Log Time	Probe S/	Log Mode	Channel	Reading	Gross/Net	Units	E-600 S/	E-600 Ad	Stored Bk	Bkg Units	Status	Adjusted Net	Difference fr			
55	7	l	57	36778	0.4784722	13094	Scaler	Gamma	15600	Gross	cpm	12128	0	8558	cpm	Normal	4126.666667	645.833333	1	1	1
56	8	m	36	36796	0.7611111	13094	Scaler	Gamma	17700	Gross	cpm	12128	0	13615	cpm	Normal	6226.666667	2745.83333	0	1	1
57	7	m	35	36796	0.7583333	13094	Scaler	Gamma	17500	Gross	cpm	12128	0	13615	cpm	Normal	6026.666667	2545.83333	0	1	1
58	6	m	60	36778	0.4847222	13094	Scaler	Gamma	17100	Gross	cpm	12128	0	8558	cpm	Normal	5626.666667	2145.83333	0	1	1
59	5	m	61	36778	0.4861111	13094	Scaler	Gamma	14400	Gross	cpm	12128	0	8558	cpm	Normal	2926.666667	-554.16667	1	1	1
60	4	m	62	36778	0.4875	13094	Scaler	Gamma	14000	Gross	cpm	12128	0	8558	cpm	Normal	2526.666667	-954.16667	1	1	1
61	3	m	63	36778	0.4888889	13094	Scaler	Gamma	14200	Gross	cpm	12128	0	8558	cpm	Normal	2726.666667	-754.16667	1	1	1
62	2	m	64	36778	0.4902778	13094	Scaler	Gamma	14600	Gross	cpm	12128	0	8558	cpm	Normal	3126.666667	-354.16667	1	1	1
63	1	m	65	36778	0.4923611	13094	Scaler	Gamma	12900	Gross	cpm	12128	0	8558	cpm	Normal	1426.666667	-2054.1667	1	1	1
64	1	n	66	36778	0.4930556	13094	Scaler	Gamma	13600	Gross	cpm	12128	0	8558	cpm	Normal	2126.666667	-1354.1667	1	1	1
65	2	n	67	36778	0.4944444	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
66	3	n	68	36778	0.4958333	13094	Scaler	Gamma	14200	Gross	cpm	12128	0	8558	cpm	Normal	2726.666667	-754.16667	1	1	1
67	4	n	69	36778	0.4972222	13094	Scaler	Gamma	14000	Gross	cpm	12128	0	8558	cpm	Normal	2526.666667	-954.16667	1	1	1
68	5	n	70	36778	0.4979167	13094	Scaler	Gamma	14700	Gross	cpm	12128	0	8558	cpm	Normal	3226.666667	-254.16667	1	1	1
69	6	n	71	36778	0.4993056	13094	Scaler	Gamma	17400	Gross	cpm	12128	0	8558	cpm	Normal	5926.666667	2445.83333	0	1	1
70	7	n	72	36778	0.5006944	13094	Scaler	Gamma	16900	Gross	cpm	12128	0	8558	cpm	Normal	5426.666667	1945.83333	0	1	1
71	5	o	73	36778	0.5041667	13094	Scaler	Gamma	18000	Gross	cpm	12128	0	8558	cpm	Normal	6526.666667	3045.83333	0	1	1
72	4	o	74	36778	0.5055556	13094	Scaler	Gamma	15500	Gross	cpm	12128	0	8558	cpm	Normal	4026.666667	545.833333	1	1	1
73	3	o	75	36778	0.5076389	13094	Scaler	Gamma	14300	Gross	cpm	12128	0	8558	cpm	Normal	2826.666667	-654.16667	1	1	1
74	2	o	76	36778	0.5090278	13094	Scaler	Gamma	13900	Gross	cpm	12128	0	8558	cpm	Normal	2426.666667	-1054.1667	1	1	1
75	1	o	77	36778	0.5104167	13094	Scaler	Gamma	13400	Gross	cpm	12128	0	8558	cpm	Normal	1926.666667	-1554.1667	1	1	1
76	1	r	78	36778	0.5125	13094	Scaler	Gamma	17400	Gross	cpm	12128	0	8558	cpm	Normal	5926.666667	2445.83333	0	1	1
77	2	r	79	36778	0.5152778	13094	Scaler	Gamma	17800	Gross	cpm	12128	0	8558	cpm	Normal	6326.666667	2845.83333	0	1	1
78	5	r	80	36778	0.5194444	13094	Scaler	Gamma	16800	Gross	cpm	12128	0	8558	cpm	Normal	5326.666667	1845.83333	0	1	1
79	4	r	81	36778	0.5208333	13094	Scaler	Gamma	17900	Gross	cpm	12128	0	8558	cpm	Normal	6426.666667	2945.83333	0	1	1
80	3	r	82	36778	0.5895833	13094	Scaler	Gamma	14800	Gross	cpm	12128	0	8558	cpm	Normal	3326.666667	-154.16667	1	1	1
81	Source		83	36778	0.6902778	13094	Scaler	Gamma	103000	Gross	cpm	12128	0	8558	cpm	Normal					
82	Background		84	36778	0.6916667	13094	Scaler	Gamma	11100	Gross	cpm	12128	0	8558	cpm	Normal					
83	Source 9/27/00		24	36796	0.7236111	13094	Scaler	Gamma	96300	Gross	cpm	12128	0	13615	cpm	Normal					
84	Source 9/27/00		25	36796	0.7243056	13094	Scaler	Gamma	97100	Gross	cpm	12128	0	13615	cpm	Normal					
85	Source 9/27/00		26	36796	0.7381944	13094	Scaler	Gamma	95200	Gross	cpm	12128	0	13615	cpm	Normal					
86	Background 9/27/00		27	36796	0.7395833	13094	Scaler	Gamma	12800	Gross	cpm	12128	0	13615	cpm	Normal					
87	Background 9/27/00		28	36796	0.7402778	13094	Scaler	Gamma	12500	Gross	cpm	12128	0	13615	cpm	Normal					
88	Background 9/27/00		29	36796	0.7416667	13094	Scaler	Gamma	12400	Gross	cpm	12128	0	13615	cpm	Normal					
89	Background 9/27/00		30	36796	0.7423611	13094	Scaler	Gamma	12800	Gross	cpm	12128	0	13615	cpm	Normal					
90	Background 9/27/00		37	36796	0.7680556	13094	Scaler	Gamma	12700	Gross	cpm	12128	0	13615	cpm	Normal					
91	Background 9/27/00		38	36796	0.7694444	13094	Scaler	Gamma	12500	Gross	cpm	12128	0	13615	cpm	Normal					
92	Background 9/27/00		39	36796	0.7715278	13094	Scaler	Gamma	12600	Gross	cpm	12128	0	13615	cpm	Normal					
93	Source 9/27/00		40	36796	0.7736111	13094	Scaler	Gamma	117000	Gross	cpm	12128	0	13615	cpm	Normal					
94	Source 9/27/00		41	36796	0.7743056	13094	Scaler	Gamma	118000	Gross	cpm	12128	0	13615	cpm	Normal					
95	Source 9/27/00		42	36796	0.775	13094	Scaler	Gamma	118000	Gross	cpm	12128	0	13615	cpm	Normal					
96	Background 9/27/00		43	36796	0.7791667	13094	Scaler	Gamma	11500	Gross	cpm	12128	0	13615	cpm	Normal					
97	Background 9/27/00		44	36796	0.7805556	13094	Scaler	Gamma	11600	Gross	cpm	12128	0	13615	cpm	Normal					
98	Background 9/27/00		45	36796	0.7819444	13094	Scaler	Gamma	11800	Gross	cpm	12128	0	13615	cpm	Normal			Average net background plus		
99																			1 SD	2 SD	3 SD
100						Average Background			11473.33333				Average net counts				3480.833333		5026.015532	6571.197731	8116.37993
101						1 standard deviation			3277.513576				1 standard deviation				1545.182199				
102						2 standard Deviations			6555.027151				2 standard Deviations				3090.364398				
103						3 Standard Deviations			9832.540727				3 Standard Deviations				4635.546597				
104																					
105						Average Source check			105200												
106						Standard Deviation			15395.52605												
107						% Deviation			0.146345305												

Appendix 4

ER Project Document Catalog No.: ER2000-054

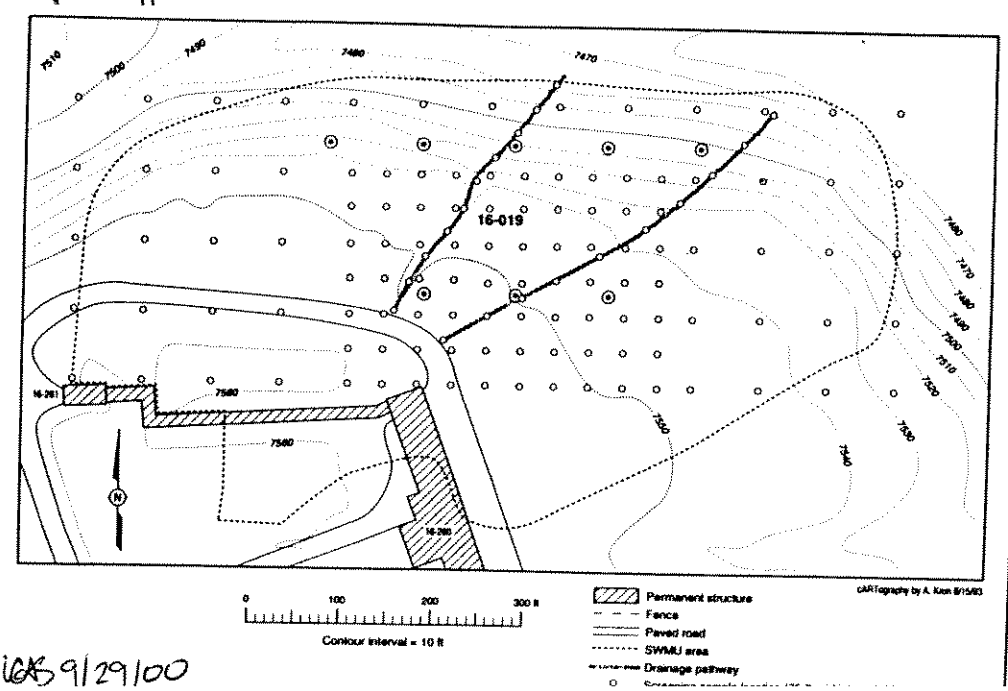
Project Supervisor: Kristi C.A. Begun, Field Team Leader

Project Personnel: Elmer Alcon, Alternate FTL, Driller
Carol Vargas, Field Technician
Joe Vargas, Field Technician
Derrick Jones, Field Technician
Esther Witherow, Field Technician
Allen Brenner, Field Technician

Project Safety Officers: Russel Stone
Robert Monsalve-Jones

Project Description:

This project is a RCRA Phase I investigation of Material Disposal Area R (MDA-R). Work activities will include the set up of a large 900 x 300 ft. grid over the area; screening of each grid point using XRF, a Sodium Iodide Detector, and the HE Spot Test Kit; shallow subsurface drilling using the Acker II drill rig, shallow hand auger sampling, and sediment sampling within two drainages. Work is guided by the RFI Workplan for OU1082, Section 5.10 MDA-R, SWMU 16-019, as well as guidance described in the OU1082 NOD Response, dated August 5, 1994. A Map of the worksite is shown below:



KCAS 9/29/00

KCAS 9/29/00

n Page

Date

/1/00

OJECT TA-16 MDA-R Phase I

Notebook No.

Continued From Page

8:50 K. Begnin and Allen Bird arrive at TA-16. Today we will start mobilizing the crew and equipment to MDA-R to begin the Phase I investigation of MDA-R, PRS 16-019. Today we will debrief the crew on the SSHASP, make sure all training is complete. We will then start staking and flagging our grid locations.

Weather: Warm, 83°F, breeze from the SE 5-10mph.

900 Joe and Carol Vargas called and said they will be here within the hour. Carol had her physical today. Kristi and Allen will go back to the office to get paperwork together and pick up Joe and Carol.

:30 Krish, Joe, Carol, and Allen arrive back at TA-16.

:00 Russell Stone arrives on site. We will brief everyone to the SSHASP and give a project briefing so everyone knows what we are doing at MDA-R.

:00 Everyone has been briefed on the SSHASP and signed off on a knowledgement form. We are heading over to MDA-R to walk over the site.

15 Some of the spoils piles from the fire fighting project are probably going to be in the way of some of our grid screening sampling. Peter suggested that if our grid points fell within the piles area, we will wait until Weston removes the piles to sample there, if necessary.

30 Break for lunch.

30 Back at site. We are going to stake out the drainage samples and then start laying out the grid.

20 The East drainage no longer exists. Weston's Recontouring due to fire-related activities have completely removed the evidence of the East drainage. The West drainage has been completely recontoured, and is not in the same condition as it had been in 1998, when we sampled it for Surface Water data. I am going to talk to Don Hickmott (HEPS Teamleader) to see what he suggests for sampling. There is a small drainage on the easternmost side of the PRS that has debris and could be sampled. I will suggest this as an ternate area.

Continued on Page 10

Read and Understood By

Signed Date Signed Date

30 Don suggests that we collect 1 sample from the west drainage near the floor of Cañon de Valle. He asked that we try to determine evidence of the former east drainage, and if we find none, we can place a couple samples in the far eastern drainage and perhaps we might sample within CdeV, where it was recontoured during the fire mitigation activities. We will determine this later during the campaign.

45 We are going to begin preliminary laying out of the grid over the PRS. Today we have NO compass, and the surveyors are not available to stake cornerpoints. Will see how well we can do w/out a compass.

30 We made a hearty attempt to stake out all four cornerpoints on this grid. However, we were off over 150 feet at the NW corner. We will have to get a compass out here to make a better attempt at this grid w/out surveyor's help. I will get a compass from town tonight so we can use it tomorrow.

50 Depart site.

Kurt Roberts
9/1/00

Continued on Page

Read and Understood By

Signed _____ Date _____

9/2/00

OJECT TA-16 MDA-R Phase I

Notebook No. _____

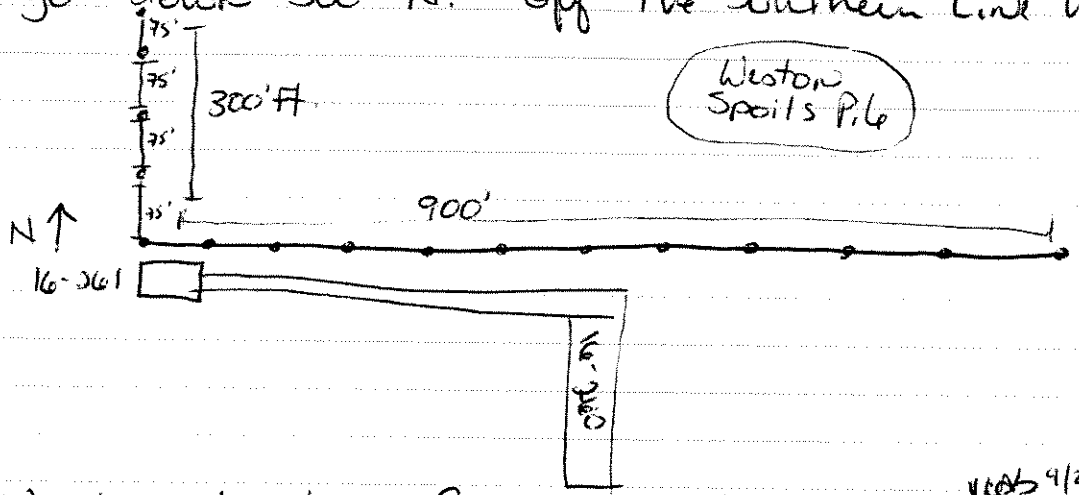
Continued From Page _____

700 R. Stone (Prsr), K. Begnin (IT) and Carol and Joe Vargas arrive at the IT office and head out to TA-16.

750 R. Stone gives daily tailgate briefing. Today's activities will include continuing to stake and flag the grid-points for the screening grid. If we have time, we will begin screening the grid point locations.

WEATHER: Partly cloudy, about 70°F, calm, sunny.

810 Head out to the site. Today we have a compass so we can try to make the grid more square than yesterday. We will measure off the Southern line of 900' and then go down 300' N. off the Southern Line in 75 foot intervals.



:15 We have broken for lunch. We've completed about 1/2 of the large grid. WAB 9/2/00

.00 Back at the site. We will continue with the 75 ft spaced grid. Once we have completed that we will start flagging the tighter grid with 37.5' foot spacing.

105 We just completed flagging all 75-foot grid intervals. Crew is going to stop and take a quick water break.

30 We have almost completed all grid node marking. One of the small grid lines is off by about 10 feet. We are going to recheck the survey using the compass and then call it a day.

00 We called the guards to let us out of the site. We signed out of the TA-16 Sign In log.

105 Left Site.

[signature]
9/2/00

Continued on Page

Read and Understood By

Signed Date Signed Date

CT TA-16 MDA-R Phase I

Notebook No. _____

Continued From Page _____

3 00

K. Regnin (IT), R. Stone (PCSM), C. Vargas (IT), and J. Vargas (IT) all arrive on site, at the office and head out to the field. Today we will label all the grid points and collect the screening samples. I decided it would be easier to collect the soil in baggies and screen for Rad, XRF, and HE at the field chem trailer, rather than lug the XRF down the steep slopes.

We've collected all of A thru G grid samples. We are going to take a quick water break, get some more bags, and continue collecting the grid samples.

Back at the work site. We are continuing to collect the screening samples from the grid node locations.

We have collected all grid samples through Row N.

Next week we will collect the final bags for screening.

All samples have been placed in a blue tub and placed inside the locked transportainer. Due to the holiday weekend we are breaking early today.

I called security to let them know we are leaving the site, all crew members signed out.

Leave site.

[signature]
9/3/00

Continued on Page

Read and Understood By

Date

OJECT TA-16 MDA-R Phase I

Notebook No.

Continued From Page

Sept. 8, 2000

F10 K. Begnin, C. Vargas, J. Vargas, A. Bird, E. Witherow, E. Alcon and D. Jones, B. Monsalve-Jones all arrive on site. Today we will finish the screening sampling at MDA-R, begin screening the samples for XRF, HE Spot Test, and Rad. Elmer is going to get the drill Rig mobilized to the site.

WEATHER: Partly cloudy, cool 75°F, breeze from the West 5-15 mph

220 Trung Nguyen and Dan Sandoval both arrive on site. Bob and Dan head over to MDA-R to look at the site. Elmer left to get the drill Rig. Rest of us are going to head over to the site and start doing the Rad survey and finish the screening sampling.

035 Alan, Carol, and Joe head out to collect screening samples from Rows ~~N~~, [illegible] 9/8/00 O, P, Q, and R. Bob is training Esther and Derrick how to run the Rad probes using the data logger aspect of the instruments. Derrick and Esther will start

210 Began conducting part of the Rad survey. Collected Rest of Screening samples except row R, which was not flagged.

15 Break for lunch.

00 Elmer leaves site to get the PID from the IT office

30 Elmer back on site. Kristi is training Carol and Esther on the XRF procedures and on sample collection log procedures.

20 The drill crew has headed out to site the Rig, level it, and get the Rig Ready for drilling tomorrow.
Bob is getting the personal air samplers set up for personal air monitoring.

30 Kristi is conducting XRF training for Carol and Esther

530 Drillers have mobilized the rig onto a hole, and are fully set up to begin drilling tomorrow. Elmer conducted some on-Rig training for Derrick and Joe at the Rig site location.

620 Depart site.

[signature]
9/8/00

Continued on Page

Read and Understood By

Signed Date Signed Date

Notebook No. _____

Continued From Page _____

T 1-16 MDA-R Phase I

00 Bob Monsalve-Jones, Derrick Jones, Esther Witherow, Carol Vargas, and Joe Vargas (all IT) arrive at office and head out to field trailers. Kristi not on site today. These notes are reproduced from Bob Monsalve-Jones's Jog Book # 2000-0549, and the Sample Collection logs for 9/9/00.

THER: Clear, sunny, temp = 75° winds from NW, 5-10 mph. Today's activities include drilling using the Acker II drill rig, sample screening using the XRF, the HE Spot test kit and a sodium iodide detector. The crew will complete the in-situ Rad survey first, and then commence drilling.

rew arrives at field trailers to calibrate and gather up equipment nd prepare for Rad survey.

) Daily Tailgate meeting conducted.

) Field crew conducted a source check for the Eberline Spa 3 sodium iodide detectors. Both instruments are acceptable for use. The crew l ls to MDA-R to complete Rad survey. Field crew is using LANL-ER-SOP 6.23 Rev. 1 for this aspect of field work.

) Dan Sandoval arrives on site for ESH-5 overview.

E. Alcon arrives on site.

It was discovered the XRF was not charged. Carol calibrates the XRF using the teflon plug and the iron source. The XRF is acceptable for use.

) Break for lunch

) Back on site. Crew at MDA-R to set up drill rig and exclusion zone.

) Begin drilling BH-1, 16-6532.

5 Hit tuff at ~~5.0~~ 9/10/00 5.5 feet. Drilling complete sample RE16-00-0230 collected for lab analysis based on elevated screening for Ba.

50 Drillers begin tripping auger from the hole.

25 Drillers moving drill rig to the next location, BH-2 16-6533.

45 Crew exits work zone.

55 Crew departs site. SOPs followed for today's activities include:

9/10/00

9/10/00

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

... Shipping of Samples 05/05/1994

ontinued on page

0700 E Alcon, Esther Witherow, Carol Vargas, Derrick Jones, Joe Vargas and Bob Monsalve Jones all arrive on site, at office, to head out to TA-16.

0800 Crew has signed in with security at Guard gate 431, signed in on the S-Site escort log and arrived at the field trailers. Bob prepares a daily tailgate briefing and all Crew members sign off. Crew heads out to work zone. Esther and Carol are screening with the XRF and HE Spot test Kit. The Radiation survey was completed yesterday afternoon. Bob will download the data from the instrument and then have the data manipulated into a Readable Map/figure format, Once we have the Rad data and the XRF screening completed we will pick the 15 hand auger locations for sampling.

0930 First Run of sampling from Borehole #2 collected. 0-2.5ft. Ba - 525. HE Negative, Rad 10.5 cpm

0940 Run #2 collected from Borehole #2. Approximately 75% Recovery Ba - 569. HE Negative, Rad 12.0. This sample will be submitted as an analytical sample.

09[illegible] Run #3 collected. 5-7.5 ft. Collected. Ba - 65.2, HE Neg, Rad Is background.

10:00 Decontaminating all augers, and Remobilizing the drill Rig to a new location for Borehole #3.

1000 K. Beguin arrives at the field trailers, Reads the Tailgate safety briefing and signs off on the form.

1010 K. Beguin arrives at the drill site. Eileen and the drill crew, Consisting of Derrick and Joe have just mobilized the drill Rig to hole number 3.

1030 Drillers have completed Borehole #3. We have selected the borehole samples based on XRf screening for Ba. The Rad and the HE Spot tests were Negative, but the barium readings are greater than 500ppm, based on XRf screening. Drillers are moving the drill Rig to one of the canyon Rim locations.

1050 The first Run of Borehole #4 was just Collected. 0-2.5ft. depth.

1110 Buttoned up the site and Back for lunch.

1200 Back at the site. Run # 2 collected from 2.5-5.0' ft.

1230 Run # 3 Collected from BH #4. 5-6 ft. depth. Poor Recovery. At least 1.5' into tuff on that last sample Continued on Page 16

Read and Understood By

Signed Date Signed Date

0-00 continued.

We are stopping the drilling of this hole due to safety concerns. The Rig is N. of the upper line of Waddles within the Recontained area and Eltron has hit Refusal. As Eltron attempted to bore through, the Rig lifted up in the front, and to prevent the Rig from tipping over the slope, it is in the interest of safety to stop at this hole.

) The Rig is out of diesel. Bob-Mousalve drives heads to the trailers to get more diesel.

Bob is back. There is no diesel at the trailers He will have to leave the site to get fuel. Bob leaves site. Carol and Esther continue to run the samples with the XRF and HE Spot test.

5 Bob back from getting diesel.

0 Eltron is moving the drill Rig to Borehole #5.

20 Begin drilling. The XRF battery has died. We will have to collect all soils and screen them tomorrow with a charged XRF battery. We can screen the samples package and submit them tomorrow.

30 Kristi heads down to collect the last row of grid screening samples, and to flag the east drainage samples locations.

45 Drillers have completed Borehole #5. The drillers are breaking down, decanning auger flights and the drill bit and preparing to move over to the next location.

600 Drillers have moved to borehole #6, and are beginning to drill. Kristi back up from Canyon.

30 The 7.5-10 foot sample is hard to tell if it's a weathered tuff or backfill. Eltron will go down to 125 feet and see what the difference in soil type is. 7.5 10 feet is a reddish mauve color, and is very Clay Rich.

15 Eltron has augered down to 15.0 ft. and is still in this same clay-rich layer. We are going to Rig down, yet stay in the hole and prepare to leave the rig for the week. We will complete the borehole next weekend.

1[illegible] Crew departs site. SOP's used today include:

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

MDS 9/10/00

9/16/00
700 K. Begnin, D. Jones, E. Witherow, C. Vargas, J. Vargas, E. Alcon B. Monsalve-Jones (all IT Employees) arrive at the office and prepare to depart to work site. We have a lot of H&S equipment to take out with us. Elren's crew needs to stop at Ketzger's to get gas.
800 Bob Monsalve-Jones is preparing the tailgate form. Elren is helping w/ Louie's crew (IM Crew) temporarily. Esther & Carol are calibrating the XRF. Joe & Derick are getting all the equipment together. Sodium Iodide detectors source checked.
815 Doug Barney arrives on site for an ESH-5 oversight Review of the TA-16 260 IM field work occurring today
830 Dan Sandoval (ESH-5) arrives onsite for oversite of MDA-R field work.
845 The XRF has been successfully calibrated. Esther is packaging up the XRF for the field.
910 Bob presents the daily tailgate briefing and all crew members sign off on the form. Dan Sandoval also attended the meeting.
95 The drillers head out to the site to get the rig ready for drilling.
000 The samplers arrive at the site and get the sampling equipment all ready for sampling. We are completing the sampling of borehole 6.
The sampling strategy has changed since last week. According to the Notice of Deficiency (NOD) supplied by the State we are to collect 2 samples per borehole instead of 1. Last week we submitted 6 samples based up elevated barium screening Results. These samples were typically within the first 3 feet of depth thus the bottom of the boreholes was not collected and submitted as a sample. This week we will have to Re-drill 5 of the 6 boreholes in order to obtain the Total Depth samples from each borehole.
20 Begin drilling at borehole Six — Continuation.
00 Augured down to 17.5'. We are 2 ft. into tuff and are collecting the last 1 foot interval
Then Drillers are breaking down, tripping out

Continued on Page 18

Read and Understood By

Signed Date Signed Date

) Drillers have Rigged up on the former Borehole 3. ; are going to Break for lunch and drill to depth after lunch, in order to collect a sample.

; Back from lunch. Derick Jones had a bad reaction to the sunscreen he put on this morning (Coppertone Waterproof 45 SPF). As he was sweating during the morning's drilling operations, the sunscreen dripped into his eyes and caused him pain and sensitivity to the sunlight. His eyes Rapidly swelled up. Bob and Elren helped him to completely scrub his face and wash out his eyes several times with clean water at the Fun's Change House. After we Returned from lunch, we checked the MSDS for the sunscreen and it said nothing about the possibility of swelling or pain. Bob decided to that since the MSDS conflicts with what actually happened that a H&S Reporting is necessary. Derick is fine now, after washing his eyes out, and said he would like to work in the EZ. Bob has required that he not participate in the drilling, which is quite strenuous instead, he will assist Carol and Esther with decon, sampling, and screening activities.

) Arrive back at drill site. Tim Rotah is going to assist Elren with drilling activities. Bob is going over the SSHASP Requirements with TIM, the daily tailgate form is signed off, and he will enter the EZ.

) Elren has bored down with the Center Rod at Borehole #3, and they are Rigging up to put the split-spoon sampler on to collect a sample.

Drillers went from 7.5 - 10 feet for the last sample run.

; Drillers have tripped out of the hole and are relocating to Borehole 5 for the bottom of the hole sample. BH5 originally went to 5.0 ft. TD. Elren will try to get the 5.0 - 7.5 foot interval. ~~Sample collected 1440 Hours~~ 9/15/00

) Sample collected from Borehole 5 at 15:10. Drillers are tripping out to Relocate to borehole 2 to Re-drill. The XRF batteries have died, so we will wait to drill holes 7 and 8 until tomorrow

) Elren has Augered down to the Required depth, as is getting the split-spoon sampler set up for sampling.

Continued on Page 19

Read and Understood By

Signed Date Signed Date

PROJECT TA-16-MDA-R 9-16-00 Cont. Notebook No.

Continued From Page 18

1600 Elmer is trying with great effort to get the latch assem Removed from the sample Rod. The latch as been binding up all day, but it is Refusing to come undone on th Run.

1605 Finally the latch assembly has disengaged. He is angerin down to collect material for the sample. Sample collected from 10-12 ft.

1610 Rigging down and prepaning to button up for the day.

1645 All equipment has been dropped off at the field stodge trailers.

1655 left site to head back to IT office. SOPs used today inclu

9/16/00

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

~~7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993~~ 9/16/00

8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

~~10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998~~ 9/16/00

11) ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

13) ER-SOP-6.23 Rev 1 Field Surveys of Gamma Radiation using NaI2 detectors. 7/30/98

Continued on Page

Read and Understood By

Signed Date Signed

TA-16 MDH-R Phase I 9/17/10 Notebook No. _____ Continued From Page _____

J. Vargas, C. Vargas, B. Monsalve Jones, E. Withrow, E. Alcon, and D. Jobs all arrive at IT office, we gather up equipment prepare to head to TA-16.
All personnel have signed in at guard station and the S-Site access control log. Arrive at field trailers.
Crew loads up all equipment, gets XRF calibrated.
Bob presents the daily tailgate safety briefing.
Today's special topics: Communication on the work site and Drilling Safety.
The XRF is not within the required values. We will have to run an energy calibration and acquire background data.
Drillers have arrived at the work site. They are going to trip out and breakdown from BH#3. We need to select the final two drilling locations: BH# 7 & BH 8.
We decided to place BH#7 in the area of the former west drainage. I think that it is located in the center of what was the old drainage. The Weston Retaining has eliminated the drainage, however the evidence of where the drainage emptied into Canon de Valle is still present. BH# 8 has been placed on the west side of the New Western drainage, in an area that is disturbed and re-contoured.
Krish heads back to field trailers to get XRF up and Running (ESH-5)
Dan Sandoval arrives on site.
The XRF energy calibration and acquire background check is complete and the teflon check and Fe Results look good.
Eltron has augered down to 50 feet. The 2.5-5.0 foot interval had NO recovery.
Dan Sandoval leaves site.
WEATHER: Sunny, a few light clouds, warm - 72°F, breezy from the NE 5-10 mph.
Total depth on borehole 7 was 11.0 ft. The 2.5-5.0 foot sample had ~5500 ppm Ba. That sample was selected for IC analysis. The bottom of the borehole was also collected for lab analysis.

Continued on Page 21

Read and Understood By

Printed Name Date Signed Date

ROJECT MDA-R 9/17/00 Notebook No.

Continued From Page 20

30. Since we seem to be in the location of the former west drainage, and we saw a high ba hit on the surface, I am selecting BH7 as the borehole we will co-locate. We will auger down to the last depth interval and select a colocated sample from 9-11 ft. depth.

35 Drillers are moving the rig to Borehole 7-C (7-colocated)

45 Elmer has augered down to 10.0 ft. depth. The are assembling the split-spoon sampler and preparing to auger down from 10-11.0 ft. depth for sampling.

00 Prepared to sample. Break for lunch.

00 Completion of the 10-11.0 foot interval, sample obtained.

15 Drillers are tripping out of the hole and backfilling the cuttings back into the hole, and then they will move the rig to BH#8, the final borehole to be drilled at MDA-R.

30 Re-located to BH-8

38 Begin drilling.

10 We've augered down to 7.5 feet and it is storming on us badly. Rain, wind, blowing dust. We are going to exit the exclusion zone and seek shelter back at the field trailers.

9/17/00 ~~30~~ 1530 It is still raining outside, which will affect the use of our field instruments. We are going to prepare to depart site, place our samples in the freezer, and continue with drilling activities during the week.

SOPs used today include: ERSOP 1.01, 1.02, 1.04, 1.07, 1.08, 4.01, 6.24, and 10.08.

10 Crew has put all our equipment away and we are departing the site.

9/17/00

9/17/00

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993

8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998

Signed

ECT TA-16 MDA-R Phase I 9/18/00

P. Gram, K. Bagnin, J. Vargas, C. Vargas, E. Witherow, and Derick Jones (all IT), and Bob Ronsalve-Jones (IT) all arrive on site. Weather: Cloudy, looks threatening for thundershowers, cool- 60°F, Winds from SW 10-20 mph.

Todays activities are to complete drilling at MDA-R using the Acker II Drill Rig. BH-8 will be completed. BH-1 Redrilled to depth. Joe and Derick are source checking the NaI2 Detectors. Esther is calibrating the XRF using the teflon plug and the Fe Source. All instruments are acceptable for use.

0 Tailgate meeting presented.
0 Crew heads out to site
5 Crew enters EZ, begin drilling.
0 Augered to a depth of 12.5 feet in BH-8 16-6531. One ~~Two~~ Samples MDS 9/18/00 have been packaged up for analysis RE16-00-0237, as the TD sample.
Drillers begin tripping out of the hole.
5 Drillers moving Rig to 16-6532, BH-1, which needs to be Re-drilled to depth to collect a total depth (TD) sample.
5 Begin drilling. Drillers augering to 10ft. Will sample from 10-12 feet.
5 Sample RE16-00-0237 collected from Borehole.
Drillers begin tripping augers out of the hole.
30 Drillers Rig down and prepare to depart site.
40 Crew exits the EZ and heads back to field trailers.
55 Crew departs site. SOPs used during todays activities include:

MDS 9/18/00 **SOPs Used During The MDA-R Phase I Investigation at TA-16**

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993

8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998

11) ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

0800 K. Bergin (IT) R. Stone (PRS), Allen Baird, Alan Brenner, C. Vargas, and E. Witherow all arrive at site. Today we will collect the drainage samples from MDA-R
Weather: Partly Cloudy, cool to warm 70°F. Breeze from NW 5-10mph.
Crew is gathering up all the needed equipment for today's activities.
1150 Keish leaves site to pick up sample collection logs from SWO.
1205 Keish back on site.
1235 Russel has briefed Alan Brenner on the SSHASP, and has just presented the daily tailgate meeting.
1245 Crew heads out to site to collect the East drainage samples.
1400 Crew collected 6 drainage samples: 5 from the E. drainage & 1 from the confluence of the W. drainage & CdV.
1405 SOPs used for sampling activities today include:

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

~~3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994~~ 9/22/00

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

~~7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993~~ 9/22/00

~~8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999~~ 9/22/00

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

10) ER-SOP-6.10, Rev. 1 Hand auger and Thin-Wall Tube Sampler 08/26/1998

~~11) ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993~~ 9/22/00

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

Continued on Page 24

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

CT MDA-R 9/22/00 Notebook No. _____ Continued From Page 23

All samples are placed into the secure freezer in the field trailers, which has COC taped placed ON door, the trailers are locked. field crew prepares to depart site.
Left Site.

9/22/00

Continued on Page

Read and Understood By

Date Signed Date

OJECT TA-16 MDA-R Phase I 9-23-00 Notebook No. _____ Continued From Page _____

700 K. Reguin, E. Witherow, D. Jones, C. Vargas, A. Brenner (all IT) and R. Stone (PRSD) arrive at office and prepare to head out TA-16.

750 Arrive at TA-16.
WEATHER: Partly Cloudy, cool - 60°F, Breezy, breezes from the NE 10-15mph.
Today's activities will include shallow subsurface sampling at selected gridpoints within MDA-R. Grid point sampling locations were chosen based on elevated Barium levels. A total of 22 points have been selected. We will have 2 teams of 3 hand augering. Hand auger sampling will be conducted as follows: Auger down to 1 ft. depth, collect the material, screen the material for Ba using the XRF, HE using the HE Spot test kit and Rad using the NaI_2 detectors. We will hand auger, ideally, to a minimum of 3 ft, with 2 samples collected per hole: 1 based on screening, and 1 based on the bottom total depth.

800 Derick is source checking the Rad instruments. Both instruments are acceptable for use. Esther and Carol are calibrating the XRFs. Today, Weston's field crew loaned us their Spectrace ~~2000~~ 4000 XRF instrument so that we can have 2 field crews working simultaneously. We are calibrating their XRF as well. Both instruments are acceptible for use.

815 Field crew loading up all our field supplies into the trucks.

830 Daily Tailgate Safety meeting presented by R. Stone. All crew members sign off on the acknowledgement sheet.
Krishi is reviewing sampling strategy with all team members so that everyone understands precisely how we are going to proceed today.

900 Crew at WORK site. We are setting up work area & exclusion zone markers.

915 All crew members enter the EZ. Derick, Esther, and Carol are one sampling crew, and Krishi, Alan, and Russel are another. Crew proceeds with hand augering activities.

Continued on Page 26

Read and Understood By

Signed Date Signed Date

Dan Sandoval (ESH-5) arrived on site for Safety overview, at about 10 AM. He was here until 10:15 am, when he departed site.
Crew exits the EZ.
Return to Admin trailers to put all equipment away for the day, and to place samples in the freezer.
Depart site and head to the IT Company Picnic.
Samples collected today are:
RE16-00-0200
RE16-00-0201
RE16-00-0204
RE16-00-0244
RE16-00-0205
RE16-00-0207
RE16-00-0247
RE16-00-0208
RE16-00-0848
RE16-00-0213

We had difficulty obtaining screening samples for all 3 Required intervals due to the abundance of large Cobbles at the MDA-R area. When possible we collected 2 samples per borehole, but we consistently met Refusal at about 12"-24" in the majority of the holes and were unable to auger deeper to show a decreasing trend in contaminants.

SOPs used today include:

SOPs Used During The MDA-R Phase I Investigation at TA-16 WKS 9/23/00

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

~~7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993~~ WKS 9/23/00

~~8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999~~ WKS 9/23/00

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998

~~11) ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993~~ WKS 9/23/00

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

Read and Understood By

Signed Date Signed Date

OJECT MDA-R Phase I TA-16 9/24/00 Notebook No. _____
Continued From Page _____

700 Arrive at IT Office: A. Brenner, K. Bergman, E. Witherow, C. Vargas, D. Jones (All IT), and R. Stone (PRS-1). Crew head out to site.
715 Crew arrives at field trailers. Derick Sauce checks the sodium iodide detectors. Esther and Kristi are calibrating both Spectrace 4000 XRFs. All field instruments are acceptable for use. Carol, and Allen are gathering up all field supplies.
715 Daily Tailgate Safety Briefing presented by R. Stone.
720 Kristi is evaluating the sampling strategy due to the difficulty in hand augering at the area. She is selecting more points off the N. Slope at the MDA, based on elevated screening results for Ba. The ground on top of Mesa is much more compacted and cobbly. It is a little easier to hand auger on the slope, since the soil is not quite so compact.
815 Crew enters the EZ and begins the day's activities. WEATHER: Cool, 60°F, Slight breeze from NE 5-10mph, a few high clouds, sunny.
900 Dan Sandoval on site for ESH-5 overview.
910 Dan departs site.
1215 Crew has exited the Exclusion Zone and is breaking for lunch.
1315 Crew departs for field trailers.
1330 Crew enters the Exclusion Zone. During lunch Kristi eliminated the following 4 locations from hand augering. We will drill at those locations due to heavy soil compaction. The Ba screening results for those locations were fairly high, so we should sample them, but hand augering will be impossible. Proceed with hand augering activities. Again, we have 2 teams sampling today, Derick, Esther & Carol are 1 team; Kristi, Alan, and Russel are another.
1655 We have completed all the hand augering that we can do. We collected a total of 19 samples today. Crew exits the EZ, and heads back to field trailers to Return all our equipment and Samples from the work day.

Continued on Page 28

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

JECT MDA-R Cont. 9/24/00 Notebook No. 27
Continued From Page 27

0 All equipment is being put away. Samples are being placed to the sample freezer.
The following samples were collected today:

16-00-0249
16-00-0212
16-00-0252
16-00-0253
16-00-0326
E16-00-0326
E16-00-0328
E16-00-0329
E16-00-0330
16-00-0331
E16-00-0334
16-00-0335
16-00-0336
16-00-0340
16-00-0341
16 0342
16-00-0343
16-00-0344
16-00-0327

A total of 19 surface and subsurface samples have been collected today. We also collected a sample from the area of the most recent burning related to the Cerro Grande Fire on the East end of the MDA. Sample grid point P-3 fell within the cut, so we moved it out North about 5 ft. so that it fell at the bottom of their excavation area. We augered to 12" and hit refusal. There is abundant debris within the cut: tiles, clay, metal, and wood debris, and there is also visible barium nitrate (a luminescent blue white powdery soap-like substance. There are 4 grid-point locations left to sample, and we will use the acker II drilling.

e following SOPs were used during today's activities:
30 Depart site.

9/24/00

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

~~7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993~~ 9/24/00

~~8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999~~ 9/24/00

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998

11) ER-SOP-6.24, Rev. 0 Sample ~~Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993~~ 9/24/00

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

9/24/00

Date Signed Date

20 K. Begoin, A. Brenner (both IT), and Russel Stone (PRSC), and Greg Meyer (SG Western) arrive on site at TA-16. Today's activities will include trenching at MDA-R in order to determine the depth to solid bedrock within the MDA area. Kristi and Allen will take photographs and log the trench. We are using LANL ER SOP 3.10 Rev. 0 today. WEATHER: Cloudy, Cool - 68°F, Calm, some thunderclouds present!

30 Russel is briefing Greg on the SSHASP.

40 Russel presents the daily tailgate safety meeting.

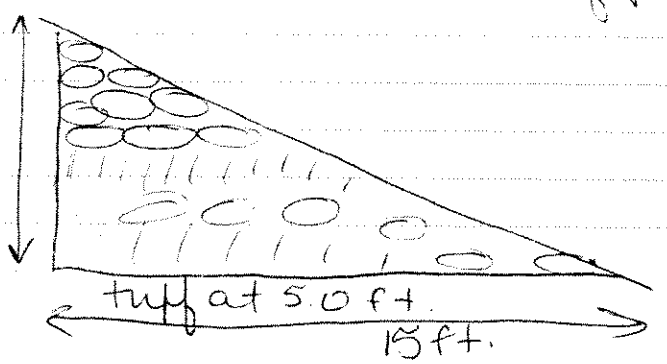
45 Crew heads out to site. Kristi shows Greg where the trench will be located.

00 The SG Western driver forgot to leave the Excavator Keys in the excavator. Greg will have to run back to the SG Western Office to pick up a spare set of Keys for the excavator.

05 Greg departs site for SG office

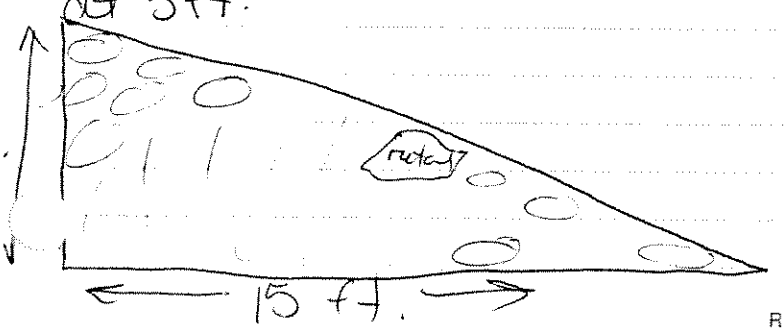
55 Greg back on site. We head over to MDA-R to begin excavating.

15 Greg has excavated down 5ft. and hit solid bedrock. This trench is located about 4ft E. of I-5 grid node. We took a number of photos.



Trench consists of cobbles and fill, some metal debris.

30 Moved to a new location 50ft. E. Once again hit tuff at 5ft.

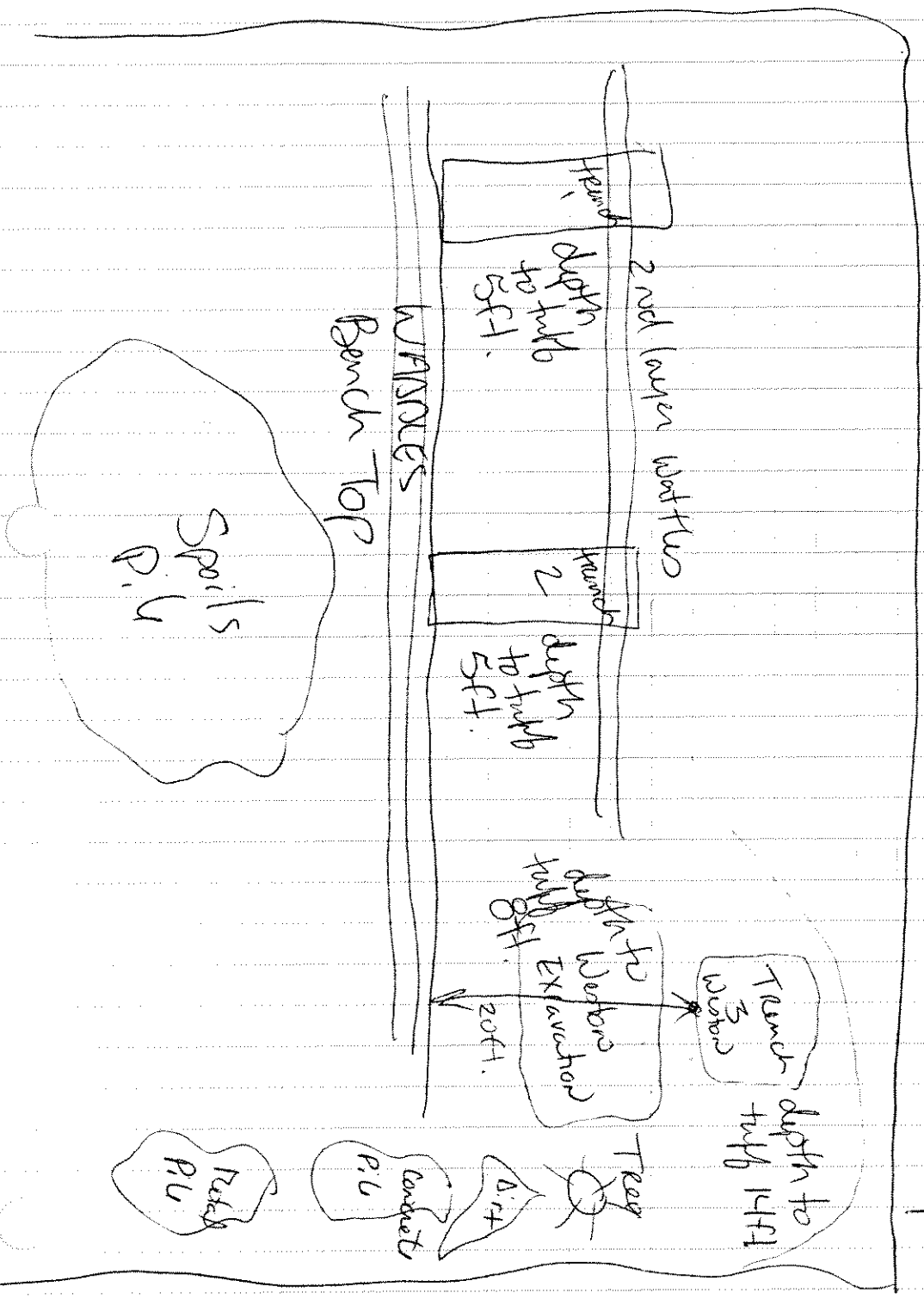


Continued on Page 30

Read and Understood By

Signed Date Signed Date

In looking at the trench that was excavated out in August by Weston it appears that much more fill and debris has been deposited on the East end of the PRS. It is difficult to see based on contours, but there is a much deeper deposit of fill.



Continued on Page

Read and Understood By

0800 E. Alcon, C. Vargas, R Stone, K. Rogers, A. Brenner, and T. Hotal all IT, except R. Stone who is Prsn) all arrive at office and prepare to head out to TA-16.
Today's activities will include drilling four boreholes and deconning the excavator.
WEATHER: Sunny, clear, warm 70° F, a few high clouds, calm.
0920 Crew has loaded up all necessary equipment and is ready to head out.
0945 Russel prepares and delivers the daily tailgate meeting. All crew members sign off. Kristi and Carol got the XRF calibrated and packaged up.
1000 Crew at MDA-R. Elmer has to jump start the Drill Rig truck as the battery has died.
1025 Drill Rig is being mobilized to grid point J-1.
1100 Begin drilling. (Hole was moved 2ft. W of original location.)
1120 First sample collected. I took a split from this first sample.
1125 Second, bottom of the borehole is collected.
Drillers are mobilizing to the 2nd Borehole J-3
1145 Begin drilling
1200 First sample collected from hole J-3.
1205 Second sample collected.
1210 Drillers moving the drilling Rig over to the next location L-1.
1220 Break for lunch
1300 Back at the drill site.
1305 Drillers are Rigging up to begin drilling the next hole.
1340 First sample from L-1 collected. RE16-00-0332 Bar = 7970.
1415 Second sample from L-1 collected RE16-00-0333, bottom of the borehole. Drillers hit Refusal at 4.5ft.
1430 Drillers begin moving the drill Rig to the final location at grid point N-1. I will take a 2nd split sample from the bottom interval of this borehole.
1510 All samples from this borehole have been collected. We went to a total depth of 5.0 ft. Samples RE16-00-0338, 0339, and ~~0440~~ 0240 were collected ~~0338~~ 0339, ~~0440~~ 0240 are the

Continued on Page 32

KLS 9/30/00 KLS 9/30/00 9/30/00

Read and Understood By

Signed Date Signed Date

CT MDA-R 9/30/00

Notebook No. 31

Continued From Page 31

interval 0240 is a split sample.
Drillers are tripping out of the borehole They are going to decon all of the auger flights, the bit, and the jacks and wheels on the Rig.
All deconning of the sampling equipment and drill Rig is complete. Elmer and Russel are heading back to 16-260 outfall to set the Rig up back at their borehole. Joe and Tim are deconning the excavator.
Excavator decontamination is complete. Tomorrow Randy Johnson can drive the excavator out from behind 260 so that SG Western can pick it up next week. Excator HE Spot tested on tracks, bucket, pedals, and steering wheel. No HE contamination was detected on the excavator.
The following SOPs were used for today's activities: 9/30/00

SOPs Used During The MDA-R Phase I Investigation at TA-16

1) ER-SOP-1.01, Rev. 0 General Instructions for Field Investigations 04/27/1995

2) ER-SOP-1.02, Rev. 0 Sample Container and Preservation 03/16/1992

3) ER-SOP-1.03, Rev. 1 Handling, Packaging and Shipping of Samples 05/05/1994

4) ER-SOP-1.04, Rev. 3 Sample Control and Field Documentation 11/15/1995

5) ER-SOP-1.07, Rev. 0 Operational Guidelines for Taking Soil and Water Samples in Explosive Areas 03/21/1995

6) ER-SOP-1.08, Rev. 0 Field Decontamination of Drilling and Sampling Equipment 03/31/1995

~~7) ER-SOP-3.10, Rev. 0 Trenching and Logging 05/19/1993~~ 9/30/00

8) ER-SOP-4.01, Rev. 2 Drilling Methods and Drill Site Management 06/01/1999

9) ER-SOP-6.09, Rev. 0 Spade and Scoop method for Collection of Soil Samples 02/14/1995

~~10) ER-SOP-6.10, Rev. 1Hand auger and Thin-Wall Tube Sampler 08/26/1998~~ 9/30/00

11) ER-SOP-6.24, Rev. 0 Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers 05/19/1993

12) ER-SOP-10.08, Rev. 0 Operation of the Field Portable XRF Instrument 08/23/1995

Crew departs site back to the IT office. All equipment was put away all samples placed in the sample freezer.

9/30/00

Continued on Page

Read and Understood By

Signed Date Signed Date

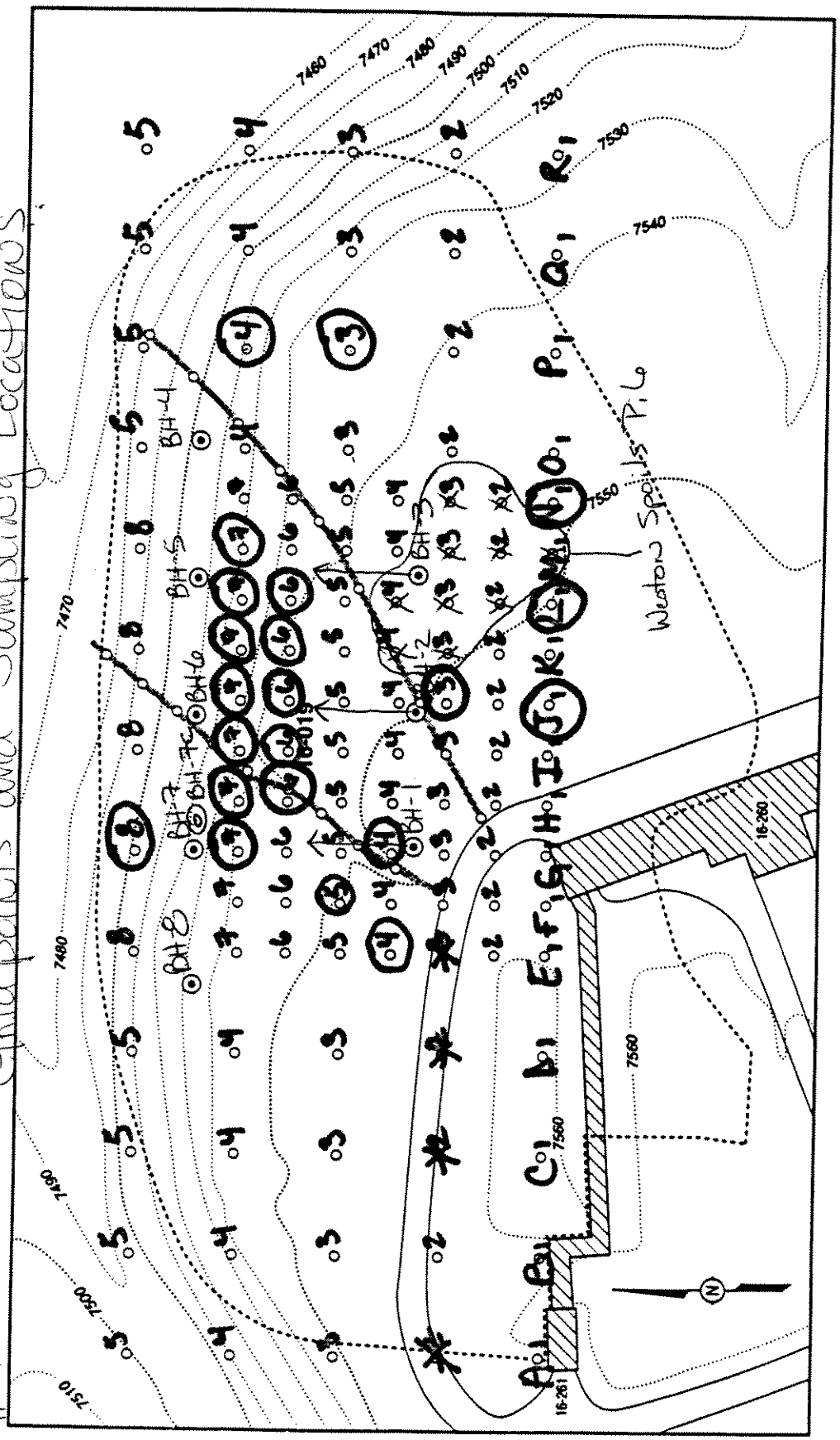


Fig. 5-41. Schematic MDA R sampling grid.

Insetted fig 9/30/00

Signed _____ Date _____ Signed _____ Date _____

Appendix 5

Sept. 1, 2000

11:45 Arrived at TA-16 IT admin trailer. Russell Stone (SSO) read SSHASP and discussed general site hazards and various tasks with Kristi Bequin. Kristi Bequin, Joe Vargas, Carol Vargas, and Russell Stone walked the MDA-R site to identify the boundaries of the EZ.

1400 RS Returned to the IT Admin trailer. Bob Monsalve-Jones conducted

1400 Briefing of MDA-R SSHASP

1430 SSHASP Briefing concluded. Everyone in attendance signed the acknowledgment form. Kristi, Joe, and Carol returned to the site to begin staking the grid. Russell Stone left the site.

1715 Left site to return to IT

Last Entry RS

9/2/00

1	0715	Leave IT for site	
2	0745	Arrive on site. Russell prepared for tailgate meeting. Joe + Carol opened trailers. Kristi started her field notebook notes	07
4	0800	Tailgate meeting held. Activities on-site will be limited to marking and staking the grid over the burn grounds. Hazards include slips, trips, + falls. Debris piles and mice are noted as potential hantavirus exposure areas. PPE will be leather gloves, safety glasses, hat, steel-toed boots.	074
9	0820	Entered the area, CRZ has not been set up. Set up of CRZ will be the first activity.	0757
11	0830	Began laying out grid. Much of the area is covered with scrub oak, shrubbery (some w/ thorns), and trees. Everyone was told to be careful of footing when working where feet can be tangled in low growing bushes. Also, some slopes are about 45°-50° grade, care must be taken to not slide or fall - techniques for this were discussed in the tailgate.	0810
17	1100	Break for lunch	0830
18	1150	Crew came to TA-16 admin area for break. Weather during the morning was calm and sunny, temperature mid-60's to low 70's	1015
20	1300	Crew takes a water break.	1040
21	1430	Returned to MDA-R, began laying out smaller grid that centers over MDA-R. Mosquitos are starting to be more numerous.	1210
23	1615	Leave MDAR for admin trailer.	1220
24	1830	Leave TA-16 for IT office	
25	1645	Arrive IT office. We will meet at 0700 tomorrow.	

Last Entry RJ

9/3/00

0715	Leave IT. Went to Pettygrs Tefaco to get mosquito repellent - Tefaco was out of stock. It was determined that since we were working a short day (leave at noon) that the Kuiti would have Pat order some for next weekend.
0740	Arrive at gate. Sign in at TA-16.
0750	Arrive at Admin trailer. Crew is preparing for activities; collecting field samples, staking rest of grid. Loaded first aid kit and work supplies/equip on truck.
0810	Tailgate safety meeting held. Crew will split up into 2 man teams to complete staking grid and start collecting field samples. Sampling team will wear 2 pair nitrile gloves and position themselves upwind when collecting samples.
0830	Leave admin trailer for MDA-R. Teams are Joe and Russell marking flags, Beth and Carol taking field samples.
1015	Leave MDA-R to take a water break. Flags were labeled up through row G (see field supervisor notebook or diagram in the front of this notebook).
1040	Return to MDA-R. Teams continue tasks of marking sampling points and taking field samples of soil.
1210	Leave MDAR for Admin trailer.
1220	Leave TA-16 for IT Office

Last Entry RS

England, Bill ..... 665-6041; benglandd@lanl.gov
Freiboth, Cameron ..... 4314, cameron freiboth@rfets.gov;
Pager 1 800 503 0291

9-8-00

0700 AT office.

0830 SSHASP Briefing, + Mod 1 To SSHASP 291
Reviewed SSHASP - General Hazards, Physical Hazards
Specific Topic: Mod 1 To SSHASP - Additional
Air sampling for drilling + sample collection.
DM: Discussed Safety Notice for Bear attacks

0900 Leave To site

0930 AT site -

0945 Start Background + source checks of E-600

1000 Brief Training on E-600 operation

1010 Dan Sandoval ESH-5 on To visit
Took him on Tour of site. Discussed planned
activities including sample collection + drilling

1040 To MOA-R site
Start surface soil sampling
Start δ scan at grid node

1215 Break for Lunch

1330 Back from Lunch - wait for Kilner To get back
with PID from office

1400 Get Safe-work Permit for PID

1430 Gilian Air sampler: 10834 setup
Start: 1124 cc/min average of 3 (1124, 1123, 1125)
Gilian #2 sampler: 10833 setup
Start: 2001, 1994, 1990 cc/m. Avg = 1995 cc/min

1500 Out To MOA-R - inspect drill Rig

1530 Stop work due To weather - Lightning Less Than
3 miles away

1540 Starts To hail

1650 Stops hail, Notified of By EMO pager To
exit canyons

1630 Leave site, return To office

9-9-06

0700 AT offices
0720 Leave To site.
0745 AT Gate 431, & processing Through security
Personnel: R. Monsalve-Jones, Derreck Jones, Esther Witherow
Joe Vargas & Carol Vargas
0800 AT TA-16 Trailers start Loading equipment.
0820 Tailgate Safety meeting - Planned activities are:
1) Set up XRF & run samples
2) Continue Rad survey
3) set up exclusion zone for Drilling
4) Drill & collect samples
General Topic: Slips, Trips & Falls, Lightning
Special Topic: Africanized Bee - what To watch for & how To react if attacked & stung.
ISM: General review of yesturdays activities - also need To get Bug spray & watering set up
0850 Deploy To MDA-R - start setting up Area - start Rad Reading on Lines C & D
0900 Dan Sandoval stops by To check out Area - Discussed First Aid Kit & supplies - OK
Eye wash - SSMASP calls for 15 minute flow Time will get gravity flow unit from Lab Trailer.
Inspected drill Rig: noted mask up & no posting around Rig; I noted no fire extinguisher on Rig, Dan commented That The Hi-Lift Jacks are no longer permitted on Drill Rigs - I pointed out The it is a LANL Rig - Dan will get The Information concerning Hi-Lift Jacks To me.
0915 Return To Trailers To get: eyewash, fire extinguisher & samples To run on XRF.
0935 Back from Trailers: start Rad survey & set up on XRF.
0940 Carol & Esther notified me That The XRF is not

9-9-00 continued

0940' working - The battery is not charged dispite being on the charger all night.
Have Esther & Carol set up exclusion Zone around drill Rig.

1030 Calibrating PID : cal gas 100 ppm Isobutylene
end point = 98.4 ppm.

Also : problem with data logging on Rad survey -
appears that the instruments (RE-600's) are not incrementing properly.
Discovered that Technicians pressing log and stop buttons too fast not allowing the instrument to complete datalogging cycle.
Technicians going back over repeated survey points to gather new data.

1100 Cal on PID complete - ready to go -

1125 R. Nixon on site - discussed XRF problem with him - he is off investigating power sources for XRF

1140 Elmer back - Reported that the power strip in the lab. Trailer was Turned off, Thus the XRF did not charge

1230 Lunch

1330 Back - checking equipment + XRF

1400 set up to drill first hole -
MiniRae on on Rig
Air sampler 10834 on on Rig

1430 Start 1st hole
0.0 PID, 12.56 K gas, HE - Negative

1440 Air sampler 10833 on on sample Table

1433 0-2.5' 60# Recovery 0.0 PID
~~Auger @ 12.5' K gas Rig~~
1.2-2.5' sampled

9-9-00 cont'd

1520 2.5' – 5' hole 1 0.0 PID 12.1 Kcps
Sample Interval 3.5'–5' HL - negative

1525 5'–7.5' hole 1 0.0 PID 12.9 Kcps
Sample Interval
AT 5.5' encountered Tuff.

1550 Start breaking down Drill Rig

1557 Mast down.

1620 Rig moved, Back at Trailers
MiniRam TWA - 0.12 Time 148 min
SD = 0.03

1645 Airsampler: 10833 2087 2050 2033 Avg 2057/107 mm
10834 1098 1086 1085 Avg 1090/147 mm

Post Drilling Debrief: Generally good for 1st day + first timers considering problems with XRF.
Good notes for sampling
will clarify sampling in A.M.
- Need to improve/watch out for:
safety glasses w/side shields
dress out practices

1655 Crew off site

9-10-00

0700 Muster AT office } R. Monsalve-Jones, Elmer Alton, Derrick Jones
0800 AT Trailers } Esther Withers, Joe Vargas, Carol Vargas
0818 Spin up Gilian Air samplers
on 0812 #10834 : 1124 1114 1089 1088 Avg =
on 0816 10833 : 1174 1165 1174 1170 Avg =
0830 To MDA-R - set up to drill.
0915 Air samplers & Dust monitor set up
Dust monitor & sampler 10833 on Drill Rig
Sampler 10834 at sample Table.
0925 PID set up
0930 1st hole of Day B.H.-2 0-25'
0940 Attempt to set up noise dosimetry - will not calibrate - Battery in cal unit w/o
1000 Down To 8-5 ft in BH 2
0005 Dan Sandoval stops by to visit - Discussed placement of eye wash station, potable/non-Potable water signs. Also general rig safety as Rig mast being Taken down.
Dan offered To help in any way - signs, safety equip. etc.
1020 Kristi Bequin on site
1030 Dan Sandoval Departs
LR 1025 Rig moved To BH-3 location
1043 Begin BH-3
LR 0820 Tail gate safety meeting - Planned activities are Drill bore holes & collect samples
General: Slips, Trips & Falls, Drill Rig operations Pinch points, etc around Drill Rig
Special: Heat stress/Stroke - Signs of & what To do - cool down - shade, Loosen Strips, drink Fluids, chemical cold packs
ISM: Remind everyone about Hazwoper Exclusion Zone dress & doffing clothing.
Also XRF safety - XRF is a radiation producing

Device - Do not point the sample end at another person or look into it when unit is acquiring data.

1143 Begin BH-4 on edge of slope.
1200 Lunch Time.
1300 Back from Lunch
1345 Down 6' on BH-4, unsafe to drill further. Auger Lifting also out of fuel for drill Rig
1400 Mo - offsite to get Diesel fuel
1420 Met Byers Texaco on Diamond Drive closed
1430 Found fuel at Diamond Shamrock on Trinity
1500 Back at MDA-R with fuel
1510 Drill Rig on BH-5
1540 Mast Down.
1548 Drill Rig on BH-6
1629 BH-6 ~~done~~ down to 60'
1700 AT Trailers

MiniRae TWO 0.13 9.65 hrs
SD = 0.13

10834 1030 1016 1018 1017 Avg =
off at 1710 5-40 minutes
10833 1195 1195 1202 1199 Avg =
off at 1712 536 min

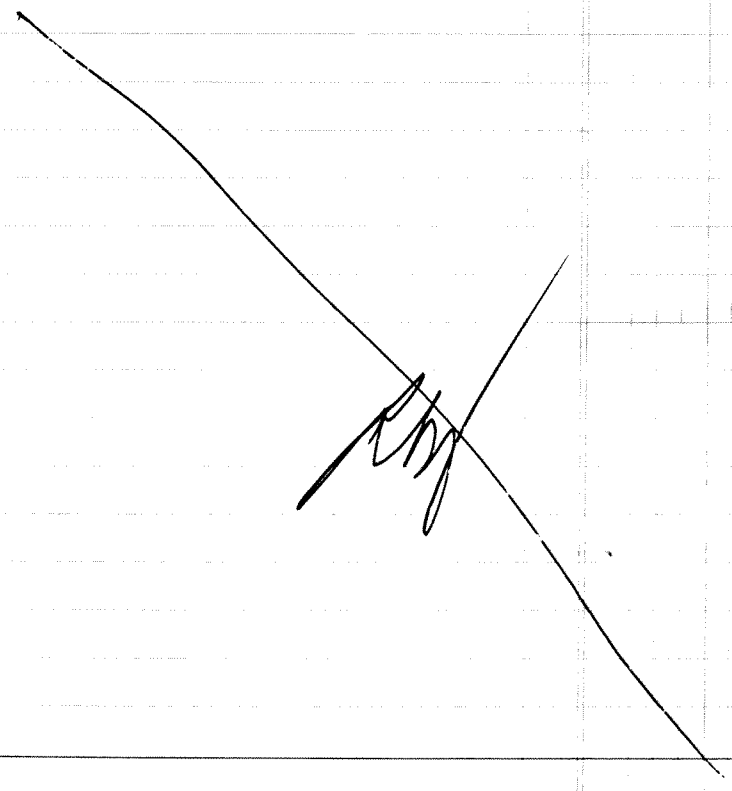
1730 Leave site
1800 AT offices.

9/16/00

0700 meet at office: K Beguin, E. Witherow, D Jones, J. Vargas, C. Vargas, E Alcon & self.
0730 Start Deploying To TA-16
0845 AT site - start Loading for field. Doug Barney on site
0910 Tailgate safety meeting: Activities Today: Drill holes, move rig, XRF sampling, spot test sampling, Rad screen & PID screen
General Topic: slips, Trips & falls, Lifting, Lightning & heat stress.
Special Topic: 1998 OSHA Fatality Statistics for Top 10 Causes of Fatalities.
ISM: Talked about drill rig operations, inspections
Also reviewed Lightning: 15 sec - 3 miles, 10 sec 2 miles
0930 To site
1010 Ready, set go - start drill rig
1015 Pushing Auger in BH-6
1020 Dan Sandoval off site.
1100 Done BH-6
1145 Over BH-3, Redrill to collect Bottom sample
1230 Lunch
1245 D. Jones reported burning in eyes & sensitivity To sun & bright Light. Had Derrick wash face numerous times during & after lunch
1315 Seems To have cleared but still puffy around eyes.
Derrick used The "Coppertone Waterproof Lotion SPF-45" for sun screen protection. Sunscreen, mixed with sweat & ran into eyes. Checked MSDS Section V "Eyes given as non-irritating" Skin given as non-irritating
1320 Derricks eyes no longe sensitive To bright Light but area around eyes still puffy
1330 Gave Tim Motah a briefing on the 291 SSHASP and Mod I so he could work at MDA-R.

9-18-00

1350 ~~1400~~ Drill at BH-3 for bottom sample
D. Jones back into zone to help in non stressful activities
1415 Off BH-3, Positioning to over BH ~~4 co located~~ 5
→ lesson learned from sunscreen. compare the bottle ingredients to the MSDS ingredients.
1520 LAFD showed up to do flow and pressure test of Hydrants in Bldg 260 area.
1523 On BH-2 to re-drill & collect Bottom sample
1610 Bottom of BH-2 collected - no PID unit Batteries down.
Dust monitor: TWA — 0.10 Time 9.99 hrs
SA — 0.09
Sound Dosimeter on Joe Vargas
41.1 % dose 87.4 Lavg/Leq 109.9 Lmax dB 20
22.1 % dose 84.4 Lavg/Leq ~~129.5 Lmax dB~~ 69.4%
>115 dB Ø minutes 4:44 hr/min
1645 Leave to office
1705 AT office



9/17-00

0700 AT office - K. Beguin, D. Jones, L. Witherow, J. Vargas
C. Vargas & self
0730 Leave To Site
0805 AT site, Pick up E. Alcon AT gate
0820 Tailgate Safety meeting Planned Activities include
Drilling B/H - 7 + 8, decon Rig, Package samples
General Topic: Slips Trips & Falls, Lifting
special: ~~Drill~~ Communication & Reporting of problems with
emphasis on D. Jones eye incident on 9/16/00
ISM: Discussed good Drill rig practice, saturating
operations Lead by Elmer Alcon - watch out for
wires, pinch points & Rotating machinery
use 2 people to carry auger flights
0830 Set up Air samples
S/N 10832 : 2083 2087 2087 2089 Avg =
10833 : 1248 1297 1253 1258 Avg =
0922 Air Sampling & Dust monitoring & Positioned
S/N 10832 AT drill Rig with Dust miniram
10833 AT sample Table
0927 Set up sound Dosimeter - initial 93.7 cal
put on J. Vargas
0934 Cal on PID : 99.5 ppm vs 100 ppm
0930 Over BH-7 Location
0942 Start BH-7 - ~~Refusal at 3 ft Rig~~
1001 Move Rig ≈ To be better over hole.
1015 Dan Sandoval stops by To visit & Look Things
over - Looked AT tailgate meeting. We
discussed air monitoring - particully Beryllium
sample if air Filters are sent in for analysis
Also - noted That Eye wash station did not have
an inspection Tag. Told Dan That I am
expecting regular printed Tags This week.
Discussed The Hy-Jack on The drill rig - Dan
Found out That There is no stop use of The

Hy-Jacks. Just be carefull when using it. Use at own Risk. He is going to try & get the incident report he referred to last week.
Observed a bend in wire rope on rig - from inspection the bend is not kinked, no broken wires not bird caged. OK to use
Discussed First Aid Kits - he is going to get me the LANL SOP.

1045 Dan off site.
1110 Off BH-7, mast down
1128 Mast up & Rig over BH 7-C
1133 Drilling BH 7-C
1135 E. Witherow complained of sting/Biting on her back - Inspected inside coverells and back of her cloths saw nothing crawling. Kristi Beguin looked at Esthers back and saw no evidance of stings or bites.
1150 Stop for Lunch
1200 Leave Area to Trailers
1300 Back from Lunch
1305 Collected sample from BH 7-C
1320 Augers out of BH-7-C
1325 Mast down
1327 Off hole, moving to BH-8
1333 On BH-8 mast up
1334 C. Vargas, E Witherow & K Beguin to Bathroom.
1341 Start Augering. C Vargas, E Witherow & K Beguin Back
1410 ~~Call~~ Elmer Alcon called off due to wind/Rain
1430 mini Rm TWA 0.06 Time 9.99
SA 0.04

10832: 2037 2028 2024 2016 Avg = (309 minutes)

10833: 1261 1252 1246 1253 Avg = 309 min

over

9/17/00 continued

1430 Sound: 31.6 Hz 87.4 Lmax
19.1 Hz 83.8 Lmax 3:39
109.3 Lmax 2:47 sec Lmax
>115 Ø
Final cal 94 dB

1530 Leave site

1600 At office

9/18/00

1600 Leave To site: K Beguin, P. Gram, D. Jones, J. Vargas, K. Witherow, C. Vargas & self

1620 AT TA-16 - found out THAT we cannot access behind Bldg 260 until after 1200 hrs

1630 Set up instruments:
Sound level meter 94 dB
Dust monitor
PID : 100 ppm
B/Z # 10833 : 1231 1230 1232 1229 Avg =
10832 : 2004 1997 1972 1992 Avg =

1650 Tail gate safety meeting: Planned activities
Complete BH-8 move Rig To BH-1 & set Bottom sample
General: Slips, Trips & Falls, Lifting - Rig safety
Special: Work Planning - went over Uranium Oxide Fabrication HEPA Filter change out incident
ISM: No discussion from Sunday operations. P. Gram warned us he has not drilled for a while and will need to reacclimatize himself with the Rig operation. Discussed the Latch/unlatch Tool.

1725 Into Zone start Rig.

1745 Sample out To sample analysis 7.5'-10'
Weather: Cool - 55°F, windy from WSW 20 mph gusting up

1755 Turning auger To 10-12.5'

1754 Sample end of hole

1807 Out of hole

1815 Moving from BH-8 To BH-1

1820 Over BH-1, setting up.

1835 Start To auger down at BH-1

1850 At 10' depth on BH-1

1904 Sample out of tube

1947 Pulling augers

1912 Out of hole

1915 Sound 13.1 90 86.1 dB 107.0 max 1147 hr min Run
Dust TWO 0.07 SD = 0.0 158 min

S/N 10833 on Rig found off Last Run
4 minutes

SN 10832 sample Table 119 minutes

1940 ~~A/10833~~ out of Zone

1948 10833 Rig 1298 1298 1300 1298 avg
10832 2082 ~~2270~~ 2058 2069 2066 avg

1955 Sound final 93.8 dB

150
15

165
172

9/22/00

1500 Arrive @ admin trailer. Crew begins to get necessary tools
1540 Tailgate meeting held. Alba Brenner reviewed SSHASP and has signed off. Activities include soil sampling (surface) in drainage
Primary hazards will be slips, trips, and falls and use of hand tools
Heat stress and poor weather is not highly probable. Activities should
be concluded before lighting becomes a problem. Weather is
clear/partly cloudy, temp ~ 75°, light breeze.
Alan Bird, Carol Vargas, and Esther will take soil samples, Alan
Brenner and Russell Stone will walk site to introduce Alan to the
work area. PID and other IH sampling has been discontinued
1655 Exit CRZ and return to admin trailer.
1720 Leave site for LT

Last Entry RJ

9/23/00

0700	Crew arrives at IT office
0730	Depart for TA-16
0830	Tailgate meeting held. Activities for today will be hand augering for soil sampling and field analysis of those soil samples. Hazards will be slips, trips, and falls; use of hand tools; heat stress / Seasonal various biological hazards. The augering will take place on a slope so special attention will have to be paid to footing during the process. Crew will only work ½ day due to company picnic, they will be reminded to keep focused on the work. Special topic for the day will be personal hygiene.
0900	~~Hand~~ Crew enters CRZ. Field crew reminded about slips, trips, and falls. Hand augering begins, two crews (Crew #1 - Carol, Esther, and Derrick Crew #2 - Kristi, Alan, Russell) Temp. about 65°-70°F. Winds from the east at 15-20 mph.
1230	Crew exits CRZ
1240	Return to admin trailer.
1450	Leave admin trailer for IT

Last Entry RL

0700
0730
0830
0900
1230
1240
1450

9/24/00

0700	Arrive at IT
0730	Crew departs IT
0815	Tailgate held. Same activities as yesterday - hand augering and field sampling. Major hazards are slip, trip, & falls; use of hand tools, and dehydration. Temp is significantly cooler at about 40°F, personnel reminded to rehydrate regularly even though they may not feel thirsty. Other hazards include sunburn and back strain. Kristi is taking time to review sampling info to confirm sampling site for todays activities. We may potentially use the drill rig today to sample area where hand augering is impossible due to compacted soil or rock.
0915	Crew enters CRZ and splits into same sampling groups as yesterday. Sampling activities commence.
1200	Crew exits CRZ. Dan Sanborn from ESH-5 is at the edge of EZ and checks in w/ Kristi and me about todays activities. Dan leaves site after about 10 minutes.
1210	Crew departs site for lunch.
1320	Crew returns to admin trailer.
1330	Crew enters CRZ. Same activities will be conducted during the afternoon. Temp is ~65°F.
1555	Crew exits CRZ. No incidents or close calls during the day.
1620	Crew arrives at admin trailer. Samples placed in the freezer, equipment put away in storage trailer.
1630	Crew departs TA-16 for IT

Last Entry 18

9/29/00

0815 Enter S-site

0838 Tailgate held. Activities will be trenching w/a backhoe and soil sample taken. The trench depth is dependent on field sampling & be conducted during the operation. No one will enter the trench. Pictures will be taken when the trench is at its max depth and then the trench will be filled immediately. Hazards will be slips, trip, falls, heavy equip.; biological hazards incl. displaced wildlife.

1630 Greg begin trenching w/ excavator. Kristi and Alan watch from ~50' away

1700 Trenching completed. Kristi takes pictures of two trenches. Greg backfills trenches

1715 Crew exits CRT and departs area for IL

Last Entry RF

9/30/00

0900 Crew arrives at admin trailer.
0930 Tailgate held. Activities will be (1) move drill rig from 260 IM to MDA-R, (2) Borehole 4 holes to a depth of 5 ft., (3) field screen soil from boreholes at 1ft intervals, and (4) decon excavator. Hazards are slips, Trips, falls; heat stress, sunburn, heavy equip, pinch points, energized equipment.
1000 Elmer and Russell enter EZ of 260 IM to ging stuck drill truck. Elmer moves drill rig to MDA-R.
1020 EZ at MDA-R extended to incorporate locations where borehole drilling is required. Elmer, Tim, and Josh get rig setup while Kristi, Alan, and Carol make preparations for field sampling/screening. Russell will remain outside EZ to observe.
1043 Begin drilling first borehole. Samples setup approx. 50' from drill rig. Temperature is ~70°F, light breeze from SE.
1058 Sample from 0'-2½' taken, continue to drill to 5'
1115 Location 1 samples taken drill rig is being moved
1140 Borehole #2 started, located in access road to 260 IM.
1153 Down to 5' on borehole #2. Drilling completed on BH#2
1220 Crew exits CRZ for lunch.
1330 Crew reenters the CRZ. Afternoon activities will be to complete last two boreholes and decon the excavator.
1530 Crew exits CRZ to return to admin trailer. Field activities ended for the day. This phase of the project is completed with no incidents or near misses.

Last Entry RF

Appendix 6

SAFETY BRIEFING
DATE: 09/02/00
Time: 0820

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Cooriodor, MDA-R

Tasks to be Performed (ea. area): 1 - staking grid

SPECIAL TOPICS: None

DAILY ACTIVITIES Marking and staking a grid over the area of concern

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools.

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: HMX, RDX, TNT(2,4,6), Barium, silver chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, pinch points

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves,
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Russell Stone (PRINT NAME) Russell Stone (SIGNATURE) 550 (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 267, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Kristi Bryan	Kristi Bryan	105685	9/2/00
Carol Vargas	Carol Vargas	175204	9/2/00
JOE VARGAS	Joe Vargas	175235	9/2/00
Dan L Smith	Dan L Smith	678047	9/2/00

SAFETY BRIEFING
DATE: 09/03/00
Time: 0800

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Cooriodor, MDA-R

Tasks to be Performed (ea. area): 1 - staking grid, collect field samples

SPECIAL TOPICS: **None**

DAILY ACTIVITIES Marking and staking a grid over the area of concern

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools.

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stres

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Russell Stone (PRINT NAME) Russell Stone (SIGNATURE) SSO (117365) (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 267, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Carol Vargas	Carol Vargas	175204	9/3/00
Joe Vargas	Joe Vargas	175235	9/3/00
Kristi Beguin	[illegible]	105685	9/3/00
[illegible]	[illegible]	078047	9/3/00

SAFETY BRIEFING
DATE: 09/08/00
Time: 0840

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Cooriodor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: Modification 1 to the SSHASP - additional dust monitoring and VOC monitoring.

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples, drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools.

ISM: Review of what to do when faced with Bears.

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stres

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Monzahn-Jones (PRINT NAME) [signature] (SIGNATURE) SSO (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
DERRICK JONES	Derrick Jones	176875	9/8/00
Esther Witheron	Esther Witheron	176876	9/8/00
Carol Vargas	Carol Vargas	175204	9/8/00
JOE VARGAS	Joe Vargas		

SAFETY BRIEFING
DATE: 09/09/00
Time: 0815

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Cooriodor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: **Africanized Honey Bees.**

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples, drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools.

ISM: Review of what to do when faced with Bears.

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stres

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Monsch-Jones [signature] SSD

PRINT NAME SIGNATURE TITLE

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Derrick Jones	Derrick Jones	176875	9/9/00
Esther Witherow	Esther Witherow	176876	9/9/00
Carol Vargas	Carol Vargas	175204	9/9/00
Joe Vargas	Joe Vargas	175235	9/9/00
Daniel Landon	Daniel Landon	078047	9/9/00

SAFETY BRIEFING
DATE: 09/10/00
Time: 0800

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Cooriodor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: **Heat Stress/Heat Stroke.**

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples, drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools.

ISM: **Reveiw of Saturadays operations, ways to improve efficiency, Remind everyone about eating, drinking, and smoking in HE corridor.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stres

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling and at sample screening table.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Mourer-Jones (PRINT NAME) _____ (SIGNATURE) 550 (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Elmer Alcon		19637	0850 09-10-00
Carol Vargas	Carol Vargas	175204	9/10/00
Esther Witherow	Esther Witherow	176876	9-10-00
Jose Vargas	Jose Vargas	145235	9/10/00
KRISHI BEGUIN		105685	9/10/00
Daniel Sanchez	Daniel Sanchez	678042	9/10/00

SAFETY BRIEFING
DATE: 09/16/00
Time: 0900

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Corridor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: **Recent Fatality Statistics from OSHA.**

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples, drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey of samples.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools, drill rig safety.

ISM: **Review of Saturdays operations, ways to improve efficiency, Remind everyone about eating, drinking, and smoking in HE corridor.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stress

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling and at sample screening table.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Montaño-Jones [signature] SSO

PRINT NAME SIGNATURE TITLE

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Kristi Beguin	[signature]	105685	9/16/00
Joe Vargas	[signature]	175235	9/16/00
Carol Vargas	[signature]	175204	9/16/00
Daniel Sandoval	[signature]	176875	9/16/00
DERRICK JONES	[signature]	178047	9/16/00
Elmer Alcon	[signature]	114657	9-16-00
Esther Witherow	[signature]	176876	9-16-00

SAFETY BRIEFING
DATE: 09/17/00
Time: 08200

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Corridor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: **Communication and reporting of problems.**

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples, drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey of samples.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools, drill rig safetyssss.

ISM: **Review of Saturdays operations, drilling safety.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stress

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling and at sample screening table.
Outside exclusion zone: hat, safety glasses, side shields, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Monsalve-Jones (PRINT NAME) [signature] (SIGNATURE) SSO (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Elmer Alcon	[signature]	119637	9-17-00
Kristi Beguin	[signature]	105685	9-17-00
Carol Vargas	[signature]	175204	9/17/00
[illegible]	[signature]	175235	9/17/00
Esther Witherow	[signature]	176876	9/17/00
Derrick Jones	[signature]	176875	9/17/00
David A. Sandoval	[signature]	028044	9/17/00

SAFETY BRIEFING
DATE: 09/18/00
Time: 1630

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Corridor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples, 3 - Borehole drilling, 5 - Sample analysis

SPECIAL TOPICS: **Work Planning.**

DAILY ACTIVITIES mobilize drill rig, finish collecting surface samples (Rad), drilling, sample analysis - screening with HE spot test, XRF operation, Rad survey of samples.

GENERAL TOPICS: Slips, trips, falls and lifting; heat stress, lightning, hand tools, drill rig safetyssss.

ISM: **Review of Sundays operations.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stress

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling and at sample screening table.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Robert Monroe-Jones (PRINT NAME) [signature] (SIGNATURE) 118754 (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Carol Vargas	Carol Vargas	175204	9/18/00
Esther Witherow	Esther Witherow	17876	9-18-00
DERRICK JONES	[signature]	17875	9-18-00
Joe Vargas	Joe Vargas	175235	9/18/00
Kristi Beguin	[signature]	105685	9/18/00
PETER E. M. GRAM	[signature]	103076	09/18/00

SAFETY BRIEFING
DATE: 09/22/00
Time: 1510

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Corridor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples

SPECIAL TOPICS: **Displaced wildlife.**

DAILY ACTIVITIES finish collecting surface samples in drainages.

GENERAL TOPICS: Slips, trips, falls and lifting; lightning, hand tools.

ISM: **Review of previous day's operations.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stress

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls during drilling and at sample screening table.
Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: PID for organic chemicals during drilling, Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Russell Stone (117365) Russell Stone 550
PRINT NAME SIGNATURE TITLE

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Alan G. Brewer	Alan G. Brewer	114267	9/22/00
Carol Vargas	Carol Vargas	175204	9/22/00
Esther Witheron	Esther Witheron	1768716	9-22-00
Keisti Begoin	Keisti Begoin	105685	9-22-00
Joseph A Bird	Joseph A Bird	170300	9-22-00
Dan Sanders	Dan Sanders	078047	9-20-00

SAFETY BRIEFING
DATE: 09/23/00
Time: 0810

TA-16 PRS 16-019 **SSHASP 291** **IT CORPORATION 880309**

AREA(s) OF OPERATION: HE Corridor, MDA-R

Tasks to be Performed (ea. area): 1 - Equipment mobilization, 2 - Collect field samples

SPECIAL TOPICS: **Personal hygiene.**

DAILY ACTIVITIES Hand augering for soil samples, field analysis of soil samples.

GENERAL TOPICS: Slips, trips, falls and lifting; lightning, hand tools, heat stress/sunburn.

ISM: **Review of previous day's operations.**

HAZARDS: General Safety: Slips, trips, falls, heat stress, lightning, hand tools, steep slopes (stay 3 feet back from edge), hand tools.

Chemical: Barium, Silver, Chromium.

Radiological: N/A

Physical: Slips, trips, and falls, sharp objects, lifting, heat stress

Biological: snakes, insects, displaced wildlife

PPE: **In exclusion zone:** safety glasses, steel toe shoes, leather gloves, coveralls.

Outside exclusion zone: hat, safety glasses, steel toe shoes, gloves.

ENG/ADMIN CONTROLS: **SITE ACCESS -** Admin control, disposable gloves for handling soils.

MONITORING: Dust as needed.

EMERGENCY ACTIONS: Muster area is at the vehicle. All injuries will go to LA medical center.

MEETING CONDUCTED BY: Russell Stone (PRINT NAME) Russell Stone (SIGNATURE) 550 (TITLE)

I acknowledge I attended the safety briefing and understand the health and safety requirements of SSHASP 291, the specific work activities for the day and the associated hazards, safety measures - PPE, Administrative/Engineering Controls and Monitoring Requirements, as well as the special and general topics discussed, and been given the opportunity to discuss previous operations and hazards and incidents:

PRINTED NAME	SIGNATURE	Z NUMBER	DATE
Esther Witherow	Esther Witherow	176876	9-23-00
Alan Brauer	Alan Brauer	114267	9/23/00
Derrick Jones	Derrick Jones	176875	9/23/00
Carol Vargas	Carol Vargas	175204	9/23/00
Kristi Bryan	Kristi Bryan	105685	9/23/00
Paul Smith	Paul Smith	078047	9/23/00

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date: 09/18/2000 Job# [illegible] Rig # Alkon AD II

1. Proper PPE Being Used

- [ ] A. Safety shoes
- [ ] B. Safety glasses
- [ ] C. Hard hats
- [ ] D. Hearing protection

} Per SSHMD 297.

2. Housekeeping/Daily

- [ ] A. Work Area
- [ ] B. Support trucks
- [ ] C. Vacuum system area
- [ ] D. Decon area

3. Tools

- [x] A. Breakout wrenches in good repair
- [x] B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear

- [x] A. Lower/Daily
- [x] B. Upper/Weekly

Hoist Cables and Wireline Assembly

- [x] A. No fraying or broken strands
- [x] B. Rating tags in place on chokers & straps
- [x] C. Mounting bolts tight
- [x] D. Sheaves greased and checked for wear
- [x] E. Hooks

6. Hydraulic Hoses and Connections

- [x] A. Check for leaks or weeping hoses
- [x] B. Worn hoses
- [x] C. Pinched hoses

7. Air Compressor and System

- [x] A. Oil level separator tank
- [x] B. Pop off working
- [x] C. Hoses and connections
- [x] D. Whipcheck and safety cables in place

8. All Guards and Covers in Place

- [x] A. Yes
- [ ] B. No

9. Decon Area

- [ ] A. Steam cleaner
- [ ] B. Hoses and wand
- [ ] C. Barrels sealed and tagged

} NA

10. Electrical

- [x] A. Cords not worn or cracked
- [x] B. Protected
- [x] C. Plug ends in good repair and sealed
- [x] D. Generators grounded
- [x] E. CGFI's tested

11. Crown and Derrick/Weekly

- [x] A. Structure/welds
- [x] B. Sprockets and pins
- [x] C. Chains
- [x] D. Sheaves
- [x] E. Guides and guide bolts
- [x] F. Top piping and safety liners
- [x] G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers

- [x] A. Full and tagged
- [x] B. Mounted properly
- [x] C. Pins in place

13. First Aid Section

- [x] A. Kits complete/full
- [x] B. Clean
- [x] C. Eye wash station in place

14. Flammables

- [x] A. Fuel cans marked & in proper area
- [x] B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place

- [x] A. Yes
- [ ] B. No

16. Engine

- [x] A. Fuel
- [x] B. Oil
- [x] C. Hydraulic Oil
- [ ] D. Leaks → [illegible]

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date: 9-17-00 Job# MOA-R TA-16 Rig # McKee II

1. Proper PPE Being Used
   - [x] A. Safety shoes
   - [x] B. Safety glasses
   - [x] C. Hard hats
   - [x] D. Hearing protection

2. Housekeeping/Daily
   - [x] A. Work Area
   - [x] B. Support trucks
   - [x] C. Vacuum system area
   - [x] D. Decon area

3. Tools
   - [x] A. Breakout wrenches in good repair
   - [x] B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear
   - [x] A. Lower/Daily
   - [x] B. Upper/Weekly

Hoist Cables and Wireline Assembly
   - [x] A. No fraying or broken strands
   - [x] B. Rating tags in place on chokers & straps
   - [x] C. Mounting bolts tight
   - [x] D. Sheaves greased and checked for wear
   - [x] E. Hooks

6. Hydraulic Hoses and Connections
   - [x] A. Check for leaks or weeping hoses
   - [x] B. Worn hoses
   - [x] C. Pinched hoses

7. Air Compressor and System
   - [x] A. Oil level separator tank
   - [x] B. Pop off working
   - [x] C. Hoses and connections
   - [x] D. Whipcheck and safety cables in place

8. All Guards and Covers in Place
   - [x] A. Yes
   - [ ] B. No

9. Decon Area
   - [x] A. Steam cleaner
   - [x] B. Hoses and wand
   - [x] C. Barrels sealed and tagged

10. Electrical
   - [x] A. Cords not worn or cracked
   - [x] B. Protected
   - [x] C. Plug ends in good repair and sealed
   - [x] D. Generators grounded
   - [x] E. CGFI's tested

11. Crown and Derrick/Weekly
   - [x] A. Structure/welds
   - [x] B. Sprockets and pins
   - [x] C. Chains
   - [x] D. Sheaves
   - [x] E. Guides and guide bolts
   - [x] F. Top piping and safety liners
   - [x] G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers
   - [x] A. Full and tagged
   - [x] B. Mounted properly
   - [x] C. Pins in place

13. First Aid Section
   - [x] A. Kits complete/full
   - [x] B. Clean
   - [x] C. Eye wash station in place

14. Flammables
   - [x] A. Fuel cans marked & in proper area
   - [x] B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place
   - [x] A. Yes
   - [ ] B. No

16. Engine
   - [x] A. Fuel
   - [x] B. Oil
   - [x] C. Hydraulic Oil
   - [x] D. Leaks

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date: 9-16-02 Job# MDA-R TA-16 Rig # AcKer II

1. Proper PPE Being Used

- [x] A. Safety shoes
- [x] B. Safety glasses
- [x] C. Hard hats
- [x] D. Hearing protection

2. Housekeeping/Daily

- [x] A. Work Area
- [x] B. Support trucks
- [x] C. Vacuum system area
- [x] D. Decon area

3. Tools

- [x] A. Breakout wrenches in good repair
- [x] B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear

- [x] A. Lower/Daily
- [x] B. Upper/Weekly

Hoist Cables and Wireline Assembly

- [x] A. No fraying or broken strands
- [x] B. Rating tags in place on chokers & straps
- [x] C. Mounting bolts tight
- [x] D. Sheaves greased and checked for wear
- [x] E. Hooks

6. Hydraulic Hoses and Connections

- [x] A. Check for leaks or weeping hoses
- [x] B. Worn hoses
- [x] C. Pinched hoses

7. Air Compressor and System

- [x] A. Oil level separator tank
- [x] B. Pop off working
- [x] C. Hoses and connections
- [x] D. Whipcheck and safety cables in place

8. All Guards and Covers in Place

- [x] A. Yes
- [ ] B. No

9. Decon Area

- [ ] A. Steam cleaner
- [ ] B. Hoses and wand
- [ ] C. Barrels sealed and tagged

10. Electrical

- [x] A. Cords not worn or cracked
- [x] B. Protected
- [x] C. Plug ends in good repair and sealed
- [x] D. Generators grounded
- [x] E. CGFI's tested

11. Crown and Derrick/Weekly

- [x] A. Structure/welds
- [x] B. Sprockets and pins
- [x] C. Chains
- [x] D. Sheaves
- [x] E. Guides and guide bolts
- [x] F. Top piping and safety liners
- [x] G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers

- [x] A. Full and tagged
- [x] B. Mounted properly
- [x] C. Pins in place

13. First Aid Section

- [x] A. Kits complete/full
- [x] B. Clean
- [x] C. Eye wash station in place

14. Flammables

- [x] A. Fuel cans marked & in proper area
- [x] B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place

- [x] A. Yes
- [ ] B. No

16. Engine

- [x] A. Fuel
- [x] B. Oil
- [x] C. Hydraulic Oil
- [x] D. Leaks

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date: 9-9-08 Job# MDA-R-TA16 Rig # Acker II

1. Proper PPE Being Used
   - [x] A. Safety shoes
   - [x] B. Safety glasses
   - [x] C. Hard hats
   - [x] D. Hearing protection

2. Housekeeping/Daily
   - [x] A. Work Area
   - [x] B. Support trucks
   - [N/A] C. Vacuum system area
   - [x] D. Decon area

3. Tools
   - [x] A. Breakout wrenches in good repair
   - [x] B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear
   - [x] A. Lower/Daily
   - [x] B. Upper/Weekly

Hoist Cables and Wireline Assembly
   - [x] A. No fraying or broken strands
   - [x] B. Rating tags in place on chokers & straps
   - [x] C. Mounting bolts tight
   - [x] D. Sheaves greased and checked for wear
   - [x] E. Hooks

6. Hydraulic Hoses and Connections
   - [x] A. Check for leaks or weeping hoses
   - [x] B. Worn hoses
   - [ ] C. Pinched hoses

7. Air Compressor and System
   - [ ] A. Oil level separator tank
   - [ ] B. Pop off working
   - [x] C. Hoses and connections
   - [x] D. Whipcheck and safety cables in place

8. All Guards and Covers in Place
   - [x] A. Yes
   - [ ] B. No

9. Decon Area
   - [ ] A. Steam cleaner
   - [ ] B. Hoses and wand N/A
   - [ ] C. Barrels sealed and tagged

10. Electrical
    - [x] A. Cords not worn or cracked
    - [x] B. Protected
    - [x] C. Plug ends in good repair and sealed
    - [x] D. Generators grounded
    - [x] E. CGFI's tested

11. Crown and Derrick/Weekly
    - [x] A. Structure/welds
    - [x] B. Sprockets and pins
    - [ ] C. Chains
    - [x] D. Sheaves
    - [x] E. Guides and guide bolts
    - [x] F. Top piping and safety liners
    - [x] G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers
    - [x] A. Full and tagged
    - [x] B. Mounted properly
    - [x] C. Pins in place

13. First Aid Section
    - [x] A. Kits complete/full
    - [x] B. Clean
    - [x] C. Eye wash station in place

14. Flammables
    - [x] A. Fuel cans marked & in proper area
    - [ ] B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place
    - [x] A. Yes
    - [ ] B. No

16. Engine
    - [x] A. Fuel
    - [x] B. Oil
    - [x] C. Hydraulic Oil
    - [x] D. Leaks

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date: 9-10-02 Job# MDA-B Rig # Ackert

1. Proper PPE Being Used
   - [x] A. Safety shoes
   - [x] B. Safety glasses
   - [x] C. Hard hats
   - [x] D. Hearing protection

2. Housekeeping/Daily
   - [x] A. Work Area
   - [x] B. Support trucks
   - [x] C. Vacuum system area
   - [x] D. Decon area

3. Tools
   - [x] A. Breakout wrenches in good repair
   - [x] B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear
   - [x] A. Lower/Daily
   - [x] B. Upper/Weekly

Hoist Cables and Wireline Assembly
   - [x] A. No fraying or broken strands
   - [x] B. Rating tags in place on chokers & straps
   - [x] C. Mounting bolts tight
   - [x] D. Sheaves greased and checked for wear
   - [x] E. Hooks

6. Hydraulic Hoses and Connections
   - [x] A. Check for leaks or weeping hoses
   - [x] B. Worn hoses
   - [x] C. Pinched hoses

7. Air Compressor and System
   - [x] A. Oil level separator tank
   - [x] B. Pop off working
   - [x] C. Hoses and connections
   - [x] D. Whipcheck and safety cables in place

8. All Guards and Covers in Place
   - [x] A. Yes
   - [ ] B. No

9. Decon Area
   - [ ] A. Steam cleaner
   - [ ] B. Hoses and wand
   - [ ] C. Barrels sealed and tagged

10. Electrical
    - [x] A. Cords not worn or cracked
    - [x] B. Protected
    - [x] C. Plug ends in good repair and sealed
    - [x] D. Generators grounded
    - [x] E. CGFI's tested

11. Crown and Derrick/Weekly
    - [x] A. Structure/welds
    - [x] B. Sprockets and pins
    - [x] C. Chains
    - [x] D. Sheaves
    - [x] E. Guides and guide bolts
    - [x] F. Top piping and safety liners
    - [x] G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers
    - [x] A. Full and tagged
    - [x] B. Mounted properly
    - [x] C. Pins in place

13. First Aid Section
    - [x] A. Kits complete/full
    - [x] B. Clean
    - [x] C. Eye wash station in place

14. Flammables
    - [x] A. Fuel cans marked & in proper area
    - [ ] B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place
    - [x] A. Yes
    - [ ] B. No

16. Engine
    - [x] A. Fuel
    - [x] B. Oil
    - [x] C. Hydraulic Oil
    - [x] D. Leaks

LANL EES-4
Daily/Weekly Safety Check-Rotary

Date:_____ Job#_____ Rig #_____

1. Proper PPE Being Used

- ☐ A. Safety shoes
- ☐ B. Safety glasses
- ☐ C. Hard hats
- ☐ D. Hearing protection

2. Housekeeping/Daily

- ☐ A. Work Area
- ☐ B. Support trucks
- ☐ C. Vacuum system area
- ☐ D. Decon area

3. Tools

- ☐ A. Breakout wrenches in good repair
- ☐ B. Wrenches & handtools clean & in their place

4. Chains & Sprockets Greased & Checked for Wear

- ☐ A. Lower/Daily
- ☐ B. Upper/Weekly

Hoist Cables and Wireline Assembly

- ☐ A. No fraying or broken strands
- ☐ B. Rating tags in place on chokers & straps
- ☐ C. Mounting bolts tight
- ☐ D. Sheaves greased and checked for wear
- ☐ E. Hooks

6. Hydraulic Hoses and Connections

- ☐ A. Check for leaks or weeping hoses
- ☐ B. Worn hoses
- ☐ C. Pinched hoses

7. Air Compressor and System

- ☐ A. Oil level separator tank
- ☐ B. Pop off working
- ☐ C. Hoses and connections
- ☐ D. Whipcheck and safety cables in place

8. All Guards and Covers in Place

- ☐ A. Yes
- ☐ B. No

9. Decon Area

- ☐ A. Steam cleaner
- ☐ B. Hoses and wand
- ☐ C. Barrels sealed and tagged

10. Electrical

- ☐ A. Cords not worn or cracked
- ☐ B. Protected
- ☐ C. Plug ends in good repair and sealed
- ☐ D. Generators grounded
- ☐ E. CGFI's tested

11. Crown and Derrick/Weekly

- ☐ A. Structure/welds
- ☐ B. Sprockets and pins
- ☐ C. Chains
- ☐ D. Sheaves
- ☐ E. Guides and guide bolts
- ☐ F. Top piping and safety liners
- ☐ G. Lifeline mounting/lifeline in good repair

12. Fire Extinguishers

- ☐ A. Full and tagged
- ☐ B. Mounted properly
- ☐ C. Pins in place

13. First Aid Section

- ☐ A. Kits complete/full
- ☐ B. Clean
- ☐ C. Eye wash station in place

14. Flammables

- ☐ A. Fuel cans marked & in proper area
- ☐ B. Aerosols capped/in cabinet

15. Safety Warning Sign Clean, Legible, & in Place

- ☐ A. Yes
- ☐ B. No

16. Engine

- ☐ A. Fuel
- ☐ B. Oil
- ☐ C. Hydraulic Oil
- ☐ D. Leaks

the igroup

SSO DAILY INSPECTION CHECKLIST

Field Unit 1052 TA 16 SSHASP No. 291 Date 9-17-00
Project Name MDA-R Project Number 850307

Inspection	Frequency	Initials
Job Site Material and Equipment	Daily	RMG
General Sanitation	Daily	RMG
Sign, Signals, and Barricades	Daily	RMG ①
PPE	Daily	RMG
Drill Rig Inspection	Daily	RMG
Electrical Equipment	Daily or before use	N/A
Rigging	Before Use	N/A
Hand Tools	Before Use	RMG
Vehicles and heavy equipment	Before Use	RMG
Material Handling Equipment	Before Use	RMG
Materials handling, storage, use and disposal	Before Use	N/A
Excavations/Trenches	Daily (after storms)	N/A
Excavation/Trenches Protective Systems	Daily (after storms)	N/A
Additional Inspections		
Eyewash Stations	Weekly	N/A
First aid/Blood Borne Pathogen Kits	Weekly	N/A
Fire Fighting Equipment	Monthly	N/A
Management Safety Inspection	Monthly	N/A

Deficiencies/Corrective Actions: ① Move hard hat/ Hearing protection Barrow As Drill Rig moves

Completed by: Robert Munson-Tom SSO
(Print name) (Title) (Signature)

D denotes a deficiency, all deficiencies will be corrected as soon as practicable.

the igroup

SSO DAILY INSPECTION CHECKLIST

Field Unit 1052 TA 16 SSHASP No. 291 Date 9/15/16/00
Project Name MDA-R Project Number 580307

Inspection	Frequency	Initials
Job Site Material and Equipment	Daily	RMJ
General Sanitation	Daily	RMJ
Sign, Signals, and Barricades	Daily	RMJ
PPE	Daily	RMJ
Drill Rig Inspection	Daily	RMJ / LEA
Electrical Equipment	Daily or before use	N/A
Rigging	Before Use	RMJ
Hand Tools	Before Use	RMJ
Vehicles and heavy equipment	Before Use	RMJ
Material Handling Equipment	Before Use	N/A
Materials handling, storage, use and disposal	Before Use	N/A
Excavations/Trenches	Daily (after storms)	N/A
Excavation/Trenches Protective Systems	Daily (after storms)	N/A
Additional Inspections		
Eyewash Stations	Weekly	RMJ ①
First aid/Blood Borne Pathogen Kits	Weekly	RMJ
Fire Fighting Equipment	Monthly	N/A
Management Safety Inspection	Monthly	N/A

Deficiencies/Corrective Actions ① Near Eyewash station Filled Today

Completed by: Robert A. Martinez-Jones SSO
(Print name) (Title) (Signature)

D denotes a deficiency, all deficiencies will be corrected as soon as practicable.

the igroup

SSO DAILY INSPECTION CHECKLIST

Field Unit 1082 TA 16 SSHASP No. 291 Date 9-10-00
Project Name MDA-R Project Number EE0307

Inspection	Frequency	Initials
Job Site Material and Equipment	Daily	RMJ
General Sanitation	Daily	RMJ
Sign, Signals, and Barricades	Daily	RMJ
PPE	Daily	RMJ
Drill Rig Inspection	Daily	RMJ/EA
Electrical Equipment	Daily or before use	N/A
Rigging	Before Use	RMJ
Hand Tools	Before Use	RMJ
Vehicles and heavy equipment	Before Use	RMJ
Material Handling Equipment	Before Use	N/A
Materials handling, storage, use and disposal	Before Use	N/A
Excavations/Trenches	Daily (after storms)	N/A
Excavation/Trenches Protective Systems	Daily (after storms)	N/A
Additional Inspections		
Eyewash Stations	Weekly	N/A
First aid/Blood Borne Pathogen Kits	Weekly	N/A
Fire Fighting Equipment	Monthly	N/A
Management Safety Inspection	Monthly	N/A

Deficiencies/Corrective Actions: _____

Completed by: Robert A. Monzoke-Jones SSO (Print name) (Title) (Signature)

D denotes a deficiency, all deficiencies will be corrected as soon as practicable.

the group

SSO DAILY INSPECTION CHECKLIST

Field Unit 1082 TA 16 SSHASP No. 291 Date 9-9-00
Project Name MDA-R Project Number 880307

Inspection	Frequency	Initials
Job Site Material and Equipment	Daily	RMJ
General Sanitation	Daily	RMJ
Sign, Signals, and Barricades	Daily	RMJ
PPE	Daily	RMJ
Drill Rig Inspection	Daily	RMJ/RA
Electrical Equipment	Daily or before use	N/A
Rigging	Before Use	RMJ
Hand Tools	Before Use	RMJ
Vehicles and heavy equipment	Before Use	N/A
Material Handling Equipment	Before Use	N/A
Materials handling, storage, use and disposal	Before Use	N/A
Excavations/Trenches	Daily (after storms)	N/A
Excavation/Trenches Protective Systems	Daily (after storms)	N/A
Additional Inspections		
Eyewash Stations	Weekly	N/A
First aid/Blood Borne Pathogen Kits	Weekly	RMJ
Fire Fighting Equipment	Monthly	N/A
Management Safety Inspection	Monthly	N/A

Deficiencies/Corrective Actions: _____

Completed by: Robert Monroe Jr SSO [signature]
(Print name) (Title) (Signature)

D denotes a deficiency, all deficiencies will be corrected as soon as practicable.

the group

SSO DAILY INSPECTION CHECKLIST

Field Unit 1082 TA 16 SSHASP No. 291 Date 9-8-10
Project Name MDA-R Project Number 880307

Inspection	Frequency	Initials
Job Site Material and Equipment	Daily	RMJ
General Sanitation	Daily	RMJ
Sign, Signals, and Barricades	Daily	RMJ
PPE	Daily	RMJ
Drill Rig Inspection	Daily	N/A
Electrical Equipment	Daily or before use	N/A
Rigging	Before Use	N/A
Hand Tools	Before Use	N/A
Vehicles and heavy equipment	Before Use	N/A
Material Handling Equipment	Before Use	N/A
Materials handling, storage, use and disposal	Before Use	N/A
Excavations/Trenches	Daily (after storms)	N/A
Excavation/Trenches Protective Systems	Daily (after storms)	N/A
Additional Inspections		
Eyewash Stations	Weekly	RMJ
First aid/Blood Borne Pathogen Kits	Weekly	RMJ
Fire Fighting Equipment	Monthly	~~N/A~~ RMJ ①
Management Safety Inspection	Monthly	N/A

Deficiencies/Corrective Actions: ① Fire extinguishers need annual inspection this month

Completed by: Robert A. Montoya-Jones (Print name) SSO (Title) [signature] (Signature)

D denotes a deficiency, all deficiencies will be corrected as soon as practicable.

Appendix 7

DIRECT-READING AIR MONITORING FORM (PED)

SSHASP No. 291 Mod. No. 01 SSHASP Title: non-R TA(s). 16

Instrument Data

Instrument: MiniRAE Mfr./Model: RAE Systems / Professional PID Serial No.: 11712 Factory Calibration Date Completed: 9-1-00 Date Due: 9-1-2001

Gas Type	Mfr.	Part/Lot No.	Conc.	Instr. Response (Incl. Units)	Date	Time	Temp.	Humidity (%)	Atm. Press. (mm Hg)	Rain	Snow	Wind	Comments
i-C_4H_{10}	Total Safety	TC-39M NRC Mpa M-1003	100ppm	100ppm	9/16/00	0940	70 °F / °C	5%	1	☐ Yes ☒ No	☐ Yes ☒ No	0-2 mph ON OS OE OW calm ONE ONW OSE OSW	
							°F °C			☐ Yes ☐ No	☐ Yes ☐ No	mph ON OS OE OW ONE ONW OSE OSW	
							°F °C			☐ Yes ☐ No	☐ Yes ☐ No	mph ON OS OE OW ONE ONW OSE OSW	
							°F °C			☐ Yes ☐ No	☐ Yes ☐ No	mph ON OS OE OW ONE ONW OSE OSW	

Additional Comments:

DIRECT-READING AIR MONITORING FORM (PID)

SSHASP No. 291 Mod. No. 1 SSHASP Title: mod-R TA(s). 16

Instrument Data

Instrument: Mini 5V | Mfr/Model: RAE Systems/Professional PID | Serial No.: 11712 | Factory Calibration Date Completed: 9-1900 | Date Due: 9-1-2001

Gas Type	Mfr.	Part/Lot No.	Conc.	Instr. Response (Incl. Units)	Date	Time	Temp.	Humidity (%)	Atm. Press. (mm Hg)	Rain	Snow	Wind	Comments
i-C_4H_{10}	Total Safety	TC-39M NRC 17/22 M-100	100ppm	98.4	9/9/00	1030	70 °F ___ °C	5%		☐ Yes ☑ No	☐ Yes ☑ No	5 mph ☑N ☐S ☐E ☐W ☐NE ☐NW ☐SE ☐SW	
i-C_4H_{10}	Total Safety	TC-39M NRC 17/22 M-100	100ppm	98.2	9/10/00	1025	70 °F ___ °C	5%		☐ Yes ☑ No	☐ Yes ☑ No	5 mph ☑N ☐S ☐E ☐W ☐NE ☐NW ☐SE ☐SW	
							___ °F ___ °C			☐ Yes ☐ No	☐ Yes ☐ No	___ mph ☐N ☐S ☐E ☐W ☐NE ☐NW ☐SE ☐SW	
							___ °F ___ °C			☐ Yes ☐ No	☐ Yes ☐ No	___ mph ☐N ☐S ☐E ☐W ☐NE ☐NW ☐SE ☐SW	

Additional Comments:

Appendix 8

Appendix 9

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Fri	Sat	Sun	Mon	Fri	Sat	Sun	Mon	Fri	Sat	Sun	Mon	Fri	Sat	Sun
	8/28/00	8/29/00	8/30/00	8/31/00	9/1/00	9/2/00	9/3/00	9/4/00	9/8/00	9/9/00	9/10/00	9/11/00	9/15/00	9/16/00	9/17/00	9/18/00	9/22/00	9/23/00	9/24/00	9/25/00	9/29/00	9/30/00	10/1/(
ACTIVITY:																							
Coordinate with CDM, get SCLs, and COCs	Elmer or ??	Elmer or ??	Elmer or ??	Elmer or ??																			
Excavation Permit Utilities Marked and signed	Elmer	Elmer	Elmer	Elmer	Elmer																		
Facility Tenant Agreement	Mary Lee	Mary Lee	Mary Lee	Mary Lee																			
SSHASP Signed and Approved	Mary Lee																						
Readiness Review	2:00 pm at IT Office																						
Survey & Stake Corner points					Field Crew																		
Measure and Stake Grid Points					Sam. Field Crew																		
Field screen all grid points						Sam. field crew	Sam. field crew	Sam. field crew															
Hand Auger sampling incl. Field screening									Sam. field crew	Sam. field crew	Sam. field crew												
Surface Soil Sampling west drng.												Sam. field crew											
Surface Soil Sampling east drnge.													Sam. field crew										
Drilling on North Rim									Drill Crew	Drill Crew	Drill Crew	Drill Crew	Drill Crew	Drill Crew	Drill Crew								
Drilling in former burial pits																Drill Crew	Drill Crew	Drill Crew	Drill Crew	Drill Crew			

Appendix 10

FOCUS AREA: **(i.e. CANYON, RECRA, MDA)**	Remedial Actions
Analysis Requested: (i.e. METTAL, SEMI) Please verify if you need TICS	Mettals, SVOC, Total Uranium (TUICPMS), HEXP
Any Rad Van Screening? (y/n): (i.e RVGROSSAB+RVGROSSG)	No
Chain of Custody Comments:	
Analysis Charge Code:	
CDM Charge Code:	
Work Package:	MR3R
Program Code:	331
Cost Account:	U8H0
Collection Plan Date:	01-Sept.-00
Field Prep:	
Field Screening (y/n): If yes, what Field Screening do you need?	Yes, HE Spot Test, XRF, Beta/Gamma
Field Unit Leader:	Warren Neff
Field Unit Leader Phone #:	665-9259
Field Unit Leader Mail Stop:	M992
Lab Report To:	Karen Schultz-Paige
Lab Report to Mail Stop:	M992
Lab Turn Around:	30-Day
LANL Contact:	Don Hickmott
LANL Contact Phone#:	667-8753
LANL Contact Mail Stop:	D462
Number of New Location IDs:	134
Number of Samples:	Please see attached spreadsheet for sample ID numbers
OU Contact:	Peter Gram
OU Contact Phone #:	661-5207
OU Contact Mail Stop:	M892
OU ID:	OU 1082
PRS ID:	16-019
PRS Type:	MDA-R
Sample Matrix:	Soil, Tuff, Sediment
Sample Usage:	Phase I RFI
Signature Name:	Kristi Beguin
Signature Name's Phone #:	661-5200
Submittal Date:	Weekly submittals in September
TA ID:	TA-16
Technique Description:	Spade and Scoop, Hand Auger, Split-Spoon Sampler
When would you like the data packets to be edited and validated? (This is currently taking 60 days from the day it's received from SMO)	60 days or sooner

Los Alamos National Laboratory
ENVIRONMENTAL RESTORATION
SITE-SPECIFIC HEALTH & SAFETY PLAN (SSHASP)

Project Name Drilling and Soil Sampling at MDA-R

SSHASP Number 291

The LANL ER Health and Safety Plan (HASP) supplements this SSHASP and shall be complied with as applicable. Copies of the HASP and this SSHASP are to be readily accessible for review on-site by individuals who may be exposed to hazards resulting from work conducted under the scope of this SSHASP. Personnel performing work under the scope of this SSHASP are required to sign the LANL ER Work Authorization and Health & Safety Briefing Acknowledgement page signifying that they are aware of the hazard information documented herein and will abide by requirements of these plans to eliminate or lessen the risk of injury or illness from exposure to the identified hazards.

APPROVALS / CONCURRENCE

Signature	Name/Title	LANL Group	Date
for	Warren Neff	EM/ER	9-1-00

Remedial Action Focus Area Project Leader Approval

Signature	Name/Title	Company	Date
	Scott Den Baars	IT Corp.	

IT Corporation H&S Responsible Line Manager Approval

Signature	Name/Title	LANL Group	Date
	Bob Grace	ESA-FM	

Facility Management Approval

Signature	Name/Title	LANL Group	Date
NA	Ricardo Ortiz	ESA-WMM	

ESA-WMM Group Leader Concurrence

Signature	Name/Title	LANL Group	Date
	Dan Sandoval	ESH-5	8/31/00

ER/ESH-5 Representative Concurrence

Signature	Name/Title	LANL Group	Date
	Richard Rasmussen	ESH-1	8/29/2000

ER/ESH-1 Representative Concurrence

Los Alamos National Laboratory
ENVIRONMENTAL RESTORATION
SITE-SPECIFIC HEALTH & SAFETY PLAN (SSHASP)

Project Name Drilling and Soil Sampling at MDA-R

SSHASP Number 291

The LANL ER Health and Safety Plan (HASP) supplements this SSHASP and shall be complied with as applicable. Copies of the HASP and this SSHASP are to be readily accessible for review on-site by individuals who may be exposed to hazards resulting from work conducted under the scope of this SSHASP. Personnel performing work under the scope of this SSHASP are required to sign the LANL ER Work Authorization and Health & Safety Briefing Acknowledgement page signifying that they are aware of the hazard information documented herein and will abide by requirements of these plans to eliminate or lessen the risk of injury or illness from exposure to the identified hazards.

APPROVALS / CONCURRENCE

Signature	Name/Title	LANL Group	Date
	Warren Neff	EM/ER	
Remedial Action Focus Area Project Leader Approval			
for	Scott Den Baars	IT Corp.	9-1-00
Signature	Name/Title	Company	Date
IT Corporation H&S Responsible Line Manager Approval			
	Bob Grace	ESA-FM	
Signature	Name/Title	LANL Group	Date
Facility Management Approval			
	Ricardo Ortiz	ESA-WMM	
Signature	Name/Title	LANL Group	Date
ESA-WMM Group Leader Concurrence			
	Dan Sandoval	ESH-5	
Signature	Name/Title	LANL Group	Date
ER/ESH-5 Representative Concurrence			
	Richard Rasmussen	ESH-1	
Signature	Name/Title	LANL Group	Date
ER/ESH-1 Representative Concurrence			

Los Alamos National Laboratory
ENVIRONMENTAL RESTORATION
SITE-SPECIFIC HEALTH & SAFETY PLAN (SSHASP)

Project Name Drilling and Soil Sampling at MDA-R

SSHASP Number 291

The LANL ER Health and Safety Plan (HASP) supplements this SSHASP and shall be complied with as applicable. Copies of the HASP and this SSHASP are to be readily accessible for review on-site by individuals who may be exposed to hazards resulting from work conducted under the scope of this SSHASP. Personnel performing work under the scope of this SSHASP are required to sign the LANL ER Work Authorization and Health & Safety Briefing Acknowledgement page signifying that they are aware of the hazard information documented herein and will abide by requirements of these plans to eliminate or lessen the risk of injury or illness from exposure to the identified hazards.

APPROVALS / CONCURRENCE

Signature	Name/Title	LANL Group	Date
	Warren Neff	EM/ER	

Remedial Action Focus Area Project Leader Approval

Signature	Name/Title	Company	Date
	Scott Den Baars	IT Corp.	

IT Corporation H&S Responsible Line Manager Approval

Signature	Name/Title	LANL Group	Date
Robert G. Grace	Bob Grace	ESA-FM	9/1/00

Facility Management Approval Verbal 8-31

Signature	Name/Title	LANL Group	Date
	Ricardo Ortiz	~~ESA-WMM~~	N/A

ESA-WMM Group Leader Concurrence

Signature	Name/Title	LANL Group	Date
	Dan Sandoval	ESH-5	

ER/ESH-5 Representative Concurrence

Signature	Name/Title	LANL Group	Date
	Richard Rasmussen	ESH-1	

ER/ESH-1 Representative Concurrence

TABLE OF CONTENTS

INTRODUCTION 1

Site Description 1

Project Description 1

SSHASP Objectives 2

SSHASP Approach to Hazard Identification 2

General Hazards 2

Area-Specific Hazards 2

Task-Specific Hazards 3

SSHASP Organization 3

SSHASP Implementation 4

Compilation of the Daily Activity Hazard Analysis 4

Integrated Safety Management 5

ISM Functions 5

ISM Guiding Principles 6

1.0 GENERAL INSTITUTIONAL REQUIREMENTS 8

1.1 Key Personnel Having Project H&S Responsibility 8

1.2 Emergency Contacts and Phone Numbers 8

1.3 Project Emergency Action/Response Plan 10

1.4 Project Spill Containment Plan 10

1.5 Map of Emergency Route to Hospital and ESH-2 from Project Site 11

1.6 Applicable Laboratory Implementation Requirements \ Laboratory Performance Requirements 12

1.7 ESA/WMA HE Area/Other Institutional Requirements 12

1.8 Training Requirements 13

1.9 Inspection Requirements 14

1.10 Documentation and Records to be Maintained On-Site 15

1.11 Hazard Communication 15

1.12 LANL ER Work Authorization And Health & Safety Briefing Acknowledgement 16

2.0 GENERAL PROJECT HAZARD ANALYSIS 17

2.1 MDA-R General Hazard Assessment 18

TABLE OF CONTENTS (continued)

2.1.1 Exposure Monitoring for General MDA-R Hazards 20
2.1.2 Medical/Radiological Surveillance for General MDA-R Hazards 21
2.1.3 Personal Protective Equipment for General MDA-R Hazards 21
2.1.4 Decontamination 21
2.1.5 Site Control for General Hazards 21
3.0 HAZARD ANALYSES FOR AREAS OF OPERATION 22
3.1 Hazard Analysis for Area of Operation 1 22
3.1.1 Description 22
3.1.2 Hazard Assessment 23
3.1.3 Exposure Monitoring 25
3.1.4 Medical/Radiological Surveillance 26
3.1.5 Personal Protective Equipment 26
3.1.6 Decontamination 26
3.1.7 Site Control 27
3.1.8 Site Control Map 28
4.0 HAZARD ANALYSES FOR TASKS 29
4.1 Hazard Analysis for Task 1: Equipment Mobilization/Demobilization and Infrastructure Installation 29
4.1.1 Task 1 Description 29
4.1.2 Hazard Assessment 29
4.1.3 Exposure Monitoring 33
4.1.4 Medical/Radiological Surveillance 33
4.1.5 Personal Protective Equipment 33
4.1.6 Decontamination 34
4.1.7 Site Control 34
4.1.8 Task Specific Training Requirements 34
4.2 Hazard Analysis for Task 2: Sample Collection 34
4.2.1 Task 2 Description 34
4.2.2 Hazard Assessment 35
4.2.3 Exposure Monitoring 37
4.2.4 Medical/Radiological Surveillance 37
4.2.5 Personal Protective Equipment 37
4.2.6 Decontamination 38

TABLE OF CONTENTS (continued)

4.2.7 Site Control 38
4.2.8 Task Specific Training Requirements 38
4.3 Hazard Analysis for Task 3: Borehole Drilling 38
4.3.1 Task 3 Description 38
4.3.2 Hazard Assessment 39
4.3.3 Exposure Monitoring 45
4.3.4 Medical/Radiological Surveillance 45
4.3.5 Personal Protective Equipment 46
4.3.6 Decontamination 46
4.3.7 Site Control 46
4.3.8 Task Specific Training Requirements 46
4.4 Hazard Analysis for Task 4: Excavation and Soil Management 46
4.4.1 Task 4 Description 46
4.4.2 Hazard Assessment 47
4.4.3 Exposure Monitoring 53
4.4.4 Medical/Radiological Surveillance 53
4.4.5 Personal Protective Equipment 53
4.4.6 Decontamination 54
4.4.7 Site Control 54
4.4.8 Task Specific Training Requirements 54
4.5 Hazard Analysis for Task 5: Sample Analysis 54
4.5.1 Task 5 Description 54
4.5.2 Hazard Assessment 55
4.5.3 Exposure Monitoring 58
4.5.4 Medical/Radiological Surveillance 58
4.5.5 Personal Protective Equipment 58
4.5.6 Decontamination 59
4.5.7 Site Control 59
4.5.8 Task-Specific Training Requirements 59
4.6 Hazard Analysis for Task 6: Chainsaw Operation 59
4.6.1 Task Description 59
4.6.2 Hazard Assessment 59

TABLE OF CONTENTS (continued)

4.6.3 Exposure Monitoring 61
4.6.4 Medical/Radiological Surveillance 61
4.6.5 Personal Protective Equipment 61
4.6.6 Decontamination 62
4.6.7 Site Control 62
4.6.8 Task-Specific Training Requirements 62
4.7 Hazard Analysis for Task 7: Robotic Operations 62
4.7.1 Task 7 Description 62
4.7.2 Hazard Assessment 63
4.7.3 Exposure Monitoring 64
4.7.4 Medical/Radiological Surveillance 64
4.7.5 Personal Protective Equipment 64
4.7.6 Decontamination 64
4.7.7 Site Control 64
4.7.8 Task Specific Training Requirements 65
4.8 Hazard Analysis for Task 8: Debris Collection 65
4.8.1 Task Description 65
4.8.2 Hazard Assessment 65
4.8.3 Exposure Monitoring 68
4.8.4 Medical/Radiological Surveillance 69
4.8.5 Personal Protective Equipment 69
4.8.6 Decontamination 69
4.8.7 Site Control 69
4.8.8 Task-Specific Training Requirements 69
4.9 Hazard Analysis for Task 9: Decontamination of Equipment 69
4.9.1 Task 9 Description 69
4.9.2 Hazard Assessment 70
4.9.3 Exposure Monitoring 72
4.9.4 Medical/Radiological Surveillance 72
4.9.5 Personal Protective Equipment 72
4.9.6 Decontamination 73
4.9.7 Site Control 73
4.9.8 Task-Specific Training Requirements 73

TABLE OF CONTENTS (continued)

4.10 Hazard Analysis for Task 10: BMP Implementation and Site Restoration....73
4.10.1 Task 10 Description....73
4.10.2 Hazard Assessment....74
4.10.3 Exposure Monitoring....78
4.10.4 Medical/Radiological Surveillance....78
4.10.5 Personal Protective Equipment....78
4.10.6 Decontamination....79
4.10.7 Site Control....79
4.10.8 Task Specific Training Requirements....79
4.11 Hazard Analysis for Task 11: Non-intrusive Surveys....79
4.11.1 Task 11 Description....79
4.11.2 Hazard Assessment....80
4.11.3 Exposure Monitoring....80
4.11.4 Medical/Radiological Surveillance....80
4.11.5 Personal Protective Equipment....80
4.11.6 Decontamination....81
4.11.7 Site Control....81
4.11.8 Task-Specific Training Requirements....81

LIST OF ATTACHMENTS

ATTACHMENT 1: PROCEDURE FOR CONDUCTING ROBOTIC EXCAVATION
ATTACHMENT 2: SITE-SPECIFIC LABORATORY SAFETY PLAN
ATTACHMENT 3: FALL PROTECTION PLAN

LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AD	
ANSI	American National Standard Institute
BBP	bloodborne pathogens
BMP	best management practice
CDV	Cañon de Valle
CFR	Code of Federal Regulations
CP	competent person
CPR	cardiopulmonary resuscitation
CRZ	contamination reduction zone
dBA	decibels (A-weighted scale)
ER	Environmental Restoration
ESA-FM	Engineering Sciences and Applications Division-Facilities Management
ESH	Environmental, Safety, and Health Group
ESH-1	Health Physics Operations Group
ESH-2	Occupational Medicine Group
ESH-5	Industrial Hygiene and Safety Group
EZ	exclusion zone
FID	flame ionization detector
FTL	Field Team Leader
GET	General Employee Training
HASP	Health and Safety Plan
HAZMAT	Hazard materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HE	high explosives
HNu	
HS	Health and Safety
IM	interim measure
ISM	Integrated Safety Management
IT Corporation	International Technology Corporation
LAB	laborer
LAMC	Los Alamos Medical Center
LANL	Los Alamos National Laboratory
LIR	Laboratory Implementation Requirements
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
mm	millimeters
MSDS	Material Safety Data Sheet
PID	
PPE	Personal Protective Equipment
PRS	Potential Release Site

RFI	RCRA Facility Investigation

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

RWP	Radiological Work Permit
SAMP	sampler
SOP	Standard Operating Procedure
SPCCP	Spill Prevention Control and Countermeasures Plan
SSHASP	Site-Specific Health and Safety Plan
SSO	Site Safety Officer
SWP	Special Work Permit
TA	Technical Area
THA	Task Hazard Analysis
TLV	threshold limit value

INTRODUCTION

This Site-Specific Health and Safety Plan (SSHASP) provides project personnel a comprehensive project overview in order to define, understand, and manage health and safety issues (hazards) associated with the Phase I investigation of MDA-R, Potential Release Site (PRS) 16-019-99 (hereafter referred to as MDA-R). This SSHASP is designed to fulfill the requirements and intent of:

- the Environmental Restoration (ER) Project Health and Safety Plan (HASP); and
- the Department of Energy (DOE) Integrated Safety Management (ISM) System.

MDA-R is located at Technical Area 16 (TA-16) to the north of building TA-16-260 (Building 260). This section contains a description of the site, a description of the MDA-R Phase I project, the objectives of this SSHASP, a description of how the SSHASP is organized, a description of how the SSHASP is to be implemented, and a description of how this SSHASP meets the functions and guiding principles of ISM.

Site Description

TA-16 was established during World War II to develop explosive formulations, to cast and machine explosive charges, and to assemble and test explosive components for the United States nuclear weapons program. Almost all of the work was conducted in support of the development, testing, and production of explosive charges for the implosion method. Current use of this site is essentially unchanged, although facilities have been upgraded and expanded as explosive and manufacturing technologies have advanced.

The total area of MDA-R was estimated to be 2.27 acres in 1965. MDA-R lies on level terrain with a moderate slope to the north, dropping off 80 ft. into Cañon de Valle. A photograph taken in 1949 showed three distinct bermed U-shaped pits with each pit approximately 75 X 75 ft. A road encircled the pits and the area was fenced.

MDA-R was constructed in the mid-1940s and was used as a burning ground for waste explosives prior to the construction of the present burn site in 1951. At MDA-R, HE scrap was collected, broken up and burned. The site was abandoned sometime in the early 1950s. During construction of the 260-Line, the berms and surface soil at MDA-R were graded northward into Cañon de Valle. A field examination of MDA-R revealed much debris that had been pushed northward over the edge of what was the MDA-R burning ground toward the canyon floor. The debris was being held back by a natural barrier of wood and trees that resulted from cleaning the area for TA-16-260.

The surface of MDA-R burned in the Cerro Grande fire in May 2000. After the surface fire was extinguished, the area continued to smolder below ground surface. Beginning on June 1, 2000, Roy F. Weston, Inc., began to excavate the area robotically to suppress this smoldering, underground fire. In order to accomplish this, Weston excavated a flat "bench" along the top slope of the landfill on which excavated materials from smoldering areas were placed. These materials were subsequently moved to the mesa top and staged in piles south of the landfill.

Project Description

The purpose of this Phase I investigation is to characterize the contamination at MDA-R to support decisions on remediation of the area.

The major component of the Phase I investigation is establishing a sample grid and taking samples of surface and subsurface soil. A surveyor will establish a 115-point grid over the site based on a 75-foot spacing and a 37.5-foot spacing in the area of the three burn pits. Samples will be collected at each node and field-analyzed for gamma radiation, metals, and high explosives. Samples for laboratory analysis will be

collected at 22 grid nodes that will be chosen (biased) based on the screening data. These locations will also be cored to a depth of three feet and sampled. Laboratory samples will be submitted from a screening-biased interval, if present, or from the bottom of the hole. Significant additional samples may be required to define the nature and extent of contamination. All additional grid samples will be collected with a hand auger and may require coring to a depth of four feet. Ten screening samples and 5 biased samples for laboratory analysis will be collected from the secondary (eastern) drainage channel running down MDA-R. IT will complete the samling effort at MDA-R by drilling and samling the eight boreholes along the northern rim of the site. The boreholes will be drilled to approximately 20 feet and samples will be collected on 1 ft. intervals.

The site will then be restored to mitigate erosion and residual contaminant migration in surface runoff into Cañon de Valle.

SSHASP Objectives

In accordance with Los Alamos National Laboratory's (LANL's) Integrated Safety Management (ISM) guidance, this SSHASP was developed to meet the following objectives.

- Define the characteristics of the site and each activity that could pose a hazard to site workers.
- Individually evaluate the hazards to site workers specific to each characteristic of each site and each activity.
- Define the hazard controls required to mitigate individual hazards.
- Inform site workers of the hazards and the required hazard controls specific to the site and each task.
- Provide a mechanism for continuous improvement of site safety.

These objectives dictate the organization and structure of this SSHASP. The organization and the field implementation requirements listed in this SSHASP will ensure that these objectives are met.

SSHASP Approach to Hazard Identification

To meet the objectives defined for this SSHASP, hazards were grouped into the following three distinct categories.

- Hazards common to all activities conducted in any area covered by this SSHASP (general hazards).
- Hazards specific to areas where tasks will be performed (area-specific hazards). Area-specific hazards are due to intrinsic properties and physical characteristics of the individual work areas.
- Hazards specific to performing individual tasks (task-specific hazards).

General Hazards

General hazards are those posed to site workers that are present at all areas and are common to all tasks. Examples of hazards in this category include heat and cold stress, sunburn, and vehicle accidents.

Area-Specific Hazards

Area-specific hazards are those posed to site workers by intrinsic properties of the individual work areas. These hazards are due to site properties and physical characteristics such as contaminants and topography. Site contaminants could be toxic to site workers and steep slopes or cliffs could present fall hazards. Contaminants at MDA-R could also present a physical explosive hazard to site workers. Therefore, the assessment of site hazards includes non-mechanized and mechanized scenarios.

One area of operation has been defined that poses specific hazards to site workers based on a unique combination of site-specific properties and physical characteristics.

For the Area of Operation, the corresponding hazard analysis section of this SSHASP (Chapter 3) describes in detail the contaminants and their levels, the hazard assessments for operations within that area, and the required hazard controls.

Task-Specific Hazards

The hazards posed to site workers by tasks are due to the intrinsic hazards associated with performing the tasks, independent of the hazards posed by the Area of Operation. Task hazards are specific to the operation such as drilling, excavation, etc.

Ten separate tasks identified, each posing different risks to site workers based on the unique inherent hazards of the activities to be performed have been identified for the implementation of the MDA-R RFI Phase I. These are:

- Task 1: Equipment Mobilization/Demobilization and Infrastructure Installation
- Task 2: Sample Collection
- Task 3: Borehole Drilling
- Task 4: Excavation and Soil Management
- Task 5: Sample Analysis
- Task 6: Chainsaw Operations
- Task 7: Robotics Operations
- Task 8: Debris Collection
- Task 9: Decontamination of Equipment
- Task 10: BMP Implementation and Site Restoration
- Task 11: Non-intrusive Surveys

For each task, the corresponding hazard analysis section of this SSHASP (Chapter 4) describes in detail the engineering and administrative measures required to mitigate hazards specific to that task (independent of the hazards posed by the Area of Operation).

SSHASP Organization

This SSHASP is divided into four chapters. Chapter 1 addresses general ER Project, LANL, DOE, and OSHA (institutional) health and safety requirements while Chapters 2 through 4 assess and address the hazards associated with specific aspects of the project.

Chapter 1, General Institutional Requirements contains personnel responsibilities, general personnel training requirements, hazard communications, and emergency action plans.

Chapter 2, General Hazard Analysis provides the information on hazards and requirements for hazard controls common to all Areas of Operation and all tasks (hazards and requirements specific to the Area of Operation and/or tasks are addressed in Chapters 3 and 4).

Chapter 3, Hazard Analyses for Areas of Operation provides a description of the Area of Operation, Area of Operation-specific hazards, hazard-specific analyses, and requirements for hazard controls, monitoring, and decontamination.

Chapter 4, Hazard Analyses for Tasks, contains a section for each of the defined tasks. Each section provides task-specific equipment and activity descriptions, task-specific hazards, hazard-specific analyses, and requirements for hazard controls, monitoring, and decontamination. Each section also includes any required training specific to the task (e.g., backhoe equipment operator certification).

The hazards identified through the hazard analysis process conducted in preparation of chapters 2, 3, and 4 are summarized in the following table. The table presents the most severe Hazard Assessment Rating (HAR) for each class of hazard that requires controls as identified in each of the hazard analyses. The definition of, and method of determining, the HAR is found in Section 2.0.

Hazard Summary									
Hazard Analysis	**Class of Hazard**								
	Biological	Explosive	Weather	Chemical	Electrical	Equipment	Excavation	Physical	Welding
General	Minor		Serious	Minor		Moderate		Serious	
AO 1, MDA-R		Serious		Minor					
Task 1, Mob/Demob				Minor	Serious	Serious		Serious	Serious
Task 2, Sample Collection				Minor	Serious	Moderate		Serious	
Task 3, Borehole Drilling				Minor	Serious	Serious		Serious	Serious
Task 4, Excavation				Minor	Serious	Serious	Serious	Serious	Serious
Task 5, Sample Analysis				Minor	Serious	Minor		Serious	
Task 6, Chainsaw Operations				Minor		Serious		Serious	
Task 7, Robotics					Serious	Serious			
Task 8, Debris Collection		Serious		Minor	Serious	Minor		Serious	
Task 9, Decontamination				Minor		Minor		Serious	
Task 10, BMP and restoration				Negligible	Serious	Minor			
Task 11, Non-intrusive Work				Minor		Minor			

Radiological hazards were considered and rated with an HAR of negligible. Note that all MDA-R intrusive field activities have been categorized as HAZWOPER operations; non-intrusive activities have been categorized as non-HAZWOPER. This is based on the levels of contamination known to currently exist at the site, on the nature of the anticipated field activities, and on the fact that MDA-R is only a partially characterized site.

SSHASP Implementation

Compilation of the Daily Activity Hazard Analysis

An activity hazard analysis will be conducted for each day's activities. The daily activity hazard analysis will be compiled from:

- the general hazard analysis;
- the area hazard analyses for the areas in which work will be conducted for that particular day; and
- the task hazard analyses for those tasks that will be performed for that particular day.

activity hazards = general hazards + area hazards + task hazards

The Field Team Leader (FTL) and the SSO will prepare an activity hazard analysis for each specific day's activities before each daily tailgate safety briefing. When hazard controls for different Areas of Operation or tasks overlap (e.g., different types of gloves), the required hazard controls for that day's activities will be determined by the most protective of the overlapping requirements.

This daily activity hazard analysis will be presented to all site workers during the daily tailgate safety briefing. It will be described in detail in the Daily Tailgate Health And Safety Briefing Form and in each day's entry to the health and safety field logbook. Each field team member will sign each day's tailgate safety briefing form acknowledging the particular combination of general, Area of Operation, and task hazards as well as the required hazard controls. The previous day's activities will be reviewed by site workers, the SSO, and the FTL during the daily tailgate safety briefing to identify any new hazards and "lessons learned". Any suggested improvements to health and safety or to implementation of the SSHASP will be documented and incorporated into this SSHASP by modification, if deemed appropriate.

This daily analysis of safety is consistent with a goal of ISM published in the Integrated Safety Management Description Document (LAUR-98-2837, Rev. 3, September 1999) that states: "*Everyone feels responsible for safety and does something about it on a daily basis.*"

The daily tailgate safety briefings, in conjunction with this SSHASP, will effectively communicate these controls to all site workers, who shall understand their responsibilities for implementing and working within the defined controls prior to any work beginning.

Integrated Safety Management

This SSHASP is designed explicitly to incorporate all ISM requirements and enhance the ISM process. In accordance with the following guidance for worker involvement published in the Integrated Safety Management Description Document (LAUR-98-2837, Rev. 3, September 1999); managers, health and safety professionals, and field team members jointly participated in the development of this SSHASP design and the SSHASP content.

"Worker involvement is characterized by worker participation in identifying and analyzing the hazards of their work, in developing and implementing the appropriate controls, and in resolving conflicting priorities that arise."

ISM Functions

The five ISM functions are summarized below along with how these functions have been implemented in this SSHASP.

ISM Function 1, Define Scope of Work:

The structure of this SSHASP requires the FTL and the SSO to thoroughly evaluate the specific tasks and Areas of Operation for each day's activities and explicitly define the scope of work for the day.

ISM Function 2, Analyze Hazards:

Based on the defined scope, the FTL and the SSO must select the appropriate hazard analyses for the projected task(s) and Area of Operation(s) that are specific to the planned activities for each day. This focuses the FTL and SSO to evaluate the specific hazards and the specific hazard controls relevant to the day's activities rather than on all hazards and controls anticipated for an entire phase of the project.

ISM Function 3, Develop and Implement Hazard Controls:

The daily work package and Daily Task Hazard Analysis are assembled from the hazard analyses for the specific Areas of Operation and the specific tasks associated with that day's activities. The anticipated hazard controls for each element of the daily work package have been determined and are defined in the general requirements, the hazard analyses for the Areas of Operation, and the hazard analyses for tasks presented in this SSHASP. All identified area and task hazards as well as the hazard controls for the day's

activities will be communicated to site workers in the daily tailgate meeting. This focuses site workers on only the specific hazards and necessary hazard controls relevant to the day's activities rather than on all hazards and controls anticipated for an entire phase of the project.

ISM Function 4, Work Within Controls:

The FTL and SSO will ensure that all work is conducted within the defined controls. As site workers will be informed of the hazards and hazard controls specific to each site and each task applicable to each day's activities, the required hazard controls (and the reasons for those controls) will be better understood and implemented.

ISM Function 5, Provide Feedback and Continuous Improvements:

Task-specific and area-specific hazards as well as the corresponding hazard controls will be continuously evaluated. Daily tailgate safety briefings will review the previous day's activities. Any improvements to health and safety or to implementation of the SSHASP identified by site workers, the SSO, and/or the FTL will be reviewed, documented, and communicated to the field team at this time. The flexibility inherent in the structure of this SSHASP facilitates the rapid incorporation of improvements to hazard analyses and refinements in site controls developed in the course of implementing the project. As new information about the nature of contamination or other characteristic of a specific Area of Operation is identified, a SSHASP modification that addresses only the impacted Area of Operation can be developed. Similarly, previously unidentified hazards and necessary enhancements in controls associated with a specific task can be addressed in a SSHASP modification explicit to the specific task.

ISM Guiding Principles

LANL's eight ISM Guiding Principles are summarized below along with how these principles have been implemented in this SSHASP.

LANL's first guiding principle, Management Commitment and Worker Involvement: Managers are committed to the successful implementation of this SSHASP and workers provide continual feedback and involvement in the system through daily debriefs (lessons learned) during the tailgate safety briefings.

Guiding Principle 1, Line Management Safety and Environmental Responsibility: This SSHASP defines a responsible line-management chain for all UC and subcontractor employees and managers who supervise or perform work for the MDA-R Phase I project.

Guiding Principle 2, Clear Roles: This SSHASP defines clear lines of authority, responsibility, and accountability at all organizational levels. These lines are defined and illustrated in Figure 1.

Guiding Principle 3, Competency Commensurate with Responsibilities: Every field team member possesses the experience, knowledge, skills, and abilities necessary to discharge his or her responsibilities.

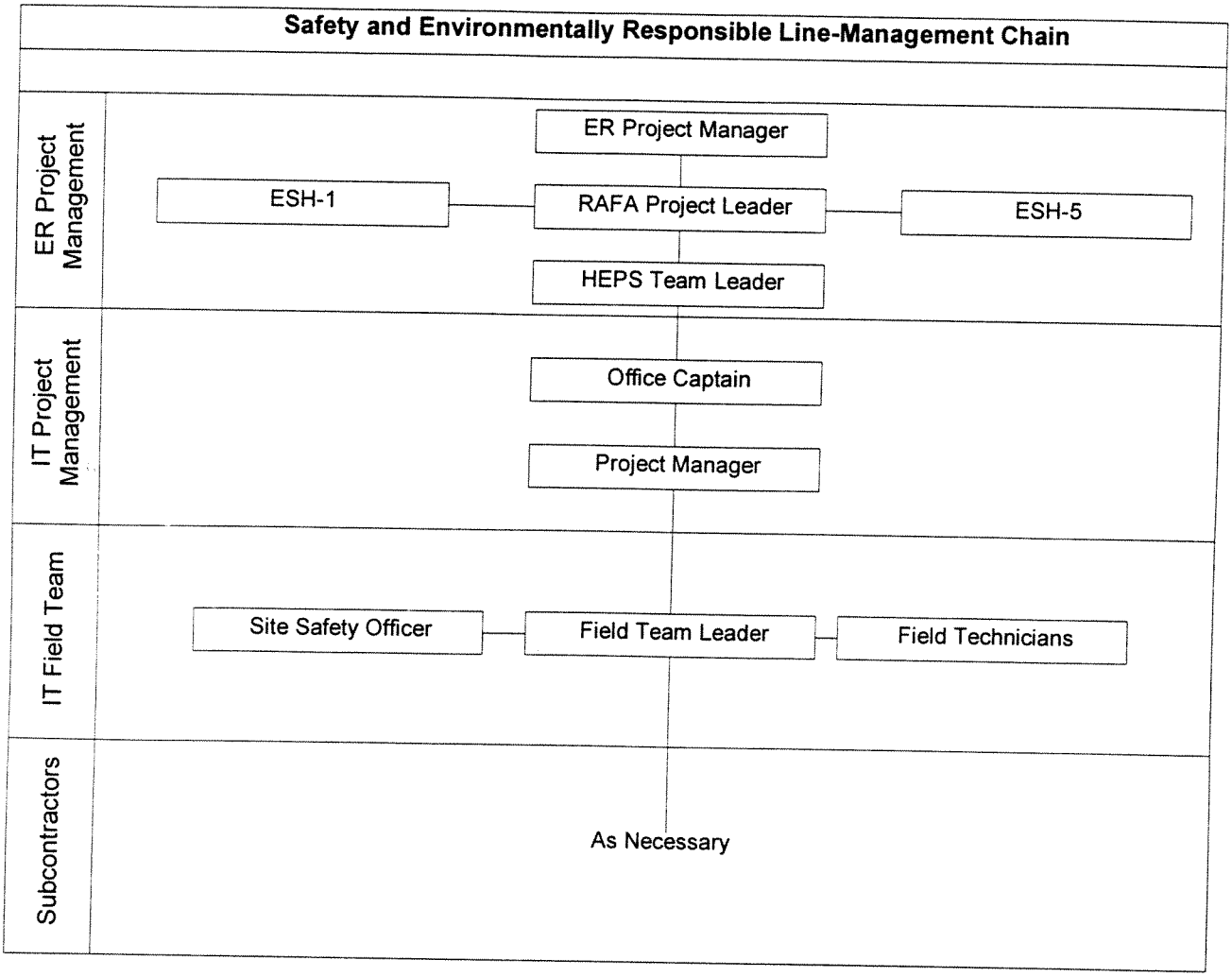
Guiding Principle 4, Balanced Priorities: No work will be performed under this SSHASP unless it can be performed safely and in an environmentally responsible manner, and in full compliance with applicable laws and regulations.

Guiding Principle 5, Identified Safety and Environmental Standards and Requirements: This SSHASP has evaluated the associated hazards and has established requirements or controls which, when properly implemented, provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.

Guiding Principle 6, Work-Tailored Hazard Controls: The design of this SSHASP ensures that hazards and corresponding administrative and engineering controls are tailored to the specific areas where work will be performed and the specific tasks to be performed in those areas.

Guiding Principle 7, Authorized Operation: The conditions and agreements for operations to be initiated and conducted under this SSHASP have been clearly established and agreed upon.

Figure 1, Safety and Environmentally-Responsible Line Management Chain.



Specifically, this SSHASP is designed to help the site worker understand why specific controls are necessary, how they mitigate specific hazards, and to what specific areas and tasks they apply. The division between hazards associated with an Area of Operation and hazards associated with tasks has been made to explicitly communicate to site workers the source of individual hazards and required hazard control measures. Further, this SSHASP explicitly defines general project requirements, area- and task-specific hazards, area- and task-specific controls, and task-specific training requirements in order to improve communication to the site worker and to reduce ambiguity and misinterpretation of the SSHASP. In addition, the daily evaluation of planned activities and the focus on only the hazard and controls associated with that day's activities, rather than on the hazards and controls of an entire phase of a project, will enhance the implementation and ultimate quality of the SSHASP.

1.0 GENERAL INSTITUTIONAL REQUIREMENTS

This chapter addresses the general health and safety requirements that apply to all ER Project field activities as specified by the ER HASP. This includes the designation of key project H&S personnel and an emergency contacts list, the presentation of the project Emergency Action Response and Spill Containment Plans, and a map of the emergency route to the hospital. Additional ER HASP requirements addressed in this chapter include the specification of project personnel training requirements, inspection requirements, documentation and record keeping requirements, hazard communication requirements, and other institutional requirements.

This chapter also lists all LANL guidance and work activity control documents that apply to the MDA-R Phase I project and specifies general ESA/WMA requirements that apply to all Phase I activities conducted within the HE Area.

1.1 Key Personnel Having Project H&S Responsibility

Don Hickmott, the HE Production Sites Team Leader for the ER Project, is the designated single point of contact representing the ER Project during the Phase I investigation. The following personnel have health and safety responsibilities for all areas of operations and all tasks associated with the Phase I investigation. This listing will be maintained and available at the command post at all times.

PM: Peter Gram	Phone/Pager: 661-5207
FTL: Elmer Alcon and Kristi Beguin	Phone/Pager: 661-5216/104-4329 -
Alternate FTL: Randy Johnson	Phone/Pager: 661-5729/104-5178
SSO: Robert Monsalve-Jones	Phone/Pager: 661-5217
Alternate SSO: Scott Wimer	Phone/Pager: 661-5220/669-1740
Fall Protection Competent Person: S. Wimer/ K. Beguin	Phone/Pager: 661-5220/669-1740
Excavation Competent Person: Robert Monsalve-Jones	Phone/Pager: 661-5217
IT Health and Safety Manger: Scott Wimer	Phone/Pager: 661-5220/669-1740
FAPL: Warren Neff	Phone/Pager: 665-9259
ER/ESH-5 Rep.: Dan Sandoval	Phone/Pager: 665-3380/104-3281
ER/ESH-1 Rep.: Bob Dinwiddie	Phone/Pager: 667-3896/996-3239

Contacts:

Facility: Bob Grace	Phone/Pager: 667-9011
Facility: Dan MacDonnell	Phone/Pager: 665-6227
Facility: Bill McCormick	Phone/Pager: 667-6316/104-6704

1.2 Emergency Contacts and Phone Numbers

The following page with the emergency contacts and telephone numbers shall be posted on site. For medical emergencies, fires, and uncontrollable spills and releases during weekend and nighttime hours the ESA Facility Management Designee (FMD) will be notified following notification of LAFD or EM&R. The FMD will make all subsequent ESA notifications. Note that calls to EM&R are forwarded to LAFD Station 100 during weekend and nighttime hours.

EMERGENCY CONTACTS AND PHONE NUMBERS

MEDICAL EMERGENCY/FIRE:

Los Alamos Fire Dept. .....LANL phone: **911**
.....Cellular phone: **667-7080**
ESA FMD.....Pager: **104-6679**

HAZARDOUS RELEASE/SPILL:

LANL HAZMAT Team (EM&R) **667-6211**
LANL Occupational Medicine Clinic (ESH-2)..... **667-7848**
Los Alamos Medical Center Hospital..... **662-4201**
Security OS/Pro Force..... **667-6534**
Los Alamos Police **662-8222**
LANL Safety - ESH-5..... **665-7221**
LANL Radiation - ESH-1..... **667-7171**
LANL ESH-1 Oversight: Bob Dinwiddie ..... **667-3896/699-3239 pager**
ESA-FM Heath & Safety Team Leader: Dan Macdonell..... **665-6227**
TA-16-260 Facility Coordinator: Leonard Maes..... **667-1832/104-4019 pager**
ESA FMD.....**104-6679 pager**
FAPL: Warren Neff ..... **665-9259/104-8255 pager**
Alternate FPL: Don Hickmott **667-8753/104-8239**
FTM: Peter Gram..... **661-5207**
FTL: Kristi Beguin/Elmer Alcon..... **661-5729/104-5178 pager**
Focus Area HS Rep.: Dan Sandoval ..... **665-3380/104-3281 pager**

Management Contacts:

Employer IT Group Contacts: Scott Den-Baars: 661-5238/992-7738 pager

Employer IT Group Contacts: Scott Wimer: 661-5220/669-1740 pager

EMERGENCY REPORTING INFORMATION:

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

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

1.3 Project Emergency Action/Response Plan

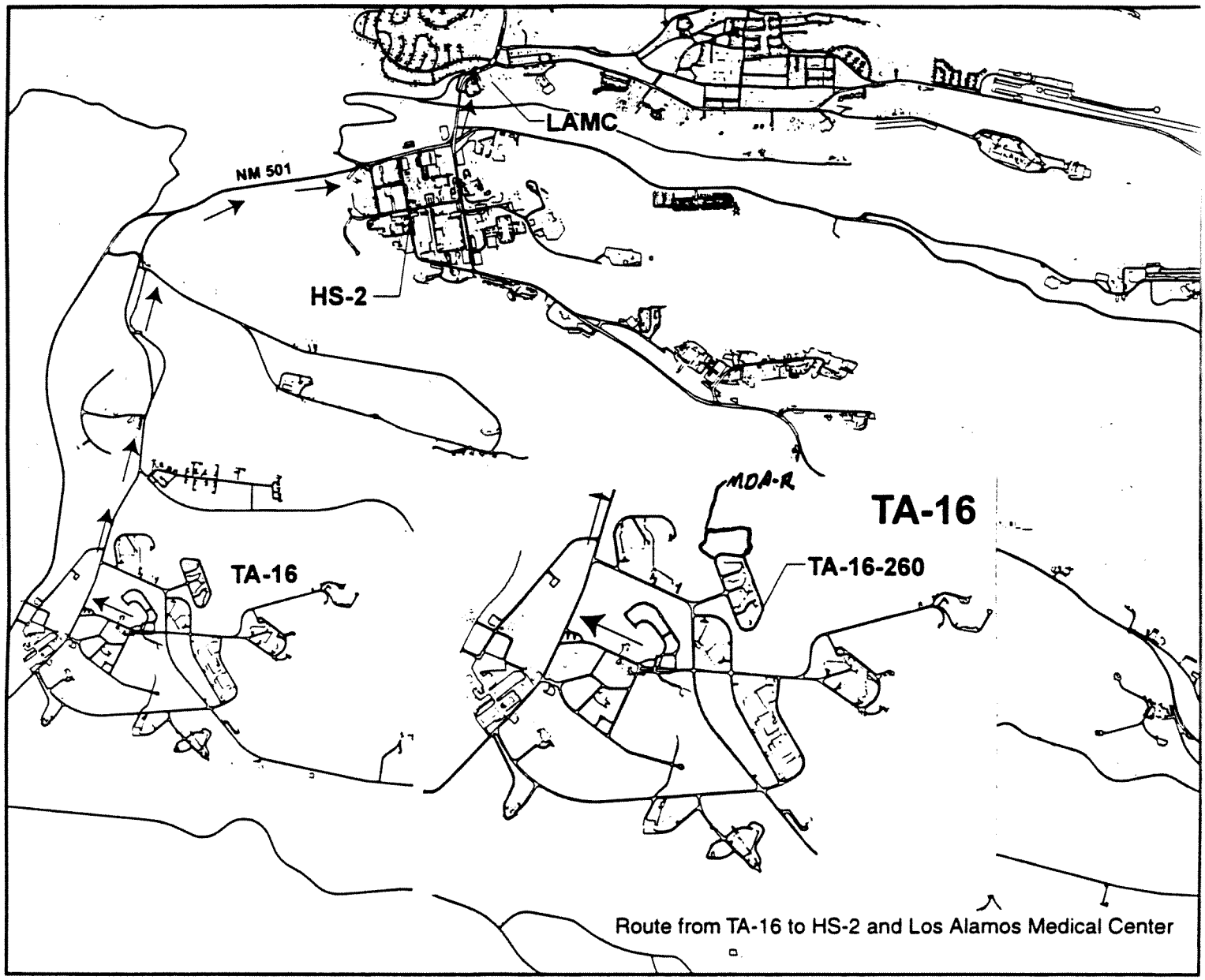
Incident/emergency action requirements, equipment, and supplies as specified below shall apply to all field activities associated with the MDA-R Phase I investigation. Response to an incident or emergency will comply with Chapter 9.0 of the ER Health and Safety Plan (HASP), section 1.2 (this section) of this SSHASP, and 29 CFR 1926.36 and/or 29 CFR 1926(I). The site safety officer (SSO) will function as the site emergency/ incident coordinator, in the event of an incident or emergency. The SSO or FTL will arrange for the immediate notification of LANL emergency response personnel to take control of the scene and/or arrange for immediate notification of the appropriate authorities. The site will be posted with emergency contacts and routes to emergency and medical services, including the Los Alamos Medical Center (LAMC) emergency room and the ESH-2 occupational medicine health clinic.

- **Site Access:** Access to the site is by paved and dirt roads.
- **First Aid/CPR:** At least one field team member who is properly trained in first aid and cardiopulmonary resuscitation (CPR) will be present during site activities because emergency responders (e.g., fire department) are not within 4 minutes travel distance (access time). Designated primary first-aid providers are Randy Johnson, Scott Wimer or Robert Monsalve-Jones. Only qualified providers will render CPR and first aid.
- **Communications:** Cellular telephones & TA-16 pagers.
- **Fire Extinguishing Equipment:** Five-pound ABC fire extinguisher for administrative trailers, ten-pound ABC extinguisher for heavy equipment. Only fire-extinguisher-trained personnel will use fire extinguishers.
- **Emergency Response Equipment:** A 15-minute gravity flow eyewash, a first-aid kit, and a blood borne pathogen (BBP) kit will be available on-site. An air horn will also be maintained at the site during all operations. All emergency response equipment will be located within 100 feet or within 10 seconds of travel time (which ever is less, given site conditions) from site workers/operations.
- **Emergency signal to evacuate:** An air horn will be used as the primary emergency evacuation signal. Any additional or alternative signals will be determined in the field and discussed in the daily tailgate meeting, as necessary. The field determined signal(s) will be documented in the field notebook. The operating group (ESA) provides pagers for general site evacuation purposes. At least one person will have an ESA-provided pager during all field activities.
- **Muster area location:** To be determined based on daily activities and wind direction and communicated to field team during the daily tailgate safety briefing. Location will be documented in field notebook.
- **Facility Specific Training:** All personnel shall complete TA-16 facility-specific training that includes facility emergency response information.

1.4 Project Spill Containment Plan

A brief Spill Prevention Control and Countermeasures Plan (SPCCP) has been developed for activities associated with the MDA-R Phase I project. The SPCCP is included as an attachment to this SSHASP. The document specifies the types and volumes of spills that the MDA-R field team will (or will not) respond to for all anticipated project site materials. In the event of a spill the MDA-R SPCCP invokes the TA-16 site-specific Spill Prevention Control and Countermeasures Plan (SPCCP) and all requirements of that plan will be followed. The MDA-R SPCCP, the TA-16 site-specific SPCCP, and a standard spill kit will be maintained on-site.

1.5 Map of Emergency Route to Hospital and ESH-2 from Project Site



Route from TA-16 to HS-2 and Los Alamos Medical Center

1.6 Applicable Laboratory Implementation Requirements \ Laboratory Performance Requirements

The following Laboratory Implementation Requirements (LIRs) and Laboratory Performance Requirements (LPRs) apply to this project:

- LIR 201-00-04.0 – LANL Incident Reporting Process
- LIR 250-02-02.6 – Facility-Tenant Agreements
- LIR 300-00-04.0 – Laboratory Training: A graded and Systematic Approach to a Qualified Workforce
- LIR 307-01-03.1 – Management Safety Walk-Around
- LIR 401-10-01.0 – Stop Work and Restart
- LIR 401-10-01.0 - LIR 402-10.03-1.0 – ESH Management Of Contractor Performing Facility Construction, Maintenance, Environmental Restoration/Decontamination And Decommissioning And Related Drilling Operations
- LIR 402-100-01.0 – Signs, Labels, Tags
- LIR 402-100-02.0 – Hazardous Waste Operations and Emergency Response Training Requirements
- LIR 402-400-02.0 – Radio-Frequency and Microwave (RFMW) Radiation and Fields (30 kHz to 300 Ghz)
- LIR 402-600-01 – Electrical Safety
- LIR 402-704-01.2 – Contamination Control
- LIR 402-706-01.1 – Personnel Dosimetry
- LIR 402-719-01 - Work Place Monitoring
- LIR 402-810-01.0 – Confined Spaces
- LIR 402-820-01.0 – Noise and Temperature Stresses
- LIR 402-860-01.0 – Lockout/Tagout for personal Safety
- LIR 402-870-01.0 – Ergonomics
- LIR 402-880-01.0 – Excavation/Soil Disturbance Permit
- LIR 402-1200-01-0 – Pressure, Vacuum, and Cryogenic Systems
- LIR 402-1320-01.1 – Vehicular Safety
- LIR 403-00-01.0 – Los Alamos National Laboratory Emergency Management
- LIR 405-10-01.1 – Packaging and Transportation
- LPR 402-715.0– Records
- LPR 402-717.0 – Storage and Labeling
- LPR 402-718.0– Training

1.7 ESA/WMA HE Area/Other Institutional Requirements

The following instructions/procedures are ESA-WMM requirements for operations within the HE Area.

- Eating, drinking, and smoking is not permitted within the TA-16 HE Corridor except in designated areas. Note that the HEPS office field trailer located near former TA-16-27 is a designated eating and drinking area. Note that drinking within work zones may be permitted as deemed necessary by the FTL or SSO to prevent worker dehydration. Fluids will be administered to workers within the exclusion zone by personnel outside of the exclusion zone using clean sports/spray bottles.
- Matches and lighters are not permitted within the TA-16 HE Area.
- ESA-FM Safety Work Permits are required for all potentially spark-producing equipment on site.
- HE Decontamination Slips will be received from TA-16 Facility Management prior to the release of all equipment and samples form the HE Area.

In addition, ESA has established protocols for the handling of HE contaminated soil samples.

- Soil samples containing HE containing greater than 5% total HE will be considered HE contaminated and will require special handling protocols.
- All soil samples that test positive for HE based on the HE spot test kit will be considered HE contaminated until further analysis demonstrates the samples are less 5% to total HE.
- A dedicated field trailer will be established for the storage of HE-contaminated soil samples.
- A total volume of stored soil samples will be limited to the volume of 3 standard refrigeration units.
- The occupancy of the storage trailer will be limited to 3 people.
- Flammables will not be permitted in the storage trailer.
- Combustible material will be kept to a minimum in the storage trailer.

A portable toilet (1 per 20 people) will be maintained near the HEPS field trailers and an ample supply of drinking water will be maintained at the HEPS field trailers.

Due to operations performed at Building 260, activities performed within a 600-ft blast radius behind TA-16-260 may be limited to after 1700 Monday through Thursday or any time Friday through Sunday. ESA may also have special work schedules that could include operations on occasional Fridays or non-operational days during Monday through Thursday. Coordination of atypical work hours will be made on a case by case basis. In addition, cellular telephones are not permitted to be operated within 100 feet of building TA-16-260 at any time, regardless if operations are being conducted in the building or not. The field team will use the cellular phones for out-going calls only; when cell phones are not in use the batteries will be detached from the phone. All cell phones will be approved by LANL security and have safety work permits prior to entering into the security area.

1.8 Training Requirements

The following table lists the general training requirements for all personnel performing field activities associated with the MDA-R Phase I project. All intrusive field activities have been categorized as hazwoper operations, non-intrusive field activities have been defined as non-hazwoper. Additional training requirements for specific tasks and/or equipment are listed in specific task hazard analyses in Chapter 4.

Training Requirements		
Training Requirement	**Type***	**Personnel to be Trained****
LANL ER HASP, Rev. 2	R	All
Pre-Job Start HS / SSHASP Briefing (HASP Section 10.1.1)	F or C	All
HS Tailgate Mtgs. (daily) (HASP Section 10.1.2)	F	All
General Employee Training (GET) – LANL provided (HASP Section 10.2.1)	C	All on site for >10 consecutive days
Employee Safety Commitment	R	All
40 hr. HAZWOPER Class and 24 hr. Supervised Fieldwork (HASP Section 10.5.1)	C	All conducting intrusive work. Does not apply to personnel conducting non-intrusive surveys
8-Hour Annual Refresher (HASP Section 10.5.4)	C	All conducting intrusive work - If > 1 year from the previous 40-hour HAZWOPER or 8-hour refresher training

Training Requirements		
Training Requirement	**Type***	**Personnel to be Trained****
8-Hour HAZWOPER Supervisor (HASP Section 10.5.3)	C	FTL,SSO
SSO (HASP Section 10.1.4)	C	SSO
1st Aid/CPR (Amer. Red Cross or equiv.; compliance with HASP Section 10.1.3)	C	At least one field team member on site during field work.
Bloodborne Pathogens (Employer's program & 29 CFR 1910.1030)	C	First-Aid/CPR trained person
PPE (Employer's program & HASP Section 7.1)	F	All
Employer's Hazard Communication Program (Employer's program & 29 CFR 1910.1200)	R	All
Sanitation (29 CFR 1926.51 or 65(n))	R	SSO
Postings (29 CFR 1926.200 & ANSI Z535.2 and .3)	R	SSO
TA-16 Site Specific Training	R	All
High Explosives Awareness Training	C	FTL, SSO, SAMP, LAB
Employer's Hearing Conservation Program	R	All, if noise action levels are reached
HE Spot Test	C	FTL, SSO, SAMP, LAB
Excavation/Trenching Protective Systems Competent Person (29 CFR 1926.651 (k))	C	SSO
Fire Extinguisher	F	All
Chain Saw Operations (29 CFR 1910.266)	F	LAB
* **Types of training:** **R** = Read training; **C** = Classroom training; **F** = Field training		
** **FTL**= Field Team Leader, **SSO**= Site Safety Officer, **SAMP**= Sampler, **LAB**= Laborer		

1.9 Inspection Requirements

The following table lists the required site inspections and identifies who will be responsible for conducting the inspections. The activities of the day will dictate which inspections will be required. The inspections will be recorded on the appropriate forms and/or in the field logbook.

INSPECTION REQUIREMENTS			
Inspection	**Frequency**	**Inspector**	**Task(s)**
Job Site, Material and Equipment [in accordance with 29 CFR 1926.20(b)(2)]	Daily	SSO	All
General Sanitation (e.g., potable and non-potable water, toilets, washing facilities, eating and drinking areas, vermin control, and/or change rooms; in accordance with 29 CFR 1926.51)	Daily	SSO	All
Materials handling, storage, use and disposal (in accordance with 29 CFR 1926.250 and 252)	Before Use	SSO	All
Signs, Signals, and Barricades (in accordance with 29 CFR 1926.200)	Daily	SSO	All
Motor vehicles and Mechanized Equipment (in accordance with Subpart O of 29 CFR 1926)	Before Use	SSO, QP, or CP, as required	All
Material handling equipment [e.g., rubber-tired scraper, loader, and bulldozers equipped with rollover protective structures and overhead protection (in accordance with Subpart W of 29 CFR 1926)]	Before Use	QP or CP, as required	1, 3, 4, 5, and 6
Excavations/Trenches [per 29 CFR 1926.651(k)]	Before Entry & After Storms	QP or CP, as required	4
Excavations/Trenches Protective Systems (per 29 CFR 1926.652)	Before Entry & After Storms	QP or CP, as required	4

INSPECTION REQUIREMENTS			
Inspection	**Frequency**	**Inspector**	**Task(s)**
PPE (HASP Section 7 and 29 CFR 1926.95)	Daily	User	All
Incident/emergency response equipment: eyewash first aid kit, bloodborne pathogens kit	 Monthly Weekly	SSO	All
Fire fighting equipment [per 29 CFR 1926.150(a) and (c)]	Monthly	SSO	All
Rigging [in accordance with 29 CFR 1926.251(a)]	Before Use	QP or CP as required	1, 3
Tools – hand and power (in accordance with Subpart I of 29 CFR 1926)	Before Use	User and SSO	All
Daily Drill Rig Inspection (ER Project Manual for Site Health & Safety Activities)	Daily	QP	3
Management Safety Inspection	Monthly	LANL PM, IT PM, and ESH-5 representative	All
Electrical equipment [per 29 CFR 1926.403(b) and/or 416(f)(8)]	Before Use & Daily	QP or CP as required	All
P = Qualified Person; **CP** = Competent Person [per 29 Code of Federal Regulations (CFR) 1926.32(f) or (m)]			

1.10 Documentation and Records to be Maintained On-Site

The H&S records specified below will be completed in accordance with Chapter 13 of the HASP. These records will be maintained at the project work site.

REQUIRED ON-SITE RECORDS AND DOCUMENTATION	
Record/Form	**Requirement Reference**
HASP	HASP Section 1.1
This SSHASP	HASP Section 1.1
Completed Modification Forms	HASP Section 1.1
SSO's Daily Logbook	HASP Section 13.1
Site Access Log	
Daily Tailgate Safety Briefing Form	
Visitor Sign-in Log	
Documentation of Training Requirements	HASP Chapter 10
Documentation of Medical Surveillance	HASP Chapter 11
Exposure Monitoring Records (Dust, noise, etc. as needed)	Chapter 6 of the HASP and applicable exposure monitoring methods in the ER Project *Guidance Manual*
HS Inspection Records	HASP Section 12.1
HE Area Safety Work Permits	ESA-FM-ESH

1.11 Hazard Communication

Individuals who may be exposed to hazardous substances will be informed of the physical, chemical, and toxicological properties of the substances and the means and methods for preventing, detecting, mitigating, and/or protecting themselves from exposure before they are allowed access to or perform a task in the area or perform a task. It is IT Corporation's (IT) policy that whenever feasible, a less toxic product should be substituted for a more toxic one, especially products containing a carcinogen.

Material Safety Data Sheets (MSDSs) for each hazardous chemical product brought to the project site will be kept readily available to anyone who may be exposed to the product and shall be shared with other employer's employees on-site who may be affected by the hazardous product. As deemed necessary by the

SSO, some or all of the following resources are to be kept readily available for reference by project personnel:

- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (published annually)
- Chemical Substance Hazard Assessment and Protection Guide (compiled and edited by Urie Environmental Health, Inc.; most recent publication: 1994/5)
- US Department of Transportation Emergency Response Guidebook (most recent publication: 1993)
- Guide to Occupational Exposure Values (compiled by ACGIH, published annually)
- National Institute for Occupational Safety and Health Pocket Guide to Chemical Hazards (most recent publication: June 1997)

1.12 LANL ER Work Authorization And Health & Safety Briefing Acknowledgement

Subsequent to a briefing on the contents of this SSHASP, all site personnel shall sign the following form acknowledging that they understand this SSHASP, including the hazards related to performing this work and the ways they can eliminate the hazards or protect them self from injury or illness on the job.

LANL ER WORK AUTHORIZATION AND HEALTH & SAFETY BRIEFING ACKNOWLEDGEMENT

The individuals who sign this acknowledgement are authorized by their respective health and safety responsible line manager (who has signed approval of this SSHASP) to perform the tasks identified within the scope of this SSHASP.

Project Title: Drilling and Soil Sampling at MDA-R SSHASP No.: 291
Area or Operation and/or Task All Ans Date: 9-1-00
TA(s)/Location(s): TA-16: PRS 16-019-99

Briefing conducted by:

Printed Name	Title	Employer or LANL Group	Z Number
Russell Stone	SSO	PrSM Corporation	117365

Signature: Russell Stone Date: 9/1/00

I acknowledge that I understand this SSHASP, including the hazards related to performing this work and the ways I can eliminate the hazards or protect myself from injury or illness on the job.

NAME	EMPLOYER/GROUP	Z NUMBER	SIGNATURE/DATE
Kristi Beguin	IT	105685	[signature] 9-1-00
Carol Vargas	IT	175204	Carol Vargas 9/1/00
Joe Vargas	IT	175235	[signature] 9/1/00
Joseph A. Bira	IT Corp	170300	[signature] 9/1/00
Louie Romero	IT corp.	110604	[signature] 9/1/2000
Derrick Jones	IT corp		[signature] 9/6/00
Esther Witherow	IT		Esther Witherow 9/6/00
Robert Monsalve Jones	IT	118759	[signature] 9/8/00
Timothy Motak	IT	175231	[signature]
PETER K. M. GRAM	IT CORP.	103076	[signature]
Alan G. Brenner	IT Corp	114267	[signature]
GREG MEYER	SCW	117174	[signature]

2.0 GENERAL PROJECT HAZARD ANALYSIS

The hazards assessment process has identified a small set of hazards that are universal to all activities and all areas of operation for the MDA-R Phase I project. These are the General Project Hazards that are inherent to conducting ER Project field-work and are not a result of working in a specific area or performing a specific task.

The objectives of this chapter are (1) to identify the general conditions that could potentially pose a risk to site workers (e.g. weather), (2) to evaluate these conditions in order to identify the hazards that pose a risk that requires control, and (3) to define the controls that will ensure the protection of worker health and safety.

The hazard assessment process is used to achieve these objectives and the similar objectives of Chapters 3 and 4. The hazard assessment process is as follows. First, all activities, substances, or conditions that have the potential to pose a risk to site workers are identified. Second, a hazard assessment rating (HAR) for each identified hazard is determined. The HAR is established by considering both the probability that an accident, or mishap, could occur and the consequences, or severity, of the mishap for each identified hazard. Professional judgement is used to finalize the HAR; the following table is used to guide the selection of an appropriate HAR.

	Mishap Probability			
Hazard Severity	Likely to Occur	Probably will Occur	Possibly could Occur	Unlikely to Occur
Catastrophic (i.e., death or life-threatening injury/illness from one encounter)	Imminent	Imminent	Serious	Minor
Major (i.e., significant injury/illness resulting in irreversible harm)	Imminent	Serious	Moderate	Minor
Minor (i.e., injury or illness resulting in reversible harm - not likely to threaten mobility, vision)	Serious	Moderate	Minor	Negligible
Negligible	Minor	Minor	Negligible	Negligible

Finally, comprehensive controls are established to mitigate hazards that receive an HAR of minor, moderate, serious, or imminent.

The Administrative and Engineering Controls sections of this chapter and Chapters 3 and 4 define control measures that are designed to mitigate the general, area of operations, and task hazards associated with the MDA-R Phase I project. The Exposure Monitoring sections of this chapter and in Chapters 3 and 4 define monitoring that will be conducted to ensure that the administrative and engineering controls are performing as designed or intended. The Medical/Radiological Surveillance sections of this chapter and Chapters 3 and 4 define the personal monitoring that will be conducted to ensure that the administrative and engineering controls were effective in mitigating the hazards. The monitoring defined in both the Exposure Monitoring and Medical/Radiological Surveillance sections may also be used to evaluate the impacts to site workers in case of an accidental exposure or failure of an administrative or engineering control. The Personal Protective Equipment (PPE) sections of this chapter and Chapters 3 and 4 define the PPE required to protect site workers from all hazards that cannot be fully mitigated through administrative and engineering controls. The Decontamination sections of this chapter and Chapters 3 and 4 define the requirements necessary to ensure the control of site contamination. The Site Control sections of this chapter and Chapters 3 and 4 define the site operational zones and procedures that will be used to control access to those zones.

2.1 MDA-R General Hazard Assessment

The hazard analyses and the HARs for the General Hazards associated with the MDA-R Phase I do not comprise a complete Activities Hazard Analysis. As defined in the SSHASP Organization and Implementation section of this document, a complete Activities Hazard is achieved by combining the task-specific hazards associated with the planned task (Chapter 4) and the hazards associated with the Area of Operation (Chapter 3) with the General Hazards described in this section. The combined hazard controls, PPE requirements, and monitoring requirements will mitigate the hazards described by the complete Activities Hazard Analysis. Additionally, all activities must comply with the general institutional requirements specified in Chapter 1.

The following table list the hazards, the corresponding Hazard Assessment Rating, and the Hazard Assessment Rational for the General MDA-R Phase I project hazards. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, PPE and monitoring requirements are established in subsequent sections of this chapter. The MDA-R Phase I general hazards have been defined as follows.

- **Unsanitary Conditions:** this hazard is defined as conditions of personal hygiene or general sanitation of the work environment that could cause illness in a site worker.
- **Slips, Trips, and Falls:** this hazard is defined as work site physical conditions such as obstacles or ice that could cause a site worker to slip, trip, or fall and become injured.
- **Limited Visibility:** this hazard is defined as the condition of insufficient illumination for a site worker to adequately monitor the environment at the work site thus leading to an injury.
- **Lightning Strikes:** this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to lightning.
- **Passenger Vehicle Operation/Vehicular Traffic Accident:** this hazard is defined as an injury to a site worker due to a vehicular accident at the work site.
- **Off-Road Vehicle/ATV Use:** this hazard is defined as an injury to a site worker due to an off-road vehicle accident at the work site.
- **Hantavirus:** this hazard is defined as a site worker illness due to contracting hantavirus at the work site.
- **Plague:** this hazard is defined as a site worker illness due to contracting plague at the work site.
- **Snakes:** this hazard is defined as a site worker illness due to a snakebite at the work site.
- **Insect Bites:** this hazard is defined as a site worker illness due to an insect bite at the work site.
- **Aggressive Wildlife:** this hazard is defined as a site worker illness or injury due to contact with wildlife at the work site such as black bears and mountain lions.
- **Bloodborne Pathogens:** this hazard is defined as a site worker illness due to an occupational exposure to a bloodborne pathogen.
- **Heat/Cold Stress:** this hazard is defined as a site worker illness or injury due to exposure to heat or cold at the work site.
- **Sunburn:** this hazard is defined as a site worker illness or injury due to exposure to sun at the work site.

GENERAL HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for ALL MDA-R Phase I ACTIVITIES			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
Unsanitary conditions	Minor	Mishap probability: possibly could occur Hazard severity: minor	Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site regardless of whether they worked in a controlled zone or not. Inspections of work areas and toilets, washing facilities, eating and drinking areas, and/or change rooms will be performed in accordance with 29 CFR 1926.51) in order to ensure that sanitary conditions are maintained.
Slips, trips, and falls	Moderate	Mishap probability: probably will occur Hazard severity: minor	Site workers will be informed of slips, trips, and falls risks. Site workers will use caution and be observant while moving in areas of potential concern. Workers will not conduct activities within 3 feet of a 6-foot or greater fall hazard. Good housekeeping practices will be adhered to in all work areas to reduce the risk of slips, trips, and falls.
	For icy conditions: Serious	Mishap Probability: likely to occur Hazard severity: minor	All slick foot paths will be sanded.
Limited visibility	Moderate	Mishap probability: possibly could occur Hazard severity: major	Work area shall be provided with a minimum illumination intensity of 5 foot candles as specified in Table D-65.1 of 29 CFR 1926.65. Illumination intensities shall be verified by monitoring when additional illumination is required to read this document when held at arms length.
Injury due to Lightning	Minor	Mishap probability: unlikely to occur Hazard severity: catastrophic	If electrical storm is within 3 miles begin shutting down operations. If within 2 miles discontinue site operations, get away from metal objects and grounding systems components (e.g. electrical power substations and large buildings) and take cover in a vehicle or small dwelling. Do not remain upright in an open area or seek shelter near a tall upright object, e.g., a tree. Proximity of the storm will be determined by timing the difference between the observation of lightening and hearing thunder; this time difference is equivalent to 5 seconds per mile. If someone is injured by lightening notify the SSO, or the FTL, and take appropriate action.
Passenger Vehicle Operation/Vehicular Traffic Accident	Minor	Mishap probability: unlikely to occur Hazard Severity: Catastrophic	All operators of passenger vehicles used to support the MDA-R Phase I effort during the execution of Phase I activities will have been trained to IT's Safe Driver program. All site workers exposed to vehicular trafic while executing MDA-R Phase I activities will wear reflective vests.
Off-Road Vehicle/ATV Use	Moderate	Mishap probability: possibly could occur Hazard severity: major	Only trained operators will be allowed to operate all terrain vehicles. Helmets, eye protection, and gloves will be required for operation.
Biological Hazards			
General	Refer to Appendix G of the HASP for information concerning various general hazards associated with occupational exposure to toxic and/or hazardous biological agents.		

GENERAL HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for ALL MDA-R Phase I ACTIVITIES			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Hantavirus	Minor	Mishap probability: unlikely to occur Hazard severity: major	Look for and avoid rodent droppings and nests. If droppings or nests must be disturbed to complete work, notify ESA-FM and/or JCNM for proper disinfecting.
Plague	Minor	Mishap probability: unlikely to occur Hazard severity: major	All personnel will be informed to avoid animals (dead or alive) that may potentially harbor plague-carrying fleas.
Snakes	Minor	Mishap probability: unlikely to occur Hazard severity: major	All personnel will be informed to avoid turning over obstacles unnecessarily in the field such as rocks, wood, or anything else under which rattlesnakes, insects, or spiders may be present. Personnel will also be instructed to walk only on established trails and paths as much as practicable to avoid rattlesnakes.
Insect Bites	Minor	Mishap probability: possibly could occur Hazard severity: minor	
Aggressive Wildlife	Minor	Mishap probability: unlikely to occur Hazard severity: major	All personnel will be informed to be alert for and cautious of aggressive wildlife such as fire-displaced bears or mountain lions. Workers will not approach potentially dangerous wildlife. Food sources will be minimized near work areas. Workers will be instructed to not run from or turn there back on aggressive wildlife and to muster in a safe place, if possible and call for reinforcements.
Occupational Exposure to Bloodborne Pathogens	Minor	Mishap probability: unlikely to occur Hazard severity: major	Comply with IT/ICF Kaiser Bloodborne Pathogen program. All personnel who encounter blood or other potentially infectious material from other persons, must be medically monitored according to Bloodborne Pathogens or Potentially Infectious Materials, 29 CFR 1910.1030(f).
Physical Health Hazards			
Heat/Cold Stress	Minor	Mishap probability: unlikely to occur Hazard severity: major	Personnel will be informed of the signs and symptoms of heat and cold stress. Field Team members will observe/monitor each other for signs of heat or cold stress
	At Temp. >80 or <35 °F, Moderate	Mishap probability: possibly could occur Hazard severity: major	**Restricted Temperature Ranges** Implement appropriate work rest/regime. Provide personnel shelter from weather extremes. Follow the IT/ICF Kaiser Heat/Cold stress guidelines and ACGIH TLV/BEI, 1999 pages 159-181.
Sunburn	Serious	Mishap probability: likely to occur Hazard severity: minor	Personnel will be offered the use of sunscreen (SPF $\geq$ 15) and will be instructed to wear a hat/cap to aid in keeping the sunlight from burning the skin.

2.1.1 Exposure Monitoring for General MDA-R Hazards

Heat and cold stress monitoring will be conducted in accordance with IT/ICF Kaiser Heat/Cold stress guidelines and guidelines outlined in ACGIH TLV/BEI, 1999 pages 159-181.

2.1.2 Medical/Radiological Surveillance for General MDA-R Hazards

All personnel performing MDA-R field activities shall wear a TLD badge and will have submitted a Health Physics Checklist. All personnel who encounter blood or other potentially infectious material from other persons, must be monitored according to Bloodborne Pathogens or Potentially Infectious Materials, 29 CFR 1910.1030(f) and IT/ICF Bloodborne Pathogen Program.

2.1.3 Personal Protective Equipment for General MDA-R Hazards

Head: Cap when outside to protect against sunburn. DOT-approved, full-face helmet during ATV operation.

Body: Normal work clothes; reflective vests during exposure to traffic in a work area

Hands: Leather gloves during ATV operation

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989) during ATV operation.

Ears: None required for General Field Work hazards. Consult HARs and PPE requirements for specific tasks.

2.1.4 Decontamination

Equipment Decontamination: See the corresponding section under the hazard analyses for tasks.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

2.1.5 Site Control for General Hazards

See the corresponding section under the hazard analyses for areas of operation.

3.0 HAZARD ANALYSES FOR AREAS OF OPERATION

The objectives for each Area of Operation Hazard Analysis in this chapter are (1) to identify the site characteristics that could potentially pose a risk to site workers (e.g., contamination, topography), (2) to evaluate site hazards, and (3) to define hazard controls.

The Area of Operation description section presents information on site conditions and the maximum concentration of all contaminants detected during the Phase I and Phase II RFI activities. The hazard assessment sections identify Area of Operation hazards that could potentially pose a risk to site workers and present a hazard assessment rating (HAR) and hazard control measures for each identified hazard.

3.1 Hazard Analysis for Area of Operation 1

The hazard analysis for this Area of Operation is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

3.1.1 Description

Area of operation 1 is defined as the entire MDA R (PRS 16-019-99) site. ESA has classified this site as "hetereogeneous" that is, the site may contain a heterogeneous distribution of high explosives contamination potentially including intact pieces or "chunks" of pure-product high explosives.

During the fire suppression efforts at MDA-R field screening of the landfill soils by XRF indicated contamination with barium (5,000 to 18,000 mg/kg). No high explosive chunks or radioactive materials were found during this effort. Soils were also field screened for volatile organic contamination using a PID and, again, no contamination was detected. Asbestos-containing materials were picked up, bagged, and placed in a 55-gallon drum for disposal.

A small set of environmental samples was collected at MDA-R in 1997. Contaminants and their maximum concentrations within MDA-R identified during this effort are listed in the table below:

Class	Contaminant	Maximum Concentration
HE	Amino-2,6-dinitrotoluene	0.27 mg/kg
	Amino-4,6-dinitrotoluene	0.26 mg/kg
	HMX	22 mg/kg
	RDX	1500 mg/kg
	Trinitrotoluene(2,4,6-)	720 mg/kg
Volatiles	No data	----
Semivolatiles	All nondetect	----
Metals	Arsenic	3.9 mg/kg
	Barium	75100 mg/kg
	Beryllium	0.57 mg/kg
	Cadmium	0.08 mg/kg
	Calcium	3040 mg/kg
	Chromium, Total	7.3 mg/kg
	Cobalt	30.2 mg/kg
	Copper	68.5 mg/kg
	Cyanide, Total	mg/kg
	Iron	11600 mg/kg
	Lead	431 mg/kg
	Manganese	366 mg/kg
	Nickel	7 mg/kg
	Selenium	1.2 mg/kg

Class	Contaminant	Maximum Concentration
	Vanadium	22 mg/kg
	Zinc	119 mg/kg

Based upon the chemical and high explosives hazards listed above, the tasks performed in this area of operation shall be regulated by the HAZWOPER standard 29CFR1926.65.

3.1.2 Hazard Assessment

The following table lists the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific to the contaminants, topography, and other environmental features of this Area of Operation. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The AO1 hazards have been defined as follows.

- Alpha Radiation: this hazard is defined as a site worker illness or injury due to exposure to alpha radiation at the work site.
- Beta/Gamma Radiation: this hazard is defined as a site worker illness or injury due to exposure to beta or gamma radiation at the work site.
- Explosion: this hazard is defined as an explosion at the work site that could cause an injury to a site worker.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site that contains site contaminants.
- Metals: this hazard is defined as a site worker illness due to exposure to inorganic constituent contamination at the work site.
- HE: this hazard is defined as a site worker illness due to exposure to high explosive constituent contamination at the work site.
- VOCs: this hazard is defined as a site worker illness due to exposure to volatile organic compound constituent contamination at the work site.
- SVOCs: this hazard is defined as a site worker illness due to exposure to semi-volatile organic compound constituent contamination at the work site.
- Falls: this hazard is defined as a site worker injury due to a fall on the skree slope.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for AREA of OPERATIONS 1			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Radiological Hazards			
Alpha Radiation	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	None
Beta/Gamma Radiation	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	None

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for AREA of OPERATIONS 1			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
High Explosives (HE) Hazards			
Explosion	Minor **Mechanized activities:** Serious	Mishap probability: possibly could occur Hazard severity: catastrophic **Mechanized activities:** Mishap probability: possibly could occur Hazard severity: catastrophic	Non-sparking tools will be used for all hand sampling activities. Additionally, in specific locations identified as containing high concentrations of HE (>5%) in the soils, the soil will be wetted. **Mechanized activities:** Robotic and remote operated excavation equipment will be used from a distance of 100 ft (or greater) to handle and process all material from "heterogeneous" high explosives areas. This includes excavators, loaders, and screen plants. In addition, personnel will ensure that the soil is moist during handling. This may require wetting the soil if in situ soil moisture is low. Robotic and remote operated drill rigs will be operated from a distance of 50 ft. (or greater). Drilling operations may proceed non-remotely once undisturbed subsurface material is reached and the undisturbed subsurface material tests negative for the presence of high explosives based on the HE Spot Test Kit. Drilling activities will cease in the event that chunk HE is unearthed and ESA-FM and ESA-WMM will be consulted for guidance on how to proceed safely.
Chemical Health Hazards			
Nuisance Dust	Minor	Mishap probability: possibly could occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep airborne dust concentrations below the action level of 2.5mg/m^3. The dust action level with soil wetting is protective of the inhalation hazard due to HE. PPE as discussed in 2.1.5 is prescribed for control of the absorption hazard due to HE.
Metals	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	
HE	Minor	Mishap probability: possibly could occur Hazard severity: minor	
SVOCs	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for AREA of OPERATIONS 1			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
VOCs	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	Areas will be screened with an FID or HNu PID with 11.7 eV probe. Action level will be >5 ppm at source or >1 ppm in breathing zone. Area(s) of concern will be allowed to vent naturally or by implementing mechanical means. If condition persists > action level, further access will be limited to exposure monitoring personnel. These personnel will collect grab samples or use colorimetric tubes to try to identify specific organic compounds.
Physical Hazards			
Steep Terrain/Falls	Serious	Mishap probability possibly could occur Hazard severity: major	Conventional fall protection will be provided for those working on the upper slope or accessing any slope from above. As a minimum, fall protection shall include full body harness with attaching lanyard. Fall protection will be in accordance with 26 CFR 1926, Subpart M and MDA-R Fall Protection Plan (attached).

Will work in this area affect other LANL operations, employees, or tasks? Yes ___ No X

3.1.3 Exposure Monitoring

If visible dust is in the vicinity for more than 2 minutes at a time, it will be monitored with a Miniram. Action levels for dust will be 2.5 mg/m^3.

Below are dust action levels for the inorganic contaminants in MDA-R, as defined by the Marlowe Equation:

Contaminant	Maximum Concentration (mg/kg)	Exposure Limit (mg/m^3)	Dust Action Level (mg/kg)[a]
Arsenic	3.1	0.1	10750
Barium	75100	0.5	2
Beryllium	0.57	0.0002	117
Cadmium	0.08	0.01	41670
Chromium-Total	7.3	0.05	2283
Cobalt	30.2	0.02	221
Copper	68.5	1	4866
Iron	11600	5	144
Lead	431	0.05	39
Manganese	366	0.2	182
Nickel	7	1	47620
Selenium	1.2	0.2	55560
Vanadium	22	0.05	758
Zinc	119	10	28010

[a] Dust Action Level (Marlowe equation) = $\frac{[(10^6 \text{ mg/kg conversion factor})(\text{Exposure Limit mg/m}^3)]}{[(\text{Concentration in soil mg/kg})(\text{SF})]}$

SF = Safety Factor; a factor of 3 was used in all the calculations. Concentrations are from laboratory data.)

The action levels prescribed above demonstrate that the nuisance dust action level is protective of the inhalation hazard due to inorganic contaminants. The need for additional exposure monitoring for inorganic contaminants is not anticipated. Based upon the results of the Marlowe equation performed above IT personnel have made a negative determination for exposure to beryllium and lead.

Dust action levels for high explosives have also been calculated. The following table summarizes the action levels and presents the equation used to calculate the action levels.

Contaminant	Maximum Concentration (mg/kg)	Exposure Limit (mg/m^3)	Dust Action Level (mg/kg)[b]
HMX	22	0.18[a]	8181
RDX	1500	1.5	1000
TNT	720	0.5	694

[a] Surrogate value for risk-based screening for inhalation exposure to HMX is used. No information is available for an occupational exposure limit.

[b] Dust Action Level = Exposure Limit X conversion factor / Maximum Concentration

$$\text{Dust Action Level} = \frac{\text{mg}}{\text{m}^3} \times \frac{1\text{ kg}}{1{,}000{,}000\text{ mg}} \times \frac{\text{mg}}{\text{kg}}$$

The action levels prescribed above demonstrate that the nuisance dust action level is protective of the inhalation hazard due to HE contaminants. The need for additional exposure monitoring for HE contaminants is not anticipated.

3.1.4 Medical/Radiological Surveillance

All personnel entering the Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ) must be approved for Hazardous Waste Operations per 29 CFR 1910.120(f) and have a current HAZWOPER Physical per 29 CFR 1926.65(f).

3.1.5 Personal Protective Equipment

Head: None required

Body: Cotton or Tyvek coveralls for intrusive activities, standard work clothes for non-intrusive activities

Hands: Nitrile or vinyl gloves when handling soils or when sampling (29 CFR 1910.137, 138).

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989)

3.1.6 Decontamination

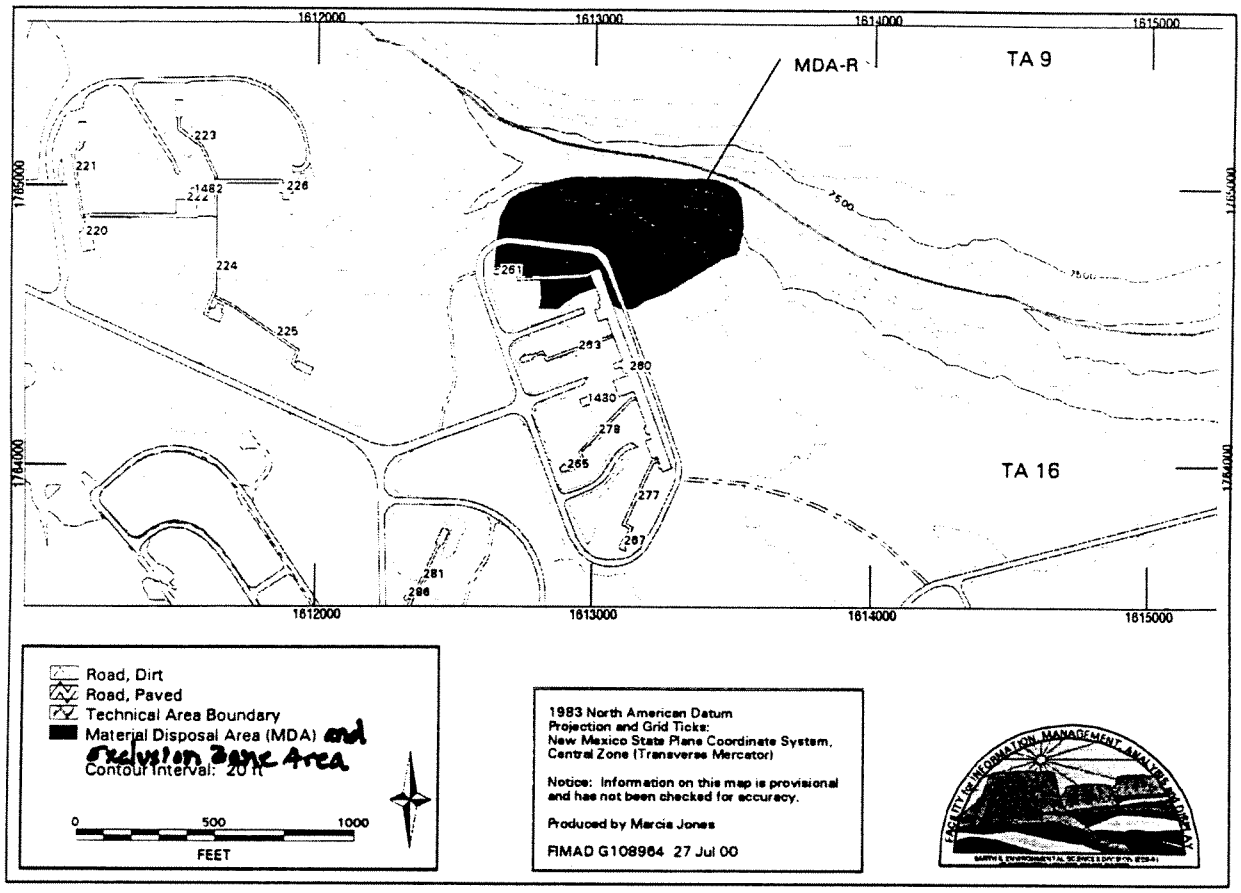
Equipment Decontamination: All potentially contaminated equipment will undergo a three-stage decontamination process. First, residual dry soil adhering to equipment will be wetted and removed by hand with non-sparking scrapers. This can be performed within the area of operation or at the CRZ; contaminated soils will be managed appropriately. Second, hand-held equipment will undergo an Alconox/water wash; heavy equipment will undergo a high-pressure Alconox/water wash. Third, equipment will undergo a clean-water rinse. Decontamination fluids will be collected for recycling or disposal. Site-specific release procedures will be followed before removing equipment from the site.

Personnel Decontamination: Personnel will decontaminate protective footwear and gloves with an alconox/ water wash and clean-water rinse before doffing PPE if there is any visible dirt on the footwear or gloves. Doffing of PPE will generally proceed in the following order: outer gloves (if used), followed by coveralls, followed by inner gloves. Personnel will wash hands and face before exiting the CRZ and prior to smoking, eating or drinking.

3.1.7 Site Control

During all intrusive activities the site will be controlled with barrier tape, cones, or other stantions. An exclusion zone (EZ) and a contamination reduction zone (CRZ) will be set up around the area of operation and posted per 29 CFR 1926 sub part G. Operations within the EZ will be conducted by groups of at least two people who will maintain visual contact with each other at all times. Entrance into the CRZ or EZ will be documented in an Access Control Log. Zones are not required for non-intrusive activities.

3.1.8 Site Control Map



TA-16 MDA R

4.0 HAZARD ANALYSES FOR TASKS

The objectives for each Hazard Analysis for Operational Tasks in this section are (1) to identify the task-specific activities that could potentially pose a risk to site workers, (2) to evaluate these activities in order to identify those hazards that pose a risk that require control, and (3) to define the hazard control measures that will ensure the protection of worker health and safety.

The task description section presents information on the activities covered under the specific task and identifies the key personnel who have health and safety responsibilities. The hazard assessment sections identify task hazards that could potentially pose a risk to site workers and present a hazard assessment rating (HAR) for and hazard control measures for each identified hazard.

4.1 Hazard Analysis for Task 1: Equipment Mobilization/Demobilization and Infrastructure Installation

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.1.1 Task 1 Description

This task will consist of mobilizing equipment and setting up support trailers at the work site. Support trailers, staging areas, and equipment will be sited outside areas of contamination. Development of site infrastructure may require clearing of trailer sites, roads, and installation of a spoils pile and decontamination pads. The power source for the support trailers will be a portable generator. Oxy-Acetylene and Shielded Metal Arc (a.k.a. "stick") Welding and/or cutting may also be used in support of this task. Following completion of all tasks, or as equipment is no longer needed, equipment will be removed from the work site following site release procedures. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Kristi Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740

4.1.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 1 hazards have been defined as follows.

- Equipment Malfunction: this hazard is defined as an equipment failure that could cause an injury to a site worker.
- Injury From Pinch Points Or Rotating Parts: this hazard is defined as the capture of a body part or clothing by operating equipment at the work site that could cause an injury to a site worker.

- Heavy Equipment Operation: this hazard is defined as the crushing of a site worker by moving heavy equipment from one location to another.
- Fire/Explosion/Burn Hazards When Using Compressed Gases: this hazard is defined as the unexpected combustion of welding gasses at the work site that could cause an injury to a site worker.
- Injury from contact with or rapid release of compressed gas is defined as the unexpected release of or rapid pressurization of high pressure systems resulting in system failure or explosion or the inadvertent contact with rapidly expanding gasses resulting in a low temperature contact injury (e.g. frostbite)
- Toxic Substances In Breathing Zone: this hazard is defined as a site worker illness or injury due to exposure to toxic welding gasses at the work site.
- Blindness Due To Welding/Cutting: this hazard is defined as a site worker eye injury due to exposure at the work site to bright light generated during welding.
- Electrocution - Working With Energized Equipment (e.g., generator): this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during normal operations.
- Electrocution - Equipment Maintenance: this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during equipment maintenance.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).
- Exposure to On-site Chemicals (gasoline and diesel): this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 1, Equipment Mobilization/Demobilization and Infrastructure Installation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
EQUIPMENT OPERATION			
Equipment Malfunction	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Equipment shall be inspected daily or before each use. Controls and equipment shall comply with applicable sections of 29 CFR 1926.201
Injury from pinch points or rotating parts	Moderate	Mishap probability: possibly could occur Hazard severity: major.	Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Personnel will stand clear of rotating parts.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 1, Equipment Mobilization/Demobilization and Infrastructure Installation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Heavy equipment operation	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Field team personnel exposed to heavy equipment operations shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Persons on the ground will establish and maintain eye contact with heavy equipment operators
WELDING/CUTTING/ BRAZING PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable LANL special work permit (SWP) per AR 8-4 for spark/flame-producing operations; contact Field Unit HS Representative to initiate permit process			
Fire/explosion/burn hazards when using compressed gases	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Implement A&E controls per applicable permit and in accordance with Subpart J of 29 CFR 1926 and use PPE per Section 4.1.5.
Toxic substances in breathing zone	Minor	Mishap probability: possibly could occur Hazard severity: minor	Ventilate local area [in compliance with 29 CFR 1926.55(b) and 29 CFR 1926.57] and use PPE per Section 4.1.5.
Compressed gas uncontrolled high velocity release or compressed gas system explosion	Minor	Mishap probability: unlikely to occur Hazard severity: major	Follow established procedures for compressed gas handling and systems operations. Use relief valves to eliminate trapped volumes of the gas in lines and on compressors. Keep cylinder caps in place at all times, except when cylinders are in use and connected to pressure systems. Fix/strap cylinders in place when in use and when stored to prevent cylinders from falling and damaging the cylinder, valves, regulator, or associated system lines. Use only the approved regulator for the type of gas in use. Make sure all cylinders are in good condition and are stored out of the weather. Move cylinders with appropriate carts or other approved cylinder-transporting devices. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).
Blindness due to welding/cutting	Seriou s	Mishap probability: probably will occur Hazard severity: major	Compliance with AR 8-4, use of proper lens shade in welding helmet.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 1, Equipment Mobilization/Demobilization and Infrastructure Installation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
ELECTRICAL PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable requirements of Appendix A.A9 of the HASP and as specified below for lockout/tagout of energized equipment; contact Field Unit HS Representative to initiate permit process.			
Electrocution – working with energized equipment (e.g., generator)	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Outdoor circuits will have ground fault interrupter circuits installed. All cords (extension and power) will be inspected prior to use for cuts or missing ground pins. All defective cords will be removed from service and physically destroyed.
Electrocution – equipment maintenance	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Per LANL Electrical Safety LIR 402.600-01.0 Table D.2.3.
MISCELLANEOUS			
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be readily accessible for each spark producing piece of equipment or operation.
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in the intended manor.
Physical Health Hazards			
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located within 3 feet of each other, noise level is likely to be in excess of the PEL of 85 dBA (8 hour time-weighted average). Noise monitoring with an audio dosimeter will be initiated when the action level is exceeded. Refer to IT/ICF Kaiser's Hearing Conservation Program.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 1, Equipment Mobilization/Demobilization and Infrastructure Installation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemical Health Hazards			
Nuisance Dust	Minor	Mishap probability: possibly could occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m3.
Exposure to On-site Chemicals: Gasoline and diesel	Minor	Mishap probability: possibly could occur Hazard severity: minor	Personnel will be instructed to stand upwind of refueling operations. PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in section 4.2.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. In the event of unprotected contact with chemical, follow first aid measures on MSDS.

4.1.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

4.1.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.1.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986)

Body: Street clothes. Warning vests or other suitable garments marked with or made of reflective or high-visibility material when exposed to heavy equipment operations. Leather chaps and jacket while welding or cutting with a torch.

Hands: Leather gloves when moving equipment (29 CFR 1910.137, 138) and gauntlet-type welding gloves when welding.

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989). Proper lens shade in welding helmet (AR 8-4).

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level exceeds the PEL of 85 dBA (8 hour time-weighted average).

4.1.6 Decontamination

Equipment Decontamination: All residual soil adhering to equipment will be removed by hand. Alconox/water washes, high-pressure washes, and clean-water rinses can be used to enhance decontamination, as necessary.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.1.7 Site Control

When working within Areas of Operation, refer to the appropriate AO description for site control requirements. All other operations associated with this task will be controlled administratively, as necessary.

4.1.8 Task Specific Training Requirements

Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).

4.2 Hazard Analysis for Task 2: Sample Collection

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.2.1 Task 2 Description

Soil samples will be collected from the surface (0.0-0.5 ft) and near surface (0.5 to 4.0 ft). If direct sampling from excavations greater than 4 feet in depth is required, this task will be conducted in conjunction with Task 4, Excavation and Soil Management. Task 4 addresses hazards associated with excavations greater than 4 ft. in depth. Subsurface samples may also be collected from material excavated by heavy equipment or with split spoons. Sample collection equipment will include spade and scoop, shovel, split spoons, hand auger, or power auger. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisit Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager	661-5220/669-1740

4.2.2 Hazard Assessment

The following table lists the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific to this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 2 hazards have been defined as follows.

- Injury From Underground Utilities (elec./fire/explosion hazards): this hazard is defined as site worker injury or death due to contact with an underground energized circuit or the combustion or detonation of materials due to an unexpected disturbance of underground utilities during excavation at the work site.
- Injury From Pinch Points or Rotating Parts: this hazard is defined as the capture of a body part or clothing by operating equipment at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Exposure to On-site Chemicals (gasoline and diesel): this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 2, Sample Collection			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
Injury from underground utilities – elec./fire/explosion hazards	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Estimated locations of utilities (i.e., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to excavating. Notify utility owners of intended work and request they demarcate on ground surface location(s) of underground utilities; have a field team member accompany utility owner rep. to identify intended excavation location(s) and to find out specifics of utility location(s). If utility owner cannot establish exact location of utility installation(s), sampling may proceed with caution and provided detection equipment or other acceptable means to locate utility installation(s) are used. As sampling operations approach estimated location of underground utility, exact location of the installation shall be determined by safe and acceptable means (i.e., using hand held equipment).
MISCELLANEOUS			

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 2, Sample Collection			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in the intended manor
Injury from pinch points and rotating parts	Moderate	Mishap probability: possibly could occur Hazard severity: major.	Equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Personnel will stand clear of rotating parts.
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located within 3 feet of each other, noise level is likely to be in excess of the PEL of 85 dBA (8 hour time-weighted average). Noise monitoring with an audio dosimeter will be initiated when the action level is exceeded. Refer to IT/ICF Kaiser's Hearing Conservation Program.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Chemical Health Hazards			

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 2, Sample Collection			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, corrosives	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in section 4.2.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS
Nuisance Dust	Minor	Mishap probability: possibly could occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m^3.

4.2.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

Prior to entering excavations greater than 4 ft. in depth, the atmosphere within the excavation will be monitored for oxygen deficiency and hazardous atmosphere.

4.2.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.2.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986).

Hands: Leather gloves when augering. (29 CFR 1910.137, 138). Refer to Area of Operation hazard analyses for description of chemical-specific PPE requirements

Body: Refer to Area of Operation hazard analyses for description of chemical-specific PPE requirements.

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Face and Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989)

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.2.6 Decontamination

Refer to Area of Operations and General Hazards descriptions for equipment and personnel decontamination requirements.

4.2.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.2.8 Task Specific Training Requirements

None

4.3 Hazard Analysis for Task 3: Borehole Drilling

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.3.1 Task 3 Description

This task involves the remote or non-remote advancement of boreholes (BH) with an Acker™ AD2 or equal drill rig. Contaminant levels within the Area of Operation will dictate the requirement for remote operations. Boreholes will be advanced to refusal with 4.25-in. hollow-stem augers equipped with stainless steel, split-spoon samplers. Following auger refusal, the drill system will be switched over to a wireline wet-coring system. A casing advancer may also used to advance the drill string through unconsolidated material. Water will be used continuously throughout all drilling operations to wet the subsurface and, when coring, to recover cuttings from the BH. Drilling water will be supplied to the drill string with a regulated pump (20 gpm/700 psi) powered by an 11hp gas motor. Return drilling fluids will be collected in a trough, moved to a settling trough with an electric pump, then transferred to 850-gal. storage containers with a gas-powered trash pump. Oxy-Acetylene and Shielded Metal Arc (a.k.a. "stick") Welding and/or cutting may also be used in support of this task.

The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisiti Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740

4.3.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 3 hazards have been defined as follows.

- Injury From Underground Utilities (elec./fire/explosion hazards): this hazard is defined as site worker injury or death due to contact with an underground energized circuit or the combustion or detonation of materials due to an unexpected disturbance of underground utilities during excavation at the work site.
- Injury From Hoisting and Rigging Equipment: this hazard is defined as the injury to a site worker from an object being lifted with on-site equipment.
- Equipment Malfunction: this hazard is defined as an equipment failure that could cause an injury to a site worker.
- Injury From Pinch Points and Rotating Parts: this hazard is defined as the capture of a body part or clothing by operating equipment at the work site that could cause an injury to a site worker.
- Heavy Equipment Operation: this hazard is defined as the crushing of a site worker by moving heavy equipment from one location to another.
- Unauthorized Use of Equipment: this hazard is defined as the improper operation of site equipment by unauthorized persons that could result in an injury to a site worker.
- Overhead Electrical Hazard: this hazard is defined as site worker injury or death due to contact with an overhead energized circuit.
- Fire/Explosion/Burn Hazards When Using Compressed Gases: this hazard is defined as the unexpected combustion of welding gasses at the work site that could cause an injury to a site worker.
- Injury from contact with or rapid release of compressed gas is defined as the unexpected release of or rapid pressurization of high pressure systems resulting in system failure or explosion or the inadvertent contact with rapidly expanding gasses resulting in a low temperature contact injury (e.g. frostbite)
- Toxic Substances In Breathing Zone: this hazard is defined as a site worker illness or injury due to exposure to toxic welding gasses at the work site.
- Blindness Due To Welding/Cutting: this hazard is defined as a site worker eye injury due to exposure at the work site to bright light generated during welding.
- Electrocution - Working With Energized Equipment (e.g., generator): this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during normal operations.
- Electrocution - Equipment Maintenance: this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during equipment maintenance.

- Injury from falls of greater than 6 feet: this hazard is defined as a site worker injury due to falling a distance of greater than six feet from equipment at the work site.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
EXCAVATION/ TRENCHING PERMIT REQUIRED for excavating/trenching; A&E controls shall be implemented in accordance with applicable LANL excavation permit (per LIR 402-880.01.0) and as specified below;			
Underground utilities – elec./fire/explosion hazards	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Estimated locations of utilities (i.e., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to drilling. Notify utility owners of intended work and request they demarcate on ground surface location(s) of underground utilities; have a field team member accompany utility owner rep. to identify intended drilling location(s) and to find out specifics of utility location(s). If utility owner cannot establish exact location of utility installation(s), drilling may proceed with caution and provided detection equipment or other acceptable means to locate utility installation(s) are used. As drilling operations approach estimated location of underground utility, exact location of the installation shall be determined by safe and acceptable means (i.e., using hand held excavating equipment).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
DRILLING OPERATIONS			
Injury from hoisting and rigging equipment	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Hoists, hooks, wires, ropes, slings, and rigging accessories shall be designed, installed, operated, inspected, and tested in accordance with applicable requirements of the DOE Hoisting and Rigging Manual (April 1993, DOE/ID-10500), and with applicable sections of 29 CFR 1926.251 and Subpart N of 29 CFR 1926. Rigs and masts shall be inspected at least weekly. Hoists, hooks, wires, ropes, slings, and rigging accessories shall be inspected at the beginning of each shift in which they are to be used and as necessary during use to ensure safety. Hoisting lines shall be inspected visually each day, and thoroughly at a minimum of 30-day intervals.
Heavy equipment operation	Minor	Mishap probability possibly could occur: Hazard severity: minor	Drill rigs shall be inspected for engineering controls (e.g. backing horns) in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Persons on the ground are instructed to get and maintain eye contact with the drill rig driver when the drill rig is being moved.
Unauthorized use of equipment	Moderate	Mishap probability possibly could occur: Hazard severity: major	Unauthorized use of the equipment is precluded by the removal of the system keys by the operator when the vehicle is not in use.
Overhead elec. hazard	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	During stationery operation, minimum clearance between live lines and any part of equipment or load: 10 ft for lines rated 50 kV; 10 ft + 0.4 in. for each 1 kV over 50 kV, or twice the length of line insulator, whichever is greater. In transit with no load and boom lowered, min. clearance: voltages < 50 kV: 4 ft min voltages 50 kV< x =345 kV: 10 ft min voltages 345 kV< x =750 kV: 16 ft min
Injury from pinch points and rotating parts	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic.	Drilling equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Personnel will stand clear of rotating parts.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Equipment malfunction	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Per DOE (Drilling Safety Manual, 1983 and Construction Safety Reference Guide, 1993), drilling rigs shall be designed, manufactured, erected, used, and maintained in accordance with appropriate American Petroleum Institute (API) Specifications and Recommended Practices, as a minimum, and with applicable sections of 29 CFR 1926.251, Subpart N of 29 CFR 1926, and Title 8 of the California Administrative Code (8 CAC). There shall be no apparent damage, excessive wear, or deformation of any part of the drilling equipment. Equipment shall be inspected by a qualified person according to Section 3.2.3.6 of the ER HASP and the frequencies indicated below. Defective equipment shall be removed from service and any defects shall be corrected or repaired before equipment is put into service. Records of each inspection shall be kept at the rig readily available for review. Reduction of original strength shall be noted and taken into account for determining when equipment shall be taken out of service. Guy wires in use shall be thoroughly inspected at least once a year. Anchors shall be pull-tested along an angle approximating the wind-guy working plane within 12 months prior to use; test shall be made at poundage determined by anchor location Each derrick or mast, and hoist shall be permanently marked with its rating capacity. Drill rigs must be leveled, anchored, and guyed in accordance with manufacturer's recommendations or where there are none, with API Specification 4E. Pressure-hose connections shall be secured with safety chains or clamped to prevent whipping in the event of a break.
Welding/Cutting/ Brazing PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable LANL special work permit (SWP) per AR 8-4 for spark/flame-producing operations; contact Field Unit HS Representative to initiate permit process			
Fire/explosion/burn hazards when using compressed gases	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Implement A&E controls per applicable permit and in accordance with Subpart J of 29 CFR 1926 and use PPE per Section 4.1.5.
Toxic substances in breathing zone	Minor	Mishap probability: possibly could occur Hazard severity: minor	Ventilate local area [in compliance with 29 CFR 1926.55(b) and 29 CFR 1926.57] and use PPE per Section 4.1.5.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Compressed gas uncontrolled high velocity release or compressed gas system explosion	Minor	Mishap probability: unlikely to occur Hazard severity: major	Follow established procedures for compressed gas handling and systems operations. Use relief valves to eliminate trapped volumes of the gas in lines and on compressors. Keep cylinder caps in place at all times, except when cylinders are in use and connected to pressure systems. Fix/strap cylinders in place when in use and when stored to prevent cylinders from falling and damaging the cylinder, valves, regulator, or associated system lines. Use only the approved regulator for the type of gas in use. Make sure all cylinders are in good condition and are stored out of the weather. Move cylinders with appropriate carts or other approved cylinder-transporting devices. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).
Blindness due to welding/cutting	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Compliance with AR 8-4, use of proper lens shade in welding helmet.
ELECTRICAL PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable requirements of Appendix A.A9 of the HASP and as specified below for lockout/tagout of energized equipment; contact Field Unit HS Representative to initiate permit process.			
Electrocution - working with energized equipment (e.g., generator)	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Outdoor circuits will have ground fault interrupter circuits installed. All cords (extension and power) will be inspected prior to use for cuts or missing ground pins. All defective cords will be removed from service and physically destroyed.
Electrocution - equipment maintenance	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Per LANL Electrical Safety LIR 402.600-01.0 Table D.2.3.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
MISCELLANEOUS			
Injury from falls of greater than 6 feet	Moderate	Mishap probability: possibly could occur Hazard severity: major	When engaged in work at a location 6 feet or more above the derrick floor or other working surface, the worker shall wear a safety belt with attached lanyard secured to the derrick, except during rig-up/rig-down when workers other than the rig operator shall stand clear. Safety belts, lifelines, and lanyards shall be used in accordance with 29 CFR 1926.104. If required, fall protection will be provided to site personnel in compliance with 29 CFR 1926 Subpart M.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in the intended manor.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 3, Borehole Drilling			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemical Health Hazards			
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, corrosives	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in Section 4.3.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS
Nuisance Dust / Portland Cement/Bentonite/ Filter Pack Sand	Minor	Mishap probability: possibly could occur - Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m^3.
Physical Health Hazards			
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located within 3 feet of each other, noise level is likely to be in excess of the PEL of 85 dBA (8 hour time-weighted average). Noise monitoring with an audio dosimeter will be initiated when the action level is exceeded. Refer to IT/ICF Kaiser's Hearing Conservation Program.

4.3.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

4.3.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.3.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986).

Body: Refer to area of operation description for specific PPE requirements. Warning vests or other suitable garments marked with or made of reflective or high-visibility material when exposed to vehicular traffic. Leather chaps and jacket while welding or cutting with a torch.

Hands: Leather gloves when working on equipment (29 CFR 1910.137, 138) and gauntlet-type welding gloves when welding.

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989). Proper lens shade in welding helmet (AR 8-4).

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.3.6 Decontamination

Equipment Decontamination: All residual soil adhering to equipment will be removed by hand. Alconox/water washes, high-pressure washes, and clean-water rinses can be used to enhance decontamination, as necessary.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.3.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.3.8 Task Specific Training Requirements

The operator of drill rig shall have a statement of qualifications stating that he/she is trained in the operation of this equipment. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).

4.4 Hazard Analysis for Task 4: Excavation and Soil Management

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.4.1 Task 4 Description

This task involves the removal and management of soils or other media with heavy equipment including but not limited to track hoes, backhoes, front-end loaders, dump trucks, screen plant, water trucks, grout pumps, soil tiller, and vacuums. Media may also be hand excavated. Excavations will be limited to less than 25 feet in depth. Excavated media will be screened and placed in storage containers or stockpiles. During soil

treatment, heavy equipment will be used to blend and manage soils. Heavy equipment may be used during site development and restoration. Oxy-Acetylene and Shielded Metal Arc (a.k.a. "stick") Welding and/or cutting may also be used in support of this task. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Kristi Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Subcontractor Supervisor.:	Sam Gardner SG Western	Phone/Pager:	662-3852
Site Safety Officers:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740
Competent Person:	Robert Monsalve-Jones	Phone/Pager:	661-5217
Professional Engineer:	Scott Den-Baars	Phone/Pager	661-5259/992-7738

4.4.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 4 hazards have been defined as follows.

- Cave-In/Personnel Entrapment: this hazard is defined as site worker injury or death due to the collapse of an excavation at the work site.
- Injury From Underground Utilities (elec./fire/explosion hazards): this hazard is defined as site worker injury or death due to contact with an underground energized circuit or the combustion or detonation of materials due to an unexpected disturbance of underground utilities during excavation at the work site.
- Explosive/Flammable Environment: this hazard is defined as site worker injury or death due to the unexpected combustion of gasses at the work site.
- Oxygen Deficiency / Hazardous Atmosphere: this hazard is defined as injury or death due to the toxicity of gasses, or lack of oxygen, in the breathing zone of a site worker.
- Unauthorized Use of Equipment: this hazard is defined as the improper operation of site equipment by unauthorized persons that could result in an injury to a site worker.
- Equipment Malfunction: this hazard is defined as an equipment failure that could cause an injury to a site worker.
- Injury From Hoisting and Rigging Equipment: this hazard is defined as the injury to a site worker from an object being lifted with on-site equipment.
- Overhead Electrical Hazard: this hazard is defined as site worker injury or death due to contact with an overhead energized circuit.
- Injury From Pinch Points Or Rotating Parts: this hazard is defined as the capture of a body part or clothing by operating equipment at the work site that could cause an injury to a site worker.
- Heavy Equipment Operation: this hazard is defined as the crushing of a site worker by moving heavy equipment from one location to another.
- Fire/Explosion/Burn Hazards When Using Compressed Gases: this hazard is defined as the unexpected combustion of welding gasses at the work site that could cause an injury to a site worker.

- Injury from contact with or rapid release of compressed gas is defined as the unexpected release of or rapid pressurization of high pressure systems resulting in system failure or explosion or the inadvertent contact with rapidly expanding gasses resulting in a low temperature contact injury (e.g. frostbite)
- Toxic Substances In Breathing Zone: this hazard is defined as a site worker illness or injury due to exposure to toxic welding gasses at the work site.
- Blindness Due To Welding/Cutting: this hazard is defined as a site worker eye injury due to exposure at the work site to bright light generated during welding.
- Injury from Falls of Greater Than 6 feet: this hazard is defined as a site worker injury due to falling a distance of greater than six feet from equipment at the work site.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Vacuum Entrapment: this hazard is defined as site worker injury due to becoming entrapped in the nozzle of the vacuum.
- Confined Space: this hazard is defined as site worker injury or death due to entering a space not designed for human occupancy.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
EXCAVATION/ TRENCHING PERMIT REQUIRED for excavating/trenching; A&E controls shall be implemented in accordance with applicable LANL excavation permit (per LIR 402-880.01.0) and as specified below;			
Explosive/ flammable environment	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Adequate precaution shall be taken (e.g., ventilation in compliance with 29 CFR 1926.55(b) and 29 CFR 1926.57) to prevent personnel exposure to an atmosphere containing flammable gas =10% of the lower flammable limit (LEL) of the gas
Oxygen deficiency/ hazardous atmosphere	Serious	Mishap probability: possibly could occur. Hazard severity: catastrophic	Where oxygen deficiency or a hazardous atmosphere could reasonably be expected to exist, the atmosphere in excavation/trench shall be tested prior to anyone entering excavation ≥ 4 feet in depth.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Cave-in/personnel entrapment	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Inspections by a competent person shall be made prior to start of work, as needed throughout shift and after every rain storm or other hazard increasing occurrence (29 CFR 1926.651) Appropriate engineering controls shall be implemented in accordance with 29 CFR 1926.651 whenever the stability of a structure adjoining an excavation may be endangered Trench/excavation ≥ 4 feet deep shall have a stairway, ladder, ramp, or other safe means of egress located so as to require no more than 25' of lateral travel by personnel in trench/excavation (e.g., 1 ladder for excavations <25' in length, 2 ladders for excavations >25' and < 50' in length) (29 CFR 1926.651) Excavated materials (spoils) shall be kept at least 2 ft. away from edge of excavation
Underground utilities - elec./fire/explosion hazards	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Estimated locations of utilities (i.e., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to excavating. Notify utility owners of intended work and request they demarcate on ground surface location(s) of underground utilities; have a field team member accompany utility owner rep. to identify intended excavation location(s) and to find out specifics of utility location(s). If utility owner cannot establish exact location of utility installation(s), excavating may proceed with caution and provided detection equipment or other acceptable means to locate utility installation(s) are used. As excavating operations approach estimated location of underground utility, exact location of the installation shall be determined by safe and acceptable means (i.e., using hand held excavating equipment). While excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard site personnel

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
HEAVY EQUIPMENT OPERATION			
Unauthorized use of equipment	Moderate	Mishap probability possibly could occur: Hazard severity: major	Unauthorized use of the equipment is precluded by the removal of the system keys by the operator when the vehicle is not in use.
Heavy equipment operation	Serious	Mishap probability possibly could occur: Hazard severity: catastrophic	Field team personnel exposed to vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Persons on the ground are instructed to get and maintain eye contact with heavy equipment operators
Equipment malfunction	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Equipment shall be inspected daily or before each use. Controls and equipment shall comply with applicable sections of 29 CFR 1926.201
Injury from hoisting and rigging equipment	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Hoists, hooks, wires, ropes, slings, and rigging accessories shall be designed, installed, operated, inspected, and tested in accordance with applicable requirements of the DOE Hoisting and Rigging Manual (April 1993, DOE/ID-10500), and with applicable sections of 29 CFR 1926.251 and Subpart N of 29 CFR 1926. Rigs and masts shall be inspected at least weekly. Hoists, hooks, wires, ropes, slings, and rigging accessories shall be inspected at the beginning of each shift in which they are to be used and as necessary during use to ensure safety. Hoisting lines shall be inspected visually each day, and thoroughly at a minimum of 30-day intervals.
Overhead elec. hazard	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	During stationery operation, minimum clearance between live lines and any part of equipment or load: 10 ft for lines rated 50 kV; 10 ft + 0.4 in. for each 1 kV over 50 kV, or twice the length of line insulator, whichever is greater. In transit with no load and boom lowered, min. clearance: voltages < 50 kV: voltages 50 kV< x =345 kV: voltages 345 kV< x =750 kV:

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Injury from pinch points and rotating parts	Moderate	Mishap probability: possibly could occur Hazard severity: major.	Heavy equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Personnel will stand clear of rotating parts.
WELDING/CUTTING/ BRAZING PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable LANL special work permit (SWP) per AR 8-4 for spark/flame-producing operations; contact Field Unit HS Representative to initiate permit process			
Fire/explosion/burn hazards when using compressed gases	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Implement A&E controls per applicable permit and in accordance with Subpart J of 29 CFR 1926 and use PPE per Section 4.1.5.
Toxic substances in breathing zone	Minor	Mishap probability: possibly could occur Hazard severity: minor	Ventilate local area [in compliance with 29 CFR 1926.55(b) and 29 CFR 1926.57] and use PPE per Section 4.1.5.
Compressed gas uncontrolled high velocity release or compressed gas system explosion	Minor	Mishap probability: unlikely to occur Hazard severity: major	Follow established procedures for compressed gas handling and systems operations. Use relief valves to eliminate trapped volumes of the gas in lines and on compressors. Keep cylinder caps in place at all times, except when cylinders are in use and connected to pressure systems. Fix/strap cylinders in place when in use and when stored to prevent cylinders from falling and damaging the cylinder, valves, regulator, or associated system lines. Use only the approved regulator for the type of gas in use. Make sure all cylinders are in good condition and are stored out of the weather. Move cylinders with appropriate carts or other approved cylinder-transporting devices. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).
Blindness due to welding/cutting	Serious	Mishap probability: probably will occur Hazard severity: major	Compliance with AR 8-4, use of proper lens shade in welding helmet.
MISCELLANEOUS			
Injury from falls of greater than 6 feet	Moderate	Mishap probability: possibly could occur Hazard severity: major	If required, fall protection will be provided to site personnel in compliance with 29 CFR 1926 Subpart M.
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Vacuum entrapment	Minor	Mishap probability: possibly could occur Hazard severity: minor	Nozzle of vacuum line shall be guarded to prevent body parts or clothing from entering the hose.
Confined Space	Minor	Mishap probability: unlikely to occur Hazard severity: major	Personnel will be instructed not to enter the confined space.
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in an appropriate manner for which they are intended.
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located □ 3 feet of each other, noise level is likely exceeding the PEL of 85 dBA (8 hour time-weighted average); conduct noise monitoring with an audio dosimeter. Refer to IT/ICF Kaiser's Hearing Conservation Program.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 4, Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemical Health Hazards			
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, corrosives	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in Section 4.4.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS
Nuisance Dust	Minor	Mishap probability: unlikely to occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m^3.

4.4.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

Prior to entering excavations greater than 4 ft. in depth, the atmosphere within the excavation will be monitored for oxygen deficiency or a hazardous atmosphere.

4.4.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.4.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986)

Body: Refer to area of operation description for specific PPE requirements. Warning vests or other suitable garments marked with or made of reflective or high-visibility material when exposed to vehicular traffic. Leather chaps and jacket while welding or cutting with a torch.

Hands: Nitrile or vinyl gloves when refueling, leather gloves when working on equipment (29 CFR 1910.137, 138) and gauntlet-type welding gloves when welding.

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989). Proper lens shade in welding helmet (AR 8-4).

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.4.6 Decontamination

Equipment Decontamination: All residual soil adhering to equipment will be removed by hand. Alconox/water washes, high-pressure washes, and clean-water rinses can be used to enhance decontamination, as necessary.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.4.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.4.8 Task Specific Training Requirements

The operator of mechanized heavy equipment shall have a statement of qualifications stating that he/she is trained in the operation of this equipment. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).

4.5 Hazard Analysis for Task 5: Sample Analysis

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.5.1 Task 5 Description

This task will consist of field screening environmental samples using various field analytical techniques including, but not limited to, high performance liquid chromatography (HPLC), immunoassay, LANL HE spot-test, XRF, and gravimetric moisture measurement using oven-drying methods. Samples may require chemical extraction as part of analytical preparation. Soil and sediment samples may be extracted with acetone, methanol, or acetonitrile using vigorous shaking, mixing in a magnetic stirrer or an ultrasonic bath. The HPLC may use compressed Helium and Air; helium will be supplied from a regulated high-pressure cylinder, air will be supplied from a compressor or a regulated high-pressure cylinder. Most field-screening operations will be conducted in the HEPS field analytical trailer located near former Building 27 under a chemical hygiene plan (Site-Specific Laboratory Safety Plan). Because oven drying of soil potentially

increases the explosive hazard of HE-contaminated soils, several precautions will be implemented during oven-drying procedures.

- Soil samples greater than 5% total HE will not be oven dried at the field laboratory trailer.
- No more than 25 grams total HE will be dried in the oven at one time.
- The maximum operating temperature of the oven will be limited to 75°C.
- A cover will be placed over the oven heating element so as to prevent HE-contaminated soil from directly contacting the heating element.
- No more than 10 HE-contaminated soil samples will be stored in the analytical trailer at any one time.
- The maximum occupancy of the field analytical trailer will be limited to 4 people.

The key personnel with H&S roles for any of the activities in this activity are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Kristi Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740

4.5.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 9 hazards have been defined as follows.

- Electrocution - Working With Energized Equipment (e.g., generator): this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during normal operations.
- Electrocution - Equipment Maintenance: this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during equipment maintenance.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Injury from contact with or rapid release of compressed gas is defined as the unexpected release of or rapid pressurization of high pressure systems resulting in system failure or explosion or the inadvertent contact with rapidly expanding gasses resulting in a low temperature contact injury (e.g. frostbite)
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 5, Sample Analysis			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
ELECTRICAL PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable requirements of Appendix A.A9 of the HASP and as specified below for lockout/tagout of energized equipment; contact Field Unit HS Representative to initiate permit process.			
Electrocution - working with energized equipment (e.g., generator)	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Outdoor circuits will have ground fault interrupter circuits installed. All cords (extension and power) will be inspected prior to use for cuts or missing ground pins. All defective cords will be removed from service and physically destroyed.
Electrocution – equipment maintenance	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Per LANL Electrical Safety LIR 402.600-01.0 Table D.2.3.
MISCELLANEOUS			
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Contact with severe low temperatures during compressed gas transfer operations	Minor	Mishap probability: unlikely to occur Hazard severity: major	Follow established procedures for compressed gas transfer operations. Use low-flow orifices to reduce gas flow rates. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 5, Sample Analysis			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Compressed gas uncontrolled high velocity release or compressed gas system explosion	Minor	Mishap probability: unlikely to occur Hazard severity: major	Follow established procedures for compressed gas handling and systems operations. Use relief valves to eliminate trapped volumes of the gas in lines and on compressors. Keep cylinder caps in place at all times, except when cylinders are in use and connected to pressure systems. Fix/strap cylinders in place when in use and when stored to prevent cylinders from falling and damaging the cylinder, valves, regulator, or associated system lines. Use only the approved regulator for the type of gas in use. Make sure all cylinders are in good condition and are stored out of the weather. Move cylinders with appropriate carts or other approved cylinder-transporting devices. Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in an appropriate manner for which they are intended.
Chemical Health Hazards			
Nuisance Dust	Minor	Mishap probability: unlikely to occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m^3.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 5, Sample Analysis			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, Acetone, DMSO, Calcium Chloride, Hydrochloric Acid, Methanol, Acetonitrile (CH3CN)	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in Section 4.9.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. In the event of unprotected contact with chemical, follow first aid measures on MSDS. Proper ventilation will be established within the lab. Site-Specific Laboratory Safety Plan will be followed.
Chemicals on site: Helium	Negligible	Mishap probability: unlikely to occur Hazard severity: minor	NA

4.5.3 Exposure Monitoring

None

4.5.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.5.5 Personal Protective Equipment

Head: NA

Body: Lab coat

Hands: Nitrile or vinyl gloves for personnel handling soil or chemicals (29 CFR 1910.137, 138).

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side-shields (29 CFR 1910.133, ANSI Z87.1-1989)

4.5.6 Decontamination

Equipment Decontamination: Site-specific release procedures will be followed before removing samples from the site.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.5.7 Site Control

Refer to area of operation description for area-specific site-control requirements. If field-screening operations are conducted in the HEPS analytical trailer, operations will be administratively controlled.

4.5.8 Task-Specific Training Requirements

Personnel who directly perform compressed gas refilling operations, install regulators, open main cylinder valves, and/or move high pressure compressed gas cylinders will have completed LANL's Pressure Systems training (or equivalent).

4.6 Hazard Analysis for Task 6: Chainsaw Operation

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.6.1 Task Description

Operation of chainsaw for clearing brush and trees. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Kristi Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer::	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740

4.6.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 8 hazards have been defined as follows.

- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.

- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Chainsaw Injury: this hazard is defined as a site worker cut or amputation due to the operation of a chainsaw at the work site.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 6, Chainsaw Operation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
MISCELLANEOUS			
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in an appropriate manner for which they are intended.
Crushing injury from falling trees or limbs	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Personnel other than the operator will be instructed to maintain a distance from the operator of twice the length of the tree or limb to be cut.
Chainsaw Injury	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Chainsaw operations will conform to 29 CFR 1910.266. Proper cutting techniques will be discussed and the chainsaw will be inspected before use. Operator will document review of the operator's manual and demonstrate proper chainsaw operation to the FTL/SSO before operations begin.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 6, Chainsaw Operation			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Physical Health Hazards			
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located □ 3 feet of each other, noise level is likely exceeding the PEL of 85 dBA (8 hour time-weighted average); conduct noise monitoring with an audio dosimeter. Refer to IT/ICF Kaiser's Hearing Conservation Program.
Chemical Health Hazards			
Chemicals on site (substances toxic by skin absorption): Gasoline, oil	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in Section 4.8.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS

4.6.3 Exposure Monitoring

Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

4.6.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.6.5 Personal Protective Equipment

Head: Hardhat equipped with a face shield (29 CFR 1910.135, ANSI Z89.1 1986)

Body: Chaps will be worn to protect legs when cutting timber (refer to area of operation description for specific PPE requirements)

Hands: Leather gloves (29 CFR 1910.137, 138).

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: Safety glasses with side-shields (29 CFR 1910.133, ANSI Z87.1-1989)

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.6.6 Decontamination

Equipment Decontamination: Site-specific release procedures will be followed before removing equipment from the site.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.6.7 Site Control

Refer to area of operation description for area-specific site-control requirements

4.6.8 Task-Specific Training Requirements

All chainsaw operators will review chainsaw manufacturer's operation manual.

4.7 Hazard Analysis for Task 7: Robotic Operations

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.7.1 Task 7 Description

This task involves the remote and robotic operation of heavy equipment including but not limited to tracked excavators and robotic manipulators. When robotic controls are used to operate excavation equipment, this task will always be used in conjunction with the hazard analysis for Task 4, Excavation and Soil Management. Robotic operations will be conducted from the base station located within the field operations trailer. Robotic equipment will be used during the removal and management of soils or other media as deemed necessary by the engineering controls defined in the Areas of Operation. Excavated media will be screened and placed in storage containers or stockpiles. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisiti Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officers:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740
Competent Person:	Robert Monsalve-Jones	Phone/Pager:	661-5217
Professional Engineer:	Scott Den-Baars	Phone/Pager	661-5259/992-7738

4.7.2 Hazard Assessment

The following table lists the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 7 hazards have been defined as follows.

- Accidental Contact with Moving Equipment: this hazard is defined as the impact causing injury to a site worker due to the normal operation of heavy equipment.
- Explosion From Radio Frequencies: this hazard is defined as site worker injury or death from the unexpected detonation of explosives due to radio transmissions from site operations.
- Unauthorized Use of Equipment: this hazard is defined as the improper operation of site equipment by unauthorized persons that could result in an injury to a site worker.
- Loss of Radio Frequency Communication: this hazard is defined as the failure to control the robotic equipment due to loss of radio contact that could cause an injury to a site worker.
- Electrocution - Working With Energized Equipment (e.g., generator): this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during normal operations.
- Electrocution - Equipment Maintenance: this hazard is defined as a site worker suffering an electrical shock or burn at the work site due to contact with an energized circuit during equipment maintenance.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 7, Robotic Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
ROBOTIC EQUIPMENT OPERATION			
Accidental contact with moving equipment	Moderate	Mishap probability: possibly could occur Hazard severity: major.	Site personnel will be informed of area of robotic operations. Robotics workspace access will be restricted to fully informed and trained personnel under controlled conditions. During entry by personnel all remote operations must stop and the hydraulic system de-energized. During robotic operations, field personnel will maintain a minimum 30-ft, radius from operating equipment. Emergency shut off buttons are located on the equipment and at the base station.
Explosion from radio frequencies	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Approval from the ESA-FM high explosives experts will be obtained before use of any radio frequencies.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 7, Robotic Excavation and Soil Management			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Unauthorized use of equipment	Moderate	Mishap probability possibly could occur: Hazard severity: major	Unauthorized use of the equipment is precluded by the removal of the system keys by the operator when the vehicle is not in use. Only authorized users will have keys to the control console.
Loss of Radio Frequency communication	Moderate	Mishap probability possibly could occur: Hazard severity: major	Software features are in use for the detection of loss of radio frequency communication and failure to complete intended motions of the manipulator.
ELECTRICAL PERMIT REQUIRED; A&E controls shall be implemented in accordance with applicable requirements of Appendix A.A9 of the HASP and as specified below for lockout/tagout of energized equipment; contact Field Unit HS Representative to initiate permit process.			
Electrocution - working with energized equipment (e.g., generator)	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Outdoor circuits will have ground fault interrupter circuits installed. All cords (extension and power) will be inspected prior to use for cuts or missing ground pins. All defective cords will be removed from service and physically destroyed.
Electrocution - equipment maintenance	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Per LANL Electrical Safety LIR 402.600-01.0 Table D.2.3.

4.7.3 Exposure Monitoring

NA

4.7.4 Medical/Radiological Surveillance

All personnel who encounter blood or other potentially infectious material from other persons, must be monitored according to Bloodborne Pathogens or Potentially Infectious Materials, 29 CFR 1910.1030(f) and IT/ICF Bloodborne Pathogen Program.

4.7.5 Personal Protective Equipment

Refer to task requirements.

4.7.6 Decontamination

Equipment Decontamination: NA

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.7.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.7.8 Task Specific Training Requirements

The operator of robotic base station and robotic equipment shall have a statement of qualifications stating that he/she is trained in the operation of this equipment.

See attachment 1 "Guidance Document for the Operation of the Hybrid rEmote Robotics Manipulation and Excavation System (HERMES)" for system specific requirements.

4.8 Hazard Analysis for Task 8: Debris Collection

Debris Collection: The task objectives are for field team personnel to collect shrapnel pieces across the MDA-R area.

Material collected by hand will be limited to no more than 30 lbs, larger items will be require the use of mechinical equipment to move. Debris will be seporated in accordance with the Waste Management Plan, screened for HE and radioactive contamination.

4.8.1 Task Description

Debris will collected from the surface of MDA-R, along the cliff and down to the toe of the cliff. Collection will be by hand for items under 30 pounds. For heavier items and items on the cliff face down to the toe of the cliff mechinical means will be used to assit in the collection of debris.

The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisiti Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager	661-5220/669-1740

4.8.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 2 hazards have been defined as follows.

- Injury From Underground Utilities (elec./fire/explosion hazards): this hazard is defined as site worker injury or death due to contact with an underground energized circuit or the combustion or detonation of materials due to an unexpected disturbance of underground utilities during excavation at the work site.
- Injury From Pinch Points Or Rotating Parts: this hazard is defined as the capture of a body part or clothing by operating equipment at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.

- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Exposure to On-site Chemicals (gasoline and diesel): this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated)

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for MDA-R Task 8, Debris Collection				
Hazard	**Hazard Assessment**	**Hazard Probability (Assessment Rational)**	**Hazard Severity**	**Administrative and Engineering Controls (Prevention/Mitigation Measures)**
RADIOLOGICAL HAZARDS				
Alpha, Beta, Gamma Radiation	Negligible	Exposure unlikely to occur	Minor	TLD's for monitoring external exposure
Safety Hazards and Health Concerns				
Injury from underground utilities – elec./fire/explosion hazards	Serious	Mishap probability: possibly could occur	Catastrophic	Estimated locations of utilities (i.e., sewer, telephone, gas, electric, water lines, etc.) shall be determined prior to excavating. Notify utility owners of intended work and request they demarcate on ground surface location(s) of underground utilities; have a field team member accompany utility owner rep. to identify intended excavation location(s) and to find out specifics of utility location(s). If utility owner cannot establish exact location of utility installation(s), sampling may proceed with caution and provided detection equipment or other acceptable means to locate utility installation(s) are used. As sampling operations approach estimated location of underground utility, exact location of the installation shall be determined by safe and acceptable means (i.e., using hand held equipment).
MISCELLANEOUS				
Injury from hand tools	Minor	Mishap probability: possibly could occur	Minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in the intended manor

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for MDA-R Task 8, Debris Collection				
Hazard	**Hazard Assessment**	**Hazard Probability (Assessment Rational)**	**Hazard Severity**	**Administrative and Engineering Controls (Prevention/Mitigation Measures)**
Injury from pinch points and rotating parts	Moderate	Mishap probability: possibly could occur	Major	Equipment shall be inspected for engineering controls in compliance with applicable sections of Subparts O of 29 CFR 1926 and 29 CFR 1910. Personnel will stand clear of rotating parts.
Fire	Serious	Mishap probability: possibly could occur	Catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Excessive Noise	Moderate	Mishap probability: possibly could occur	Major	Whenever voice(s) must be raised to communicate between two or more persons located within 3 feet of each other, noise level is likely to be in excess of the PEL of 85 dBA (8 hour time-weighted average). Noise monitoring with an audio dosimeter will be initiated when the action level is exceeded. Refer to IT/ICF Kaiser's Hearing Conservation Program.
Chemical Health Hazards				

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for MDA-R Task 8, Debris Collection				
Hazard	**Hazard Assessment**	**Hazard Probability (Assessment Rational)**	**Hazard Severity**	**Administrative and Engineering Controls (Prevention/Mitigation Measures)**
Nuisance Dust	Minor	Exposure possibly could occur	Minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m^3.
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, corrosives	Minor	Mishap probability: unlikely to occur	Major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in section 4.2.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS

4.8.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

Prior to entering excavations greater than 4 ft. in depth, the atmosphere within the excavation will be monitored for oxygen deficiency and hazardous atmosphere.

4.8.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.8.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986).

Hands: Leather gloves when augering. (29 CFR 1910.137, 138). Refer to Area of Operation hazard analyses for description of chemical-specific PPE requirements

Body: Refer to Area of Operation hazard analyses for description of chemical-specific PPE requirements.

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Face and Eyes: Safety glasses with side shields (29 CFR 1910.133, ANSI Z87.1-1989)

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.8.6 Decontamination

Refer to Area of Operations and General Hazards descriptions for equipment and personnel decontamination requirements.

4.8.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.8.8 Task-Specific Training Requirements

None

4.9 Hazard Analysis for Task 9: Decontamination of Equipment

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.9.1 Task 9 Description

This task involves the decontamination of equipment. All potentially contaminated equipment will undergo a two-stage decontamination: residual dry soil adhering to equipment will be wetted and removed by hand with non-sparking scrapers, followed by an Alconox/water wash and scrub. Decontamination fluids will be collected for recycling or disposal. A power sprayer or steam cleaner may be used on heavy equipment. Site specific release procedures will be followed before removing the equipment from the site. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisiti Beguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Subcontractor Supv.:	Sam Gardner, SG Western	Phone/Pager:	662-3852
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740

4.9.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 9 hazards have been defined as follows.

- Injury from Pressure Washer Operation: this hazard is defined as a site worker injury due to contact with high pressure spray from the pressure washer at the work site.
- Exposure to Contamination During Equipment Decontamination: this hazard is defined as a site worker illness due to exposure to contamination at the work site.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 9, Decontamination of Equipment			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
EQUIPMENT DECONTAMINATION			
Injury from pressure washer operation	Moderate	Mishap probability: possibly could occur Hazard severity: major	Operator shall use PPE as specified in Section 4.6.5.
Exposure to contamination during equipment decontamination.	Minor	Mishap probability: possibly could occur Hazard severity: minor	Install protective barrier(s) over/around steam cleaning decon unit to prevent migration of spray, especially on windy days.
MISCELLANEOUS			

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 9, Decontamination of Equipment			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Heavy Lifting	Minor	Mishap probability: unlikely to occur Hazard severity: major	Do not manually lift loads in excess of 50 lbs.; use two (or more) people to lift and carry heavier loads or use mechanical lift assist equipment.
Fire	Serious	Mishap probability: possibly could occur Hazard severity: catastrophic	Fire extinguishers will be located on all vehicles in the work zone, at refueling areas, the entrance to the CRZ, and in all support trailers. Only trained personnel will be allowed to use fire extinguishers. The LANL emergency response and Los Alamos County Fire Department will be notified prior to the start of work. Personnel will be instructed to ground/bond equipment involved in bulk refueling operations, allow equipment to cool before refueling, and not start portable equipment within 10 feet of the refueling area. No open flames will be allowed during refueling. At least one 10 lbs. A:B:C rated fire extinguisher shall be maintained readily accessible for each spark producing piece of equipment or operation.
Injury from hand tools	Minor	Mishap probability: possibly could occur Hazard severity: minor	All hand tools will be inspected for integrity before use. Personnel will be instructed to use hand tools in an appropriate manner for which they are intended.
Physical Health Hazards			
Excessive Noise	Moderate	Mishap probability: possibly could occur Hazard severity: major	Whenever voice(s) must be raised to communicate between two or more persons located □ 3 feet of each other, noise level is likely exceeding the PEL of 85 dBA (8 hour time-weighted average); conduct noise monitoring with an audio dosimeter. Refer to IT/ICF Kaiser's Hearing Conservation Program.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 9, Decontamination of Equipment			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Chemical Health Hazards			
Chemicals on site (substances toxic by skin absorption): Gasoline, oil, corrosives	Minor	Mishap probability: unlikely to occur Hazard severity: major	PPE (chemical protective clothing and/or eye/face protection) shall be used as specified in Section 4.6.5. Emergency eyewashes must be located within 10 seconds and not more than 100 feet of travel distance of any source of chemical splash that may be corrosive or moderately to severely irritating to body tissue. They must have a capacity to be able to provide continuous flushing for the duration of time necessary to sufficiently flush the most hazardous substance for which the device is being specified. They also shall be inspected and flushed at least weekly by the SSO or designee. Provide proper storage of chemicals. All spills shall be cleaned up as soon as possible. Personnel will be instructed to stand upwind of refueling operations. In the event of unprotected contact with chemical, follow first aid measures on MSDS
Nuisance Dust	Minor	Mishap probability: unlikely to occur Hazard severity: minor	Airborne dust shall be suppressed by application of a water-based mist, as necessary, to keep levels below action level of 2.5mg/m3.

4.9.3 Exposure Monitoring

If visible dust is noted for more than 2 minutes at a time, then monitoring will be conducted with a Miniram. Action levels for dust will be 2.5 mg/m^3. Noise monitoring will be conducted when levels are such that voices have to be raised to speak to someone 3 ft away; noise monitoring will be conducted with an audio dosimeter. An action level of 85 dBA (8 hour time-weighted average) will be used for subcontractor personnel, while 84 dBA (8 hour time-weighted average) will be applied to LANL personnel. Refer to ICF Kaiser/IT Corporation's Hearing Conservation Program.

4.9.4 Medical/Radiological Surveillance

Personnel must have a medical fit for duty statement in order to implement this task.

4.9.5 Personal Protective Equipment

Head: Hardhat when working around heavy equipment and where overhead hazards exist (29 CFR 1910.135, ANSI Z89.1 1986)

Body: Saranax coveralls when using the power sprayer. Refer to area of operation description for specific PPE requirements during other decontamination operations.

Hands: Nitrile or vinyl gloves when handling water or decontamination fluids; leather gloves when working on or operating equipment (29 CFR 1910.137, 138).

Foot: Safety shoes or boots (29 CFR 1910.136, ANSI Z41-1991)

Eyes: A face shield and safety glasses will be worn when using power sprayer (29 CFR 1910.133, ANSI Z87.1-1989).

Ear: Plugs or muffs with an NRR of at least 30 dBA when noise level is exceeding the PEL of 85 dBA (8 hour time-weighted average).

4.9.6 Decontamination

Equipment Decontamination: All residual soil adhering to equipment will be removed by hand. Alconox/water washes, high-pressure washes, and clean-water rinses can be used to enhance decontamination, as necessary.

Personnel Decontamination: Personnel shall wash hands and face prior to eating or drinking, following the use of restroom facilities, and before leaving the site.

4.9.7 Site Control

Refer to area of operation description for area-specific site-control requirements.

4.9.8 Task-Specific Training Requirements

None

4.10 Hazard Analysis for Task 10: BMP Implementation and Site Restoration

The hazard analysis for this task is not designed to be implemented as a complete activity hazard analysis. This hazard analysis will be implemented only in conjunction with the general hazard analyses and applicable task- and area-specific hazard analyses as defined in the SSHASP Organization and Implementation section of this document.

4.10.1 Task 10 Description

This task involves the installation of BMPs and reseeding of the site. BMPs may consist of rock or straw bale dams, silt fencing, jute matting, or piping. BMPs may be held in place with stakes. Before reseeding, the site maybe recontoured and covered with topsoil. Seed may be broadcast by hand or applied with a hydroseeder. Following the reseeding the area may be covered with mulch. Heavy equipment may be used to recontour the site and to spread the top soil or mulch. Oxy-Acetylene and Shielded Metal Arc (a.k.a. "stick") Welding and/or cutting may also be used in support of this task. The key personnel with H&S roles for any of the activities in this task are identified below.

Key Personnel Having Task-Specific H&S Responsibility			
General Supervisor:	Krisiti Brguin	Phone/Pager:	661-5729/104-5178
Alternate General Supervisor:	Elmer Alcon	Phone:	661-5216
Subcontractor Supv.:	Sam Gardner, SG Western	Phone/Pager:	662-3852
Site Safety Officer:	Robert Monsalve-Jones	Phone/Pager:	661-5217
	Scott Wimer	Phone/Pager:	661-5220/669-1740
Competent Person:	Robert Monsalve-Jones	Phone/Pager:	661-5217

4.10.2 Hazard Assessment

The following table list the hazards, their Hazard Assessment, and the Hazard Assessment Rational for the hazards specific this task. The table also lists the Administrative and Engineering Controls that will be implemented to control these hazards. As these controls do not completely mitigate the hazards, the PPE and monitoring described in the following sections will also be implemented. The Task 10 hazards have been defined as follows.

- Injury From Underground Utilities (elec./fire/explosion hazards): this hazard is defined as site worker injury or death due to contact with an underground energized circuit or the combustion or detonation of materials due to an unexpected disturbance of underground utilities during excavation at the work site.
- Heavy Lifting: this hazard is defined as a site worker injury due to lifting at the work site.
- Fire: this hazard is defined as the unexpected combustion of fuel or materials at the work site that could cause an injury to a site worker.
- Injury From Hand Tools: this hazard is defined as a site worker injury due to the operation of hand tools at the work site.
- Heavy Equipment Operation: this hazard is defined as the crushing of a site worker by moving heavy equipment from one location to another.
- Excessive Noise: this hazard is defined as injury to the hearing of a site worker due to loud noises generated at the work site.
- Nuisance Dust: this hazard is defined as a site worker illness due to exposure to nuisance dust at the work site (assumed to be uncontaminated).
- Exposure to On-site Chemicals: this hazard is defined as a site worker illness or injury due to exposure to chemicals at the work site needed to accomplish the task.
- Fire/Explosion/Burn Hazards When Using Compressed Gases: this hazard is defined as the unexpected combustion of welding gasses at the work site that could cause an injury to a site worker.
- Toxic Substances In Breathing Zone: this hazard is defined as a site worker illness or injury due to exposure to toxic welding gasses at the work site.
- Injury from contact with or rapid release of compressed gas is defined as the unexpected release of or rapid pressurization of high pressure systems resulting in system failure or explosion or the inadvertent contact with rapidly expanding gasses resulting in a low temperature contact injury (e.g. frostbite)
- Blindness Due To Welding/Cutting: this hazard is defined as a site worker eye injury due to exposure at the work site to bright light generated during welding.

HAZARD ASSESSMENT and ADMINISTRATIVE and ENGINEERING (A&E) CONTROLS for Task 10, BMP Implementation and Site Restoration			
Hazard	**Hazard Assessment**	**Hazard Assessment Rationale**	**Administrative & Engineering Controls (Prevention/Mitigation Measures)**
Safety Hazards and Health Concerns			
EXCAVATION/ TRENCHING	PERMIT REQUIRED for excavating/trenching; A&E controls shall be implemented in accordance with applicable LANL excavation permit (per LIR 402-880.01.0) and as specified below;		

Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION (ER)

SITE-SPECIFIC HEALTH & SAFETY PLAN (SSHASP) MODIFICATION

Project Name: **Drilling and Soil Sampling at MDA-R**

SSHASP Name: Drilling and Sampling at MDA-R SSHASP No.: 291 Mod. #: 1

This SSHASP Modification modifies and/or supplements the associated SSHASP. Copies of this Modification are to be readily accessible for review onsite by individuals who may be exposed to hazards resulting from work conducted under the scope of this document. Personnel performing work under the scope of this Modification are required to sign the LANL ER Work Authorization and Health & Safety Briefing Acknowledgement page signifying that they are aware of the information documented herein and will abide by requirements of all applicable H&S plans to eliminate or lessen the risk of injury or illness from exposure to the identified hazards.

APPROVALS / CONCURRENCE

Signature	Name	LANL Group	Date
	Warren Neff/John McCann	EM/ER	9-7-00

Remedial Action Focus Area Project Leader Approval

Signature	Name	Company	Date
	Scott Den Baars	IT Corp.	9-8-00

IT Corporation H&S Responsible Line Manager Approval

Signature	Name	LANL Group	Date
	Bob Grace	ESA-FM	

Facility Management Concurrence

Signature	Name	LANL Group	Date
	Ricardo Ortiz	ESA-WMM	

ESA-WMM Group Leader Concurrence

Signature	Name	LANL Group	Date
	Dan Macdonell	ESA-FM	

ESA-FM Health & Safety Team Leader

Signature	Name/Title	LANL Group	Date
	Dan Sandoval	ESH-5	9/7/00

ER/ESH-5 Representative Concurrence

* *[Add/delete signature lines as necessary to address all affected parties H&S. Only H&S responsible line managers of personnel implementing this SSHASP sign in approval; all others sign in concurrence. Don't forget subject matter experts, as necessary.]*

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

Robert Monsalve-Jones		IT Corp	9/7/00	M892	661-5217
Preparer's Name	Signature	Company/LANL Group	Date	Mailstop	Phone

LANL ER WORK AUTHORIZATION
AND HEALTH & SAFETY BRIEFING ACKNOWLEDGEMENT

The individuals who sign this acknowledgement are authorized by their respective health and safety responsible line manager (who has signed approval of this SSHASP Modification) to perform the tasks identified within the scope of this SSHASP Modification.

Project Title: **Drilling and Sampling at MDA-R**

SSHASP Title: Drilling and Sampling at MDA-R SSHASP 291 Mod. #: 1

TA(s)/Location(s): TA-16/PRS 019

Briefing conducted by:

Printed Name	Title	Employer or LANL Group	Z Number
Robert Monsalve-Jones	SSO	IT corp	118759

Signature	Date
[signature]	9-8-00

I acknowledge that I understand this SSHASP Modification, including the hazards related to performing this work and the ways I can eliminate the hazards or protect myself from injury or illness on the job.

NAME	EMPLOYER/GROUP	Z NUMBER	SIGNATURE/DATE
Elmer Alcon	IT corp	119637	[signature] 9-8-00
Joseph A. Bird	IT Corp	170300	Joseph A Bird 9-8-00
JOE VARGAS	IT. corp.	175235	Joe Vargas 9/8/00
Carol Vargas	IT. Corp.	175204	Carol Vargas 9/8/00
Derrick JONES	IT. Corp	176875	Derrick Jones 9/8/00
Esther Witherow	IT Corp	176876	Esther Witherow 9/8/00
Kristi Beguin	IT Corp.	105685	[signature] 9/8/00
TIMOTHY MOTAH	IT corp	175231	[signature]
PETER E. M-GRAM	IT CORP.	703076	[signature] 09/18/00

IT CORPORATION
A Member of The IT Group

Memorandum

To: Scott Den-Baars, Lynn Kidman, Peter Gram, Scott Wimer, Mary Lee Hogg, Dan Sandoval, Warren Neff, Bob Grace, Bob Dinwiddie

Date: September 7, 2000

From: Robert Monsalve-Jones

Subject: SSHASP 291, Drilling and Soil Sampling at MDA-R

Per my conversation with Dan Sandoval of Los Alamos National Laboratories, Environmental Safety and Health 5 group the following changes are being incorporated into Site-Specific Health and Safety Plan #291.

1. In section 3.1.3, Exposure Monitoring, the calculated Dust Action Level for Barium is 2 mg/m^3, therefore the dust action level will be changed to 2.0 mg/m^3, from the current dust action level of 2.5 mg/m^3. As a result of the lowered dust action level and in addition to dust monitoring, air sampling for metals and barium will be conducted until a negative air borne dust assessment is made. A negative air assessment can be made based on total dust monitoring with a "Miniram" and the average time weighted dust level is less then 2.0 mg/m^3, or metals dust monitoring results for barium are less then 0.5 mg/m^3. The airborne metals monitoring will be conducted using "Gilian" personnel air samplers that are calibrated at the beginning and end of each day of use.
2. Due to the lack of volatile organic compound (VOC) data air monitoring for VOCs will be conducted during soil disturbing activities. Monitoring will be conducted using a Photoionization detector (PID) or equivalent equipped with a 10.5 eV lamp.

These changes are necessary to assure the health and safety of sampling technicians at the MDA-R project. If there are any questions please feel free to contact me at (505) 661-5217 or (505) 920-7453.

Appendix 11

OU 1082 Site-Specific Quality Assurance Project Plan

1.0 Introduction

This site-specific Quality Assurance Project Plan (QAPP) has been written following guidance presented in the Laboratory's Environmental Restoration (ER) Project Quality Assurance Project Plan (QAPP). The QAPP is included in the latest version of the Installation Work Plan (IWP) currently under review by the Environmental Protection Agency (EPA).

The primary objective of collecting quality assurance/quality control (QA/QC) samples is to assess the quality of sampling and measurement techniques. The QA/QC samples may also be used to aid future decisions about specific samples and potential release sites. The following objectives will be met using QA/QC samples:

- to provide information on negative bias
- to estimate sample collection and total measurement error
- to evaluate if the data is complete, representative, and comparable

QA/QC samples typically submitted as part of environmental assessment programs that protect against false positive results will not be submitted as part of this plan. All positive results will either be accepted as accurate or, if the results are in question, will be confirmed by re-sampling the location in doubt. Re-sampling will be less expensive and more accurate than collecting numerous routine QA samples used to disqualify false positive results.

Section 2.0 discusses field QA/QC samples, Section 3.0 describes laboratory QA/QC samples, and Section 4.0 discusses other significant issues. A summary of QA/QC samples is included in Table 1.

2.0 Field Quality Control Samples

Three types of field QA/QC samples will be collected at OU 1082: performance evaluation (PE) samples, collocated field duplicate samples, and rinsate blanks. PE samples are used to check the methods of the subcontract laboratories for data validation. Collocated samples measure spatial variation of contaminants and rinsate blanks evaluate decontamination procedures.

Trip blanks and field blanks will not be collected. Typically, these samples identify false positives resulting from ambient conditions or cross contamination effects. At OU 1082, positive results that are suspect will be verified by re-sampling. Re-sampling is expected to be significantly more economical (and more accurate) than collecting multiple field and trip blanks due to the low probability of discovering multiple areas with contamination above screening action levels.

2.1 Performance Evaluation Samples

Material for the high explosives (HE) PE samples will be obtained from LANL or purchased from off-site sources. The PE soil will be supplied in bulk and placed in sample containers along with the environmental samples. The QA objectives of these samples are:

- to evaluate the accuracy of laboratory procedures
- to check laboratory recovery of constituents to evaluate matrix effects

The PE samples will be submitted by the field team at a rate of 1 per 40 (2.5 %) and will provide sufficient statistical information to meet the QA objectives. The field team may stop submitting PE samples if the ER Program implements a program-wide laboratory evaluation system.

2.2 Collocated Field Duplicate Samples

Field duplicates will be collocated with other field assessment/characterization samples. In order to attain the maximum QA data, the field duplicate samples will be collocated with samples showing positive field screen data on indicator parameters. Field duplicates will be collected at a rate of 1 per 20 (5%), as recommended in the ER Quality Assurance Project Plan (QAPP).

2.3 Rinsate Blank Samples

Two Rinsate samples will be collected during the initial sampling phase of the field campaign. One rinsate sample will be collected from manual sampling equipment and one sample will be collected from drilling equipment. These samples will be selected from the locations deemed most contaminated. The low frequency for collecting rinsate blanks is justified because rinsate blank results are only used to provide information on cross-contamination and potential false positives. This information will be attained through resampling as explained above. In addition, decontamination procedures are controlled by a Standard Operating Procedure (SOP) and previous field efforts conducted by ICF KE at LANL have verified that these decontamination procedures are adequate.

2.4 Matrix Spike Samples

Although matrix spike samples are actually laboratory QA/QC samples, the field team will be responsible for identifying to the laboratory the samples for which a matrix spike samples will be taken. Matrix spike samples provide information on the effect of sample matrix on the laboratory analytical methodology (percent recovery) and provides a measure of the precision and accuracy of the analysis. Matrix spike samples are generally required by the method for chemical analyses. Typically, the subcontract laboratory will not require additional material in order to perform the matrix spike/matrix spike duplicate (MS/MSD) except for organic analyses in waters where triple volumes will be submitted. Water samples are not anticipated at TA-16 during the 1995 sampling season. Additional method-specific QC may be performed by the subcontract laboratory.

3.0 Types of Laboratory QA/QC Samples

Laboratory QA/QC samples are prepared by the laboratory to verify the quality of internal procedures. The type and frequency of these samples will be performed as specified by the contracts established with each laboratory.

4.0 Deviations from Prescribed Sample Plan and Analytical Methods

During the implementation of the RFI Work Plan in the field, unplanned instances can occur that will require deviations from prescribed Work Plan initiatives. Deviations from the sample plan occur when the nature of the sample location renders the prescribed sample requirements impossible to meet. For analytical methods, a change in method is needed when the analytical method's limit of detection for a potential contaminant of concern (PCOC) is greater than the screening action level (SAL). In any case where sample requirements prescribed by the RFI cannot be satisfied, the field project leader (FPL) will be consulted for guidance. The FPL will decide the proper course to proceed with sampling activities. Any deviation from established practices will be documented in the field notebook.

5.0 Non-routine Chemical Analyses

Chemical analyses for HE will be performed in the mobile chemical van (chem van) for samples that test positive for HE on the HE spot test (>100 ppm). The analytical method performed in the chem van uses a high performance liquid chromatography (HPCL) method, similar to the SW-846 Method 8330. The detection limits for the chem van analytical method are comparable to Method 8330, but this method includes less rigorous data confirmation than the specialized method. Data from this chem van analytical method is needed for shipping purposes but may be used for ER decisions if the method is approved by EPA. Current negotiations with EPA will determine the specific QA/QC requirements for the chem van analytical method.

6.0 Conclusions

This site-specific QAPP describes the QA/QC samples needed to assess the quality of data that will be used to support RFI decisions at OU 1082. This plan also addresses unplanned deviations from prescribed RFI requirements and the protocol for the non-routine analyses planned at OU 1082. The field QA/QC samples defined in this plan deviate slightly from those recommended in the ER QAPP. The field QA/QC samples were selected to meet QAPP guidelines and specific OU 1082 QA objectives in the most efficient and economical manner.

Table 1: Field QA/QC Summary

Field QA/QC Samples		
Sample Type	**Frequency**	**QA Objective**
Performance Evaluation	Approx. 1 per 40	to evaluate accuracy of laboratory procedures and negative bias
Field Duplicate (collocated)	Approx. 1 per 20	to evaluate contaminant spatial variability
Rinsate Blank	Approx. 2 total	to further evaluate decontamination procedures

OU 1082 Site-Specific Quality Assurance Project Plan

Addendum 1

All operable units (including OU 1082) have since been reorganized into focus areas and teams within focus areas. References to OU 1082 in this document are directly applicable to work areas in S-Site under the revised ER Project organization of the High Explosives Production Sites (HEPS). This document also references the ER QAPP which no longer exists. However, the document objectives are valid and will be followed with the following changes.

Performance Evaluation Samples
The ER Project is responsible for evaluating the performance of the contract laboratories. The HEPS team will not submit PE samples to contract laboratories. However, PE samples will be run at the rate specified for all analytical procedures conducted at the field analytical laboratory.

Collocated Field Duplicate Samples
The field duplicate samples will be collected as split samples as specified in LANL-ER-SOP-1.05, R0.

Rinsate Blank Samples
Rinsate blank samples will not be submitted as decontamination procedures have proven to be very effective. Decontamination effectiveness at S-Site is verified through the use of the HE spot test. All sampling equipment, materials, and samples are required to pass the HE spot test.

Appendix 12

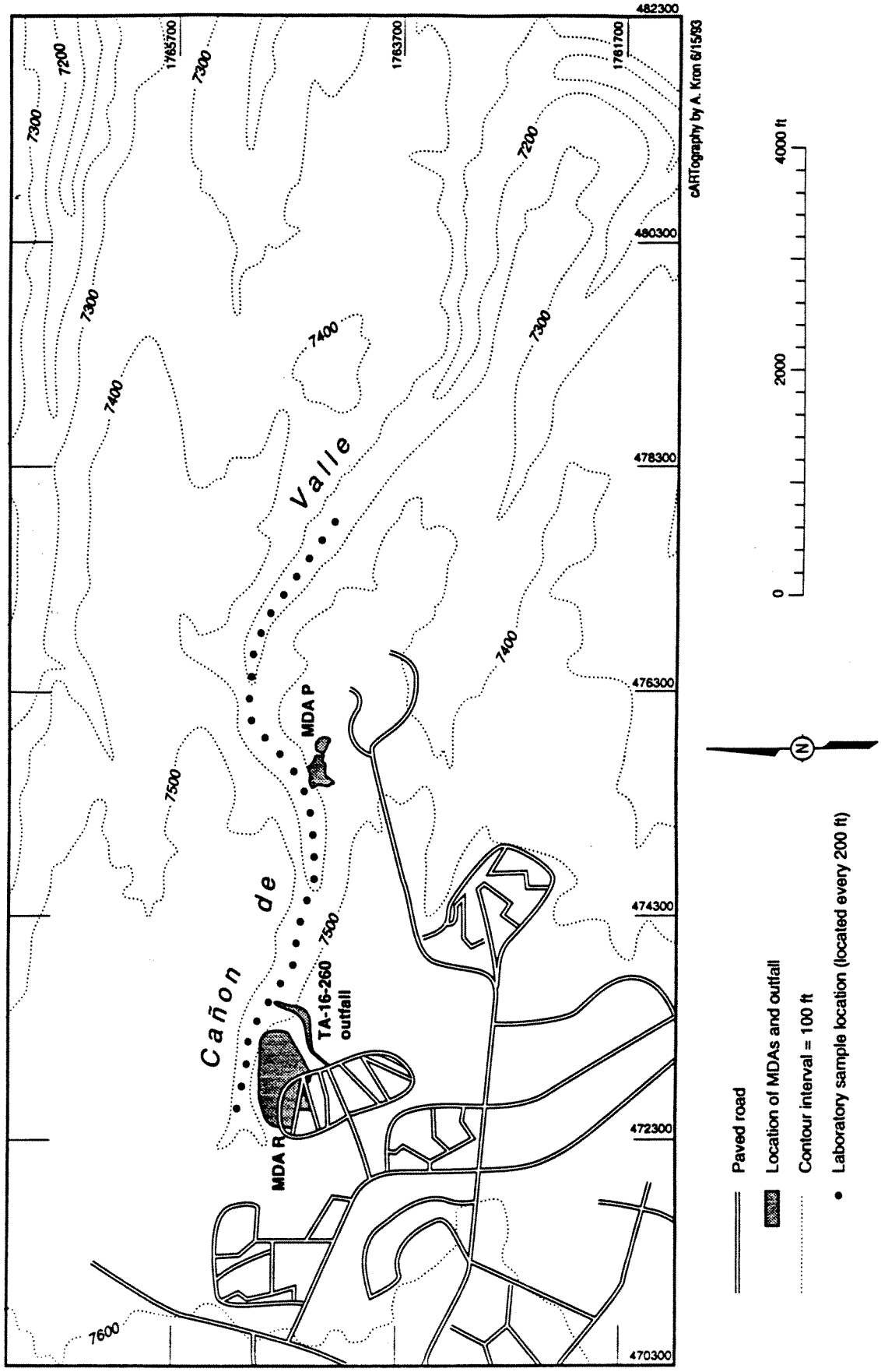


Fig. 5-39. Laboratory sampling locations in Cañon de Valle.

what was the MDA R burning ground toward the canyon floor. Oil cans, glass vials, metal structures, and coaxial cables were observed below MDA R on the face of the canyon. The debris is being held back by a natural barrier of wood and trees that resulted from clearing the area for TA-16-260. There is no information available concerning decommissioning or decontamination activities.

5.10.1.2 Conceptual Exposure Model - MDA R

The conceptual exposure model is presented in Fig. 4-4. Site-specific information on potential release sources, chemicals of concern, migration pathways, and potential receptors is presented below.

5.10.1.2.1 Nature and Extent of Contamination

There is no existing analytical data for MDA R. By analogy with the modern burning ground and its waste disposal area, MDA P, the likely COCs within this SWMU include HE, HE by-product residual from burning, semivolatiles, fuel oil, uranium, asbestos, and metals, particularly barium. Contamination is likely to be present on both the surface and near surface because of the bulldozing of the site during the early 1950s. PCOCs for MDA R are found in Table 5-53.

5.10.1.2.2 Potential Pathways and Exposure Routes

MDA R consists of potentially-contaminated subsurface/surface soils and debris that have been pushed into the canyon. The dominant pathway for off-site migration is by surface water transport down the drainages to Cañon de Valle. Contaminants may accumulate in sedimentation areas in drainages. Subsurface contamination that may be present could be brought to the surface via excavation or erosion.

Current human receptors are limited to on-site workers. Chapter 4 contains a detailed discussion of the migration pathways, conversion mechanisms, human receptors, and exposure routes.

5.10.2 Remediation Decisions and Investigation Objectives

Problem Statement (DQO Step 1)

SWMU 16-019. MDA R was used as a burning ground for waste explosives and it was also used for the disposal of other debris. Based on information about the present burning ground, PCOCs include HE, HE by-products, barium, and uranium. Similarly, based on our knowledge of contamination at the modern burning ground and its waste disposal area, MDA P, the likelihood of contamination at the SWMU is high. Both surface and subsurface contamination are possible as a result of bulldozing at the site.

The problem during Phase I will be to determine whether PCOCs are present at levels that are different from background and above SALs at MDA R or in its drainages, which lead into Cañon de Valle. An additional Phase I goal is to remove the debris that is scattered on the north side of the SWMU.

Decision Process (DQO Step 2)

A Phase I study will be conducted to determine whether contamination is present in MDA R.

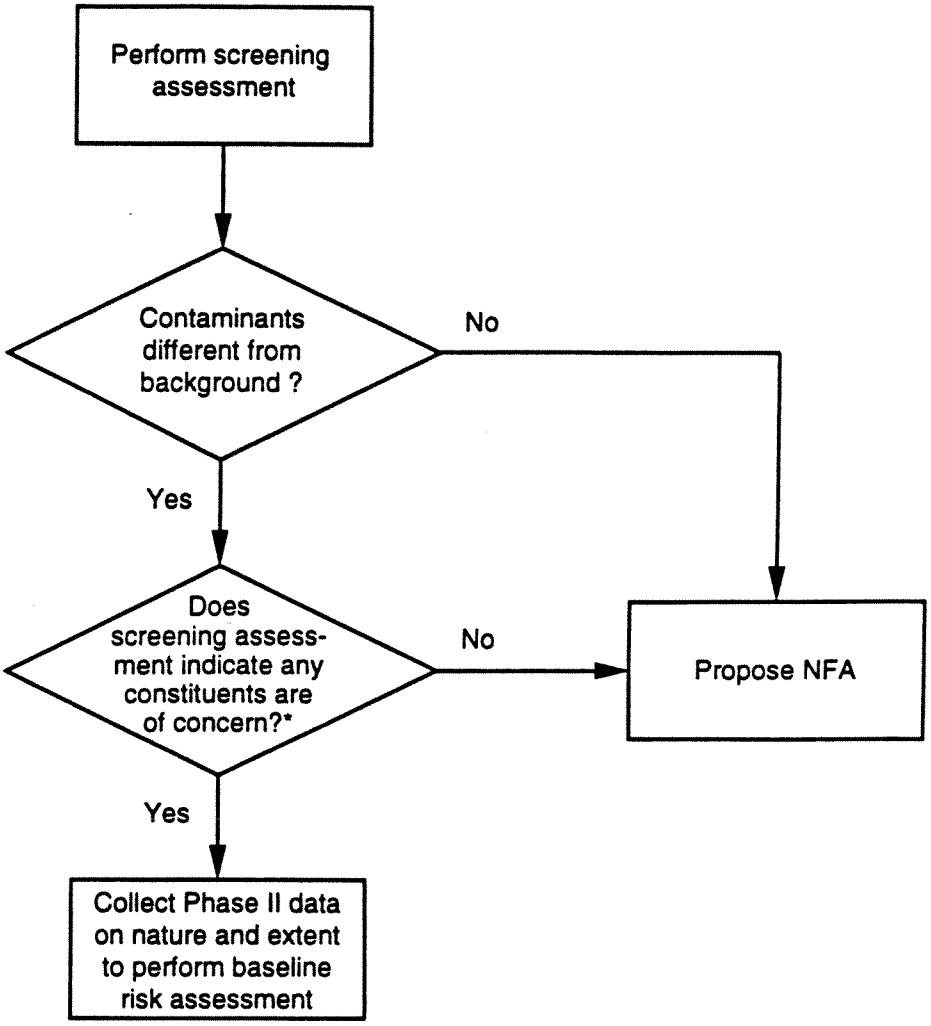
For MDA R, initial goals for the Phase I studies are: 1) verification/elimination of specific PCOCs for these areas; and 2) providing sufficient Phase I data so that Phase II studies can be implemented in an efficient and cost-effective manner.

The results of Phase I study of MDA R and its drainages will be used to determine which of the following actions should be recommended for the MDA R site itself:

1. Phase II study (if contaminants are different from background and exceed SALs). Phase II would include a baseline risk assessment.

2. NFA (if contaminants are not different from background or do not exceed SALs).

Possible remediation alternatives for MDA R are analogous to those proposed for MDA P and include some combination of: 1) capping in-place with



* PCOCs > SALs or possible multiple contaminant problem

Fig. 5-40. Decision flow for MDA R.

For the surface soils of MDA R, field screening techniques will be used to bias for locations with high values of HE, radiation, and barium as will other field indications such as staining or unusual lack of vegetation. The field screening measurements will be taken on a 75 ft grid over the entire area of MDA R, as defined by examination of aerial photographs. The grid spacing is based on the fact that the burn pits in the historical aerial photographs are approximately 75 x 75 ft and the likely size of the MDA R waste disposal pit was probably 50 to 150 ft in length, by analogy with MDA P. However, the grid spacing will be halved, to 37.5 ft, over a 500 x 300 ft area directly over the burn pits themselves, because PCOCs in each pit are likely to be heterogeneously distributed. On the basis of field screening, 15 3-ft core samples will be selected for laboratory analysis. The following hierarchical biasing scheme will be used: 1) any sample yielding positive HE; 2) any sample yielding above-background radiation; and, 3) any sample with barium higher than two times background.

Applying the reconnaissance sampling approach to the laboratory samples, a sample population of 15 will detect contamination with a probability of .78 if 10% of the near surface is contaminated or with a probability of .96 if 20% of the site is contaminated.

For the drainage channels from MDA R into Cañon de Valle, field screening techniques will be used to select samples from 5 sediment traps from two drainages. In the absence of field indications, sediment traps will be selected at approximately evenly-spaced intervals to provide uniform coverage of the region of interest. Considering each drainage individually, a sample population of 5 will detect contamination with a probability of .66 if 20% of each drainage is contaminated or with a probability of .9 if 40% of the site is contaminated.

Subsurface sampling of MDA R will be conducted by drilling eight boreholes to bedrock in areas judged likely to contain contaminants if subsurface contamination is present. The locations of the three bermed burn pits may have had fill bulldozed over them; thus, they are likely locations for subsurface contamination. They can be located accurately by study of 1948 aerial photographs. Based on those aerial photographs, three boreholes will be drilled at the likely location of those pits. Five boreholes will be located at

TABLE 5-55

SUMMARY OF SITE SURVEYS, SAMPLING, AND ANALYSIS FOR MDA R

PRS	PRS TYPE	Sampled Media	Laboratory Samples: Structure	Structure Field dup	Laboratory Samples: Surface	Surface Field dup	Laboratory Samples: Subsurface	Subsurface Field dup	Field Screening: Gross Alpha	Field Screening: Gross Gamma/Beta	Field Screening: Organic Vapor	Field Screening: HE Spot Test	Field Screening: Geophysics Surface	Field Screening: Barium - LIBS	Field Screening: A Geological Characterization	Field Lab.: Gross Alpha	Field Lab.: Gross Gamma/Beta	Field Lab.: Tritium	Field Lab.: Volatile Organics	Field Lab.: B XRF	Field Lab.: Soil Moisture	Laboratory Analyses: Alpha spectroscopy	Laboratory Analyses: Gamma spectroscopy	Laboratory Analyses: C Beta spectroscopy	Laboratory Analyses: Total Uranium	Laboratory Analyses: Isotopic Plutonium	Laboratory Analyses: Isotopic Uranium	Laboratory Analyses: D VOA (SW 8240)	Laboratory Analyses: E Semivolatiles (SW 8270)	Laboratory Analyses: F Metals (SW 6010)	Laboratory Analyses: G Asbestos	Laboratory Analyses: H High Explosives (SW 8330)	Laboratory Analyses: Cyanide
16-019	MDA R	Soil			25	2				135		135		135											25				25	25	25	8	
16-019	MDA R	Tuff/soil					8	1						8#															8	8	8	8	
										8#		8#		8#											8				8	8	8	8	

= The actual number of samples will depend on the results of the field screening and the depth of the cores.
A, B, C, D = not applicable; E = full suite (PAH); F = 1082 suite; H = full suite.

In a 500 x 300 ft area over the three burning pits, the grid spacing will be halved to 37.5 ft (see Fig. 5-41).

5.10.4.2 Sampling

Low-energy gamma radiation measurements, HE field swipe tests, and barium field screening will be reported at the grid nodes and in the drainage channels surveyed as described above (Baytos 1991, 15-16-339). Measurements will be examined for anomalies that could be used to guide the laboratory sampling described in the following subsections.

If the radiation, barium, and HE surveys of SWMU 16-019 yield negative results, then 22 ~~15~~ field-randomized 3-ft core samples will be taken within the SWMU boundaries at grid node points. However, if any of the survey points yield above background concentrations for radiation, barium, or HE, then laboratory samples will be collected and analyzed at those points. At these sampling locations, 0 to 3 ft of soil will be collected. These 3 ft samples will be divided into ~~6 in.~~ 1-ft intervals and field screened for HE, radiation, and barium. One 6 in. sample for laboratory analysis will be taken from each core using the following hierarchical biasing scheme: 1) a sample with a positive HE reading; 2) a sample with an above-background radiation reading; and, 3) the segment with the highest barium field screening reading.

Two drainages crossing MDA R will be sampled 5 times, biased by the HE screening and radiation screening described. In the absence of positive results for the radiation and HE field screening, five sediment traps at roughly evenly-spaced intervals will be taken from the southward terminus of the surveyed zone to the confluence of Cañon de Valle. At these locations, 0 to 6 in. of soil will be collected.

Eight drill cores extending to bedrock will be sampled within the boundaries of SWMU 16-019. Three of these will be located within the surveyed boundaries of each of the three U-shaped berms. The other five will be located along the north rim of Cañon de Valle, evenly spaced over a distance of 375 ft and centered on the surveyed locations of the berms, unless surface screening suggests the drill holes should be located elsewhere (Fig. 5-41). Each core will be divided into 6 in. segments. These segments

will be field screened for HE, radiation, and barium. One sample for laboratory analysis will be taken from each core using the following hierarchical biasing scheme: 1) a sample with a positive HE reading; 2) a sample with an above-background radiation reading; 3) the segment with the highest barium field screening reading.

5.10.4.3 Laboratory Analysis

Full laboratory analyses of samples will be at Level III by the following methods: for radionuclides (LANL or DOE method), metals (SW-846 Method 6010), semivolatile organics (SW-846 Method 8270), and HE and its by-products (SW-846 Method 8330). Based on knowledge of contaminants at the modern burning ground, potential contaminants of particular concern are barium, uranium, HE (HMX, RDX, and TNT), and HE by-products such as DNT, TNB, and DNB.

5.10.4.4 Sample Quality Assurance

Field quality assurance samples will be collected according to the guidance provided in the latest revision of the IWP (LANL 1992, 0768). Sampling parameters for MDA R, including appropriate QA/QC field duplicates are provided in Table 5-55.

MWIT K NUW TOV KVSIC

diversity of sediments in the canyon, based on the geomorphologic mapping. Professional judgment suggests that 30 samples will be adequate for a baseline risk assessment."

47. 5.9.4.2 Sampling Cañon de Valle, p. 5-184 - Text here and under Decision Logic (DQO Step 5) indicate that subsurface sampling is being performed. The sampling indicated is not considered subsurface by EPA. The top two feet are considered surface soils. LANL shall revise text in response to this comment. It is unclear from the text how many samples will be selected from below the 0-6 inch depth. LANL shall provide clarification.
LANL concurs. LANL agrees with EPAs definition of subsurface soil, and samples deeper than 6 in. will be considered deep-surface samples. This will be clarified in the text. LANL will rewrite the section describing selection of the samples from below 0-6". The hierarchy of biasing is: 1st) samples with positive HE field screening results; 2nd) the highest Ba samples by field screening to a total of 10 samples below 0-6".

MDA R, SWMU 16-019

48. 5.10.1.1 Description and History, p. 5-186 - LANL shall provide a figure of the site based on the 1984 aerial photographs or indicate on Figure 5-41 the location of the original three burning areas.
LANL concurs. LANL will indicate the approximate former location of the three burning pits in MDA R.

49. 5.10.1.2.1 Nature and Extent of Contamination, p. 5-187 -Why are the potential contaminants of concern (PCOC) different than the contaminants of concern listed (e.g. semivolatiles, fuel oil). Table 5-53 should include these potential contaminants. LANL shall revise the table to include all contaminants of concern.
LANL concurs. LANL will revise Table 5-53 to include semivolatile organics.

50. Design Criteria (DQO Step 6), p. 5-193 -

a. Paragraph two - The probabilities for the statistical analysis are low; EPA would like to see a probability of 90% if 10% of the site was contaminated for the surface. Therefore, LANL shall take 22 near surface samples.
LANL concurs. LANL will modify the text and the sampling figures and tables to indicate that 22 near-surface samples will be collected.

b. Paragraph three - The probabilities for the statistical analysis seem low; therefore, EPA would like to see a probability of 90% if 15% of the site is contaminated or 15 samples from the drainage.
Per our discussion of August 8 1994 on the likely homogeneity of the potential contamination in the drainages, LANL will not modify the original sampling plan for the drainages.

51. 5.10.4.2 Sampling, p. 5-197 -

a. Second paragraph, - EPA recommends that of the randomized samples six become biased samples which will be collected at obvious drainages near the canyon rim and the topographic depressions within MDA-R. In addition, if the

bottom 6 inch interval is above background for radiation, barium or HE then should be submitted for laboratory analysis.
LANL concurs. LANL will modify the text to indicate the approximate location of the biased samples. LANL will also indicate in the revised text that if the bottom interval is above background, then this interval will be submitted for lab analysis.

b. Fourth paragraph, Eight drill cores - If LANL only takes one of the 1-6" samples for analysis then the actual vertical extent of contamination will be hard to define. Rather, if one of the segments other than the bottom 6 inch segment has a positive reading then LANL shall also submit the bottom segment for laboratory analysis. If the bottom segment of the core segment has a positive reading then LANL shall core deeper, and take an additional sample every two feet until no positive readings are made for HE, radiation or barium. LANL shall also sample and analyze the 15 randomized three-foot cores in the same manner, thereby defining the depth of any contamination.
LANL concurs. LANL will submit an additional core segment for laboratory analysis where there is a positive field reading. We will core deeper if the bottom segment has a positive reading and take an additional sample every 2 ft. until no positive readings are found. This approach holds for both 3 ft. and deep cores. The appropriate text for this aggregate will be modified.

52. 5.10.4.3 Laboratory Analysis, p. 5-199 - LANL shall submit a list of the semivolatile organics for which analysis is being conducted.
LANL is proposing to analyze the full complement of SW-846 Method 8270 semivolatile organics. The reference to PAHs in Table 5-55 will be deleted.

5.11 Surface Waste Disposal Areas, SWMUs 16-009 and 16-016(a,b)

53. 5.11.1.1 Description and History, p. 5-202 - SWMU 16-016(b) - What types of HE contamination were found in the CEARP field survey and at what amounts?
The release site data base mentions HE as a COC and cites CEARP. LANL has no information on the specific types and amounts of HE used, but we hypothesize that the indication of HE was a positive HE spot test.

54. 5.11.4.3 Sampling, SWMU 16-009, p. 5-210 -

a. Three samples over this area (approximately 180,000 sq. ft.) is not adequate. LANL shall analyze a minimum of twenty samples from this area. If a surface soil sample indicates radioactivity or barium levels above background then the bottom portion of the 3 foot interval should also be sent in for analysis. This extra sample should be in addition to the minimum of twenty samples required. In addition, LANL does not know that this area was not used for burning HE; therefore fifty percent of the samples should at least be field screened for HE. If field screening indicates positive results then laboratory analysis should occur for those samples.
Per our discussion of August 8 1994, LANL will apply a 25 ft grid over the location of highest expected contamination, the former 100 by 100 ft bermed area. From these 25 field screening locations five laboratory samples will be selected based on field screening results for barium and radiation. Per our discussion, we will not use the HE spot test on these samples. This revised sampling plan will also indicate that in the

Appendix 13

Roy F. Weston, Inc.
195 East Road, Suite 104A
Los Alamos, New Mexico 87544
505-662-6445 • Fax 505-662-6635

July 6, 2000

Ms. Mabel Jaramillo
University of California
Los Alamos National Laboratory
P.O. Box 1663, MS M991
Los Alamos, NM 87545

Contract No. TBD
RFW WO No. 02744-070-002

RE: Letter Report – Fire Suppression at MDA-R - Update

Dear Ms. Jaramillo:

Since Wednesday June 14, 2000, Roy F. Weston Inc., has been involved with the stabilization efforts at Materials Disposal Area R. This letter report provides an updated summary of our ongoing efforts at MDA-R after suppression of the smoldering fire. The recentt efforts concentrated on the stabilization of the spoils piles and the canyon slopes, a survey of the remaining concentration and location of heavy metal contamination, and the recourse of a small arroyo that did drain through the landfill. The stabilization efforts have taken a little longer than originally estimated because of the lack of support from JCNNM. That group appears to be overwhelmed by the magnitude of the cleanup after the Cerro Grande fire.

On Thursday June 15, we anticipated that tree cutters would fell the burned snags in the area. We wanted to fell them parallel to the slopes to assist with slope stabilization. The cutters did not arrive until Friday morning. They worked for about an hour, left for lunch and have never returned. We could not place the straw waddles until the trees were felled. Monday we did not work in the area at all. Tuesday we were informed that the cutters would not return and that we would have to arrange for transportation of the straw materials ourselves. We arranged for a truck the following morning and used the day to construct an earthen berm around the spoils pile.

Wednesday through Friday we continued to cut and place the dead and burned trees along the mid-slope below the landfill. We packed and staggered straw waddles along the trees to act as silt control. This construction serves to attenuate silt migration while allowing water to pass. We also replaced the soil removed from the access bench that had been staged on the mesa top. This material was not placed on top of any landfill materials that we are aware of. Straw waddles were also placed along the upper portion of the slope at the break in slope to attenuate silt migration. The top of the bench was left as a generally rough surface to allow infiltration and slow water run-off. This will also allow the area to be reseeded if it is decided to do so.

During this time, we also conducted a contamination survey of the slope exposed by the excavations. We did not perform this screening during the fire suppression activities because the driver was simply fire suppression. The soils must also be dry for an accurate measurement. We performed this survey at this time as an act of environmental stewardship. We used a field X-ray fluorescence instrument that measures heavy metals. Barium and lead are believed to be the principal contaminants at MDA-R, as they have been at MDA-P. This instrument has served well at MDA-P to act as a field screening tool for these metals. We also analyzed samples of the excavated materials after they dried during staging.

The XRF survey of the residual landfill materials and slopes indicates that soils contaminated with barium remain in the central area. Surface concentrations of barium locally exceed 200,000 parts per million (ppm) near the former drainage arroyo, decreasing to a few tens of thousands ppm east and west from the arroyo. The apparent extent of contamination is skewed eastward downslope. A few shallow, subsurface samples, $\leq$1 foot depth, indicate that contamination >14,000 ppm is present at shallow depth. A crude map of the results is attached. All of the upper slopes were disturbed or excavated during the fire suppression efforts. These efforts may have exposed contaminated soils at the surface where they did not exist before the fire. The contamination also appears to extend downslope into the existing standing, unburned trees. These areas were not disturbed during the fire suppression efforts.

On Friday, during the field screening survey, we discovered numerous intact pieces of barium nitrate. All of these were located within the area of highest barium contamination near the former drainage. These pieces varied in size from an inch or two in diameter to over foot across. Many were masked by a thin coating of soil. Some were partially dissolved and crumbled when handled. These pieces had been overlooked during the fire suppression efforts because they blended in with the many pieces of white plaster in the landfill. We removed these pieces to eliminate further contaminant migration. Approximately 100 pounds of suspect barium nitrate was placed in a lined 55-gallon drum and removed from the area for management.

On Monday June 26, we completed the straw waddle installation on the slopes and around the spoils pile. We also sprayed the spoils pile and the slope area with the elevated barium concentrations with a surfactant to inhibit erosion and resuspension. This surfactant will have to be reapplied every other month or so to maintain its efficacy.

On Tuesday morning, we conducted a walkover inspection of the area. This walkover by Weston management included an inspection of the remaining landfill materials, silt controls, removal of orphan debris, and review of the contamination map. Inspection of the drainage arroyo south of the landfill indicated that a significant rainfall could breach the temporary dam installed and drain through the most contaminated portion of the landfill.

A heavy rainfall did indeed occur midday on Wednesday, June 28, but did not breach the temporary dam. That evening, we placed approximately 50 cubic yards of soil fill at the temporary dam to prevent it from breaching. The following morning we were instructed by ESA and ESH-18 personnel to excavate temporary a drainage ditch from the dam to the canyon edge,

west of the landfill. Our contamination survey indicated that water from this new ditch would not drain through a contaminated area.

The new diversion ditch was completed on Friday June 30. It consists of a simple, unlined ditch approximately 100 yards long, with a local rock re-enforcement. Straw waddles were placed along the ditch to attenuate silt, yet allow water to pass. The spoils from the excavation were placed on the downhill side along the length of the ditch. This ditch now completely replaces the former arroyo that drained through the landfill. The ditch now drains west of the landfill through a relatively clean area that does not exhibit any exposed landfill debris. This will inhibit further contaminant erosion and migration. The landfill will now be affected only by direct precipitation.

On Monday July 3, a small smoke emission was observed on the lower west side of the landfill. This was inspected and found to be small pieces of charcoal. This was not surprising, as it was in an area, identified in the last letter report, that we knew to contain residual heat and small pieces of roots and wood, but no real fuel materials. We have and will continue to monitor this area.

At this writing, we have demobilized all of our personnel and equipment from MDA-R. We will inspect the area after the next rainfall event to ensure that the erosion control devices are working properly. The spoils pile is stable and is currently located within the proposed AOC boundary. The pile has an earthen berm with straw waddles to prevent run-off. The surface was resprayed after the heavy rainfall on June 28, with a surfactant to inhibit run-off and resuspension. The soils removed for the access bench were replaced and are now part and parcel of the landfill slopes. The slopes are protected from run-off by straw waddles, and have been locally sprayed with a surfactant to inhibit run-off and resuspension. Landfill materials are known to remain in place in the central and western portions. The central area appears to be a veneer of residual materials, while the far western part may contain thicker portions of buried landfill. The entire area is identified with caution tape and rope to prevent unauthorized entry.

Recommendations

The following recommendations are made on the basis of the actual conditions observed at MDA-R during the field efforts described above.

- The fire hydrant on the north side of Building 260 should be repaired. During the fire suppression activities the stem seal leaked severely during use causing run-off into the drainage arroyo. This excess water also undermines the stabilization of the fixture.

- The slopes of MDA-R that exhibit elevated concentrations of barium should be removed. A significant volume of contaminated landfill materials remain in place. The fire suppression and stabilization efforts were not directed at removal of the entire landfill, only those portions that were obviously on fire or suspected to cover a buried fire. The contaminated area appears to be largely confined to the central area around the former drainage arroyo. Some contaminated materials were exposed to the surface during the fire suppression. Although run-on water is now diverted westward, it will be difficult to maintain slope stability and therefore it will be difficult to prevent further contaminant migration. It appears that the majority of heavy metal contamination is associated with the central part of the landfill where the barium pieces were found. Buried contamination may also reside in the far western areas.

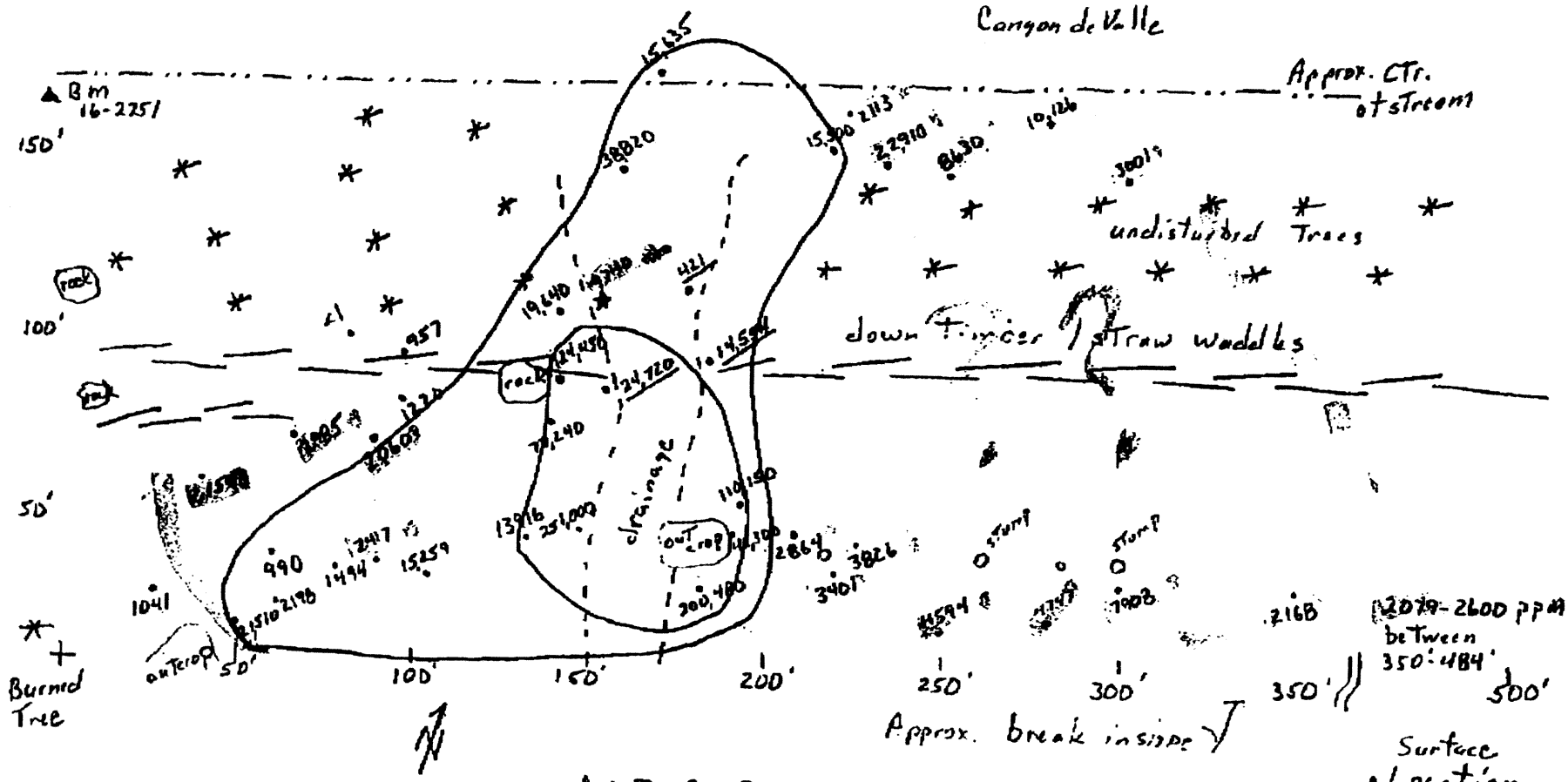
If you have questions, please contact me or Rita Muniz at (505) 884-5050.

Sincerely,

C. William Criswell
Sr. Project Manager

CWC/
Attachment

pc: K. Bostick EES-15 MS- M992
D. Hickmott EES-1, MS-M992
S. Veenis, ESH-18, MS-M992
R. Grace, ESA-FM
A. Sherrard, ESA-FM
R.V. Ortiz, ESA-WMM
Rita Muniz RFW ABQ



MDA-R sketch Map
- Barium concentrations

6/28/00

Surface
• Location
996 PPM barium by field XRF
996 subsurface value
* LANL sample Location

-> region IX PRG 50x100x5 = 925 cu. yds.

-> of region IX PRG 200x150x5 = 5100 yds.

-> MDA-P cleanup level of ~2000 ppm

T-046 P.06/13 F-652

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
195 East Road, Suite 104A
Los Alamos, New Mexico 87544
505-662-6445 • Fax 505-662-6635

June 16, 2000

Ms. Mabel Jaramillo
University of California
Los Alamos National Laboratory
P.O. Box 1663, MS M991
Los Alamos, NM 87545

Contract No. TBD
RFW WO No. 02744-070-002

RE: Letter Report – Fire Suppression at MDA-R, Revised

Dear Ms. Jaramillo:

Since Thursday Morning, June 1, 2000, Roy F. Weston Inc., has been involved with the smoldering fire at Materials Disposal Area R. This letter report provides a summary of our ongoing efforts at MDA-R. The efforts are two-phased. First and foremost is the fire suppression. At least 10 areas of visible smoke were evident when we started. All fires are out at this writing. The second part is the stabilization of the spoils piles and the slopes after the fire is out. This will attenuate further environmental damage from erosion of the exposed landfill materials.

On Wednesday afternoon, May 31, 2000, we were contacted by our client to attend a briefing at TA-16 concerning the ongoing landfill fire at MDA-R. From that meeting, chaired by the Assistant Group Leader from ESA-WMM, we learned that previous attempts to suppress the fire had failed. These had included a surface saturation with low pressure water and two foam blankets. High pressure was deemed inappropriate due to the possibility of washing contaminants downslope. We conducted a site visit and inspection to determine whether Weston could provide immediate services to suppress the smoldering fire. The landfill is located on a steep, north-facing slope, and was thought to contain unknown debris, contaminated with heavy metals, and explosive materials, including TNT. A robotics excavator was deemed necessary to prevent personnel exposures to a potential detonation. Weston and subcontractor Boissiere Engineering and Applied Robotics Inc., had the equipment and personnel with excavation and material handling experience from the ongoing remediation of MDA-P.

Thursday morning, personnel from ESA and EM&R met at the landfill and discussed the potential actions necessary. The EM&R personnel considered the actions to still be under the emergency status. We were instructed us to proceed with preparations, and he would be working on the contract requirements. The preparations included removal of some trees, the installation of the robotics control system to Bay 1, Building 260, and the transportation of the heavy equipment to MDA-R from MDA-P. These activities continued Friday morning.

On Friday morning, an additional meeting was held that determined that the Laboratory did not know the status of work to be performed at the landfill, i.e., was it still an emergency. We were instructed to continue with field preparations so that we could proceed with excavation on Monday, June 5. We were also instructed to compile our corporate health and safety plan to cover the field activities. We would receive additional instructions that afternoon. We continued the field preparations all that day. An ESA Safety Officer informed us that we should order fire hose from a local vender, because he could not assure us that LANL could provide enough. At 2:30 p.m., a field meeting was held with the ESA Division Leader, the LANL Director of Operations, and the Weston Project Manager. We were instructed to proceed with all urgency, and to not wait until Monday to proceed with the excavation. All preparations up to that moment paid off, because we could not have started actual excavation when we did had we not prepared.

Saturday and Sunday morning we completed the installation of the robotics system in Building 260 and performed the systems tests. Saturday, a bench was excavated along the top slope of the landfill. This was required to place the robotics excavator within reach of the landfill materials. The spoils from the access bench were placed in a large pile on the mesa top, south of the landfill within the proposed AOC. After they were staged, we performed a field screening for heavy metals with a field XRF instrument. This indicated that the barium concentration of the bench materials was less than 1,000 ppm, near background for the area.

On Sunday afternoon, we completed the health and safety plan conducted an impromptu readiness review (attached) and started excavation of the landfill. The initial efforts were directed at an open flame fire on the westside. That afternoon and all day Monday, starting on the west part and moving eastward, we removed smoking materials from the landfill. A large tree was pushed over by the excavator to expose burning roots, and very hot materials underneath. Combustible materials included mostly buried trees and timber, with some wire insulation. Charcoal fires from a few feet depth were common and intensely hot. Excavated materials were placed on the bench and doused with water from the fire hose. After wetting, they were moved to the mesa top and staged in piles south of the landfill. By Monday afternoon we had moved approximately one-third of the way across the landfill. We had left landfill materials in place to the west, but these did not contain any obvious smoking materials.

Tuesday and each morning we conducted a visual inspection of the landfill. It appeared that we would need to remove additional materials for access on the east end, as it now appeared that the smoldering fire extended further east than anyone had originally observed. We decided that the area was not in eminent danger and we would continue the robotics excavation systematically eastward. The robotics system then failed its initialization checks. An inspection and diagnosis revealed a failed power supply deep within the onboard computer system on the excavator. A new one was available from Albuquerque the next morning. We utilized the time to excavate the access bench to the lower eastside.

Wednesday morning the robotics system was repaired by the replacement of the power supply. We continued the excavation eastward. The landfill through the middle section was exceptionally thin with only scattered surface debris. Scattered charcoal fires were mixed with the debris. Near the east end, the landfill thickness increased slightly and extended further down the slope. These landfill materials contained the largest smoke emanation in the area, but access to this area required additional access excavation. The excavation was additionally extended beyond the apparent east end of the landfill, because of obvious smoke from what turned out to be tree and shrub roots. Work on the east end continued through Thursday, June 8.

On Friday morning we again, conducted an inspection of the entire landfill. No obvious smoke was being emitted, but we could smell something on the west end. We knew that we had left materials in place earlier that week. A surface survey with an infrared thermometer did not reveal any obvious areas of elevated temperature. We moved the excavator back to the west side and proceeded to excavate the access bench to a lower level to gain access to the materials still in place. Friday afternoon the excavator pushed another large tree over to reveal very hot landfill and timber materials that were still on fire. The heat had been retained under the tree and in the loose landfill materials. Rocks were hot enough to break when doused with water from the fire hose. Charcoal and soils were again placed on the bench and doused with water. It took all afternoon to remove and control the fire in a small area.

Saturday we continued working on the west end. The access was difficult because bedrock outcrops prevents conventional benching and sloping techniques. Another excavator was moved from the MDA-P project to the area to assist in moving materials on the mesa top. We removed as much landfill materials as we could reach from the upper bench. Much of these materials still contained burning debris that only smoked when exposed to the air. The hottest materials were still too low on the slope to reach from the upper bench, however. We doused the area with a water fog from the fire hose and left the area.

The Monday morning inspection revealed that the lower area on the west end was still very hot. The access excavation proceeded down from a point further east to control the grade. Three certified asbestos workers were deployed to stabilize and containerize exposed asbestos containing materials before they were mixed or dispersed by the excavation activities. We did not want to expose our fire suppression crew to these materials. The asbestos materials were bagged and placed in a 55-gallon for disposal.

The excavation of the access road and landfill materials that followed was difficult at best. This required the judgement and skill of a very experienced excavator operator. Based on visual inspection of the landfill materials and the difficult terrain, we decided to proceed with the excavation manually. The bench access was steep and rocky. Once placed on the lower slope of the landfill, the excavator was operated manually with a continuous water stream to cool the exposed materials and control the ash and dust. One tree was pushed over that retained fire beneath it, another did not. The landfill materials were cast from the lower slopes to staging bench where they were picked up by the second excavator and placed on the mesa top.

Approximately one-third of the lower portion of the west end of the landfill was removed on Monday, including about 20 feet of slope area beyond the apparent edge of the landfill. The latter was to ensure that there were no hidden hot spots as there had been on the east end.

On Tuesday, excavation on the lower portion of the west end of the landfill continued. Landfill materials, including incandescent charcoal were removed from the lower slopes and placed on the mesa top and doused with water. Two trees were pushed over and the materials beneath them doused with water and removed. A continuous stream of water was used to control the fire, ash and dust. The excavation remained difficult. The excavator operator backed the equipment up the slope and removed all materials within his reach as he proceeded. A small amount of landfill materials were unavoidably left in place with this procedure. By mid-afternoon Tuesday, we believed that all of the fire at MDA-R had been extinguished.

Wednesday morning, we conducted a walkover of the area for the ESA and ER management, and representatives from DOE LAAO and DOE AL. We agreed at that point that the fire suppression portion was complete and we should proceed with the stabilization efforts. The entire surface area of the MDA-R landfill was inspected by 2 qualified, wildland firefighters on our staff. All areas were observed to be cold with the exception of the western end. On the western end, rocks in the subsurface were observed on Thursday, June 15, to retain a large amount of residual heat from the fire, but are not hot enough to cause ignition. Additionally, little or no fuels remain in the area. These rocks will cool over the weeks to follow.

At this writing, we are demobilizing some equipment and consolidating the spoils piles from the landfill. The robotics excavator has been moved back to MDA-P to complete the work remaining there. By Friday, June 16, we will have evacuated from Building 260. We will continue field work in the area, as we proceed with stabilization efforts. On Tuesday afternoon, we met with personnel from ESH-18 to discuss erosion control measures and the resources required. We are currently coordinating with him to have JCNNM cut and place several dead and standing trees on the slopes, and will obtain and place straw bales for silt control. These efforts will be complete next week.

A volume of approximately 1200-1400 cubic yards is estimated to have been removed from the MDA-R landfill during the past week's efforts. These are staged on the mesa top within the proposed AOC boundary and will be stabilized with a berm and a soil surfactant to inhibit erosion and resuspension. Field screening of these soils with a field XRF instrument indicates contamination with barium (5,000-18,000 ppm) and possibly lead. No high explosive chunks or radioactive materials were found during the excavation. No volatile organic contamination was observed by field screening with a direct reading field instrument (PID). Two small, 50 mL glass bottles were removed from the soils that contained unknown liquids. These were moved to a satellite storage area. A 55-gallon drum with bagged asbestos materials was also staged for disposal. All large debris (concrete and steel) is staged separately. All of the debris from the landfill appears to have been burned or flashed. Little combustible waste materials were found in the landfill. The fire appears to have been confined to buried trees and timber and some wire insulation.

Approximately 800 cubic yards of overburden materials were excavated for landfill access. This has been staged separately from the landfill materials and will be used in the days to come for slope stabilization and berms around the landfill spoils pile. Field screening of these materials indicate that barium is below 1,000 ppm.

Recommendations

The following recommendations are made on the basis of the actual conditions observed at MDA-R during the excavation efforts described above.

- The waste piles should be sampled and disposed of properly. Stabilization efforts at this time will be temporary. Additional maintenance efforts will be required if the spoils piles remain more than a few months. It is likely that laboratory analysis will indicate that the soils are hazardous wastes. The timely disposal will be in keeping with best management practices for this type of material.

- The excavation of additional materials from the slopes of MDA-R should be guided by sampling. Some landfill materials remain, but it is estimated that over 90 percent were removed during the fire suppression efforts. Further excavation during the current efforts was not warranted. A small amount of additional landfill material could have been removed, but would have required removal of a large amount of overburden. Future excavation without sampling may result in excess materials being removed and hence, excess costs.

- There is currently no evidence that additional excavation efforts at MDA-R should be performed by a robotic excavator. Inspection of the excavation spoils indicates that no large, intact pieces of high explosives are present that would warrant such efforts. There may very well be high explosives distributed throughout the soils. The portion of the landfill that remains to be excavated appears relatively small and may be difficult to access. Placing a robotics excavator in this difficult situation may be more unsafe that a conventional excavator equipped with blast protection for the operator. An operator sitting in the cab will have a greater feel for the stability of the equipment.

If you have questions, please contact me or Rita Muniz at (505) 884-5050.

Sincerely,

C. William Criswell
Sr. Project Manager

CWC/

pc: K. Bostick EES-15 MS- M992
D. Hickmott EES-1, MS-M992
R. Grace, ESA-FM
A. Sherrard, ESA-FM
R.V. Ortiz, ESA-WMM
P. Boissiere, BEAR Inc.
Rita Muniz RFW ABQ

Readiness Review Check - MDA-R 6/4/00
Fire Extinguish

Excavation Permit - pending - 6/5/00 granted 0855 Roy F. Weston
No. OOX-0317

✓ Health and Safety Plan - RFW

✓ Slope Access completed

✓ Fire Department notification - radio by Bill McC

✓ Personnel Training / Site Briefing

✓ ESA notification

✓ Robotics System Checks - manipulator arm still has error messages - excavator OK

✓ Brush cleared / consummables + flammables removed

✓ Exclusion Area ID'd w/ barrier Tape - gates

✓ Staging Area complete

✓ Water Truck staged / full

Attendee: Bill McCormick - ESA
Diane Spangler RFW
Peter Boissier BEAR Inc.
Fred Gray RFW

14:40
6/3/00
date

Operational Check conducted by: CW Cunwell
Location TA-16 Bldg. 220

Appendix 14

Access Log Date: 9/16/00				
MDA-R Phase I Investigation				
Name	Z Number	Time in	Time out	Signature
Elmer Alcon	119637	950	1215	
Joe Vargas	175235	9:51 AM		
Derrick Jones	176875	9:52 AM	1215	
Carol Vargas	175204	9:54 AM	1625	
Esther Witherow	1768716	9:54am	16:15	
JOE VARGAS	175235	1 Pm	420.	
TIMOTHY Hamm	175253	1300	1620	
Elmer Alcon	119637	1300	1650	
~~Esther Witherow~~	~~1768716~~			
9 - 17 - 00				
Elmer Alcon	119637	0920	1150	
Joe Vargas	175235			
Derrick Jones	176875			
Carol Vargas	175204			
Esther Witherow	1768716			
		~~1300~~		
Carol Vargas	175204	1300	1330	
Joe	175235	1239	1420	
Esther	119637	1300	1330	
Derrick	176875	1300	1420	
Elmer	119637	1239	1420	
Carol Vargas	175204	1347	1420	
Esther	119637	1341	1420	

ACCESS LOG

ACCESS LOG				Date: 9-18-00
Project:			Project Number: 880303	
Name (Printed)	**Z Number**	**Time In**	**Time Out**	**Signature**
Carol Vargas	175204	1725	1940	Carol Vargas
Derrick Jones	176875	↓		[illegible]
[illegible] G. M. Cram	203076			[illegible]
Esther Witherow	176876			Esther Witherow
Joe Vargas	175235			Joe Vargas

access log

Access Log Date:	9/22/00			
MDA-R Phase I Investigation				
Name	Z Number	Time in	Time out	Signature
Kristi Beguin	105685	1600	1710	
Esther Witherow	176876	1600	1710	
Joseph A Byrd	70300	1600	1710	
Carol Vargas	175204	1600	1710	
Alan G Brenner	114267	1600	1710	
Russell Stone	117365	1600	1710	

Appendix 15

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1082 TA 16 SSHASP No. 291 Date: 9/9/00

Project Title MDA-R

Page of

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1082 ~~-021(c)~~

Date 9/9/00

Calibration Complete 8-16-99 Model No. PDM-3

Calibration Time N/A Recalibration Time N/A

Comments

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m^3)	COMMENTS
MDA-R	on 1400	DUST	Drilling	Tem 0.12	Monitor Time
BH-1	OFF 1625			STA 0.03	Run Time 148 min

Completed By Robert Montoya Jr 550

(Print Name) (Title) (Signature)

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1082 TA 16 SSHASP No. 291 Date: 9/11/00

Project Title MON-R

Page of

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1082 021(c) Date 9/11/00

Calibration Complete 9-16-99 Model No. PDM-3

Calibration Time N/A Recalibration Time N/A

Comments

FIELD MEASUREMENTS

LOCATION ID OR DESCRIPTION	TIME	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m^3)	COMMENTS
MON-R	on 0915 hrs	DUST	drilling	TWA = 0.13	Monitor Time
BH-2, 3,	4, 5 & 6			STD = 0.1	9.65 hrs
	off 1700 hrs				

Completed By Robert Morales Jr SSO

(Print Name) (Title) (Signature)

REAL-TIME AEROSOL FIELD MONITORING DATA FORM

OU 1082 TA 16 SSHASP No. 291 Date: 9/16/00

Project Title MDA-R

Page of

REAL-TIME AEROSOL FIELD MONITORING DATA

OU 1082 021(c)

Calibration Complete 9-16-99 00 Model No. PDM-3 Date 9/16/00

Calibration Time N/A Recalibration Time N/A

Comments

FIELD MEASUREMENTS					
LOCATION ID OR DESCRIPTION	TIME	SAMPLE TYPE	ACTIVITY TYPE	CONCENTRATION (mg/m^3)	COMMENTS
MDA-R BH-6,3	all day	Dust	Drilling	TWA 0.10	Monitor Time
				STL 0.09	9.99 hrs

Completed By Robert Maraske - Tom SSO

(Print Name) (Title) (Signature)

Appendix 16

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

TA(s)/SWMU(s): 16 SSHASP#: 291 SSHASP Title: MDA-R

SSHASP Modification #: 1 Task Being Monitored: Drilling

Sample I.D.: Date: 9-17-10

Sample I.D.#: [illegible]-9 2

Name, Person Sampled: J. Vargas SS#:

Job: Driller Helper Work Location: MDA-R

Dosimeter-Model: Serial #: Dosimeter Threshold: dB(A)

Calibration: Initial 94.0 dB Final dB

Calibrator: AC-94 Serial #: 7004 Battery Check: ✓

Dosimeter Information-Time On: Time Off: Run Time:

Avg: Dose %: Max: Over Time Limit Value:

Over 115 dB(A)? Yes ___ No ___

Workplace Conditions:

Operations: Normal ✓ Abnormal ___ Explain

Hearing Protection - Type: Plugs % of Time Worn: 100%

Weather Conditions:

Approximate Temperature: 75~ °F

Sky: Precipitation Ø Cloudy ___ Partly Cloudy ___ Clear ✓

Wind: Calm ✓ Light ___ Medium ___ High ___

Work Description/Comments: Driller Helper

Scheduled Hours per Shift: 10

Monitored By: [signature]

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

TA(s)/SWMU(s): 16 SSHASP#: 291 SSHASP Title: MDA-R

SSHASP Modification #: 0 Task Being Monitored: Drilling

Sample I.D.:

Date: 9-16-00

Sample I.D.#: 1

Name, Person Sampled: Joe Vargas Z#/SS#:

Job: Helper Work Location: Drill Rig / MDA-R / Borehole #6

Dosimeter-Model: Serial #: Dosimeter Threshold: dB(A)

Calibration: _Initial 94 dB Final 94 dB

Calibrator: NC-94 Serial #: 7004 Battery Check: n/a

Dosimeter Information-Time On: 0945 Time Off: 1610 Run Time: 4:44 hr:mm

Avg: 84.4 Dose %: 27.1 Max 109.0 Over Time Limit Value: 0

Over 115 dB(A)? Yes ___ No ✓

Workplace Conditions:

Operations: Normal ✓ Abnormal ___ Explain

Hearing Protection - Type: Plugs % of Time Worn: 100%

Weather Conditions:

Approximate Temperature: 70 °F

Sky: Precipitation 0 Cloudy ___ Partly Cloudy ___ Clear ✓

Wind: Calm ✓ Light ___ Medium ___ High ___

Work Description/Comments: Driller helper

Scheduled Hours per Shift: 10

Monitored By:

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

IDENTIFICATION

Location: MDA-R

Prepared By: R. Monsalve Jr

Date Prepared: 9-16-00

GENERAL INFORMATION

Calibrator: AC 4

Exposure Limit: 85 dB

Scheduled Hours Per Shift 10

OSHA-PEL 85 dB

Date	Name or Area	Job Description		Hearing Protection		Dosimeter			Run Time Hr:Min: Sec	Over Limit Min:Sec	Max Level	% Dose	Avg dB(A)	Full Shift % Dose
Sample #	Soc. Sec. #	Classification	Location	Type	% Use	Model	Serial #	Thr						
9/16	J. Marquez	Driller Helper	MDA-R	Plug	100			24	4:44	4:44 ~~0~~	109.9	~~[illegible]~~ 27.1 %	84.4	27.1
1														

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

IDENTIFICATION

Location: MDA-R

Prepared By: R. Monsalve-Jr

Date Prepared: 9-17-00

GENERAL INFORMATION

Calibrator: AC4

Exposure Limit: 85 dB

Scheduled Hours Per Shift 10

OSHA-PEL _____

Date	Name or Area	Job Description		Hearing Protection		Dosimeter			Run Time Hr:Min: Sec	Over Limit Min:Sec	Max Level	% Dose	Avg dB(A)	Full Shift % Dose
Sample #	Soc. Sec. #	Classification	Location	Type	% Use	Model	Serial #	Thr						
9-17	J. Marjas	Driller Helper	MDA-R	Plug	100			24						
1														

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

IDENTIFICATION

Location: _____

Prepared By: _____

Date Prepared: _____

GENERAL INFORMATION

Calibrator: _____

Exposure Limit: _____ **Scheduled Hours Per Shift** _____

OSHA-PEL _____

Date	Name or Area	Job Description		Hearing Protection		Dosimeter			Run Time Hr:Min: Sec	Over Limit Min:Sec	Max Level	% Dose	Avg dB(A)	Full Shift % Dose
Sample #	Soc. Sec. #	Classification	Location	Type	% Use	Model	Serial #	Thr						

Attachment B

NOISE DOSIMETRY SAMPLE FIELD FORM

IDENTIFICATION

Location: _____

Prepared By: _____

Date Prepared: _____

GENERAL INFORMATION

Calibrator: _____

Exposure Limit: _____ **Scheduled Hours Per Shift** _____

OSHA-PEL _____

Date	Name or Area	Job Description		Hearing Protection		Dosimeter			Run Time Hr:Min:Sec	Over Limit Min:Sec	Max Level	% Dose	Avg dB(A)	Full Shift % Dose
Sample #	Soc. Sec. #	Classification	Location	Type	% Use	Model	Serial #	Thr						

Appendix 17

FACILITY MANAGEMENT UNIT #70

Environmental Restoration (Interim Measure at PRS 16-021(c)) Facility-Tenant Agreement

ENGINEERING SCIENCES AND APPLICATIONS DIVISION (ESA) FACILITY

FISCAL YEAR 2000

Reviewed and Accepted By: _____
Earle Marie Hanson, ESA Division Director

Date: _____

Reviewed and Accepted By: Julie A Canepa
Julie Canepa, ER Project Manager

Date: 2/9/00

Reviewed and Accepted By: _____
Warren Neff, ER Remedial Actions Focus Area Leader

Date: 2/9/00

Reviewed and Accepted By: _____
Don Hickmott, ER HE Production Sites Team Leader

Date: 2/8/00

Reviewed and Accepted By: _____
Ricardo Ortiz, ESA-WMM Group Leader

Date: _____

Reviewed and Accepted By: _____
Robert Grace, ESA-FM Group Leader

Date: _____

FACILITY MANAGEMENT UNIT #70

Environmental Restoration (Interim Measure at PRS 16-021(c)) Facility-Tenant Agreement

ENGINEERING SCIENCES AND APPLICATIONS DIVISION (ESA) FACILITY

FISCAL YEAR 2000

Reviewed and Accepted By: Earle Marie Hanson
Earle Marie Hanson, ESA Division Director

Date: 2-10-00

Reviewed and Accepted By: _____
Warren Neff, EM Program Leader

Date: _____

Reviewed and Accepted By: _____
Don Hickmott, ER Project Leader

Date: _____

Reviewed and Accepted By: _____
Ricardo Ortiz, ESA-WMM Group Leader

Date: 2/10/00

Reviewed and Accepted By: _____
Robert Grace, ESA-FM Group Leader

Date: 2/10/00

1.0 INTRODUCTION

This document serves as a facility-tenant agreement between the Engineering Science Applications (ESA) Division Director, ESA-Facility Management (FM), ESA-Weapon Materials and Manufacturing (WMM), and Environmental Restoration (ER) regarding the Interim Measure (IM) operations to take place at PRS 16-021(c). The undersigned enter into this agreement for the purpose of formalizing the working relationship, identifying the responsibilities, authorities, and expectations of each organization, and providing effective communication between the organizations.

The signatures of the EM Program Leader, ER Project Leader, ESA-WMM Group Leader, ESA-FM Group Leader, and the signature of the ESA Division Director will be considered as an acceptance of this contract on the part of all parties. These signatory parties are included in authorizing this work because the potential hazards are likely to be moderate post-controls.

1.1 Glossary of Terms

The following are definitions for terms/phrases that appear in this agreement.

Interim Measure (IM): An action taken by the ER to control, remove or mitigate contaminated areas prior to conducting a full remediation of the site.

New Activities: New activities are those not covered by Section 3 referenced documents.

Physical Area of Agreement:
FM's "physical areas of agreement" includes the following:

- PRS 16-021(C); and/or
- area near former building TA-16-27 where ER Trailers are located; and/or
- other physical locations at TA-16 where ESA has given prior approval to ER to conduct work that is covered by documents referenced in Section 3.

ER's "physical area of agreement" includes the following:

- all equipment used during this project;
- interior spaces occupied by tenant personnel (such as the field trailers); and/or
- any by-products (e.g., soil, wastewater, solid waste, etc.).

Significant Changes to Existing Activities: Changes in the current scope of work (defined by documents referenced in Section 3.0).

- increase the safety risks to the site workers, visitors, ESA workers at the PRS 16-021(C), and other LANL workers;
- increase in the support activities of ESA-WMM or ESA-FM; and/or
- process changes that would require a revision to an existing procedure requiring ESA-WMM or ESA-FM review and concurrence.

2.0 ORGANIZATION AND RESPONSIBILITIES

2.1 ESA Division Responsibilities And Authorities

ESA Division Director

ESA Division Director is responsible for:

- approving HE-related activities in accordance with AR 6-6.

ESA-FM Responsibilities

ESA-FM is responsible for:

- working with ESA-WMM and ER to identify site hazards;
- reviewing and concurring with documentation describing the scope of work, hazard analysis and controls;
- providing a HE safety contact (or designee) to provide HE oversight activities for the physical area;
- providing ESH regulatory guidance to ESA-WMM on waste, wastewater, and hazardous waste issues;
- notifying designated ER personnel when any ESA-FM-related worker or visitor requests access to the physical area;
- investigating occurrence/safety issues, reporting, management, and resolution; and
- providing a FM designee to authorize access to PRS 16-021(c) when ESA-WMM is not available to perform this function.

ESA-WMM Responsibilities

ESA-WMM is responsible for:

- reviewing HE-related activities and providing input to the ESA Division Director;
- providing HE contaminated waste transportation (only provided on Fridays with advanced notification) and treatment, as allowed under current permits;
- identifying site hazards in conjunction in with ER and ESA-FM;
- notifying designated EM personnel when any ESA-WMM-related worker or visitor requests access to physical area; and
- authorizing access to PRS 16-021(c) through the ESA-WMM HE Team Leader, as ongoing activities at TA-16-260 permit.

2.2 ER Responsibilities And Authorities

All ER workers (including subcontractors) are required to follow the appropriate laws, regulations, policies, and procedures applicable to their activities. The ER Project Leader is responsible for ensuring these requirements are known, understood, and enforced. The ER Project Leader is ultimately responsible for the safety and environmental compliance of this operation. Significant among these (but not excluding other requirements), ER is responsible for:

Performance of Work

- providing authorized person for approving the work;
- providing a qualified workforce;
- performing work activities in accordance with the "FMU 70 Facility Related Work Control Process (or alternate ER procedure, if reviewed and concurred with by ESA-FM);

Environment, Safety, and Health

- identifying all task hazards associated with IM operations;
- providing ESH oversight for all project activities;
- assisting ESA-FM and ESA-WMM in identifying site hazards;
- developing a SSHASP, including site and task hazards, with concurrence from ESA-WMM and ESA-FM;
- conducting operations in a safe and environmentally compliant manner;
- obtaining appropriate permits;
- reporting spills and other releases to FM and Emergency Management and providing spill response;
- characterizing, labeling, storing, and disposing of waste (including solid and hazardous wastes and wastewater) from all project activities;
- removing all equipment, chemicals, and other potential hazards before completing the project in accordance with governing procedures, regulations, and policies;
- resolving all operational deficiencies which constitute a regulation violation;
- reporting unsafe operations and stopping work if necessary;
- participating in any required drills (e.g., site evacuation);

Changes in scope

- identifying significant changes to existing activities;
- obtaining appropriate review and approval of changes in scope;

Occurrence reporting

- participating in critiques and resolution of occurrence reports, if required;

Financial

- providing funding for labor involved in any waste transportation (including Friday on-call subsidy) and treatment of HE-contaminated and/or wastewater, and the HE safety contact;

Security

- following all Laboratory and ESA security requirements, including escort and access requirements;
- notifying ESA-FM Access Control of personnel changes that affect badge reader access;

- ensuring all personnel participate in HE area access training and follow all written and discussed requirements;

Miscellaneous
- reading, understanding, and following relevant Division and ESA-FM policies and procedures;
- property accountability acquired and/or used at PRS 16-021(C); and
- notifying ESA-FM when planned operations could effect other tenants or the facility.

2.4 Additional Requirements

ESA shall not:
- have authorized ER activity not included in Section 3 referenced documentation;

ER shall not:
- authorize approval of work that is performed outside the physical area of agreement and authorization;
- access PRS 16-021 without the permission of the ESA-WMM HE Team Leader, or the FM designee if the HE Team leader is not available; or
- authorize approval of work that exceeds, or increases the risk of exceeding ER scope of work. If the work is to exceed the referenced scope of work in Section 3, prior approval from the Facility Manager is required.

2.5 Stop Work Authority

Any worker (Laboratory, Contractor, Subcontractor, etc.) on this project has the right and the responsibility to stop work if they believe any unsafe conditions on a work process are encountered. Following a Stop Work, signature approval by the ESA Division Director and the Environmental Science and Waste Technology Division Director are required to resume operations.

3.0 APPROVED ACTIVITIES

The activities approved by this agreement are covered in the referenced documents as they existed on the date that this agreement was signed:

- Environmental Restoration Health and Safety Plan (ER HASP)
- Project Site-Specific Health and Safety Plan (SSHASP)
- Site Specific Laboratory Safety Plan for the HE Production Site's Field Laboratory
- IM Plan for PRS 16-021(c)
- CMS Plan for Potential Release Site 16-021(c)
- ESH-ID # 99-0202 – Interim Measure at PRS 16-021(c)